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Research Papers

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A STUDY OF AWARENESS OF MOCK TRADING APPLICATIONS AMONG YOUTH

Aarti Hemant Parmar

ABSTRACT

This study examines how mock trading applications are becoming more and more popular among the youth with a special focus on individuals between the ages of 15 and 35. Mock trading, sometimes referred to as virtual trading or paper trading, offers a risk-free means for investors to test trading techniques and learn about the markets by enabling them to buy and sell equities in a simulated setting. This study was conducted to know whether youth is aware of such mock trading applications or no.

The study emphasizes the advantages of mock trading, such as practical experience, opportunity for both novice and expert traders to test strategies, tracking of performance, and the reduction of stress and risk. It also lists disadvantages, such as unreal market conditions and no genuine rewards. This study was needed to find out awareness of the youth towards mock trading and possible measures to be taken to increase the awareness of youth towards mock trading applications.

According to the study, majority of the respondents are aware about mock trading applications but there is still a need to spread awareness about the same among youth. This study was conducted through questionnaire method and both primary and secondary data was used during the research. The data for the research was collected from total 200 respondents.

Keyword: Mock trading applications, virtual trading, Awareness, trading, youth's awareness towards mock trading, relation between mock strategies and actual practices.

1. INTRODUCTION

Trading is the activity of Buying and Selling Goods or Services. Mock trading is an activity of buying or selling of stocks but not in actual market, instead in a mock market. Mock Trading is also known as Virtual Trading or Paper Trading. It is a way by which a new investor can start learning about the markets and can also learn how the trade actually works in Real Market. In Mock Trading, there is No Risk as no real money is used in trading. Investors often use such Mock Trading platforms to test Trading Strategies, learn how markets work or familiarize themselves with Trading Platforms. Mock Trading helps the investors to gain experience about markets and trades without losing actual money. This type of trading helps both the beginners as well as the experienced trader in their own interests. There are many apps which provide such Paper/ virtual trading opportunities such as Frontpage, Virtual Trader: Parper Trading, Stock Trainer; Virtual Trading, Indian Paper Trading App, etc.

There are Some of the benefits of Mock Trading/ Paper trading such as Hands- On Experience can be gained by Investors, also a platform for Testing is provided to Beginners and Experienced Investors, traders can also use mock trading to tract their Performance, it also helps in Eliminating Risk and Eliminating Stress, etc. Along with benefits there are also some drawbacks of mock trading such as market conditions are not real, no real gain is received, personal trade don't impact the market, it's a euphoria trading, etc.

2. REVIEW OF LITERATURE: -

1. Makkulau, A. R. (2021) has done research on model of implementation virtual trading application to increase the students interest on investing as a beginners investor. The goal of this study is to find and evaluate the ease of share investing in the capital market for students who are not experienced investors by using virtual trading platforms (simulation applications). This will enable the students to gain an understanding of the investment process, specifically stock trading online in detail, and increase their interest in investing.
2. Wu, H. C., Tseng, C. M., Chan, P. C., Huang, S. F., Chu, W. W., & Chen, Y. F. (2012) have conducted research on Evaluation of stock trading performance of students using a web-based virtual stock trading system. Improving the learning effectiveness and motivation of students enrolled in a financial management course was the aim of this research project. To simulate the atmosphere of stock trading, a web-based virtual stock trading (VST) system was created and integrated with tools for financial ratio analysis. At the start of the semester, a virtual budget for virtual trading was provided to them.

OBJECTIVES OF THE RESEARCH: -

- To Explore the Concept of Mock Trading Application.
- To Study Awareness of Mock Trading Applications Among Youth.

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- To Find out Relation between Mock Strategies and Actual Practices.

3. SAMPLE SIZE: -

In this research, the researcher has collected responses from 200 respondents. These 200 responses were collected from respondents belonging to different age groups, gender, educational level and occupation.

4. METHOD OF DATA COLLECTION: -

Both Primary and Secondary data were collected for this research by the researcher. Primary Data was collected through questionnaire which was distributed through the help of google forms, containing 11 questions related to this research. Secondary Data was collected from internet, publications and journals.

5. DATA ANALYSIS AND INTERPRETATION: -

- According to the responses received by the researcher, 80% of the respondents have heard about online trading applications and 20% of the respondents have never heard about such online trading applications which help in virtual trading. Majority of the respondents have heard about online trading applications.
- The information received through the responses shows that 66.5% of the respondents have heard about such learning applications which help in learning trading without real money and 33.5% of the respondents have never heard about such applications which help in learning online trading without actual trading taking place.
- According to the data received through the researcher, researcher came to an interpretation that 53.5% of the respondents i.e. 107 respondents out of 200 respondents are aware about Mock Trading Applications and 46.5% of the respondents i.e. 93 respondents are not aware about Mock Trading Applications. Majority of the respondents are aware about Mock Trading Applications.
- The information displays that 37.5% of the respondents came across such mock trading applications through the reference of friends and family, 23.5% of the respondents came across mock trading applications through college or university where they studied, 12% of the total respondents came across such mock trading applications through office, corporates and colleagues and 27% of the respondents are not aware of such mock trading applications and have never come across such mock trading applications.
- According to the information received from the respondents, 26.5% of the respondents have heard about Front Page as an application to conduct mock trading, 23.5% of the respondents have heard about Virtual Trader: Paper Trading as an application to conduct mock trading, 26.5% of the respondents know about Stock Trainer: Virtual Trading as an application for mock trading, 13.5% of the respondents know about Indian Paper Trading App as mock trading application, 16% of the respondents are aware about other applications which help investors conduct mock trading activities and 28% of the respondents are not aware about any of the mock trading applications. Respondents were given option to choose more than one mock trading application which they know or are aware about.
- The information collected from 200 respondents shows that 16% of the total respondents trade on daily basis on such mock trading applications, 29.5% of the respondents trade sometimes in such mock trading application, 16% of the respondents rarely trade in such mock trading applications and 38.5% of the total respondents have never traded in such mock trading applications.
- According to the responses collected, 24% of the total respondents have been trading in such mock trading applications for a period of 0-1 year, 19.5% of the total respondents have been trading in such mock trading application since 1-2 years, 15% of the respondents out of 200 respondents have a trading experience in such mock trading application for 2 years and above and 41.5% of the respondents have never traded before in such mock trading applications.
- As per the responses collected, 27% of the total respondents feel that using mock trading applications for trading was proven useful to them, 25.5% of the respondents feel that using such mock trading applications to conduct trading did not prove useful to them or failed to be useful to them and 47.5% of the total respondents are not sure about whether the mock trading applications have proven them useful or no.
- According to the information collected, 34% of the respondents have traded in actual real trading markets after trading in such mock trading applications, 23.5% of the respondents have not yet started their trading journey in real trading platforms after experiencing mock trading applications and 42.5% of the total respondents have never traded in either real trading market or the mock trading applications.
- As per the information collected from respondents, 35.5% of the respondent's strategies used in mock trading applications have helped them in real trading, 17% of the respondent's strategies which they used in

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mock trading application dint help them in real trading market and 47.5% of the total respondents have never traded to conclude whether their strategies used in mock trading applications prove useful in real trading market or no.

- According to the data received, 16.5% of the respondents have experienced that their mock trading strategies have always proven correct in the real market trading, 29.5% of the respondents experienced that their mock trading strategies which they use in mock trading applications have proven correct sometimes only, 15.5% of the respondents experienced that their mock trading strategies have rarely proven correct in the real trading market and 38.5% of the respondents have experienced that their mock trading strategies have never proven correct in the real market trading platforms.

6. FINDINGS: -

- The findings of the research shows that majority of the respondents have heard about online trading application and are aware of mock trading applications and there are few respondents who have never heard about such online trading applications and are not aware about mock trading applications as well.
- Majority of the respondents came across such mock trading applications through the references from their friends and family, some came across such mock trading applications through college or university they studied in, few came across such mock trading applications through office, corporates and colleagues and 27% of the respondents are not aware of such mock trading applications.
- Some respondents trade on daily basis in such mock trading application, 29.5% of the respondents trade sometimes in such mock trading applications, some trade rarely in such mock trading applications and 38.5% of the respondents have never traded in mock trading applications.
- Also, majority of the respondents who have traded in mock traded applications have traded in real trading market and some of the respondents who have traded in mock trading applications haven't yet traded in real trading market. There are also few of the respondents who have traded in neither i.e. they haven't traded in mock trading applications neither they have traded in real trading applications or market.
- Among the respondents who have traded in both mock trading applications as well as in real market, majority of the respondents felt the strategies used in mock trading applications useful in real trades which the respondents conducted, some of the respondents dint find the strategies used in mock trading applications useful in real trades which the respondents conducted. There are some respondents who have never traded in both, real market and mock trading applications.

7. CONCLUSION: -

In Conclusion, the data collected from the respondents indicate that significant number of respondents are aware about mock trading applications and have used mock trading and online trading applications. Most of the respondents have heard about these apps and are specially aware of mock trading applications. Friends and family is the most common source of awareness among majority of the respondents. A significant majority of respondents had never traded in such mock trading applications. There are some respondents who trade in such mock trading applications on a regular or infrequent basis.

Those respondents who had traded in both real and mock markets clearly saw a benefit to mock trading. The majority of the respondents believed that the strategies used in mock trading systems would be useful in real trades. However, other respondents did not think these strategies were helpful, which suggests that further research into the effectiveness of such applications is necessary. Additionally, for certain respondents, there is a distinction between mock and real trading; although some have started trading in actual markets, others have not yet done so. These respondents have progressed from using mock trading software to real trading.

Additionally, some respondents have started trading in actual markets, other respondents have not yet done so. These respondents have progressed from using mock trading applications to real trading markets.

8. SUGGESTIONS: -

1. **Customized Marketing:** To raise awareness among overlooked demographic groups, such as female employees and older adults, businesses should concentrate on tailored marketing methods.
2. **Education Programs:** Holding instructional events at workplaces, colleges, and institutions can assist increase interest in and awareness of mock trading applications.
3. **Enhanced User Engagement:** Adding more features to these apps that encourage user interaction will help users stay longer and have higher success rates when trading in real time.

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4. **Partnerships:** Working together with businesses and educational institutions can assist raise awareness and reach a larger audience.

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A STUDY ON DEMOGRAPHICS AND CONSUMPTION PATTERNS OF ZOMATO WITH RESPECT TO MUMBAI SUBURBS

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ABSTRACT
This study explores the complex relationship between Zomato users' purchasing patterns and demographics in the dynamic suburban landscape of Mumbai. With the rise of food delivery services like Zomato, eating out has become much more convenient and varied for city people in recent years. The researcher does SWOT analysis of Zomato. Nevertheless, there is still much to learn about the complex interactions between user demographics and consumption patterns, especially when considering Mumbai's many suburban communities.

1: INTRODUCTION

1.1 Introduction to Food Aggregators in India-

Food aggregators are the powerhouses behind the booming online food delivery scene in India. They function as digital marketplaces, bringing together a vast selection of restaurants under one roof (or should we say, app). This eliminates the need to visit individual restaurant websites or wade through endless phone calls.

Here's how food aggregators operate:

Streamlined Ordering: Browse menus, compare prices, and place orders seamlessly from a plethora of restaurants, all within a single platform. No more juggling multiple websites or menus.

1.2 Business Models Used by Food Aggregators:

Business Model	Description
Commission-Based	This model allows restaurants to access a broader customer base without upfront costs, while the aggregator generates revenue from each transaction.
Subscription-Based	In this model, restaurants pay a recurring subscription fee to be listed on the aggregator's platform. This fee might grant access to additional features or services, such as enhanced visibility, analytics, or marketing support.
Delivery Charges	Aggregators may charge customers a delivery fee for each order placed through their platform. This fee covers the cost of delivery services provided by the aggregator or third-party delivery partners. Some aggregators offer subscription-based plans for reduced or waived delivery fees.
Advertising Revenue	Aggregators generate revenue by selling advertising space on their platform to restaurants or other relevant businesses. These advertisements can promote special offers, new menu items, or partner establishments, providing additional revenue streams beyond transaction fees.
White-Label Solutions	Some food aggregators offer white-label solutions, allowing restaurants to create their branded online ordering and delivery platforms powered by the aggregator's technology. Restaurants pay licensing or setup fees for access to these customizable solutions.

1.3 Key players in Food Aggregator Industry in India

Company	Description
Zomato	One of the largest food aggregators in India offering online food ordering and delivery services. It also provides restaurant discovery, reviews, and table reservation services.
Swiggy	Another major player in the Indian food aggregator market, Swiggy offers food delivery services from a wide range of restaurants. It also provides grocery delivery and hyperlocal services.
Uber Eats (acquired by	Formerly a standalone food delivery platform, Uber Eats was acquired by

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Zomato)	Zomato in India. It operated as a subsidiary of Uber before the acquisition.
Foodpanda (owned by Ola)	Foodpanda is an online food ordering and delivery platform owned by Ola, a leading ride-hailing company in India. It offers delivery from various restaurants across multiple cities.
Dunzo	Dunzo is an Indian hyperlocal delivery startup that expanded its services to include food delivery. It operates in select cities and offers delivery from restaurants, grocery stores, and more.

1.4 Historical Background of Zomato:

Zomato's story is a fascinating tale of evolution, starting in 2008 with humble beginnings as a project called Foodiebay. Founded by two IIT graduates, Deepinder Goyal and Pankaj Chaddah, Foodiebay wasn't the sleek app we know today. It began as a simple online directory listing restaurants in Delhi NCR (National Capital Region). But within just nine months, Foodiebay's focus on comprehensiveness saw it become the largest restaurant directory in Delhi NCR, showcasing their ability to tap into a growing consumer need.

1.5 SWOT Analysis of Zomato:

Strengths	**Weaknesses**
● Strong brand presence	● Dependence on third-party delivery partners
● Extensive network of restaurants and users	● Reliance on discounts and promotional offers
● Diverse range of cuisines and dining options	● Operational challenges in certain markets
● Technological innovation and data analytics capabilities	● Regulatory hurdles and legal compliance
● Effective marketing strategies	● High competition and market saturation

Opportunities	**Threats**
● Expansion into new markets and regions	● Emergence of new competitors and disruptive technologies
● Diversification into related services such as grocery delivery	● Shifting consumer preferences and behaviour
● Partnerships and collaborations with restaurants and brands	● Potential backlash from restaurants or delivery partners
● Leveraging data for personalised recommendations and targeted marketing	● Economic downturns or recessions affecting consumer spending

2: LITERATURE REVIEW.

Vignesh Babu.M.R(2022) in the research paper titled, **"CUSTOMER SATISFACTION TOWARDS ZOMATO ONLINE SERVICES IN CHENNAI"** is aimed to know how consumers perceive the online food delivery services. This research helps to get a better understanding regarding expectation and satisfaction level of respondents towards Zomato and to identify the factors influenced for choosing Zomato. Primary data was collected using survey method to get reliable data. This study proved that the customers who had several expectations before using Zomato had more satisfaction after making purchases.

S.Gnana Sugirtham, V.Sindhu (2021) in the research paper titled, **"An analysis of customer satisfaction towards online food ordering apps."** This research states that the number of online meals ordering services is expanding faster than that of traditional eateries. According to this research study, young people are always coming up with creative ideas and concepts to address the unmet customer concerns, which is a crucial factor in any business' success nowadays.

Devarshi Upadhayay, Hitanshi Thakkar, Naitik Ghiya (July,2020) in their research paper titled**, "An impact of promotion and marketing campaigns by online food delivery service on buying behaviour of customers of Ahmedabad."** It claims that the majority of traditional internet media, such as meal delivery apps, are purchased right at their doorstep. Every online food aggregator in the industry uses marketing communication as a tool to communicate with current clients, launch marketing campaigns, and grow their business.

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Dr. Chetan Panse, Dr. Sahilesh Rastogi, Ms. Arpita Sharma, Namgay Dorji (2019) in the research paper titled, **"Understanding consumer behaviour towards utilisation of online food delivery platforms."** Research states that the ultimate purpose of the research is to establish a positive correlation between consumer attitudes regarding online meal ordering platforms. The study was carried out using a quantitative approach, with online meal delivery as the primary means of collecting data via a questionnaire through online platforms and customers according to their understanding, requirements, attitudes, and viewpoints regarding online meal delivery services.

3: RESEARCH METHODOLOGY

3.1 Research Design: The researcher uses both qualitative and quantitative methods.

- **Primary Data-** A sample size of 100 respondents is decided for this research including college students, working individuals and housewives. An online survey was conducted to get the responses from the respondents. It aims for a sample that reflects the demographics of Zomato users in Mumbai suburbs (age, occupation, food preferences). A google form was circulated to get the responses from the respondents. It a convenient way of getting responses.
- **Secondary Data-** Secondary data refers to already available data in the form of journals, research papers, articles, textbooks, information websites.

3.2 Objectives of the study-

i. To understand the factors affecting the satisfaction of customers in Mumbai suburban.
ii. To get insights about the demographics of customers.
iii. To understand the pattern and behaviour of ordering food through Zomato.
iv. To determine the factors which motivate the consumers for purchasing the products from Zomato.
v. To identify the online problems faced by consumers from Zomato.
vi. To identify the factors influenced for choosing Zomato.

3.3 Hypothesis-

i. Customers who experience faster delivery times on Zomato will report higher satisfaction than those with slower delivery times. (impact of delivery on customer satisfaction)
ii. Younger customers (e.g., Gen Z) will be more satisfied with Zomato's digital features (e.g., reviews, online payments) compared to older demographics.
iii. Customers who encounter a seamless and user-friendly Zomato app experience will have greater satisfaction than those who find it difficult to use. (This examines the influence of app usability)

3.4 Scope of the Study:

Only respondents who have used the Zomato app to order food online are eligible for this study's scope. The primary goal of the study is to understand how customers see online meal delivery services. Customers' expectations and levels of satisfaction can change depending on the situation. We can comprehend the online food delivery service market better thanks to this study.

As a result, these results might assist service providers in improving these factors to close the gaps in customers' mindsets.

3.5 Limitations of the Study:

i. The findings and suggestions are based on the information given by the respondents.
ii. In some cases, participants refused to fill the questionnaire.
iii. The lack of resources led to convenience sampling.
iv. In future there may be slight variation due to change in customer taste and preference.
v. This study is only applicable for Mumbai Suburb.

3.6 Significance of the Study:

i. Mumbai suburbs have distinct demographics and culinary preferences compared to central areas. This research can identify popular cuisines, delivery speed expectations, and pricing sensitivities specific to the suburb.

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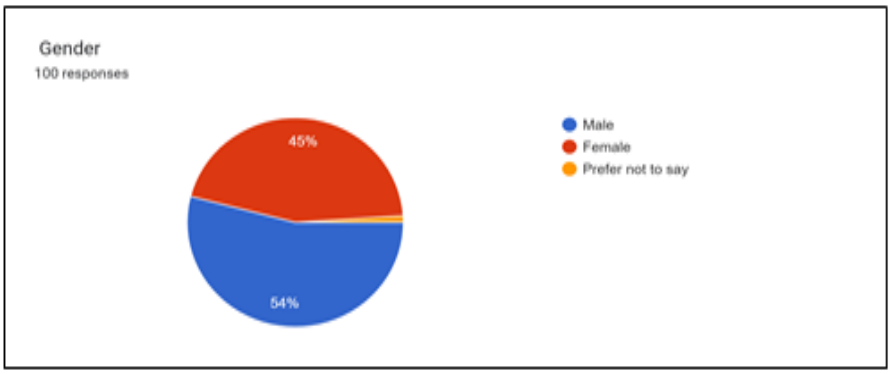
ii. By understanding what satisfied and dissatisfied customers, Zomato can tailor its services to better suit suburban needs. This could involve optimising delivery times, offering targeted promotions, or highlighting restaurants that cater to local tastes.

iii. Satisfied customers are more likely to use Zomato repeatedly. Research can pinpoint areas for improvement in the user experience, leading to higher customer retention and loyalty.

iv. Data from the research can be used by restaurants in the suburb to understand customer preferences and adapt their menus, pricing, and delivery options to better serve the local market.

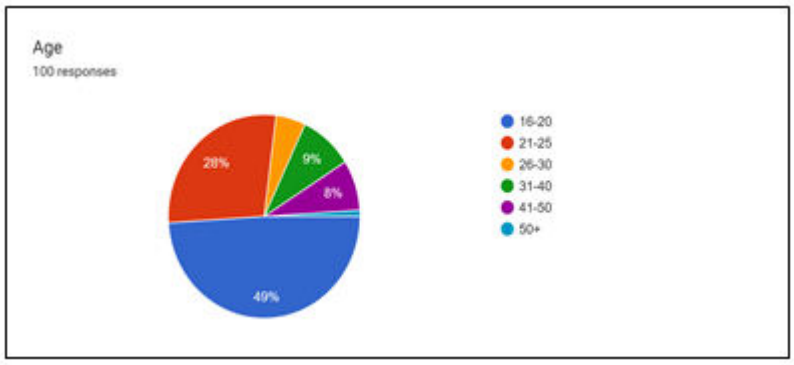
4. DATA ANALYSIS AND INTERPRETATION.



	Frequency	Percent (%)
Male	54	54
Female	45	45
Prefer not to say	1	1
total	100	100

Interpretation: 54 males and 45 females participated in this survey and 1 preferred not to say gender this makes up the 100 respondents for the survey.

It can be interpreted that the majority of the orders are placed by men but the difference between orders from men and women isn't much.



Age group	No. of respondents	Percentage (%)
16-20	49	49
21-25	28	28
26-30	5	5
31-40	9	9
41-50	8	8
50+	1	1

1. The mean for above question is 16.67
2. The median for above question is 8.25
3. The standard deviation for above question is 18.38

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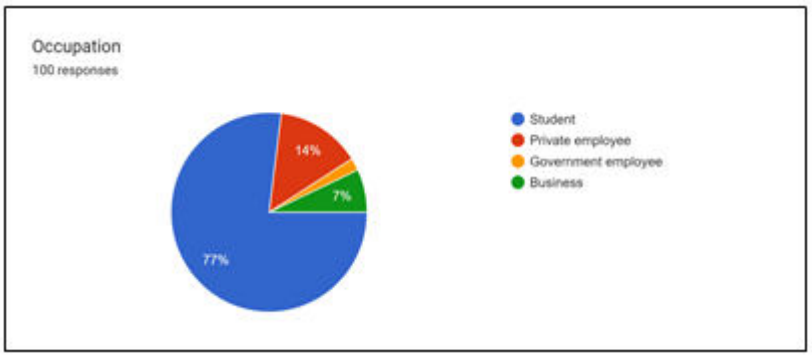
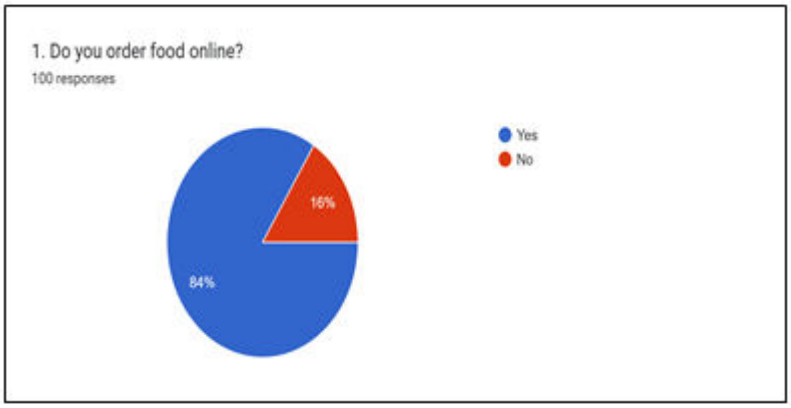
Interpretation: Young adults have the highest frequency in ordering food online. 72% of respondents lie in the age group 16 to 30. These are the active and frequent users of the app. 9% of respondents age between 31 to 40 years, 8% people age between 41 to 50 years and 1 % people belong to the age group of more than 50 years.



Occupation	No. of respondents	Percent %
Student	77	77
Private employees	14	14
Government employees	2	2
Business	7	7
Total	100	100

1. The mean for the above question is 25.
2. The median for the above question is 10.5.
3. The standard deviation for the above question is 35.

Interpretation: Most of the respondents are students i.e. 77%, rest are private employees which is 14%, government employees are 2% and 7% people own a business. It can be interpreted that students order food while they are in their school or college campus or at homes as they do not have much time to prepare food for themselves. They even order food regularly on events and occasions.



1. The mean for above question is 50
2. The median for above question is 50
3. The standard deviation for above question is 48.08

Interpretation: The pie chart clearly shows that the maximum no. of people order food online i.e. 84 respondents. Whereas only 16 % of people do not order food online.

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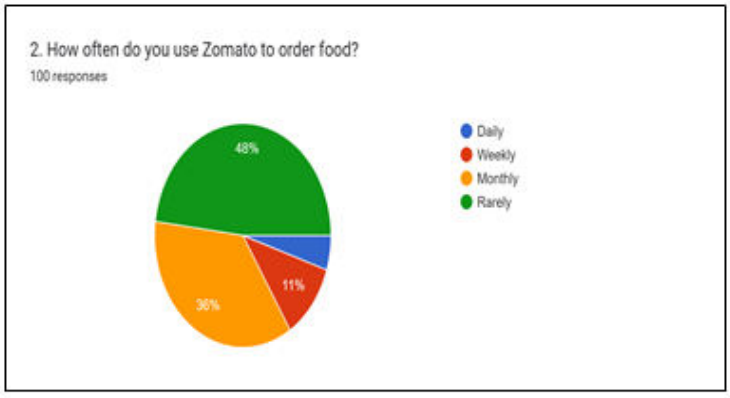
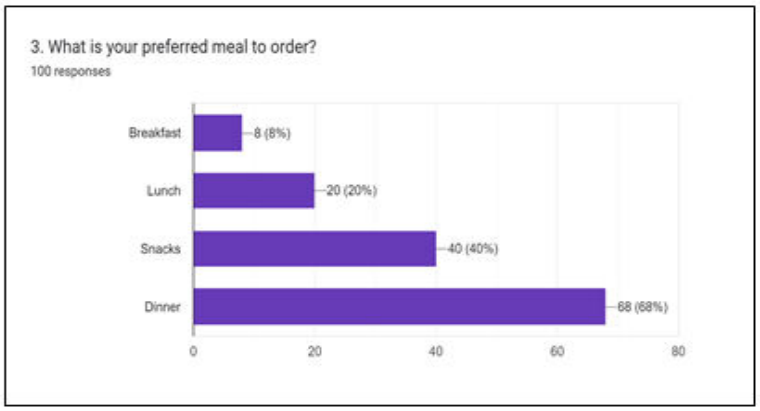


1. The mean for the above question is 25.
2. The median for the above question is 23.5.
3. The standard deviation for the above question is 20.37.

Interpretation:

Options	No. of Respondents	Percentage
Daily	5	5 %
Weekly	11	11 %
Monthly	36	36%
Rarely	48	48%

The chart clearly shows that, daily users of Zomato are 5%, weekly users of Zomato are 11%, 36 % people order food once a month and 48% of the people rarely order food online. It can be interpreted from this chart that the orders placed by most of the respondents are rare and not everyone prepares ordering food online every day.



1. The mean for the above question is 36.
2. The median for the above question is 30.
3. The standard deviation for the above question is 26.22.

Interpretation:

Options	No. of Respondents	Percent %
Breakfast	8	8
Lunch	20	20
Snacks	40	40
dinner	68	68

In this question, respondents could opt for multiple options to understand their preference of ordering food online. The results show that 8% people prefer ordering breakfast, 20% people prefer to order lunch, 40 % people order snacks, whereas 68 % people order dinner. The graph clearly shows that maximum people order dinner. It may be due to more availability of restaurants, convenience to order food in the night to avoid the efforts of cooking at night.

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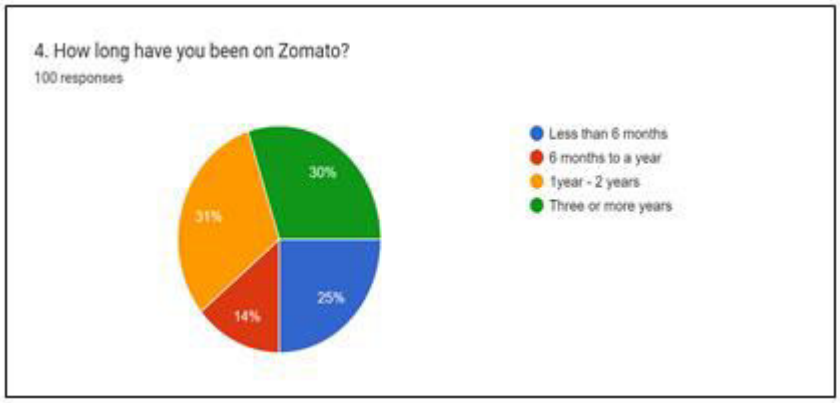
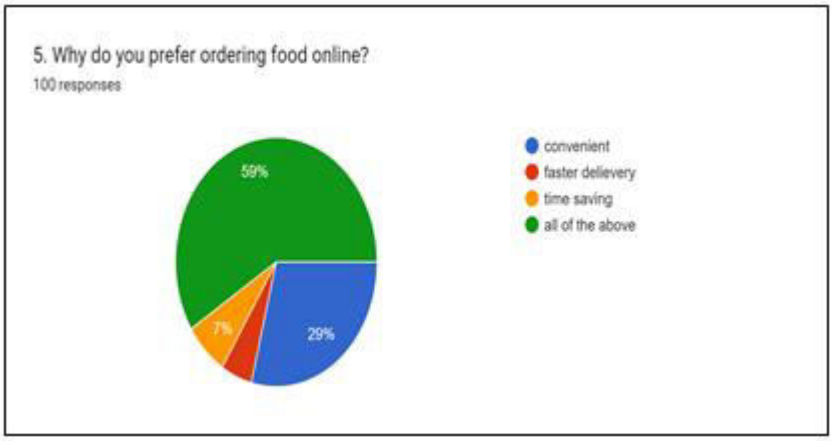


1. The mean for above question is 25.
2. The median for above question is 27.5.
3. The standard deviation for above question is 7.78.

Interpretation: This graph shows that since how much are the respondents using Zomato.

Options	No. of Respondents	Percent %
Less than 6 months	25	25
6 months to a year	14	14
1 year – 2 years	31	31
3 or more years	30	30

This pie chart shows that 30 % of the respondents have been using Zomato since last 3 years. 31% of the respondents have been using Zomato from 1 year to 2 years. 14% of the respondents have been using Zomato from 6 months to a year.25 % of the respondents can be considered as new customers of Zomato who have used it for less than 6 months. We can interpret from this question that almost 60 % of respondents who have been using Zomato for a long time are very much aware about the functioning of Zomato, their policies, offers and deals.



Options	No. of Respondents	Percent %
Convenient	29	29
Faster delivery	5	5
Time saving	7	7
All of the above	59	59

1. The mean for the above question is 25.
2. The median for the above question is 18.
3. The standard deviation for the above question is 25.13.

Interpretation: This question gives results for the reasons why people order food online. Major reasons have been considered in the options. It can be interpreted that 29 % of the respondents find it convenient to order food online rather than cooking it oneself. 5% of the respondents prefer ordering food on Zomato because it

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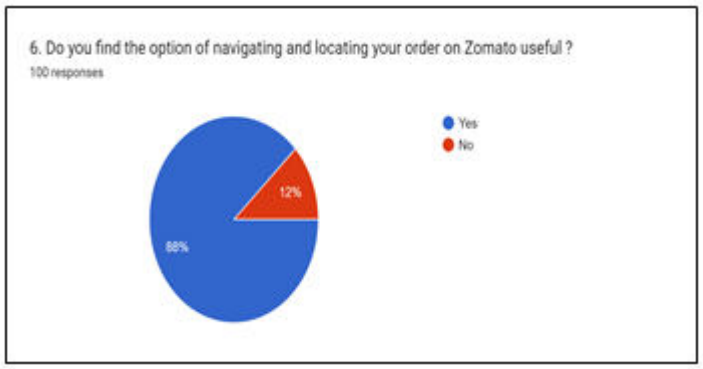
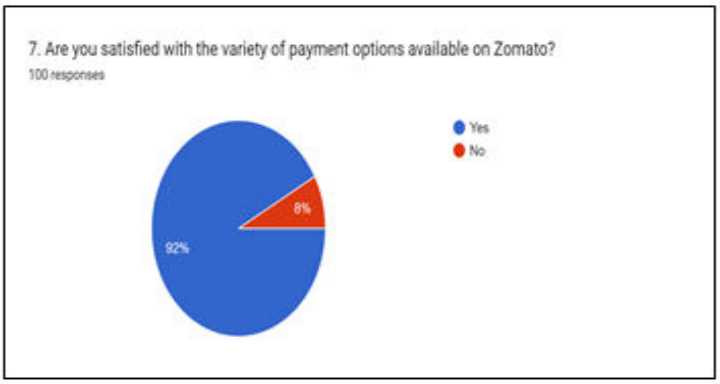
delivers food faster.7% of the respondents find ordering food on Zomato as time saving as compared to preparing food oneself. 59% of the respondents agree with all the options and these are the major reasons why people order food online.



1. The mean for above question is 50
2. The median for above question is 50
3. The standard deviation for above question is 53.74

Interpretation: This graph reveals that, 88% i.e. most of the respondents find the option of navigating and locating their order on the Zomato app useful. Whereas 12% of the respondents doesn't find it useful.

The navigation and location of the order can help one to know where their order has reached, estimates time of arrival (ETA) can be known, distance from the restaurant can be known and this feature can help one to plan their work appropriately.



1. The mean for above question is 50
2. The median for above question is 50
3. The standard deviation for above question is 59.39

Interpretation: Zomato provides a lot of payment options such as cash on delivery, UPI, credit card payment, debit card payment. We can interpret from this pie chart that 92% i.e. most of the respondents are satisfied with the options provided by Zomato for payment of the orders.

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Options	No. of Respondents	Percent %
Very satisfied	24	24
Somewhat satisfied	39	39
Neutral	34	34
Somewhat dissatisfied	1	1
Very dissatisfied	2	2

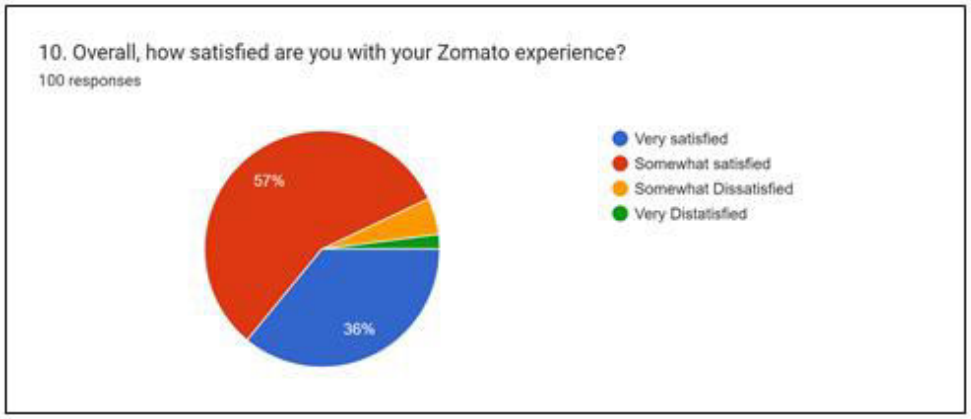
1. The mean for above question is 20
2. The median for above question is 24
3. The standard deviation for above question is 17.73

Interpretation: This question gives results regarding whether the customers are satisfied with the food quality delivered by Zomato. 24% of the respondents are very satisfied with the quality of food delivered, 39% are somewhat satisfied, 34% have a neutral opinion regarding the food quality, 1 % respondents are somewhat dissatisfied and only 2% are very dissatisfied. It can be interpreted that more than 50% of the respondents have a positive response regarding the quality of food delivered online which is a good sign for Zomato.

Options	No. of Respondents	Percent %
Strongly agree	16	16
Agree	68	68
Disagree	10	10
Strongly disagree	6	6

1. The mean for above question is 25
2. The median for above question is 13
3. The standard deviation for the above question is 28.95.

Interpretation: This pie chart helps to study whether the reviews provided by Zomato helps in making decisions for orders. 16% respondents strongly agree that the reviews section helps to make ordering decisions, 68% respondents agree that reviews do help, 10% respondents disagree with the fact that reviews help in decision making and 6% people strongly disagree that reviews on Zomato do not really help. It can be interpreted that the majority of the respondents agree that reviews section help them in making the buying decision on Zomato.



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Options	No. of Respondents	Percent %
Very satisfied	36	36
Somewhat satisfied	57	57
Somewhat dissatisfied	5	5
Very dissatisfied	2	2

1. The mean for above question is 25
2. The median for above question is 20.5
3. The standard deviation for the above question is 26.29.

Interpretation: 36 % of the respondents are completely satisfied with the overall experience on Zomato,57 % are satisfied, 5 % respondents are somewhat dissatisfied and 2% respondents are very dissatisfied. We can interpret that 93% of the respondents are satisfied with the overall experience on Zomato.

5.1 SUGGESTIONS:

i. Since it is evident from the research that major audience of Zomato is young adults, it can focus its marketing activities to other age groups to increase the market share and increase the revenue.

ii. Long term customers must give special offers so that they feel valued and Zomato's customers remain loyal.

iii. Lastly, Zomato must find ways to satisfy all its customers with the quality of food delivered.

5.2 CONCLUSION:

In conclusion, this research has provided valuable insights into the dynamics of customer satisfaction through Zomato services in Mumbai suburbs. Through an in-depth analysis of customer feedback and preferences, it has become evident that Zomato plays a significant role in shaping the dining experiences of individuals residing in these areas. The findings underscore the importance of factors such as timely delivery, food quality, variety, and customer service in influencing customer satisfaction levels. Furthermore, the study highlights the growing reliance on online food delivery platforms like Zomato, particularly in urban environments like Mumbai suburbs, where convenience and accessibility are paramount.

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A STUDY ON ENERGY AUDIT

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ABSTRACT:
Energy Audit is conducted to identify opportunities for improvrement in energy consumption and saving. India had understood impratance of energy optimization way back, as Energy Conservation Act was introduced in the year 2001. Energy efficiency was a key motive and to achieve the objectives multiple policies were framed. The Bureau of Energy Efficiency (BEE) was set up and subsequently initiated the National Mission for Enhanced Energy Efficiency (NMEEE). Energy Audit is a sustainable business practice in today's era as it is an essential tool for reducing costs, improving operational efficiency, demonstrating corporate responsibility and mitigating risks. This practice enables businesses to optimize their energy usage while simultaneously contributing to environmental sustainability.

Key Terms: Energy Audit, Sustainable Business

INTRODUCTION:

Energy Audit

An energy audit is conducted in order to determine its energy efficiency. In simple words energy efficiency means using less energy to do the same task.. An energy audit is a systematic assessment and analysis of energy usage patterns, equipment, and processes within a system, facility, building, or organization. The bsic objective of an energy audit is to ascertain opportunities for energy saving and modifying consumption patterns to attain energy efficiency.

Need for Energy Audit

- It is important to understand limited availability of resources and optimum utilisation of the said resources is the need of an hour. Energy audit helps in identifying energy saving opportunities.
- Energy usage plays a key role in any business. Energy audit provides guidance to the target audience with respect to better ways of energy consumption.
- Energy Literate individuals are an asset to the organisation.
- An energy audit can identify safety concerns with electrical systems, wiring, and ventilation, thus making your home or business safer.
- Environment sustainability can be achieved with the help of energy audits.

Table 1.1 Differences between Traditional Auditing and Green Auditing

Traditional Auditing	**Energy Auditing**
Traditional Auditing typically focuses on assessement of financial records, transactions, and compliance with relevant standards.	Energy auditing specifically focuses on assessing an organization's environmental performance, including its impact on natural resources.
Traditional Auditing is Primarily related to Quantitative aspects of Financial Statements	Green Auditing is related to Qualitative aspects of a company.
The primary purpose of traditional auditing is to provide a true and fair view on financial statements and assess the accuracy, reliability, and compliance of financial statements, operational processes, and internal controls.	The main purpose of energy auditing is to optimize energy usage, reduce energy costs, and promote sustainability within an organization. Energy audits help identify opportunities for energy efficiency improvements, cost savings, and environmental impact reduction by evaluating energy consumption patterns and recommending energy-saving measures.
Auditing focuses on financial records, transactions, internal controls, and operational processes to ensure that records as per financial reporting framework.	Energy auditing focuses specifically on energy-related aspects of an organization's operations, including energy consumption, energy efficiency, energy management practices, and environmental sustainability initiatives.

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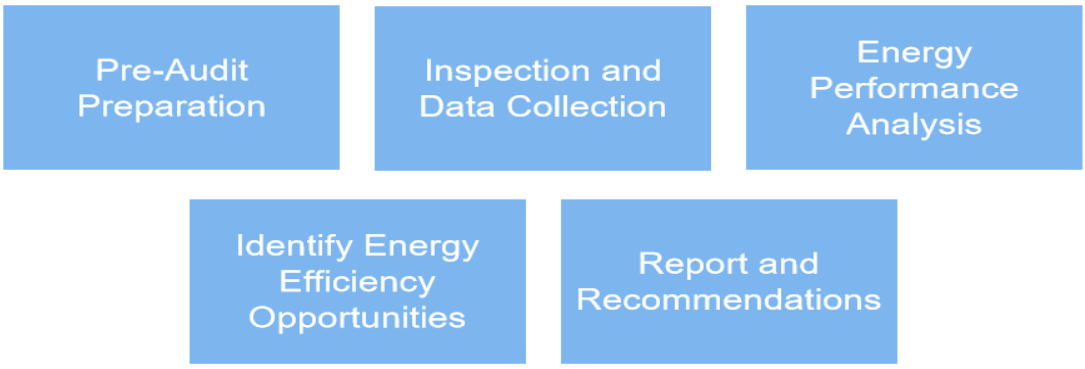
Chart 1.1 Basic Steps in Energy Audit



Energy Audit Steps

STEP I: Pre Audit Prepartion
This step involves defining the audit criteria and the audit scope, Preparation of Audit plan and selection of energy audit team, conducting the initial visit to understand primary requirements, Collecting energy bills and available data and information.

STEP II: Inspection and Data Collection
This step involves a thorough site inspection of energy consuming facilities, systems, equipment, premises. Data is collected with respect to various types of energy consumptions like natural gas, fuel, water, electricity etc.

STEP III: Energy Performance Analysis
Settiing benchmark energy performance and comparing the performance of business with standards set is a crucial part of Energy Performance Analysis.EPA also consists of using energy modeling tools to simulate energy-saving scenarios, assess the potential impact of energy efficiency measures, and prioritize recommendations.

STEP IV: Identify Energy Efficiency Opportunities
Audit is conducted for the purpose of understanding the existing energy consumption opportunities which gives competitive advantage to the business. This step also aid in prioritizing energy efficiency measures depending on their potential energy savings, cost-effectiveness, return on investment (ROI), and feasibility of implementation.

STEP V: Energy Audit Report
It is a duty of the auditing team to report their observations based on the provisions applicable in the Energy Conservation Act, 2001. Auditors are required to recommend the best practices possible for an organisation to achieve the goal of sustainability.

Types of Energy Auduiting

1. Preliminary Energy Audit
Preliminary Energy Audit establishes consumption report, Obtain related data, identify improvement in cost saving areas, identify areas which requires detailed study.

2. Detailed Energy Audit
A detailed energy audit involves a comprehensive assessment of energy usage patterns, equipment performance, and energy efficiency opportunities within the facility. This involves conducting surveys, energy loss and water analysis, Cost-Benefit Analysis, Reporting to top management.

Energy Performance Analysis
As explained above in Step III Energy Performance Analysis can be done with the help of following formulas

- **Energy Efficiency (%) = (Useful Energy Output / Energy Input) × 100%**

Useful Energy Output - The energy output that required for task

Energy Input - The total energy input into the task

- **Energy Intensity = Energy Consumption / Unit of Output**

Energy Consumption: Total energy consumed

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Unit of Output: The measure of production, activity, or service provided

- **Specific Energy Consumption = Energy Consumed / Quantity of Processed Material or Product**

Energy Consumed: Total energy consumed

Quantity of Processed Material or Product: The amount of material processed

- **Power Consumption = Energy Consumed / Time**

Energy Consumed: Total energy consumed by the system or device.

Time: The duration over which energy consumption is measured.

- **EUI = Total Energy Consumed / Floor Area or Other Relevant Metric**

Total Energy Consumed: Total energy consumed by a building, facility, or system.

Floor Area or Other Relevant Metric: The measure of the size or scale of the building, facility, or system

OBSERVATIONS

1. Energy Auditing awareness is required in all industries.
2. Statutory provisions and policies framed and amended have great impact on business.
3. It should be made compulsory to administer ecological standards at organizational level.
4. Significance of Environmental cost accounting should be spread through all levels of organization.
5. Every single employee and worker should be aware of Green Auditing.

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A STUDY ON IMPACT ON USAGE OF FINTECH APPLICATIONS POST PANDEMIC

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ABSTRACT

This research study gives insights on how the financial institutions (FIs) and its applications have reached heights post COVID-19 pandemic. The global pandemic presented unprecedented problems to the world, but one important factor in transforming financial services and interactions was the emergence of the financial technology, or fintech, sector. This study investigates how much the epidemic has affected how fintech applications are used. With a thorough methodology, the research study tries to find how the Covid -19 has affected public behaviour, adoption rates, and the development of fintech services.

Fintech services, as opposed to traditional banks, provide a variety of financial solutions by utilizing cutting-edge technology like blockchain, artificial intelligence (AI), and mobile applications. These services include, but are not limited to (P2P) lending platforms, online payment systems, robo-advisors for investment management, and mobile banking applications. By addressing underprivileged groups, fintech promotes financial inclusion in addition to offering customers quick and easy substitutes for traditional banking.

The use of Fintech services has grown several users during and post pandemic thus the study exhibits various factors that has affected the usage of such apps. The automation and digitization of financial services in an application has brought a digital transformation and numerous features. The study looks at user feedback and user engagement indicators to determine how much the pandemic has affected the use and uptake of fintech applications in different demographic groups. The rise in demand for digital and contactless payment solutions, the development of key features in the realm of investing and wealth management, and the replacement of traditional banking services with digital platforms are some of the major emphasis areas. The study also sheds light at how security issues affect users' confidence and trust in fintech applications.

The outcomes show that the COVID-19 lockdown, confidence, data protection, and staff services are the elements that have increased the purpose to use the fintech applications. It is anticipated that the results of this study would provide insightful information to the scholars. This study offers an insightful examination of the long-term impacts on fintech acceptance and usage.

Keywords: FinTech: Financial Technology, FIs: Financial Institutions, Post COVID-19 pandemic, AI: Artificial Intelligence, P2P: Peer-to-peer, User feedback, Contactless payment solutions.

1. INTRODUCTION

Organizations that make use of technology to supply financial services are generally referred to as financial technology, or FinTech. These businesses are involved in a variety of industries, including insurance, asset management, and payment. In India, fintech has been a relatively new business in the last few years. Large-scale investments in FinTech have been made in several Indian industries, partially because of the strong and efficient government reforms that are advancing the nation's transition to a digital economy. It has also benefited from the increasing use of smartphones and the internet, which has fuelled the development of FinTech in the nation and the acceptance of digital technologies.

1.1. Fin Tech Sectors:

Electronic Payments

Electronic transactions are those that can be made without having to transfer actual money over the internet or through other digital platforms. Money is transferred from one payment account to another when a player and a payee use a digital device, such as a laptop or desktop computer, credit, debit, or prepayments card. The primary causes of the recent significant rise in the use of digital payments were the COVID-19 outbreak in 2020 and the enactment of the demonetization program announced by the Indian government in 2016. To curb illegal trade and tax evasion, demonetization replaced old currency with new, reducing the number of transactions in cash. As a result, people were compelled to use digital payment methods. When contactless payment methods gained popularity to stop the spread of the Covid-19 pandemic.

Alternative Lending

Alternative lending platforms seek to make traditional loan procedures simpler by connecting investors and borrowers. They achieve this by applying technologically advanced models that swiftly assess the credit risk of borrowers and ascertain the most advantageous loan amounts, conditions, and rates for them. The main

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objective of FinTech companies involved in the non-traditional lending market is to rectify the notable credit supply-demand imbalance in the country. Peer-to-peer (P2P), MSME, payday, EMI/Point of Sale (PoS), and buy now pay later (BNPL) are a few of the primary business models that alternative lending FinTechs have found success with.

1.2. The Impact:

Immediately following the COVID-19 pandemic caused tremors difficulties, the financial industry entered a new era with fintech applications resulting as the foundation of resilience and ability to adapt. Digital financial solutions gained popularity during the crisis, which not only simplified transactions but also altered how people, Financial technology and companies interacted with each other. The goal of this research is to understand the intricate dynamics that have emerged in the aftermath of the pandemic by looking into the long-term impacts of the fintech boom.

The COVID-19 pandemic has had major effects on consumer behaviour, particularly regarding payments. The need for hygiene practices and social distancing can be the reason behind the growing ubiquity of contactless payment methods. This means that there are now more opportunities for fintech companies to benefit from the demand for digital-only solutions. Fintech businesses have long been upending traditional banking establishments; the pandemic has only accelerated this process. Fintech companies can provide solutions that meet the changing needs of their customers because of their agility in responding to the new economic realities.

Consumer interest for online financial services such as Internet banking, mobile payments, and digital wallets has increased significantly because of the pandemic. The requirement for these services from fintech companies has increased as more customers use online financial services to handle their accounts. In conclusion, the introduction of digital-only solutions has allowed fintech companies to expand into new markets. Fintech companies have demonstrated their ability to provide solutions that cater to underrepresented groups, including small businesses and individuals with low incomes.

2. LITEARTURE REVIEW

The Impact of COVID-19 on E-wallet's payments in Indian economy" and analysed that happening of COVID-19 has brought a great boost for the Indian economy, especially for the sectors like food and beverages, entertainment, and others. There is a big contribution by entertainment and hospitality industry which is approximately 40 per cent to the economy which is helping for growth. JAIN, (2020).

The usage of E-payment system is increasing at a very fast rate. People are moving towards payment systems instead of using plastic money like cash etc. Making online transactions is very convenient and time saving. (Gupta S. B., 2020).

The pandemic Covid-19 has had a substantial effect on speeding up the trend toward a cashless society everywhere. In the context of this pandemic condition, the tendency toward financial technology transactions has intensified. In their financial transactions and activities, consumers are aiming to reduce the use of cash. They are exploring alternate contactless payment techniques, without any physical intervention, to execute this electronically (Abu Daqar et al., 2021).

3.RESEARCH METHODOLOGY

3.1. Objectives:

1. To study the impact on use of fintech applications post pandemic.
2. To examine the adoption of fintech applications on users.
3. To understand how the pandemic has affected consumers' trust in and perception of security features in fintech applications.
4. To investigate the digital transformation of financial transaction through fintech apps.

3.2 Sample Size

In This research study the researcher has gathered responses from 100 respondents. These responses were collected from various age groups, gender, and occupation.

3.3 Method of Data collection:

The primary data for the research study was gathered via questionnaire distributed on Google Forms.

The secondary data for the research study was gathered from internet, publication, and academic journals.

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4. DATA ANALYSIS AND INTERPRETATION

- With 63 responses overall, the age distribution of the data indicates that most of the respondents are between the ages of 18 and 25. Students make up the largest percentage of responders in this age group (47 out of 63). With 42 ladies and 21 males in the 18–25 age range, there is a balanced representation of both genders. There are fewer and fewer respondents as age ranges expand; there are only 10 people in the 26–35 age group and 1 person in the 36–45 age group. The age category of 46 and over has a higher representation there were 26 responders in total, mostly men in employment. In comparison to older age groups, the data shows a trend where younger people, students are more likely to engage in the survey. The data also shows a gender gap, with women making up a higher percentage of respondents in all age groups except for the 46 and older category, where men predominate.
- The analysis shows that the COVID-19 outbreak has had a major influence on respondents' general usage of fintech applications. The majority of the respondents reported using fintech applications more during the epidemic than fewer just two reporting using them less. This pattern was observed across all age groups. The use of fintech is on the rise, especially among younger respondents (18–25 years old), 39 out of 63 respondents reported this. In contrast, 15 out of 26 respondents, who represent the senior age group of 46 and above, claim a significant growth in fintech usage.
- The analysis shows that with 29 respondents among being 9 female and 20 male using mobile banking apps, these apps are the most popular fintech application across all genders. With a total of 18 respondents (11 females and 7 males) using digital wallets, this payment method is likewise rather popular. A sizable percentage of respondents especially women use a variety of fintech tools, including digital wallets, online payment platforms, and mobile banking apps. This indicates that people value simplicity and adaptability in their financial operations, choosing several platforms to suit their various demands. Even though they are less common, investment applications are nevertheless used somewhat, according to the five respondents (3 females and 2 males) who were involved in this fintech area.
- According to the analysis convenience is the most important element, according to 25 out of 63 respondents who are between the ages of 18 and 25. Improved features and cost-effectiveness are the next most important factors. This shows that younger people, who are more accustomed to digital technology and value simple, intuitive user experiences, give priority to fintech apps that are easy to use and functional. On the other hand, respondents who are 46 years of age or older and those who are between the ages of 26 and 35 show a larger dependence on suggestions from others and cost-effectiveness, suggesting that they place more weight on social influence and financial prudence when making decisions. The respondents between the ages of 36 and 45 give very few answers, with just one person mentioning convenience as a deciding factor in adoption.
- Based on the data collected about the impact of the pandemic on the degree of trust in financial applications throughout different age groups, there is a wide range of responses. Among respondents aged 18-25, most people (55.6%) reported an increase in trust, while a significant portion (47.6%) of those aged 46 and up reported a decrease. However, it is worth noting that a sizable proportion of respondents from every age category (ranging from 25% to 70%) noted no change in their trust stages.
- Based on the data examination of responses collected after the pandemic, the fintech application sector has experienced significant digital transformation. Among the different groups surveyed, the payment app emerges as the leading in this digital revolution, with the most respondents (80), 45 female and 35 males. This demonstrates widespread adoption and reliance on Payments apps for financial transactions, emphasizing their critical role in enabling seamless digital payments in the post-pandemic era. Furthermore, the Investment app category has significant popularity, with 11 respondents, highlighting the growing importance of digital platforms in investment management.
- The data examination of respondents' satisfaction with fintech services provided post-pandemic reveals a significant gender disparity. Females made up the majority of the survey population, with 55 respondents, while males accounted for 45. In terms of satisfaction levels, both genders had similar distributions across the satisfaction scale. However, closer examination reveals that females reported slightly higher levels of satisfaction than males. 21 females (38.2%) reported being 'Very Satisfied' (score 5) with fintech services, compared to 18 males (40%) who reported the same level of satisfaction. In contrast, a lower proportion of females (7.3%) expressed dissatisfaction (score 1) than males (8.9%).

5. FINDINGS

The findings of the research show that the pandemic has had an enormous effect on the use of fintech applications, with 58.2% of respondents identifying this influence. 74.5% of respondents presently use online

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payment platforms, indicating a widespread use of digital financial tools. The majority of respondents state that using fintech apps is convenient, and 55.5% agree that having security features like two-factor authentication is important.

Additionally, a substantial number of respondents (67.3%) believe that transactions using fintech applications are safe, illustrating a growing level of trust that has been increased by the pandemic. Satisfaction ratings exist with the fintech services offered, and 61.8% of respondent's feelings of stress the need for enhanced security features. These results provide crucial fresh data about how fintech is being utilized as well as how users are experiencing.

6. CONCLUSION

The study reveals that there has been a significant increase usage of fintech applications due to factors like convenience, cost effectiveness and improved features. The improved features have engaged consumers at large and in turn, recommendation of such apps to others. The advanced features, biometric authentication, two-factor authentication, and regular security updates are the elements that built users' trust and confidence level. Therefore, proving both the alternative hypothesis (H1).

The survey identified that particular Fintech applications - payment and investment apps leading the way to digital transformation. Many of the users now find the fintech services useful and safe to use. Post-pandemic user satisfaction has been rated high, particularly among younger respondents. The applications such as mobile banking apps, online payment platforms and investment apps have seen increased user interface.

To sum up, the study offers a reader with insightful information about how Fintech applications are being used, highlighting how widely accepted they are among a variety of demographic categories. The research findings also provide guidance for the ongoing development of digital financial services in the post-pandemic era.

7. SUGGESTIONS

By a thorough analysis of the respondents put forward a strong desire for the fintech application to have additional safety features. The fintech developer is suggested to take this into consideration by putting in place sophisticated authentication protocols, carrying out frequent security audits, and implementing other strong security measures. furthermore, the vast majority of users indicate that they would prefer the application to be more user-friendly. Simplifying procedures, offering user-friendly tools, and enhancing the user experience all help achieve this. Understanding the value of customized services, a financial technology constructor might look into customizing features according to user specifications and preferences. Moreover, it is crucial to incorporate mechanisms for continuous tracking and input to ensure continuous improvement and flexibility to user needs. A possible improvement would be to add a feature that shows remaining balances.

By putting these suggestions into practice will help to boom the fintech sector and improve the overall satisfaction of the users.

8. RECOMMENDATIONS

Based on the responses to enhancements desired in fintech applications, respondents, regardless of gender, prioritize enhanced safety measures, increased user interfaces, incorporation with other financial services, and more customized offerings. To meet these requirements, the researcher recommend that fintech companies should prioritize implementing strong security protocols to protect user data and transactions. Furthermore, there is an urgent need to improve interfaces to make conversations more intuitive and flawless. Integrating fintech offerings with other financial tools and services can give users a more complete financial ecosystem, increasing convenience and utility. Furthermore, providing more personalized services based on individual user preferences can increase customer satisfaction and engagement. Overall, by tackling these key areas, financial technology applications can better meet the changing needs and expectations of users in future.

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A STUDY ON THE DEPENDENCY OF RETAIL INVESTORS ON BUSINESS NEWS CHANNELS IN INDIA AND ITS INFLUENCE ON INVESTMENT DECISION-MAKING

Gala Diya

ABSTRACT

This study investigates the relationship between the dependency of Indian retail investors on business news sources and the investors themselves. The study focuses on the evolving financial landscape by examining information consumption habits, decision-making processes, and the impact on investment strategies. The findings show a noticeable reliance on business news networks, especially CNBC TV, which has a broad demographic appeal and a varied frequency of viewers. Despite their necessity, participants show judgment by actively looking for alternate sources of funding. The survey gives analysts, decision-makers, and market participants information into how retail investor interaction with financial media is evolving. The research recommends promoting critical thinking and diversifying one's information sources in order to develop a community of informed investors.

Keywords: Indian retail investors, Business news sources, Investment behavior, Financial media, Investment strategies, Critical thinking

INTRODUCTION

Retail investors are vital players in the ever-changing financial markets, influencing investment dynamics and making substantial contributions to the expansion of the economy as a whole. In light of the growing complexity of financial markets, retail investors especially those with fixed incomes—often look for trustworthy information sources in order to make well-informed financial decisions. In this situation, the media's influence especially that of business news channels becomes a crucial factor in the decision-making process.

This study explores the complex relationship that exists between Indian retail investors' reliance on business news outlets and themselves. Given the proliferation of digital media and financial data, it is critical for financial institutions as well as investors to comprehend how people use and traverse business news channels. The goal of the research is to clarify the subtleties of this relationship by illuminating information consumption habits, decision-making procedures, and the relationship's overall influence on investment strategies.

Given the inherent volatility of financial markets and its complex influences, business news sources play a critical role in influencing investor attitude and behavior. This study aims to provide important new understandings of how reliant retail investors are on business news channels by investigating the variables that affect their trust, the kinds of information they look for, and how these aspects affect their investment choices.

It is expected that the study's results will offer an in-depth understanding of the information nature that surrounds Indian retail investors, giving financial analysts, decision-makers, and market players new perspectives on the factors influencing investment behavior. Through examining the subtleties of reliance on business news outlets, this study seeks to advance the conversation on how retail investor interaction with financial media is changing and to build a stronger and more knowledgeable investor community.

OBJECTIVES OF THE STUDY

- To assess the extent of dependency among retail investors in India on business news channels for financial information.
- To examine the types of information most sought after by retail investors through business news channels.
- To analyze the impact of business news channel exposure on the decision-making process of retail investors in India.
- To investigate the relation between the frequency of exposure to business news channels and investment decision outcomes.
- To identify factors influencing trust and credibility in business news channels among retail investors.

REVIEW OF LITERATURE

- Kashyap and sarva (2016) conducted a research on " impact of business news channels on investors decision making" to examine how these channels influence stock market investors in India. Their findings revealed that business news channels play a crucial role in shaping investors' decisions within the financial markets. The research highlighted that these channels contribute significantly to raising awareness among small

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investors about various financial products available in the market. Additionally, they observed that such exposure fosters confidence among investors, aiding them in achieving their financial objectives.

- Gunathilaka, C.(2018) conducted a research on "Factors Influencing Stock Selection Decision the Case of Retail Investors in Colombo Stock Exchange" This study looks at Sri Lankan retail investors' decision-making process when it comes to stock investments. A survey questionnaire with a five-point Likert scale is used to gather opinions. Based on the study of 168 replies, the most important factor influencing equity selection is the perceived worth of the firm. According to the study, three important homogeneous groupings of the elements influencing stock selection are accounting information, advocates' recommendations, and self-image/firm-image. The second order components in the process are the risk and past prices. Investor expectations regarding political stability, economic conditions, and good governance also have a role in decision-making. Marginal considerations include the firm's goodwill, the stock's liquidity, the dividend payment, and news that is available to the public.. The annual financial report' content is less certain, but proponents' opinions, family history, and religious convictions have no bearing. Investors don't seek for unusually high returns. Gender, age, and educational variations are not reflected in the primary determining factors. The study offers insights into the behavioral causes for a variety of market oddities, emphasizing the critical role that investor mood plays

Research Design

The researcher utilized a primary research approach by distributing a questionnaire to potential participants selected through simple random sampling.

Data Analysis

- Across various age groups and genders, it is evident that individuals aged 20 to 40 share a broad interest in economic indicators, investment tips, and company performance analysis, with a notable attraction to stock market updates. Within this bracket, females tend to focus on economic indicators and company performance analysis, while males show a preference for investment tips and stock market updates. The 40 to 60 age group demonstrates a consistent interest in economic indicators, investment tips, and company performance analysis, with a specific emphasis on stock market updates. Females in this category display a keen interest in economic indicators, company performance analysis, and investment tips within the context of stock market updates. For males aged 60 and above, the focus shifts to economic indicators and company performance analysis, with a continued interest in stock market updates. Lastly, individuals below 20 years, regardless of gender, show a proclivity for company performance analysis, investment tips, and economic indicators, with a shared enthusiasm for stock market updates.
- Based on data about people's preferences for financial information, it appears that men and women have different interests. Women are primarily interested in economic data, business performance, and financial advice, particularly with regard to the stock market. Their favorite combination of investment advice and economic indicators is 57. Men, on the other hand, have a wide range of interests. They particularly enjoy economic indicators (10), stock market updates (43), and financial advice (17). Additionally, they find business performance to be fascinating, particularly in conjunction with investing advice. The overall count of 100 indicates that the interests of men and women in financial information differ from one another. This tells us that news channels should provide a mix of content to cater to the diverse preferences of their audience.
- Looking at the impact of business news channels on investment decision-making across different occupations, it's apparent that students are most affected, with 17 indicating a minor impact, 23 stating a moderate impact, and 3 finding it significantly influential. Employees also show notable influence, with 7 expressing a minor impact, 9 a moderate impact, and 7 indicating a significant impact. Business owners, on the other hand, perceive a more moderate influence, with 8 stating a moderate impact, 2 a negligible impact, and 4 considering it significant. Professionals, with a total count of 7, generally find the impact to be moderate or negligible. The overall grand total of 100 responses indicates that business news channels play a varying but noticeable role in influencing the investment decision-making process, with students and employees being the most affected.
- Examining the reliance on business news channels for financial information across different occupations, the data reveals interesting patterns. Students demonstrate a substantial dependency, with 18 expressing a moderate reliance, 18 indicating a slight reliance, and 5 relying very much on business news channels. Employees also show significant reliance, with 11 expressing a moderate reliance, 10 indicating a slight reliance, and 6 relying very much. Business owners exhibit diverse patterns, with 8 expressing a moderate reliance, 5 indicating a slight reliance, and 4 relying very much. Professionals, with a total count of 7,

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- The results of the poll demonstrate the important impact of a number of variables on people's faith in a business news channel, with considerable variations between age groups. Exclusive interviews with top industry figures are highly valued by most respondents (59%) in the 20–40 age group as a means of fostering trust. Of people aged 40 to 60, 46% believe that having professional analysts in place is essential for building trust, while 16% place more value on historical accuracy. On the other hand, those who are 60 years of age and older value journalistic integrity (29%) and historical accuracy (29%). The differing tastes highlight how news organizations must customize their material to appeal to various demographics in order to maximize engagement and credibility.

FINDINGS

- The majority of participants are in the 20–40 age group, with a smaller percentage coming from the 40–60 age range and those under 20.
- A considerable proportion of the respondents are female, demonstrating a gender diversity.
- The individuals' backgrounds ranged from employees to students to business experts.
- Diverse frequencies of viewers were noted, with a preference for particular channels without any indication of how much.
- Some stations, such as CNBC TV became popular options.
- A significant percentage indicated a moderate to extreme dependence on business news channels
- While opinions on the impact of various channels on investment decisions varied, participants acknowledged their influence. Belief in business news outlets based on the analysis of knowledgeable experts and historical accuracy.
- Alternative financial information sources, including social media, friends, family, brokers, and financial influencers, were actively sought after by the participants.
- The majority gave a cautious description of their investing strategy, revealing the general levels of risk tolerance.
- For real-time updates, participants actively used mobile apps and digital platforms linked to business news channels.

CONCLUSION

Business news channels have a significant influence on the choices made by investors. Retail investors rely heavily on the content offered by these channels, which includes financial insights, expert assessments, and market updates, to make decisions. News channels can increase their credibility and viewership by customizing their programming to better meet the needs of their audience by knowing the factors that influence investor sentiment.

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A STUDY ON THE PORTRAYAL OF INDIAN FAMILIES AMONG MILLENNIALS IN INDIAN OTT WEB- SERIES

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ABSTRACT

This study investigates the portrayal of Indian families in Over-The-Top (OTT) web-series over the past five years and its impact on audience perceptions. With India experiencing a digital renaissance and a surge in OTT content consumption, the research explores how these narratives shape attitudes towards family structures, dynamics, and societal norms.

The study employs a descriptive research method, utilizing a questionnaire-based approach. In the conducted research, the sample selection methodology employed was judgement sampling, involving a population of approximately 50 millennials who were contacted via email. In light of practical constraints associated with email outreach and accessibility, the researcher opted for judgment sampling, selecting participants based on factors such as convenience and availability. This approach may introduce a level of bias into the sample selection process. Findings from the analysis, including Chi-Square tests and ANOVA, provide insights into the relationship between family structures depicted in OTT content and audience perceptions.

The study utilizes cultivation theory to assess OTT web-series' long-term impact on Indian family life perceptions. Employing uses and gratifications theory, it explores audience motivations for engaging with family-themed OTT content. Providing valuable insights for content creators, the research has practical implications for refining storytelling strategies, acknowledging potential sample bias. Nevertheless, it contributes to the evolving discourse on family representations, offering a nuanced understanding of the interplay between OTT content, audience perception, and cultural attitudes.

While the study identifies a significant association between the type of family structures watched and perceptions of realism, it rejects the hypothesis that OTT web-series significantly influence audience perceptions of family dynamics leaving scope for future research to explore the nuanced factors contributing to the observed association. This rejection invites further investigation into the multifaceted influences on audience perceptions of family dynamics in the context of OTT web-series.

INTRODUCTION

In recent years, India has witnessed a remarkable surge in the consumption of OTT content, catapulting the nation into a digital renaissance that has transformed the entertainment landscape. The statistics are striking: an average of 70 minutes per day is spent on video streaming platforms, underscoring the profound shift in how individuals engage with entertainment (Times of India, 2023, June 20, 2:47 pm). At the core of this transformative wave are over 45 million OTT subscribers in India, a number expected to burgeon to 50 million by the end of 2023. (Times of India, 2023, February 14, 4.54 pm).

In the dynamic landscape of entertainment, the surge in OTT content viewership has profoundly sculpted the preferences of Indian audiences, revolutionizing the way they consume content. Moreover, as OTT platforms gain traction among subscribers, there is a noticeable trend towards incorporating relatable portrayals of Indian families in dramas, adding a unique flavour that makes the content more watchable

The PwC Global Entertainment & Media Outlook for 2022-2026 predicts that the Indian OTT market is anticipated to surpass the revenue of the Print and Films segment by fiscal year 2025 (PwC, 2022). Despite being in a nascent stage, OTT platforms and their content have gained remarkable acceptance among the Indian audience. Factors such as affordability or free access, ease of accessibility through connected devices like smart TVs, PCs, tablets, smartphones linked through the internet, and the availability of original content on demand, especially in regional languages, are identified as key contributors to the success of OTT in India (PwC, 2022).

However- what to watch also remains a cause of discussion among the stakeholders. The decision-making process is influenced by factors such as family type (step or biological), environment, and opinion leaders (Singh & Jena, 2023), as discussed in a study on holiday planning in Indian families conducted by Rashmi Singh and Lalatendu Kesari Jena from the School of Commerce and School of Human Resource Management at XIM University in Bhubaneswar, India.

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Crucially, the nuanced representation of Indian families in OTT web-series has emerged as a focal point, warranting dedicated exploration. As the OTT landscape evolves, the narrative unfolds not only in the language of metropolitan centres but also resonates in regional languages, reflecting the rich tapestry of India's cultural diversity. The surge in subscribers is not a mere consequence of global content dissemination but an acknowledgment of the platform's commitment to displaying regional nuances and micro-genres that resonate with specific cultural contexts.

This research explores the intricate tapestry of how Indian families have been represented in OTT web-series over the past five years, delving into the dynamics of storytelling, character portrayal, and the societal reflections encapsulated in these digital narratives. As the country propels itself into the future of digital entertainment, this investigation seeks to illuminate the evolving contours of family representation within the multifaceted realm of OTT content, unravelling the threads that weave the stories of contemporary Indian families on screen.

REVIEW OF LITERATURE

What Defines an Indian Family

According to a study by Singh and Jena (2023) from the School of Commerce and School of Human Resource Management at XIM University in Bhubaneswar, India, "A family system is a model that defines both the mutuality and complexity of family members. Mutuality means each family member influences others and gets influenced by the different components of the family subsystems. The complexity of the family system is because of the different dyads and subsystems within the family."

The complexity in the family system arises when we move deeper into the family subsystems. The family subsystems include the husband–wife (Spousal) dyad, mother–daughter/son dyad, father–daughter/son dyad and siblings' dyad. Different families in India have different approaches, such as a "high degree of nurturance" or "high degree of restrictiveness"(Singh & Jena, 2023). According to Nagamallika (2018), the shifting dynamics in Indian society have led to a transformation in family structures, whether they be joint or nuclear, while families continue to serve as a robust social foundation.

Half of India stays in nuclear families- a unit comprising parents and their dependent children (Livemint, 2023, July 28, 12.34 am). Globalization has intensified change in social and family structures in India and "there are many factors for the disintegration of the joint family like economic, educational, legal, urbanization which contributes in separating the children from the elders"(Bhat & Scholar, 2018).

Indian Culture and Family

Indian culture is a rich tapestry woven with vibrant traditions, diverse languages, and a harmonious blend of ancient customs and modern influences. Rooted in a profound respect for family values, the essence of Indian culture lies in the close-knit familial bonds that serve as the cornerstone of societal structure. This emphasis on family fosters a sense of unity, responsibility, and shared traditions, making it an integral and cherished aspect of India's cultural identity.

The researcher has observed a noticeable increase in the prevalence of OTT content that places family and familial relations, along with the interpersonal impact on individuals within a family, at its core. Consequently, the study aims to discern the factors influencing viewers' choices when selecting specific OTT content and to explore the perceived evolution of these considerations over the years.

The family forms one of the most popular social institutions in television serials to depict the social 'reality'(Nagamallika, 2018). The researcher seeks to address the question of whether television serials shape the perception of 'reality' while embodying the characteristics of a theatrical drama in their narrative structures. A decade ago, during the 2000s, narratives in television serials commonly revolved around intense conflicts between the 'mother-in-law' or 'sister-in-law,' portrayed as embodiments of 'evil,' striving to exert control and seize power. The plots typically advanced through the perpetual struggle between the 'good' and 'evil,' especially prevalent in Indian television serials known for their melodramatic essence. However, in recent years, there has been a noticeable shift in the portrayal of 'good' and 'evil' in Indian television (Nagamallika, 2018). The research aims to delve into this transitional landscape by studying how contemporary web-series on OTT platforms depict and navigate these traditional character dynamics, exploring the nuanced evolution of storytelling in the digital age.

Surge in OTT Viewership Post Pandemic

A study by Tiwari (2019) found that web series had a positive impact on the respondents' social behavior, leading to increased communication with friends and family, and the creation of new relationships.

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With people seeking diverse and accessible content from the comfort of their homes, the appeal of OTT platforms soared, marking a substantial increase in their viewership.

The restrictions imposed in response to the Covid-19 pandemic brought about substantial shifts in media and entertainment consumption patterns. As lockdowns confined individuals from venturing out for leisure or work, social interactions gradually transitioned to online platforms. Web-based social networking offered the opportunity to stay connected with family, friends, colleagues, neighbors, and others. Due to the closure of external entertainment venues by government mandate, home-based entertainment modes experienced consistent growth and development (Menon, 2020).

Changing Narrative in OTT Web Series

In a content-saturated digital marketplace, brands are constantly seek ways to stand out. Well executed long-form content is an excellent way to build your brand's reputation for in-depth research, contextual expertise, and a mastery of your market niche (Teamthunderfoot, 2017).

Content plays an immense role in continuous watching behaviour. Video streaming platforms and creators of web shows are contemplating the prospect of targeting family audiences for some time, opting to avoid controversial or bold content and instead choosing a safer approach (Jha, 2021).

The researcher plans to identify the factors that influence the choice of content for the viewers and how they interpret different socio-economic, demographic and cultural elements shown in the series versus their idea of a family. According to Diwan (2016),

According to Diwan (2016), "Viewers use comments to make their own logic about why their desires, demands, complaints, and motivations matter visible to themselves. Watching the text is only part of this communication process. What completes the loop is seeing oneself as a viewer" ("NEXT EPISODE: THE STORY OF VIDEO STREAMING VIEWERSHIP IN INDIA," p. 262).

The study aims to take this thought ahead and explore how viewers actively engage with content through comments, transforming the act of watching into a participatory dialogue. Understanding the intricate dynamics of viewer interaction fosters insights into the complex interplay between content, audience perception, and the construction of individual identities within the realm of media consumption.

RESEARCH METHODOLOGY

Problem Statement: In the wake of India's digital renaissance and the unprecedented surge in Over-The-Top (OTT) content consumption, a significant gap exists in understanding the intricate dynamics of how Indian families are portrayed in OTT web-series and the subsequent impact on audience perceptions. While the OTT landscape has evolved rapidly, the nuanced representations of familial structures and dynamics remain relatively unexplored. This gap in knowledge poses a critical challenge, hindering the comprehension of the evolving contours of family portrayals in the digital realm and the potential implications for societal attitudes.

This Study Seeks to Address the following key Objectives:

1. **Explore Factors Influencing Content Choices:** Investigate the factors influencing viewers' choices when selecting specific OTT content, considering variables such as family type, environment, and opinion leaders.
2. **Assess the Impact on Audience Perceptions:** Examine the potential influence of OTT web-series on audience perceptions of family structures, dynamics, and societal norms. This includes gauging whether these representations contribute to shaping or challenging cultural attitudes.

By addressing these objectives, the research aims to contribute valuable insights to the evolving discourse on family representations in the digital age, shedding light on the interplay between OTT content, audience perception, and the construction of individual identities within the realm of media consumption.

Working Hypothesis:

Hypothesis: Influence of OTT Web-Series on Audience Perceptions

Null Hypothesis (H0): OTT web-series have no significant influence on audience perceptions of family structures, dynamics.

Alternative Hypothesis (H1): OTT web-series exert a noticeable influence on audience perceptions, contributing to the shaping or challenging of cultural attitudes towards family structures and dynamics.

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METHODOLOGY:

A questionnaire-based method, characteristic of descriptive research, was employed to test the hypothesis and achieve the research objectives. Descriptive research is designed to describe characteristics or behaviours of a given population. In this case, the research aimed to describe audience perceptions of family structures and dynamics in the context of OTT web-series exposure. The survey questionnaire was meticulously designed to gather quantitative data, providing numerical insights into viewers' habits, preferences, and the perceived impact of OTT content on their attitudes towards familial aspects. This method facilitated a comprehensive understanding of the audience's perspectives, contributing to a nuanced analysis of the influence of OTT web-series on their perceptions of family life.

SAMPLE COLLECTION

In the conducted research, the sample selection methodology employed was judgement sampling, involving a population of approximately 50 individuals who were contacted via email. Due to the practical constraints of email outreach and accessibility, the researcher may have chosen participants based on convenience, availability, or other factors, which introduced a level of bias into the sample selection. Despite the introduced bias, the study aimed to provide valuable insights into the research subject based on the responses obtained from the sample of individuals approached via email communication.

Ethical Considerations: This study will adhere to ethical guidelines, ensuring participant anonymity, informed consent, and confidentiality of responses.

Hypothesis Testing:

H1: Whether portrayal of family structures in OTT web-series reflects the diversity of real-life familial experiences in Indian society Vis-a- Vis age

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	51.556[a]	54	.569
Likelihood Ratio	50.338	54	.616
Linear-by-Linear Association	3.152	1	.076
N of Valid Cases	50		

H1: Whether portrayal of family structures in OTT web-series reflects the diversity of real-life familial experiences in Indian society vis-a- vis gender

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	.705[a]	3	.872
Likelihood Ratio	.705	3	.872
Linear-by-Linear Association	.161	1	.688
N of Valid Cases	50		

For the first Chi-Square tests related to the portrayal of family structures and age, the p-values (.569 and .616) are both greater than the typical significance level of 0.05, which suggests that there is no significant association between age and the perception of whether OTT web-series reflect the diversity of real-life familial experiences in Indian society.

In the second set of Chi-Square tests specifically focused on gender, the p-values (.872 for both Pearson and Likelihood Ratio tests) are also greater than 0.05, which implies that there is no significant association between gender and the viewpoint on whether OTT web-series portray family structures that reflect the diversity of real-life familial experiences in Indian society.

H1:Whether portrayal of family structures in OTT web-series reflects the diversity of real-life familial experiences in Indian society **vis-a-vis the type of family structures they watch**

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	12.628[a]	6	.049

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Likelihood Ratio	15.272	6	.018
Linear-by-Linear Association	.171	1	.680
N of Valid Cases	50		

The Chi-Square tests suggest a **significant association** between the type of family structures watched and perceptions regarding whether OTT web-series reflect the diversity of real-life familial experiences in Indian society. However, it's essential to note that the Linear-by-Linear Association test did not reach significance (p-value = .680). This suggests that while there might be an overall association, the linear trend across categories may not be statistically significant.

To further test the correlation between the between the type of family structures watched and perceptions regarding whether OTT web-series reflect the diversity of real-life familial experiences in Indian society, the research used the descriptive tests to understand frequencies or percentages in the cross tabulation to identify patterns:

Cross-tabulation

			FS3				
			Highly relevant	Somewhat relevant	Neutral	Not applicable	Total
FS	Joint family	Count	3	8	8	0	19
		% within FS	15.8%	42.1%	42.1%	0.0%	100.0%
		% within FS3	42.9%	38.1%	80.0%	0.0%	46.3%
	Nuclear Family	Count	3	13	1	3	20
		% within FS	15.0%	65.0%	5.0%	15.0%	100.0%
		% within FS3	42.9%	61.9%	10.0%	100.0%	48.8%
	Extended Family	Count	1	0	1	0	2
		% within FS	50.0%	0.0%	50.0%	0.0%	100.0%
		% within FS3	14.3%	0.0%	10.0%	0.0%	4.9%
Total		Count	7	21	10	3	50
		% within FS	17.1%	51.2%	24.4%	7.3%	100.0%
		% within FS3	100.0%	100.0%	100.0%	100.0%	100.0%

The tests conducted indicates that the largest proportion of responses for **Highly relevant and Somewhat relevant perceptions** comes from individuals who choose to see content bearing the portrayal of a nuclear family. Whereas, joint family seems to be associated with a higher proportion of **neutral perceptions.**

ANNOVA TEST

To further test, whether the type of family structure they find most engaging or relatable in OTT web-series influences, their understanding of gender roles, within Indian families; challenges or reinforces societal norms related to family dynamics and relationships and if it provides a realistic representation of different socioeconomic strata the researcher applied the ANNOVA test to understand the correlation between different variables:

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
FS1	Between Groups	3.928	2	1.964	1.502	.236
	Within Groups	49.682	38	1.307		
	Total	53.610	40			
FS3	Between Groups	.140	2	.070	.099	.906
	Within Groups	26.884	38	.707		
	Total	27.024	40			
FS4	Between Groups	.116	2	.058	.067	.935
	Within Groups	32.908	38	.866		
	Total	33.024	40			
FS5	Between Groups	.075	2	.037	.055	.946
	Within Groups	25.682	38	.676		

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	Total	25.756	40			
FS6	Between Groups	.057	2	.029	.032	.969
	Within Groups	34.187	38	.900		
	Total	34.244	40			
FS7	Between Groups	.324	2	.162	.193	.825
	Within Groups	31.871	38	.839		
	Total	32.195	40			

The ANOVA results reveal that there are no significant differences in individuals' perceptions of the engaging or relatable nature of family structures in OTT web-series based on the type of family structure (FS1). Similarly, no significant differences are found in the understanding of gender roles (FS3), perceptions of whether OTT web-series challenges or reinforces societal norms (FS4), and the realistic representation of socioeconomic strata (FS5) based on family structure types.

In summary, based on the ANOVA results, there is no evidence of a significant correlation between the type of family structure individuals find most engaging or relatable in OTT web-series and their perceptions of gender roles, societal norms, or socioeconomic strata within the context of these media portrayals.

Interpretation of the Tests:
Null Hypothesis (H0): OTT web-series have no significant influence on audience perceptions of family structures, dynamics.

Alternative Hypothesis (H1): OTT web-series exert a noticeable influence on audience perceptions, contributing to the shaping or challenging of cultural attitudes towards family structures and dynamics

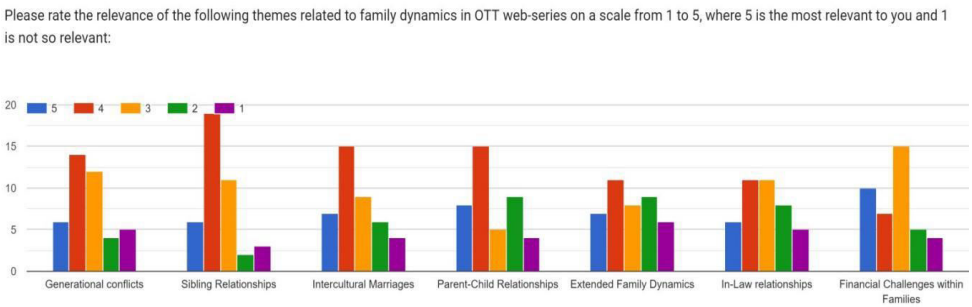
The research findings lead to the rejection of the alternative hypothesis (H1), which posited that OTT web-series exert a noticeable influence on audience perceptions, contributing to the shaping or challenging of cultural attitudes towards family structures and dynamics. The analysis indicates that there is insufficient evidence to support the claim that OTT web-series have a significant impact on audience perceptions of family structures and dynamics. The study suggests that other factors or complexities may play a more prominent role in shaping these perceptions, leading to the acceptance of the null hypothesis (H0), which asserts that OTT web-series have no significant influence on audience perceptions in this context.

Additional Findings from the Survey:
Respondents expressed diverse opinions on whether OTT web-series accurately capture the complexities of Indian family life. Some respondents felt that certain series, such as "The Family Man" and "Gullak" provide a refreshing and realistic viewpoint on Indian family dynamics. However, others noted that many series are purely for entertainment and may not accurately reflect real-life scenarios.

Positive examples cited by respondents include "Aarya" which portrayed crucial aspects like relationships, financial problems, and drug addiction realistically. Additionally, series like "The Burari Case" and "Panchayat" were highlighted for depicting real circumstances and challenges faced by individuals in a compelling manner.

Challenges in Accuracy: Several respondents acknowledged challenges in accuracy, particularly in the portrayal of social and economic dynamics. Some mentioned that while OTT series excel in representing social issues and LGBTQ acceptance, they tend to rely on stereotypes when portraying socioeconomic strata.

Entertainment vs. Realism: A recurring theme is the tension between entertainment and realism. Respondents acknowledged that while some series may capture small scenarios of real life, most are designed for entertainment purposes, with fictionalized stories and modified narratives.



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From this question, siblings relationships, and financial problems within families emerged as the most watched and preferred themes by the audience.

SCOPE OF THE STUDY:

This study delves into the multifaceted realm of Indian family representations within OTT web-series over the past five years, aiming to uncover the intricate storytelling techniques, character portrayals, and societal reflections embedded in digital narratives. The primary goal is to provide a holistic understanding of how OTT content shapes audience perceptions regarding family structures, dynamics, and cultural norms.

I) Theoritical Implications of the Study:

According to **Gerbner (1969)**, cultivation theory posits that long-term exposure to media content shapes and cultivates individuals' perceptions of reality. This theory assumes that media has the power to shape the way individuals perceive social reality over time.The study, through an examination of the evolving depictions of family life in OTT web-series, aims to assess cultivation theory, elucidating the potential impact of sustained exposure to these portrayals on shaping audience perceptions of Indian family structures and dynamics. A comprehensive analysis of changes in family representations spanning the past five years offers valuable insights into the ways these depictions may have contributed to the cultivation of specific perceptions or the reinforcement of prevailing cultural norms related to family life. The investigation aims to discern recurring themes and stereotypes embedded in OTT content, shedding light on their role in fostering a shared understanding among audiences regarding family roles, relationships, and cultural expectations. Through this exploration, the study seeks to contribute to a nuanced understanding of how OTT narratives contribute to the cultivation of audience perceptions, thereby providing valuable insights for both content creators and scholars in the field.

Similarly, uses and gratifications research, pioneered by **Katz, Blumler, and Gurevitch (1974),** underscores the active role of individuals in selecting and utilizing media to fulfill specific needs and desires. It assumes that audiences are not passive consumers but actively choose media to fulfill various psychological and social needs. The researcher's study employs uses and gratifications theory as a framework to delve into the motivations driving audience engagement with OTT web-series featuring family portrayals. By scrutinizing the specific needs and desires that viewers aim to fulfill through these portrayals, the research aims to unravel the multifaceted reasons behind audience preferences for family-themed content. An integral aspect of this exploration involves identifying the gratifications audiences derive from consuming OTT content related to family life. This encompasses a spectrum of needs, ranging from seeking entertainment and social integration to establishing cultural connections and fulfilling a desire to escape from reality. Furthermore, the study endeavors to discern how the evolution of family portrayals within OTT web-series aligns intricately with the dynamic landscape of changing audience preferences and needs. Through this examination, the research contributes valuable insights into the interactive nature of media consumption, offering a detailed understanding of the symbiotic relationship between evolving family narratives and the diverse needs of the audience.

II) **Practical Implications of the Study:**

The study on the evolution of Indian family portrayals in OTT web-series yields crucial practical implications for both content creators and the wider media landscape. Firstly, the research provides content creators with nuanced insights into audience expectations and preferences regarding family depictions. This understanding empowers creators to shape narratives authentically, ensuring the resonance of content with diverse viewership and aiding in the avoidance of stereotypes or insensitivity. Moreover, the study sheds light on the gratifications audiences derive from family-themed content, enabling creators to tailor productions to meet these needs, thereby enhancing audience satisfaction and fortifying the viewer-content relationship.

Secondly, the study has implications for platform competitiveness in the OTT industry. Content creators and platforms can leverage the findings to curate diverse and culturally resonant content libraries, gaining a competitive advantage. By recognizing the influence of family portrayals on audience perceptions, platforms can attract a broader user base and differentiate themselves in the market.

Lastly, the research holds broader societal implications by contributing to discussions on cultural reflections and societal norms. The portrayal of diverse family structures in OTT content has the potential to influence social perceptions and contribute to positive societal change. Overall, the study fosters a symbiotic relationship between creators and audiences, ensuring the creation of content that not only entertains but also authentically reflects and influences the cultural fabric of Indian society.

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LIMITATIONS AND CONCLUSION:

The generalizability of results may be constrained by the specific selection of OTT web-series and the demographic characteristics of the audience under examination. The qualitative nature of the research, while offering depth, might lack the statistical robustness associated with quantitative approaches, limiting the general applicability of certain findings.

Despite these limitations, the study holds practical implications for OTT makers by offering insights into audience expectations and preferences. Insights derived from this research can provide content creators with a nuanced understanding of audience expectations and preferences, aiding in the refinement of storytelling strategies. Ultimately, this study aims to foster a symbiotic relationship between creators and audiences, contributing to the production of content that resonates authentically with diverse viewership while ensuring the continued success and relevance of OTT platforms. Future research could delve into the impact of evolving OTT platform monetization models on user satisfaction, content quality, and platform sustainability. Exploring emerging models and their implications, such as hybrid subscription-advertising approaches, would provide valuable insights for industry optimization in the dynamic digital content landscape.

Appendices:

Questionnaire:

1) What type of family structure do you find most engaging or relatable in the OTT web-series you watch?

- Nuclear family
- Joint family
- Extended family
- Other (please specify)

2) How often do you intentionally seek out OTT web-series that depict a specific type of family structure (e.g., nuclear, joint, extended)?

- Very frequently
- Frequently
- Occasionally
- Rarely
- Never

3) Please rate the relevance of the following themes related to family dynamics in OTT web-series on a scale from 1 to 5, where 5 is the most relevant to you and 1 is not so relevant:

- Generational conflicts
- Sibling relationships
- Intercultural marriages
- Parent-child relationships
- Extended family dynamics
- In-laws relationships
- Financial challenges within families

To what extent do you believe that the portrayal of family structures in OTT web-series reflects the diversity of real-life familial experiences in Indian society?

- Highly relevant/applicable
- Somewhat relevant/applicable
- Neutral
- Not applicable

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4) In your opinion, how much influence do OTT web-series have on shaping your understanding of gender roles within Indian families?

- Highly relevant/applicable
- Somewhat relevant/applicable
- Neutral
- Not applicable

5) Do you feel that OTT web-series contribute to challenging or reinforcing societal norms related to family dynamics and relationships?

- Highly relevant/applicable
- Somewhat relevant/applicable
- Neutral
- Not applicable

6) To what extent do you find the portrayal of family structures in OTT web-series relatable to your own cultural or societal background?

- Highly relevant/applicable
- Somewhat relevant/applicable
- Neutral
- Not applicable

7) In your view, do OTT web-series provide a realistic representation of different socioeconomic strata within Indian families?

- Highly relevant/applicable
- Somewhat relevant/applicable
- Neutral
- Not applicable

8) Considering the diverse narratives presented in OTT web-series, can you share your thoughts on whether these portrayals accurately capture the complexities and nuances of Indian family life? Please provide examples or insights to support your perspective.

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A STUDY ON THE ROLE OF AYURVEDIC MEDICINE ON MENTAL HEALTH

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ABSTRACT

Ayurvedic medicine, an ancient holistic treatment method originating in the Indian subcontinent, takes a unique approach to tackling mental health issues. This study provides a thorough examination of the function of Ayurvedic medicine in fostering mental well-being and treating mental health issues. The study examines the many aspects of Ayurvedic therapies for mental health, drawing on historical views, theoretical concepts, clinical data, and current research. Key issues include Ayurveda's core principles as they apply to mental health, diagnostic tools, therapy modalities, clinical effectiveness, safety considerations, obstacles, and future directions. A review of the literature finds that Ayurvedic therapy provides a comprehensive framework that includes herbal medicines, dietary changes, lifestyle interventions, yoga, and meditation techniques to restore balance and harmony in mind, body, and spirit. While existing data reveals potential results, further study is needed to understand the mechanisms of action, standardize treatment methods, and incorporate Ayurvedic treatments into mainstream mental health care systems. This research adds to the expanding body of evidence on complementary and alternative methods to mental health treatment, highlighting the potential of Ayurvedic medicine to promote mental well-being and improve therapeutic results.

Keywords: Ayurvedic medicines, Mental health.

❖ INTRODUCTION

Background of Ayurveda: Ayurveda, sometimes known as the "science of life" or "knowledge of longevity," emerged on the Indian subcontinent more than 5,000 years ago. Ayurveda, which has its roots in ancient Vedic books like the Charaka Samhita and Sushruta Samhita, has grown into a complete medical system that stresses the interdependence of mind, body, and spirit. Throughout history, Ayurvedic researchers and practitioners have recognized the close link between mental and physical health, providing the framework for holistic approaches to healing that address the underlying causes of sickness.

Philosophical Underpinnings: The Tridosha hypothesis is central to Ayurvedic philosophy, positing that health is maintained when the three body humors (Vata, Pitta, and Kapha) are in balance, and sickness results from an imbalance. This comprehensive paradigm goes beyond the physical body to include mental and emotional elements, with each Dosha connected with certain psychological traits. Ayurveda also highlights the role of Agni (digestive fire), Dhatus (tissues), and Malas (waste products) in sustaining mental balance and general well-being.

Modern Challenges: Mental health illnesses have arisen as a global public health concern, with growing prevalence rates and severe socioeconomic costs. Despite breakthroughs in traditional psychiatric therapies, many people continue to encounter insufficient symptom alleviation, negative side effects, and barriers to mental health care. This has sparked increased interest in complementary and alternative therapies, such as Ayurvedic medicine, as viable supplements or alternatives to mainstream treatments.

Opportunities for Integration: Ayurveda provides a comprehensive and customized approach to mental health care that is consistent with modern principles of integrative and person-centred medicine. With its emphasis on individual constitution (Prakriti), lifestyle changes, herbal remedies, dietary interventions, and mind-body practices like yoga and meditation, Ayurveda has the potential to address the multifaceted nature of mental health disorders while also promoting self-care and resilience.

❖ SIGNIFICANCE OF THE STUDY

Ayurvedic medicine takes a comprehensive approach to mental health care, recognizing the interdependence of the mind, body, and spirit. Unlike traditional psychiatric therapies, which frequently focus exclusively on symptom management, Ayurveda targets the underlying imbalances that cause mental health illnesses, encouraging long-term recovery and well-being. Ayurvedic practitioners can improve treatment outcomes by using individualized therapy procedures that are adapted to each individual's constitutional type and present imbalance. Ayurveda's comprehensive therapy techniques, which include herbal medicines, dietary adjustments,

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lifestyle interventions, and mind-body activities such as yoga and meditation, address multiple areas of mental health, assuring a holistic approach. Furthermore, Ayurvedic remedies are drawn from natural sources, making them typically safe and well-tolerated, with fewer adverse effects than traditional psychiatric pharmaceuticals. Ayurvedic medicine's cultural relevance and acceptability increase patient and provider involvement and trust, making it easier to integrate into conventional mental health care. While ongoing research is growing the evidence base for Ayurvedic therapies in mental health care, greater investigation and cooperation are required to evaluate their efficacy and inform evidence-based practice guidelines.

To summarize, investigating Ayurvedic medicine in mental health care is a viable route for fostering holistic well-being, tailored treatment approaches, cultural relevance, and integration into mainstream healthcare systems. We can progress the area of mental health treatment and improve results for people all across the world by combining Ayurvedic wisdom with current scientific-achievements.

❖ LITERATURE REVIEW

Murphy Halliburton (2020) The paper discusses the Movement for Global Mental Health (MGMH) and its influence on expanding biomedical psychiatric interventions in India, despite better outcomes for mental health conditions like schizophrenia in India compared to developed countries. It advocates for maintaining a pluralistic healing environment for mental illness treatment in Kerala, emphasizing the importance of integrating Ayurveda alongside biomedical psychiatry. The author highlights the role of ayurvedic practitioners in Kerala in advocating for increased access to ayurvedic mental health services, challenging the growing hegemony of biomedical psychiatry in the region.

Ayush Kumargarg, Chandan Singh, Manoj Adhlakha, Ritu Kapoor (2017) This article describes that the Geriatric health care aims to address the long-term needs of the elderly, including mental health issues like dementia, depression, and anxiety. Rasayana drugs, particularly Medhya Rasayana, are highlighted for their potential in minimizing age-related disorders and cognitive dysfunction. Medhya Rasayana, such as Mandukaparni and Shankhapushpi, have shown benefits in enhancing cognitive function, reducing oxidative stress, and improving neurotransmitter levels in the brain. Ayurvedic herbs like Brahmi, Ashwagandha, Jyotishmati, and Tagara have demonstrated positive effects on memory and brain health in the elderly.

M.G. Ramu & B.S. Venkataram (1984) In this article author describes that Ayurveda emphasizes the importance of maintaining mental health by avoiding impulses like greed, grief, fear, anger, jealousy, and vanity. Following a lifestyle of truthfulness, moderation in alcohol and meat consumption, non-harming behaviour, avoiding overstrain, compassionate communication, and wholesome eating can promote sound mental health. The classification of mental disorders in Ayurveda is based on the involvement of manas doshas (Rajas and Tamas) and tridoshas (Vata, Pitta, Kapha). Factors like emotional disturbances, volitional transgression, and unwholesome food are considered causes of mental disorders in Ayurveda. Ayurvedic texts mention that manas is active throughout the body except in certain structures, with its control centre between the head and hard palate.

Dr. Anurag Pandey & Mamta Tiwari (2015) Explored the Mental health in Ayurveda is based on the balance of three gunas, tridosha, and panchabhuta. Prakriti, an individual's constitution, is determined by the doshas and gunas inherited at birth. Various therapies like Daiva vyaprashraya, Yuktivyapashrya, Satvavajaya cikitsa, Aachara Rasayana, Dinacharya, and Yoga are prescribed for mental health issues. Therapeutics for mental illness are categorized into Daivavyapashraya, Yuktivyapashraya, and Sattvavajaya Chikitsa. Achara Rasayana is a drugless treatment focusing on lifestyle habits like truthfulness, anger control, hygiene, sleep, and diet. Nitya nacharya stresses daily habits, circadian rhythms, and the balance between manas and ojus for overall well-being.

Gaurav Phull, Rekha Phull & Dimple Aggarwal (2019) This article presented that Ayurveda, an ancient science, extensively covers mental health aspects, including the role of "manas" in causing physical diseases like grahni, ardhavbhedaka, atisara, and chhardi . The "manas" controls all senses and self-regulates, emphasizing the importance of a healthy mind for logical thinking and judgment. Ayurveda recognizes three "mansik gunas" - Satva, Raja, and Tama, with the latter two being responsible for diseases, showing the interdependence of mind and body in causing illnesses. Various mental disorders like Apsmara, Unmada, Atatvabhinivesh, and grahabadha are elaborated in Ayurvedic texts, highlighting the impact of "mansik dosh" on mental health.

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❖ OBJECTIVES OF THE STUDY

- To examine the historical development and philosophical foundations of Ayurvedic medicine as they relate to mental health care.
- To review the range of treatment modalities used in Ayurvedic medicine for mental health, including herbal remedies, dietary modifications, lifestyle interventions, and therapeutic practices such as Panchakarma, yoga, and meditation.
- To identify challenges and barriers to integrating Ayurvedic medicine into mainstream mental health care systems, and to propose strategies for overcoming these challenges.

❖ RESEARCH METHODOLOGY:

This paper is based on secondary data sourced from the annual reports on the ayurvedic industry in India and other authentic publications. Various articles, theses, and reports have been used to show the role of ayurvedic medicine on mental health.

❖ DISCUSSION

▪ Origin of Mental illness

Mental illness occurs due to any sort of brain damage, Stressful life situations, and chronic medical conditions that may lead to various forms of mental health disorders such as OCD, depression, mania, PTSD, and psychosis. Hence, mental illness comes under a vast category in which its unauthenticated behaviour affects emotion, thinking ability, and attitude.

▪ What is Mental Health?

Ayurveda defines health as a harmonious balance of energy principles (Doshas) along with a happy mental state. It is all-encompassing and acknowledges the mind-body-soul connection. Every Ayurvedic consultation includes a psychological examination as well as an assessment of your lifestyle and present stressors. In Ayurveda, the three Gunas, Tridosha and Panchabhuta, are used to investigate the qualities of Manas (mind). The mix of these Doshas and the three Gunas that an individual inherits at birth determines his or her Prakriti. The dynamic balance of the aforementioned components promotes good mental health.

Manovikara (mental disorders) is treated as an illness. Our Prakruti (Ayurvedic constitution) is made up of three Doshas, and imbalances between them produce diseases. Vata imbalance is characterized by anxiety and phobias, Pitta imbalance by anger and obsessions, and Kapha imbalance by melancholy.

Similarly, we all experience phases of being stimulated, restless, or sluggish. These are mental qualities (Guna). Sattva is the natural mental state towards which we aspire for good mental health. It's a productive and balanced condition. Rajas is ambitious and energetic, whereas Tamas is slow and indifferent. While Rajas and Tamas are necessary for labor and rest, an imbalance might result in fury or despair.

Mental health imbalances can be caused by genetic and environmental factors, the passage of time, a misuse of our senses, or intentionally doing something injurious to our health, such as overeating or engaging in a violent fight. We may improve our lifestyle choices by raising our Prana (vital life energy) and consciousness via practices such as meditation.

▪ Diet and Lifestyle Modifications for Mental Health

Paying attention to what and when you consume are unavoidable variables to consider for maintaining mental power. To encourage improved mental feelings, we should maintain a healthy lifestyle and food. Here is a list of healthy dietary suggestions to improve your mental strength.

1. Stay hydrated to flush out toxins in your body
2. Avoid high levels of processed food such as fried chips, sugar-filled snacks, and soft drinks.
3. Practice leisure time apart from a busy work schedule
4. Eat seasonal fruits and veggies
5. Enhances the intake of healthy fats for appropriate brain functioning
6. Chew well for better digestion
7. Exercise regularly
8. Have a sound sleep

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9. Make a good social connection with friends and family
10. Always consume freshly prepared warm foodstuff
11. Consume food that contains omega-3 fats which are present in oily fish like tuna, salmon, mackerel, perch, herring, and sardines.

- **Ayurveda Therapies for Enhancing Mental health**

The application of medicated herbs with personalized therapies can calm and relax the mind, body, and soul.

1. **Ashwagandha** improves cortisol levels and brain cell activity.
2. **Brahmi** improves memory, focus, and intellect while reducing negative emotions in mental health.
3. **Turmeric** improves blood circulation and prevents mental illnesses.
4. **Guduchi** is also known as Giloy. It means "something which protects the body from ailments" in Sanskrit. It helps to alleviate depression, regulate stress, and improve memory.
5. **Mandukaparni**, a fragrant Indian herb, has been demonstrated to enhance mental alertness and memory. Memory can be improved by using the herb on a daily basis. Mandukaparni strengthens and regulates the immune system, and taking two capsules twice a day will help you get rid of brain fog.
6. **Virechana** is a panchakarma therapy that uses bitter herbs to cause vomiting and cleanse the body, relieving stress from mental problems.
7. **Shirodhara** is an Ayurvedic treatment that involves pouring therapeutic oil over the centre of the forehead. It is useful for persons suffering from insomnia, sleep difficulties, anxiety, depression, and other mental diseases.
8. **Satvavajaya chikilsa** promotes good thinking about self-awareness, family, and societal obligations. This treatment effectively treats mental illnesses induced by emotional disturbances.

- **Ten Ayurvedic tips for Enhancing Mental Health**

1. Increase *Sattva* and Practice Self Care
2. Balance *Agni* and *Doshas*
3. Have a nourishing diet
4. Get adequate sleep
5. Maintain a balanced lifestyle
6. Stay distanced – but socially connected
7. Avoid overstimulation of senses
8. Attend to immunity and *Ojas*

- **Key Challenges of Ayurvedic Medicines on Mental Health**

The integration of Ayurvedic medicine into mental health care faces several challenges that need to be addressed to maximize its potential benefits.

Limited research and evidence pose hurdles in establishing the efficacy, safety, and mechanisms of Ayurvedic treatments for mental health disorders, highlighting the need for more rigorous clinical trials and mechanistic studies.

Standardization and quality control issues in Ayurvedic medicines and treatments can lead to variations in therapeutic outcomes and safety, necessitating measures to ensure consistency and reliability.

Lack of integration into mainstream healthcare systems results in fragmented care and limited access to integrated services, requiring efforts to overcome regulatory, institutional, and cultural barriers. Cultural competence among healthcare providers is crucial for successful integration, necessitating training programs and initiatives to enhance understanding and collaboration.

Safety concerns and misuse of Ayurvedic treatments underscore the importance of educating patients and providers, ensuring regulatory oversight, and promoting quality assurance measures.

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Access and affordability barriers hinder the availability of Ayurvedic mental health care, highlighting the need for policy reforms, workforce development, and advocacy efforts.

Interdisciplinary collaboration among Ayurvedic practitioners and conventional mental health professionals is essential for effective integration, requiring trust-building, mutual respect, and clear referral pathways to facilitate collaboration. Addressing these challenges can pave the way for a more comprehensive and inclusive approach to mental health care that harnesses the potential of Ayurvedic medicine.

- **Strategies to Overcome the Challenges for Ayurvedic Medicines on Mental Health**

To overcome challenges in integrating Ayurvedic medicine into mental health care, several strategies can be pursued.

Investment in research is crucial, involving funding for clinical trials and studies to establish efficacy and safety.

Standardization efforts should be implemented to ensure consistency and quality control in Ayurvedic treatments.

Integration into mainstream healthcare can be facilitated through partnerships between Ayurvedic and conventional mental health providers, supported by referral networks and interdisciplinary training. Cultural competence training for mental health professionals is essential, along with patient education on Ayurvedic treatments and safety awareness.

Policy reforms advocating for insurance coverage and licensure for Ayurvedic practitioners are necessary, alongside efforts to translate research findings into practice through dissemination and knowledge exchange initiatives. These strategies collectively promote the effective integration of Ayurvedic medicine into mental health care, benefiting patients and providers alike.

- **CONCLUSION**

The role of Ayurvedic medicine in mental health care is multifaceted and holds immense promise for promoting holistic well-being and improving outcomes for individuals with mental health disorders. Rooted in ancient wisdom and philosophical principles, Ayurveda offers a holistic framework that considers the interconnectedness of mind, body, and spirit. By addressing underlying imbalances through personalized treatment approaches, including herbal remedies, dietary modifications, lifestyle interventions, and mind-body practices such as yoga and meditation, Ayurvedic medicine targets the root causes of mental health disorders and promotes long-term healing. Moreover, Ayurvedic interventions are generally safe, well-tolerated, and culturally relevant, making them accessible and acceptable to diverse populations. While further research is needed to elucidate the mechanisms of action and standardize treatment protocols, the growing body of evidence supporting Ayurvedic interventions in mental health care underscores their potential as complementary or alternative approaches to conventional treatments. By embracing the wisdom of Ayurveda alongside modern scientific advancements, we can create comprehensive and inclusive mental health care pathways that honor the uniqueness of each individual and foster resilience, balance, and flourishing.

- **RECOMMENDATION**

In light of the promising role of Ayurvedic medicine in mental health care, several recommendations emerge to further integrate Ayurveda into mainstream mental health practices. Firstly, there is a need for increased collaboration and dialogue between Ayurvedic practitioners, mental health professionals, researchers, policymakers, and stakeholders to foster interdisciplinary understanding and cooperation. This collaboration can facilitate the development of evidence-based guidelines, protocols, and training programs that integrate Ayurvedic principles and practices into mental health education, research, and clinical practice. Secondly, efforts should be made to enhance public awareness and education about Ayurvedic approaches to mental health, emphasizing their holistic nature, safety, and cultural relevance. This includes promoting research literacy among patients and providers, empowering individuals to make informed choices about their mental health care options. Thirdly, investment in rigorous scientific research is essential to further elucidate the efficacy, safety, and mechanisms of action of Ayurvedic interventions in mental health care. Well-designed clinical trials, mechanistic studies, and translational research can provide robust evidence to guide clinical decision-making and policy development. Lastly, there is a need for policy reforms and healthcare system changes to facilitate the integration of Ayurvedic medicine into mental health services. This includes recognizing and regulating Ayurvedic practitioners, ensuring access to quality herbal medicines, and incorporating Ayurvedic perspectives into mental health policies, guidelines, and reimbursement mechanisms.

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By embracing these recommendations, we can harness the potential of Ayurvedic medicine to enhance mental well-being, promote resilience, and improve outcomes for individuals with mental health disorders.

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A COMPREHENSIVE STUDY: THE USE OF ADAPTIVE LEARNING MODELS TO CO-RELATE LEARNERS' IQ & EQ LEVELS AND ITS IMPACT ON LEARNING PROCESS

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ABSTRACT:
Artificial Intelligence (AI) and Machine Learning (ML) are rapidly transforming the field of education, offering innovative solutions to enhance the learning experience, personalise instruction, and improve educational outcomes. AI and ML are playing an increasingly significant role in various aspects of education, including Personalised Learning; AI-powered systems can analyse student data, such as academic performance, learning styles, and interests, to create personalised learning plans that cater to individual needs. This personalised approach ensures that students receive the most appropriate instruction and support to maximise their learning potential. Adaptive Learning Systems: AI-driven adaptive learning systems can adjust the difficulty level of coursework, provide real-time feedback, and recommend additional resources based on student progress. In this paper, the author conducted a comprehensive study by interacting with teachers and learners of Colleges and Universities in London and Birmingham. Around more than 500 teachers and learners participated in the survey, and it was found that many of the learners enrolled for the education programmes without assessing their intelligence quotient (IQ) and emotional quotient (EQ) levels.

INTRODUCTION:

The integration of AI and ML into education has the potential to revolutionise the learning experience, making it more personalised, effective, and accessible for all learners. Machine learning algorithms can analyse data from standardised tests, academic performance, and other relevant sources to identify students who may have high IQs and qualify for gifted education programs. Early identification allows for appropriate educational interventions and support to help these students reach their full potential. IQ is often considered a predictor of academic success. Machine learning models can be trained on data sets of IQ scores and academic performance measures to predict future academic outcomes for students. Machine learning can analyse large amounts of data from cognitive assessments, such as response times, error patterns, and problem-solving strategies, to identify underlying cognitive patterns and predict IQ levels [1]. This understanding can inform the development of personalised learning strategies and interventions tailored to individual cognitive strengths and weaknesses. Machine learning can be used to develop adaptive learning systems that personalise instruction based on student IQ levels and learning styles.

RELATED STUDY:

In 2019, "Adaptive Learning and Intelligent Tutoring Systems: A Literature Review" by S.L. Santos, E.A. Meneses, A.M. Costa, and M.S. Santos, Sanots and et.al conducted a comprehensive overview of adaptive learning and intelligent tutoring systems, including their history, theoretical foundations, and applications. It also discusses the use of soft computing algorithms in adaptive learning systems, specifically for the classification and prediction of learners' IQ levels. [1]

In 2019, Sofia Hartati, Aip Badrujaman, Wening Cahyawulan wrote in Prospective Teachers Input Based on Intelligence Quotient in the Institute of Teacher Training and Education, Culture Fair Intelligence Test (CFIT) Scale 3 Form A was used to measure students' intelligence quotient.

The study's findings indicate that: (1) very few aspiring teachers fall into the smart and very smart category (4.3 %), the majority are in the average category (57%), and some students even fall into the lower category (36.3%) and borderline (2.4%); (2) very few recent high school graduates make the Institute of Teacher Training and Ed ucation their first choice for further education; and (3) improving the quantity of input in the institution's educati onal programs must be accompanied by an improvement in its quality. [2]

Thomas K.F. Chiu Qi Xia Xipyan Zhou, Ching Sing Chai, Miaoting Cheng, mentioned in "Systematic literature review on opportunities, challenges, and future research recommendations of artificial intelligence in education" (2023) about Al in education. This review study aims to understand the opportunities and challenges of Al in education by examining the literature from the last 10 years (2012-2021) using matrix coding and content analysis approaches. The results present the current focus of research by identifying 13 roles of Al technologies in the key educational domains, 7 learning outcomes of Al in education, and 10 major challenges. The review also provides suggestions for future directions of Al in education research. [3]

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Ali Zaidi, Shane Beadle and Arthur Hannah, ICF Consulting Services Ltd say in "Review of the online learning and artificial intelligence education market", A report for the Department of Education (July 2018). Machine learning is where an algorithm allows computer systems to 'learn' to improve tasks, without being programmed to do so. There are various models for machine learning, which includes neural networks (based on modelling biological neural networks in the brain) as well as models based on probability and statistics. All these models require access to considerable data in order for the system to learn. Whereas a Rules-based learning is where an algorithm uses pre-defined rules to respond to inputs. These rules are commonly deductions or choices, identified from large scale data mining. For example, the rules may identify that individuals that purchase certain products are more likely to purchase other particular products. Rules-based learning was generally considered by academic researchers as the most common form of commercial Al used by businesses. [4]

The integration of AI and ML into education has the potential to revolutionise the learning experience, making it more personalised, effective, and accessible for all learners. Machine learning algorithms can analyse data from standardised tests, academic performance, and other relevant sources to identify students who may have high IQs and qualify for gifted education programs. Early identification allows for appropriate educational interventions and support to help these students reach their full potential. IQ is often considered a predictor of academic success. Machine learning models can be trained on data sets of IQ scores and academic performance measures to predict future academic outcomes for students. Machine learning can analyse large amounts of data from cognitive assessments, such as response times, error patterns, and problem-solving strategies, to identify underlying cognitive patterns and predict IQ levels. This understanding can inform the development of personalised learning strategies and interventions tailored to individual cognitive strengths and weaknesses. Machine learning can be used to develop adaptive learning systems that personalise instruction based on student IQ levels and learning styles from written text using stylometry will yield good results if the right dataset is used. [5]

In 2019, Venkat Ram Reddy Ganuthula and Shuchi Sinha mentioned in “The Looking Glass for Intelligence Quotient Tests: The Interplay of Motivation, Cognitive Functioning, and Affect”, The Intelligence Quotient (IQ) tests and the corresponding psychometric explanations dominate both the scientific and popular views about human intelligence. Though the IQ tests have been in currency for long, there exists a gap in what they are believed to measure and what they do. While the IQ tests index the quality of cognitive functioning in selected domains of mental repertoire, the applied settings often inflate their predictive value leading to an interpretive gap. The present article contends that studying the influence of motivational and affective processes on cognitive functioning would help to evolve a more psychologically comprehensive account of the IQ tests and bridge the interpretive gap. To conclude, the article suggests possible future research directions that could strengthen the predictive value of the IQ tests. [6]

In 2020, Matthew N. O. Sadiku, Tolulope J. Ashaolu, and Sarhan M. Musa Roy G. Perry College of Engineering, Prairie View A&M University, Prairie View, TX, USA researched in “Essence of Human Intelligence”. The general mental capacity for learning, reasoning, and problem solving is known as intelligence. It is the most obvious characteristic that sets humans apart. An overview of human intelligence, including its definition, methods of development and testing, and applications to daily life, is provided in this essay regarding tests of intelligence, artificial intelligence, human intelligence, and intelligence. In the past, intelligence was thought to be a set quantity of cognitive ability that individuals possess from birth and that cannot be altered. According to Gardner's Multiple Intelligence Theory, people are born with varying amounts, capacities, and distinct combinations of intelligences that they can develop and refine over the course of their lives. An overview of human intelligence, including its definition, methods of development and testing, and applications to daily life, is provided in this essay. [7]

In 2023, Georgios Liapis, Loukritira Stefanou and Ioannis Vlahavas of Aristotle University of Thessaloniki, Thessaloniki, Greece researched in “Classifying Intelligence Tests Patterns Using Machine Learning Methods”. Testing for intelligence evaluates a range of cognitive skills and is widely used to evaluate applicants for scholarships, employment, and the educational system as a whole. Tests of intelligence are developed and analysed by certified psychologists and researchers, who also define the degree of difficulty, grade them, and consider the findings globally. Nevertheless, creating new model tests is a difficult and time-consuming process. In this work, we establish the foundation for creating a model that categorises the IQ patterns, which will produce new Raven tests for IQ. More precisely, we use a range of Machine Learning (ML) approaches to evaluate the patterns in the nonverbal multiple-choice intelligence test, Raven's Progressive Matrices Tests. The majority of the data in these intelligence tests consists of abstract images arranged in a grid structure, with one missing piece and a pattern connecting the images in both horizontal and vertical directions using triples. These

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tests are classified using a variety of machine learning techniques. The labels have been assigned based on multiple criteria, including the quantity of photos, the kind of pattern (such as adding, rotating, or counting), or their intricacy. The current study's findings serve as a foundation for the use of sophisticated neural network models, which are used for both classification and the creation of novel IQ patterns. [8]

RESEARCH METHODOLOGY:

The research methodology used to co-relate learners' IQ & EQ levels and its impact on learning process, will be applied research methodology. Here the methodology used for research implemented inside this research context has been improved to carefully examine different variables inside universities because a research methodology is a systematic plan for conducting research that outlines the methods and techniques used to collect, analyse, and interpret data. Applied research methodology is to the mix of traditional blended learning methods and modern practice-based technologies. This method of delivering information and improving the learning experience is unique. Through appropriate IQ levels, learners can connect with digital content interestingly and more productively.

SIGNIFICANCE OF THE STUDY:

The study of designing adaptive learning models to co-relate learners' IQ & EQ levels and its impact on learning process using soft computing algorithms holds significant importance in the realm of personalized education. By understanding and tailoring learning experiences to individual learners' cognitive abilities, these models have the potential to revolutionize the way we educate students. By adapting to individual learners' IQ levels, adaptive learning models can improve learning outcomes and increase student engagement. Studies have shown that personalized learning approaches can lead to higher academic achievement, increased motivation, and improved attitudes towards learning. [1,2]

Adaptive learning models can be particularly beneficial for students with learning disabilities by providing individualized instruction that meets their specific needs. This personalized approach can help bridge the gap between students with varying cognitive abilities and promote inclusive learning environments. Soft computing algorithms can continuously learn and adapt based on new data, ensuring that the adaptive learning models remain relevant and effective as students' progress through their education. This continuous improvement ensures that students receive the most up-to-date and personalized learning experiences.the study of designing adaptive learning models to classify and predict learners' IQ level using soft computing algorithms holds immense significance for personalized education. These models have the potential to transform the way we teach and learn, leading to improved learning outcomes, increased student engagement, and equitable access to quality education for all students.

Primary Research:

The primary research is being conducted to review the online learning and AI tools. It will include 'Desk-based research' to map online learning and AI in higher education developers and providers. This consists of a web search using pre-defined search terms, a review of a selection of public sector provider websites (FE colleges, HEIs, private training providers and community learning providers) and a search of online course directories.

- Telephone/face-to-face interviews with 25 online learning and AI developers. This includes four specialist AIEd developers, eight e-learning developers and five that offer both.
- Telephone interviews with 25 online learning/AI providers. This includes interviews with six MOOC platforms, ten FE and HE providers, and five smaller or specialist providers.
- Telephone/face-to-face interviews with 25 stakeholders. This comprises of five academic researchers that have undertaken considerable research on AIEd and online learning, education sector bodies and AOs; and
- A review of literature on the effectiveness and potential benefits of IQ. An online search identified a long list of 116 documents, of which 76 were reviewed in depth with information collected in a data capture template.

Study and Recommendations:

Adaptive learning models have the potential to revolutionise the way we approach education by tailoring instruction to the individual needs and learning preferences of each student. By leveraging technology and data analytics, adaptive learning systems can provide personalised feedback, recommendations, and resources to help students achieve their educational goals.

One area where adaptive learning models can have a significant impact is in co-relating learners' IQ and EQ levels. IQ, or intelligence quotient, is a measure of cognitive ability, while EQ, or emotional quotient, is a measure of emotional intelligence. Both factors play a role in a student's learning process and academic performance. By using adaptive learning models to analyse and co-relate learners' IQ and EQ levels, educators

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can gain valuable insights into how these factors influence students' learning styles, preferences, and outcomes. This information can be used to customise instruction, provide targeted interventions, and support students in developing both their cognitive and emotional skills. Using ML and AI tools enhances the conventional learning experience by providing real-time feedback to learners, interactive simulations, and other forms of multimedia. It aims to create a more engaging and interactive learning environment, which can lead to improved retention and performance. One key aspect of this method is that it is personalised and adaptive. The personalised learning experience is tailored to each learner's needs and abilities. This can be achieved through adaptive software, which tracks the learner's progress and adjusts the content and pacing of the lesson accordingly by using adaptive learning models to co-relate learners' IQ & EQ levels and its impact on learning process.

1. **Conducting Assessments:** Use adaptive learning models to administer assessments that measure both IQ and EQ levels. These assessments can provide valuable data on students' strengths, weaknesses, and areas for growth.
2. **Personalising Instruction:** Use the data gathered from assessments to personalise instruction for each student based on their individual IQ and EQ levels. Adaptive learning models can recommend resources, activities, and strategies that are tailored to each student's needs.
3. **Providing Feedback:** Use adaptive learning models to provide real-time feedback to students on their progress and performance. This feedback can help students understand how their IQ and EQ levels are impacting their learning and motivate them to make improvements.
4. **Supporting Social-Emotional Learning:** Use adaptive learning models to integrate social-emotional learning into academic instruction. By addressing students' emotional well-being and interpersonal skills, educators can help students develop both their IQ and EQ levels.
5. **Monitoring Progress:** Use adaptive learning models to track students' progress over time and identify trends in how IQ and EQ levels are influencing their learning outcomes. This data can inform decisions about future interventions and support strategies.

Overall, the use of adaptive learning models to co-relate learners' IQ and EQ levels has the potential to enhance the effectiveness of education and support students in achieving their full potential. By leveraging the power of technology and data analytics, educators can gain valuable insights into students' individual needs and preferences and tailor instruction to help them succeed.

LIMITATIONS OF STUDY

The use of adaptive learning models to correlate learners' IQ (Intelligence Quotient) and EQ (Emotional Quotient) levels can face several limitations. Firstly, the accuracy of IQ and EQ measurements can vary, impacting the reliability of correlations. Additionally, solely focusing on IQ and EQ may overlook other important factors influencing the learning process, such as cultural background, learning style, and socio-economic status. Moreover, the impact of labelling individuals based on these metrics can affect self-esteem and motivation, potentially hindering the learning process rather than enhancing it. Therefore, while adaptive learning models can provide valuable insights, it's crucial to consider these limitations and approach correlations with caution.

FUTURE SCOPE

As far as the use of adaptive learning models to co-relate learners' IQ & EQ levels and its impact on learning process is concerned, the implementation of the research is applicable to all the UK colleges and the universities. The scope of research refers to the boundaries and extent of a study, defining its specific objectives, target population, variables, methods, and limitations, which helps researchers focus and provide a clear understanding of what will be investigated.

CONCLUSION

This is an innovative approach to education and training that combines traditional classroom instruction with technology-based learning tools, providing a more interactive and engaging experience. The benefits of suggesting classifying and predicting IQ in learning include improved engagement, retention, and performance, increased productivity and efficiency, and personalised and adaptive learning. It can be used in different fields of education, diagnostic assessments, interviews, tests, presentations, seminars etc. Advancements in ML and AI technology are expected to create more realistic and immersive learning experiences, personalisation, feedback, and a secure learning environment. However, challenges such as the cost of technology, lack of standardisation, privacy concerns, and the quality of content and design of learning experiences need to be

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addressed. Understanding the basics of it is essential for staying ahead of the curve in today's fast-paced and constantly evolving world.

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ANALYSING THE IMPACT OF TECHNOLOGICAL INNOVATION ON SMALL BUSINESS GROWTH IN MUMBAI

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ABSTRACT
This study investigates the transformative role of technological innovation in shaping the growth trajectory of small businesses in Mumbai, India. By analysing the adoption, utilization, and impact of technological advancements, the research aims to provide insights into the mechanisms driving small business growth in a dynamic urban environment. Drawing upon a mixed-methods approach, including surveys, interviews, and case studies, the study examines the factors influencing technology adoption and its subsequent effects on business performance. Findings reveal that technological innovation significantly contributes to enhancing productivity, fostering competitiveness, and unlocking new market opportunities for small enterprises in Mumbai. However, challenges such as infrastructure limitations, skill gaps, and regulatory barriers hinder the effective utilization of technology among small businesses. The implications of the research extend to policymakers, business owners, and stakeholders, offering actionable insights to promote innovation adoption and support small business growth in Mumbai.

Keywords: Technological Innovation, Small Business Growth, Technology Adoption, Business Performance.

INTRODUCTION
In today's dynamic and rapidly evolving business landscape, technological innovation stands as a pivotal force driving growth and transformation across industries worldwide. Small businesses, particularly in burgeoning urban centres like Mumbai, are increasingly recognizing the imperative of embracing technological advancements to thrive in competitive markets. This research include small businesses which are typically refer to independently owned and operated enterprises with relatively fewer employees and lower revenue compared to larger corporations. This paper delves into the intricate relationship between technological innovation and the growth trajectory of small businesses within the vibrant economic ecosystem of Mumbai. One of the key strategies adopted by small businesses to navigate these challenges is the integration of technological innovation into their operations. Whether through the adoption of digital platforms, automation of processes, implementation of data analytics, or utilization of emerging technologies such as artificial intelligence and Internet of Things (IoT), technological innovation offers small businesses in Mumbai unprecedented opportunities to streamline operations, optimize resource allocation, and enhance customer experiences .In conclusion, the impact of technological innovation on small business growth in Mumbai is complex and multifaceted, with both opportunities and challenges. By exploring the various dimensions of this relationship, this research aims to provide valuable insights into strategies for small businesses to leverage technology effectively to drive sustainable growth and competitiveness in the dynamic economic landscape of Mumbai.

IMPORTANCE OF TOPIC:

Economic Growth: Small businesses are vital contributors to economic growth and job creation in Mumbai. Understanding how technological innovation influences their growth can inform policies and strategies aimed at fostering economic development in the region.

Competitiveness: Examining the impact of technological innovation can help these businesses identify opportunities to enhance their competitiveness.

Resource Optimization: Technology adoption can lead to improved resource utilization and operational efficiency for small businesses. Understanding how technology can be effectively leveraged can help small businesses in Mumbai optimize their resources and achieve sustainable growth.

Inclusive Development: Technological innovation has the potential to promote inclusive economic development by providing opportunities for marginalized groups and underserved communities.

Policy Implications: Insights from this research can inform policymakers and government agencies about the importance of supporting technological innovation among small businesses.

Knowledge Generation: By generating empirical insights and practical implications, it adds to the existing body of knowledge on entrepreneurship, innovation, and economic development.

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Global Trends: Technological innovation is a global trend shaping the future of business. Studying its impact on small businesses in Mumbai allows for comparisons with international practices and insights into how local businesses can align with global trends to remain competitive.

OBJECTIVES-

- To examine the impact of technological innovation on small business productivity, efficiency, and competitiveness in Mumbai.
- To explore the challenges and barriers faced by small businesses in Mumbai in effectively leveraging technological innovations for sustainable growth.
- To assess the socio-economic implications of technological innovation adoption on employment generation, income distribution, and overall economic development in Mumbai.
- To provide actionable recommendations for policymakers, business support organizations, and other stakeholders to promote and facilitate technological innovation adoption among small businesses in Mumbai.
- To generate knowledge that can inform future research endeavors and policy initiatives aimed at fostering innovation-driven growth and entrepreneurship in Mumbai's small business ecosystem

REVIEW OF LITERATURE-

Sinha, R., & Pal, S. (2019). Technology Adoption and Performance of Small and Medium Enterprises: Evidence from Mumbai. This study explores the relationship between technology adoption and SME performance in Mumbai, highlighting the positive impact of innovative technologies on business growth.

Joshi, A., & Gupta, S. (2020). The Role of Digital Technologies in Enhancing Small Business Competitiveness: Evidence from Mumbai. Joshi and Gupta examine how digital technologies, such as e-commerce platforms and digital marketing tools, contribute to the competitiveness and growth of small businesses in Mumbai.

Patel, K., & Desai, P. (2021). Leveraging Social Media for Small Business Growth: Insights from Mumbai Entrepreneurs. Patel and Desai investigate how small businesses in Mumbai utilize social media platforms for marketing, customer engagement, and overall growth.

Ghosh, D., & Chatterjee, S. (2019). Challenges and Opportunities of Adopting Cloud Computing in Small Businesses: Perspectives from Mumbai. Ghosh and Chatterjee discuss the challenges and opportunities associated with cloud computing adoption among small businesses in Mumbai, shedding light on its potential impact on business growth.

Kumar, V., & Pandey, R. (2020). Mobile Technology Adoption and Business Performance: A Study of Small Retailers in Mumbai.Kumar and Pandey investigate the relationship between mobile technology adoption and business performance metrics, such as sales growth and operational efficiency, among small retailers in Mumbai.

Gupta, R., & Agarwal, S. (2019). Artificial Intelligence and Small Business Growth: Opportunities and Challenges in Mumbai. This study explores the potential opportunities and challenges of integrating artificial intelligence technologies into small business operations in Mumbai, highlighting their implications for growth and competitiveness.

HYPOTHESES:

Hypothesis 1: Small businesses in Mumbai that adopt technological innovations experience higher revenue growth compared to those that do not embrace technology.

Hypothesis 2: The level of technological innovation adoption positively correlates with small business productivity levels in Mumbai.

Hypothesis 3: Small businesses in Mumbai facing fewer regulatory barriers exhibit a higher propensity to adopt technological innovations, leading to increased market competitiveness.

Hypothesis 4: Access to financial resources significantly moderates the relationship between technological innovation adoption and small business growth in Mumbai.

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RESEARCH METHODOLOGY:

Data Collection: A meticulously crafted questionnaire was utilized to gather primary data, incorporating both open and close-ended questions to encourage candid responses. Purposive sampling was employed to select interview participants based on their expertise and impact. Additionally, secondary data was gathered from reputable sources to ensure a comprehensive dataset.

Sampling: A strategic combination of purposive and stratified random sampling methods was utilized, resulting in a robust sample size of approximately 200 participants. Purposive sampling enabled the selection of participants based on specific criteria, while stratified random sampling ensured representation across various population strata.

Geographical Area: The study focused solely on small business entrepreneurs in Mumbai, encompassing both the city and suburban areas. This narrow geographical focus allowed for a concentrated analysis within Mumbai's dynamic entrepreneurial environment..

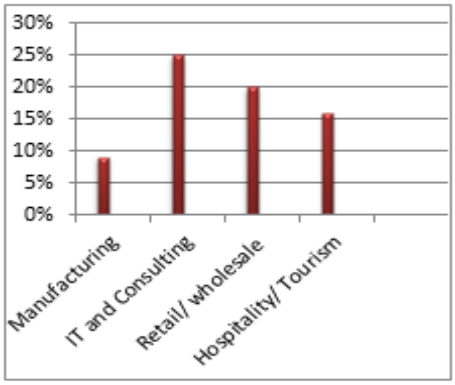
Period of Study: Data collection conducted meticulously from 2020 to 2023, capturing recent trends in the small scale business sector within Mumbai.

DISCUSSION AND FINDINGS-

A. Demographic Profile:

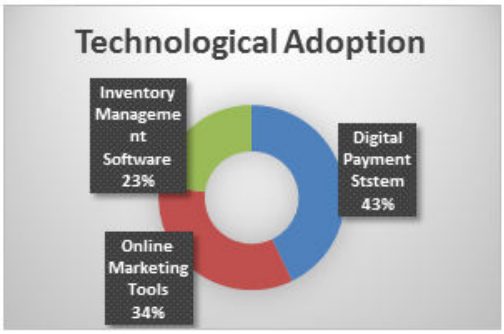
Gender distribution is fairly equal, with 48% male and 52% female representation. Age-wise, participants span various demographics, with 30% falling in the 18-30 age bracket, 45% in the 31-45 range, and 25% aged 46 and above. Geographically, 40% come from South Mumbai, 30% from Central Mumbai, and 30% from the suburbs. Education levels vary, with 20% having high school diplomas, 40% holding bachelor's degrees, and 40% possessing advanced degrees.

Industry wise Distribution



The participant distribution across industries reflects Mumbai's diverse economic landscape. Manufacturing accounts for 25%, while IT and Consulting comprise 15%, showcasing the rise of knowledge-based services. Retail/Wholesale Trade represents 20%, and Hospitality/Tourism 10%, underlining Mumbai's commercial and tourism sectors, respectively. The largest portion, 30%, falls under the Other category, encompassing Healthcare, Education, Finance, and more. This concise breakdown highlights the varied sectors contributing to the study on technology innovation's impact on small business growth in Mumbai. And more. This concise breakdown highlights the varied sectors contributing to the study on technology innovation's impact on small business growth in Mumbai.

B. Adoption of Technology:



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- **Inventory Management Software:** Only 35% of small businesses have implemented inventory management software to streamline their operations.
- **Digital Payment Systems:** Among the 200 small businesses surveyed, 65% have adopted digital payment systems like mobile wallets or payment apps.
- **Online Marketing Tools:** 52% of small businesses use online marketing tools such as social media advertising or email campaigns to promote their products or services.

C. Technological Innovation Tools

Technology Innovation Tools	Percentage of Small Businesses
Digital Payment Systems	65%
Online Marketing Tools	52%
Inventory Management Software	35%
Customer Relationship Management Software	28%
Cloud Computing Services	20%
Point of Sale System (POS)	18%
Business Analytics Software	15%
E-commerce platform or Website	40%
Social Media	30%

The data reveals that digital payment systems are the most widely adopted technology innovation tool among small businesses in Mumbai, with 65% of businesses using them. Online marketing tools follow closely behind, with 52% of businesses utilizing them to promote their products or services. Inventory management software sees a moderate adoption rate of 35%, indicating a significant portion of businesses are leveraging technology to streamline operations. Additionally, website or e-commerce platforms are popular among 40% of small businesses, highlighting the importance of online presence for growth. Social media management tools are utilized by 30% of businesses, indicating a recognition of the value of social media in marketing strategies.

D. Growth Metrics

- **Revenue Growth Rates**: Small businesses that have embraced technological innovation experienced an average revenue growth rate of 15% over the past year, compared to 8% for those that have not.
- **Employee Productivity:** Businesses using technology to automate repetitive tasks reported a 20% increase in employee productivity.
- **Customer Acquisition Rates:** Companies utilizing online platforms for customer acquisition saw a 25% higher acquisition rate compared to those relying solely on traditional methods.

E. Challenges and Barriers:

- **High Costs:** 45% of small businesses cited high upfront costs as the primary barrier to adopting new technologies.
- **Lack of Technical Expertise**: 30% of respondents reported a lack of skilled personnel to implement and manage technological solutions effectively.
- **Resistance to Change:** 25% of business owners expressed resistance to change among employees as a significant obstacle to technology adoption.

Challenges/Barriers for technological innovation in small business

- **Limited Financial Resources:** Small businesses may struggle to invest in technology due to budget constraints.
- **Lack of Access to Technical Expertise**: Difficulty in finding or affording skilled personnel to implement and manage technology solutions.
- **Resistance to Change:** Employees or management may resist adopting new technologies due to fear of disruption or unfamiliarity.
- **Cybersecurity Concerns:** Concerns about data breaches and cyberattacks may deter businesses from embracing new technologies.

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- **Integration Challenges:** Difficulty integrating new technology with existing systems and processes.
- **Vendor Lock-in:** Dependence on a single technology vendor may limit flexibility and increase costs.
- **Cultural Resistance:** Organizational culture may resist change, making it challenging to adopt new technologies.

SUGGESTIONS

1. **Policy Support:** Policymakers should focus on creating an enabling environment for technological innovation by streamlining regulations, providing financial incentives, and fostering public-private partnerships to support small businesses in adopting and implementing innovative technologies.
2. **Skill Development:** Investing in skill development programs and technology training initiatives can empower small business owners and employees to effectively utilize technology, thereby enhancing their capacity for innovation and growth.
3. **Access to Finance:** Improving access to finance for small businesses through targeted lending schemes, venture capital investments, and alternative financing mechanisms can facilitate technology adoption and innovation-led growth in Mumbai.
4. **Collaboration and Networking**: Encouraging collaboration and networking among small businesses, technology providers, and industry stakeholders can facilitate knowledge exchange, resource sharing, and collective problem-solving, leading to innovative solutions and business synergies.

LIMITATIONS

Sample Size Limitation: The research may be limited by the number of small businesses included in the study. A larger sample size could provide more comprehensive insights but might not be feasible due to resource constraints.

Geographic Limitation: Focusing exclusively on small businesses in Mumbai may limit the generalizability of the findings to other regions or cities in India

Focus on Small Businesses: The research exclusively examines small businesses, small business typically refers to investment up-to one crore, number of employees up-to twenty

CONCLUSION

In conclusion, the findings of this study underscore the critical role of technological innovation in driving small business growth and competitiveness in Mumbai. While challenges exist, such as regulatory hurdles and resource constraints, the study highlights the transformative potential of technology in unlocking new opportunities and fostering inclusive economic development. By addressing these challenges and capitalizing on the opportunities presented by technological innovation, policymakers, business support organizations, and small business owners can work together to create a vibrant ecosystem conducive to innovation-driven growth in Mumbai. Through collaborative efforts and targeted interventions, Mumbai can position itself as a hub of entrepreneurial activity, leveraging technology as a catalyst for sustainable development and prosperity.

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A STUDY OF PREFERENCES OF AN INDIVIDUAL INVESTORS FOR INNOVATIVE FINANCIAL AVENUES IN THE EASTERN SUBURBS OF MUMBAI

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ABSTRACT
This paper is centered on individual preferences towards new financial avenues with reference to eastern suburbs of Mumbai. This essay intends to examine how different individual invest in different financial instruments such as equity, mutual funds, bonds, crypto currency etc based on their knowledge of the market, income level, calculated risk factors, returns, tax benefits etc. Secondary data from various journals and literatures along with Primary data is in use for this research paper. It also explores the benefits and challenges an individual investor faces while investing in different financial avenues.

Keywords: Financial avenues, Investments, Investors.

INTRODUCTION

Innovative financial instruments have drawn a lot of interest in today's quickly changing financial landscape because they provide uncommon investing options outside of conventional asset classes. These tools include crowdsourcing websites, robo-advisors, peer-to-peer lending, and cryptocurrency. The purpose of this research project is to examine individual investors' preferences for these cutting-edge financial instruments. Financial institutions, decision-makers, and investors must comprehend these preferences in order to make wise choices and adjust to shifting market dynamics. Everybody uses the word "savings" on a daily basis. Everyone wants to receive the best possible returns on the money they invest in different areas. Different income groups invest in the opportunities they deem most preferable depending on their lifestyles and levels of money. Savings serve as a catalyst for the development of the nation by being invested in a variety of possibilities that are accessible to the populace.

The goal of humanity throughout history has always been to accumulate wealth. People search for the most effective ways to handle their money as a result of the wealth disparity and the ongoing discussion about equality. Making wiser investing decisions has become more important than ever in the modern era due to the high cost of living and desire for a prosperous lifestyle.

The current generation thinks that income and consumption should grow at the same rate. Purchasing a product with a high cost has become very simple thanks to the development of financial markets and instalment possibilities.

STATEMENT OF THE PROBLEM

The liberalization and globalization of Indian economy opened fascinating awareness of investment like share, mutual funds, and debentures. Among these avenues the investors are confused in comparing them on the basis of risk involved, returns and tax benefits.

Investments are acknowledged as powerful tools within the alleviation of financial condition. Investing, even a little amount, will turn out sizeable rewards over the long. But there'll be confusion among the individual for the choice of best investment avenues and this can be the foremost problems of the investors.

OBJECTIVES OF THE STUDY:

a. To know the demographic factors influencing investors decision while investing in financial avenues.

b. To analyse respondent perceptions and their investment pattern in Eastern Suburbs of Mumbai.

c. To understand in depth about different investment options available in market.

NEED OF THE STUDY

Indian economy is growing significantly. It has various investment options. The study analyses the preference of investors and the various factors influencing them. Against this backdrop of the research, the researcher tries to find out the investor’s perception and their investment preference towards financial instruments.

Benefits of the study

The study is very helpful for investors since its results will enable them to comprehend the following, which will enable them to make wise investments and gain from them.

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- Various investment strategies & fields.
- Using investor money wisely.
- When to invest and when to hold off.
- How to increase return while reducing risk.
- Businesses with large, midsize, and small market capitalizations.
- How to locate and choose the greatest funds.
- The distinction between liquid funds and savings accounts.
- Compound interest's power

LIMITATIONS OF THE STUDY

- The present study relies upon the results of survey conducted on a 100 individual investor.
- The implications of the study are subject to the constraints of sample size, psychological and emotional characteristics of survey population.
- The researcher analysis only the Preference and Perception of the individual investors.

RESEARCH GAP

Variables influencing the buy decision include investor pattern changeability, savings financial instruments like equity, gold, and debt in India. No study has been conducted in Eastern Suburbs of Mumbai region. Therefore, researcher found research gap in this field. Hence, it could be stated that suggested field of study is under research area.

REVIEW OF LITERATURE

1. **Rose Dayana, Joswin Prince Rodrigues (2021)**, highlighted the investment pattern of young Millennial in Bangalore city. The researcher has been collected the data from 133 respondents, falling under the age group of 18-24. Out of the above data, 64% respondents are graduated and 25% of them are not finished their post - graduation.it was found that about 11% of them monitor the investment on a daily basis and most of them have invested in Gold and Silver for their long-term benefit same like Bank and post office savings.
2. **Dr. Balaji Sadavarte, Ashwin Arora (2021)**, examined the savings and investment pattern of Indian household with 80 respondents where data was collected using the structured questionnaire, with population in the age group of 19 and above in Mumbai. To collect the data researcher has used the survey method and ANOVA analysis. Random sampling was used to reach the respondent. It was found that single people found tended to save more than those married.
3. **Mr. Rishabh Katiyar, Dr. Anil Kalotra (2019)**, discovered that investors must be educated to seek professional counsel in order to ensure that their investments don't sink rather than increase because they are more likely to rely on their parents, friends, and personal experiences when making investment decisions. The goal of the study, which was done in Delhi, was to learn how investors perceive and prefer to make investments. The findings showed that most investors invest in conventional forms of investment, such as real estate, recurrent deposits at banks, fixed deposits, and fixed deposits, and that most people are reluctant to invest in stock markets. Investors withdraw their funds when the market declines because they don't trust the stock market.
4. **Vaibhav Chopra and Dr. Vijay Gondaliya (2020)** attempt to identify investor's preferences and analyse the impact of demographic parameters like education, occupation, income, age, and gender that affect investors' investment decisions. The study is based on a descriptive research approach, and the 100-person sample size was used to collect primary data using a structured questionnaire. The results showed that the most popular investment options were savings accounts, fixed deposits, and life insurance, while the least popular options were the commodity and foreign exchange markets. A qualification was discovered to influence the investor's investing decision. The return on an investment, the safety of the principle, the risk involved, and capital growth were the most important criteria.

RESEARCH METHODOLOGY

- **Areas of study**: Research study will be in Eastern Suburbs of Mumbai due to the easy approachability for researcher.

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- **Sample size**: Sample size for the study is 100 respondents.
- **Sampling technique used**: Convenience sampling.
- **Type of data used**: The research is based on primary data as well as on secondary data.
- **Data Collection tools**: well-structured questionnaire will be used to collect the primary data and from various books, journals and websites mentioned in the references.
- **Tools applied in the study**: The research design is descriptive and inferential in nature; Descriptive research design is a scientific method which involves observing and describing the pattern/ behaviour of a subject without influencing it in any way.

1. Descriptive Analysis

The descriptive analysis helps the researcher to portray the characteristics of the sample respondents. The data information will obtain from the respondents and will rearrange into tables and charts so it might be easier to infer results from the manipulated data. The descriptive applied math tools employed in this study are:

- Percentage Analysis
- Cross-sectional tables

2. Inferential Analysis

Inferential analysis is employed by a researcher to infer judgments regarding the population parameters from the sample study. This involves testing of hypotheses framed supported the objectives. The applied math tests along- side the importance levels are accustomed verify whether or not a null hypothesis is often accepted or not. The inferential applied math tools employed in this study are:

- Averages

Data Interpretation:

Table No 1: Distribution of respondents by Age

Age Group	No. of respondents	Percentage
18-30	59	59
31-45	27	27
46-60	14	14
60 above	-	-
Total	**100**	**100**

Interpretation - From the above table, it can be seen that majority of the population belongs to the age group of 18-30 years.

Table No 2: Distribution of respondents by Gender

Gender	No. of respondents	Percentage
Male	49	49
Female	51	51
Total	**100**	**100**

Interpretation – From the above table, it can be seen that majority of the respondents are females.

Table No 3: Distribution of respondents by Marital Status

Gender	No. of respondents	Percentage
Male	55	55
Female	45	45
Total	**100**	**100**

Interpretation – From the above table, it can be seen that majority of the respondents are males.

Table No 4: Educational Qualification

Educational qualification	Respondents	Percentage
Professional	27	27
Post Graduate	36	36
Graduate	23	23
Under graduate	14	14

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HSC	-	-
Total	**100**	**100**

Interpretation – From the above table, it can be analyzed that majority of the respondents are post graduate.

Table No 4: Occupation of investors

Occupation	Respondents	Percentage
Teaching (College)	34	34
Teaching (School)	2	2
Govt. Employee	5	5
Business/Self employed	11	11
Professional	16	16
Others	32	32
Total	**100**	**100**

Interpretation – From the above table, it can be analyzed that majority of the respondents are Teaching (College), whereas Teaching (School) is very least.

Table No 5: Annual Income Level of the Investors

Income	Respondents	Percentage
Less than Rs. 2,40,000	27	27
Rs. 2,40,000 – Rs. 3,60,000	21	21
Rs. 3,60,000 – Rs. 5,00,000	11	11
More than Rs. 5,00,000	41	41
Total	**100**	**100**

Interpretation – From the above table, it can be analyzed that majority of the investors are from the category having annual income of more than Rs. 5,00,000.

Table No 6: Investment in financial avenues

Avenues	Respondents	Percentage
Equity shares	20	20
Mutual funds	26	26
Public Provident fund	11	11
Gold/Silver	14	14
Fixed Deposits	8	8
Insurance	11	11
Real Estate	4	4
National Pension Scheme	6	6
Total	**100**	**100**

Interpretation – From the above table, it can be analyzed that majority of the investors are invested in Mutual funds, whereas the lowest investment avenue is real estate.

Table No 7: Reasons for Investment in financial avenues

Reasons	Respondents	Percentage
High Rate of Returns	22	22
Risk	4	4
Liquidity	11	11
Tax Benefit	14	14
Safety	22	22
Regular Return	12	12
Retirement	10	10
Child Education	5	5
Total	**100**	**100**

Interpretation – From the above table, it can be analyzed that the majority of the investors are investing for high rate of returns as well as safety, whereas the least responses think for child education.

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Table No 8: Since how long you been investing

Period	Respondents	Percentage
Last 6 months	23	23
6 months – 1 year	14	14
1 year – 2 years	16	16
More than 2 years	47	47
Total	**100**	**100**

Interpretation – From the above table, it can be analyzed that the majority of the investors been investing for more than 2 years, whereas the least from 6 months – 1 year.

Table No 9: Investment plan which you prefer most

Plans	Respondents	Percentage
Equity shares	21	21
Mutual funds	39	39
Public Provident fund	9	9
Gold/Silver	14	14
Fixed Deposits	5	5
Insurance	-	-
Real Estate	7	7
National Pension Scheme	5	5
Total	**100**	**100**

Interpretation – From the above table, it can be analyzed that the majority of the investment plan which investors prefer most that is mutual funds, whereas the least number of investors preference is fixed deposits and national pension scheme and insurance is nil.

Table No 10: From where did you get an idea of making an investment

Source of information	Respondents	Percentage
Social media	11	11
Television	2	2
Newspaper	5	5
Word of mouth	59	59
Others	23	23
Total	**100**	**100**

Interpretation – From the above table, it can be analyzed that the majority of the investors get an idea of making an investment from word of mouth is 59%, whereas least number is 2% from television.

Table No 11: Would you recommend to your friends/relatives

Recommendation	Respondents	Percentage
Yes	96	96
No	4	4
Total	**100**	**100**

Interpretation – From the above table, it can be analyzed that the majority of the investors would recommend their friends and relatives is 96%, whereas 4% is not interested to recommend to their friend/ relatives.

SUGGESTIONS

As the study helps that numerous awareness programmes and seminars should be held to educate the public on where to invest, as the report indicates that people are not aware of where to put their money. The other opinion holds that knowing where to invest can be learned from an expert or financial guide. To educate people about the different investment possibilities and investments that would yield a higher return, numerous investing seminars should be held, similar to those that SEBI hosts for college students. To increase their return on investment over time, people should begin investing early. Investors should be the target audience for all educational initiatives, including publications, research, training, and seminars. Investor awareness campaigns are conducted through print, internet, and media channels.

LIMITATIONS:

1. The present study is confined to the geographical region of eastern of suburb Mumbai region only & it has excluded other areas and hence the findings of the study may not be generalized.

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2. Data is collected for the study is 100 respondents which is basically a general number.

3. Because people perceive things differently from each other, data may not be as accurate as they should be.

4. Opinions and recommendations are basically based on the respondents' responses and introspective analysis.

CONCLUSION

From the research, it can be concluded that majority of the investors are more interested in equity shares and mutual funds and PPF and other investment avenues are losing their importance so Government should be putting some efforts to revive its importance. Companies should be coming up with more new options of investment as people are nowadays interested in making investment. It can be concluded that investors are hunting for the safest investment avenue with more rate of return. Insurance companies should be putting more efforts to attract customers as no respondents has preference for insurance.

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"TREND ANALYSIS AND DATA EXPLORATION" IN BUSINESS ANALYSIS

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ABSTRACT
Today Data has become king in various aspects in Business. Data needs to store, manage, and process properly that helps business in analyzing business data. Data Visualization holds great promise for making data analysis easier for data analysist as it facilitates knowledge workers to represent raw data or numeric figures to graphic form in terms of various charts and graphs. This is essential in ever evolving current business era. Data Visualization can be used to express data in the form of knowledge, thus increasing the accessibility of data to higher managerial users of BI systems.

This paper describes easy understanding of the different tools and techniques involved in Data Visualization. This paper talks about how we use various Data Visualization Tools in the process of data analysis to understand trends and patterns present in operational or MIS data which is widely used in Business Intelligence.

Keywords: Business analysis, Data Exploration, Business Intelligence, Data Visualization

I. INTRODUCTION
Data has become the biggest asset for business. Data provides useful information for business in various business operations. The organization needs experts from finance, marketing, sales, customer service, etc. to interact with data to identify trends and patterns present in the available data. Data needs to be processed to extract useful information that leads to gaining useful knowledge about domain. Data helps in every business decision. It has become gradually important for knowledge workers from various business operations to become efficient in working with data.

Since data provide immense value, it's important that experts should effectively communicate the importance of the data to various groups of stakeholders within an organization. This creates the need for Data Visualization to identify trends and patterns present in available business data. Transforming raw data into visuals or graphics form using various data visualization tools, that makes it easy to communicate knowledge extracted from massive data.

II. BUSINESS INTELLIGENCE (BI)
In today's digital era, huge amounts of data can be stored and processed in various ways. This data is required to analyze and explore trends in business. This analysis helps to facilitate data-driven decision making. This process can be termed as Business intelligence where we use tools and techniques to analyze business information for future predictions or business forecasting. BI is a set of tools and methods for extracting raw data from internal and external data sources, transforming it, loading it into an integrated storage system, and presenting it to the business experts for tactic or strategic decision making.

III. BUSINESS ANALYSIS
Business analysis is a means to help enterprises in resolving their technical difficulties by understanding, defining, and solving business issues.

Business analysis is measuredly used to identify and formulate the need for changes in an organization's workflow to enable required changes. It is a process to identify and define the solutions that will maximize the value delivered by an organization to its stakeholders.

IV. DATA VISUALIZATION
Data visualization is one of the business-intelligence tools and roadmap to advanced analytics. data visualization helps to represent information in graphical form, such as a pie chart, graph, or other various types of visual presentations.

It is essential for data analysis and decision-making based on that data. It allows people to view and recognize patterns and relationships and to spot evolving trends that might become overlooked with a table or spreadsheet of raw numbers. A well-designed graphic provides information, as well as enhance the impact of the information with a strong presentation, attracting visuals. Data-visualization tools can connect with various data sources such as relational databases and analysis services.

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Data visualization tools use visual elements like charts, graphs, and maps, that provides an easy way to see and understand trends, outliers, and patterns in data. With basic domain knowledge, data visualizations can be used to express and identify key relationships in plots and charts that help experts and stakeholders to measure performance.

V. DATA VISUALIZATION TOOLS

Data visualization tools provide data visualization techniques in a simple way to create graphical representations of large data sets. Data Visualization Tools enables information in a visual format like graph, chart, scatter plots, box plots etc. for better analysis. Microsoft Power BI, Tablue, Zoho Reports, Google Charts, R-Tool, Looker, IBM Cognos Analytics are a few popular data visualization tools available. These Data Visualization tools will help analysts to work efficiently without consuming much time. Free trial versions are also available, which can be used as per data analysis requirements.

VI. DATA VISUALIZATION USING POWER BI

Power BI is a free application that can be downloaded and installed on the system. It can be connected to multiple data sources. Usually, an analysis work begins in Power BI Desktop where report creation takes place. The report is then published to Power BI service from where it can be shared to the Power BI Mobile apps so that people can view the reports even on mobiles. [3]

Power BI provides various views like Report View, Data View, Database connectivity. It also provides dashboard, which is a collection of several views, enabling to compare a variety of data simultaneously with different visual techniques. A Dashboard is a single page interface. Following are a few types of visuals that can be prepared.

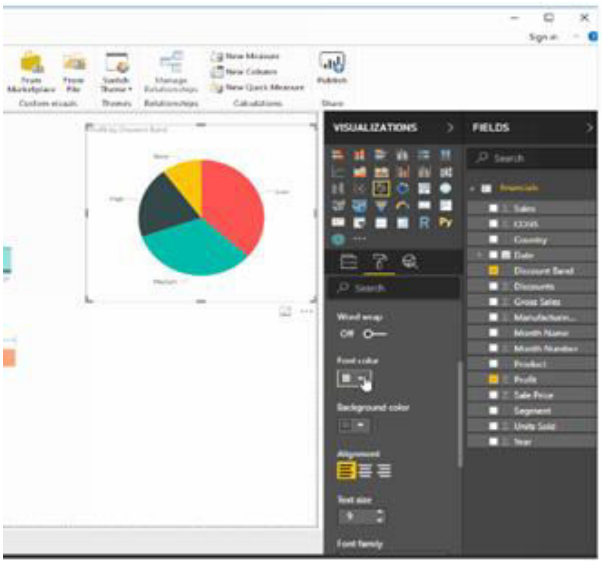

Figure 6.1 – Pie Chart

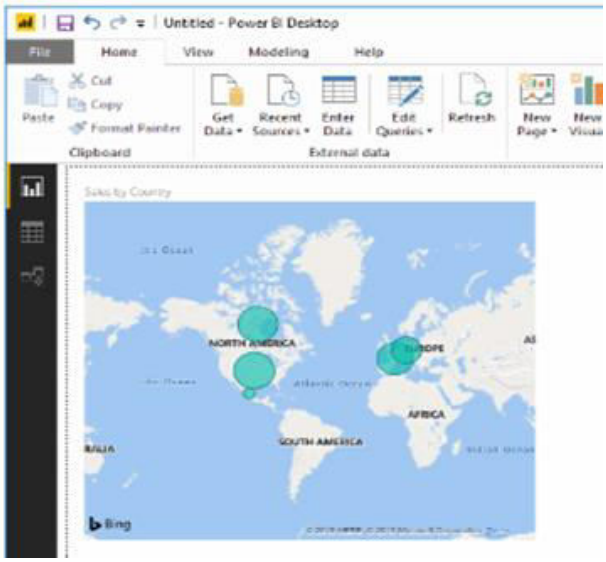

Figure 6.2 – Map

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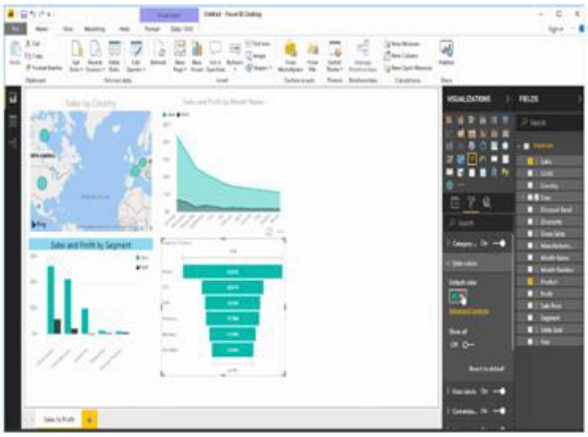

Figure 6.3 – Multiple Visuals on same canvas

VIII. CONCLUSION

Data visualization is the process of representing data in a graphical or pictorial form in a clear and effective manner. It has developed as a powerful and extensively applicable tool for analyzing and interpreting enormous and complex data. It has become a quick and easy way of conveying information in a visual format. It communicates complex figures with clarity, accuracy, and efficiency. These advantages have made data visualization to be useful in many fields of study.

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ANALYTICAL REVIEW OF THEORETICAL MODELS OF ENTREPRENEURIAL SKILL DEVELOPMENT

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ABSTRACT
Entrepreneurship is a dynamic field crucial for economic growth, innovation, and societal development. Central to entrepreneurial success are the skills possessed by individuals venturing into business ventures. This paper aims to explore various theoretical models of entrepreneurial skills development, shedding light on the multifaceted nature of skill acquisitions and its implications for entrepreneurial outcomes.

One prominent theoretical model discussed is the Trait Theory, which posits that certain innate characteristics, such as creativity, risk-taking propensity, and resilience, predispose individuals to entrepreneurial success. Another model explored is the Social Learning Theory, which underscores the importance of observational learning, socialization processes, and role modelling in acquiring entrepreneurial skills.

This paper examines the Cognitive Theory of Entrepreneurial Expertise, which highlights the role of cognitive processes, problem-solving strategies, and domain-specific knowledge in fostering entrepreneurial competence. It discusses the role of experiential learning and skill acquisition through entrepreneurial education and training programs. It examines the significance of immersive learning experiences, mentorship, and real-world application in honing entrepreneurial skills and fostering entrepreneurial intentions among aspiring entrepreneurs.

By synthesizing these theoretical models, the paper contributes to a comprehensive understanding of entrepreneurial skills development and provides insights for policymakers, educators, and practitioners involved in fostering entrepreneurial ecosystems. It underscores the importance of integrating diverse pedagogical approaches, fostering a conducive learning environment, and promoting lifelong learning to nurture the next generation of entrepreneurial talent and drive economic growth and innovation.

INTRODUCTION
Central to the success of any entrepreneurial endeavour are the skills and competencies possessed by the individuals driving these ventures. Understanding how entrepreneurial skills develop and the underlying theoretical frameworks that explain this phenomenon is crucial for fostering entrepreneurial talent and promoting business success. We embark on a journey through the diverse landscape of theoretical models of entrepreneurial skill development. We delve into the foundational theories that have shaped our understanding of how individuals acquire, hone, and apply the skills necessary to thrive in the entrepreneurial domain. We scrutinize the applicability of these theoretical models across different entrepreneurial contexts, considering variations in industry, culture, and economic conditions. By synthesizing empirical evidence from various studies, we seek to identify commonalities, divergences, and gaps in existing theoretical frameworks, paving the way for future research endeavours aimed at refining our understanding. This analytical review serves as a roadmap for researchers, educators, policymakers, and practitioners seeking to navigate the complex terrain of entrepreneurial skill development.

OBJECTIVES
To examine various theoretical models of Entrepreneurial Skill Development.

To discuss the role of experiential learning and skill acquisition.

To provide insights for policymakers, educators, and practitioners involved in fostering entrepreneurial ecosystems.

METHODOLOGY
The research paper work is based on secondary data.

LITERATURE REVIEW
February 2018, Science Journal of Education 6(1) Kaethe Schneider and Carlos Andres Albornoz, An entrepreneurial competency model is proposed that gives insight about the key behavior of recognizing/producing and exploiting entrepreneurial opportunity which a successful entrepreneur should be able to demonstrate, and a person's underlying characteristics.

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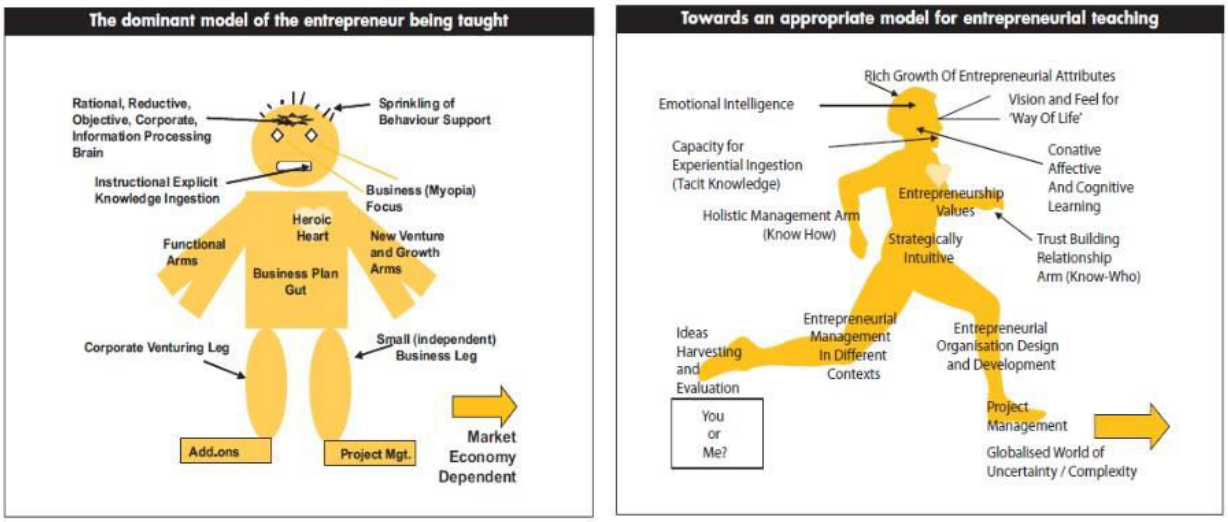
November 2012, Entrepreneurship Skills for Growth-Orientated Businesses, Prof. Thomas M. Cooney Dublin Institute of Technology, Report for the Workshop on 'Skills Development for SMEs and Entrepreneurship', Different Models for Teaching Entrepreneurship (Gibb, 2010)



According to Gibb (2010), the manner in which entrepreneurship is taught needs to be significantly altered as the traditional model of entrepreneurship is no longer applicable to the modern business environment. Gibb portrayed the dominant model of entrepreneurship as being static and focused heavily on the writing of a Business Plan and the various functional activities of an enterprise. His alternative 'appropriate' model portrays the entrepreneur as dynamic with a range of behavioural attributes that need to be developed.

Trait Theory

It is one of the foundational paradigms in the study of entrepreneurship, posits that certain inherent characteristics or traits predispose individuals to excel in entrepreneurial endeavours. While Trait Theory has been subject to both acclaim and criticism since its inception, its relevance and applicability in contemporary times continue to be a topic of scholarly debate and empirical investigation.

Trait Theory in contemporary contexts, it is essential to acknowledge its enduring influence on our understanding of entrepreneurial behaviour and outcomes. The theory suggests that traits such as creativity, risk-taking propensity, locus of control, passion, resilience, and pro-activeness are inherent qualities that differentiate successful entrepreneurs from others. These traits are believed to be relatively stable over time and across situations, shaping individuals' entrepreneurial intensions, decisions and actions.

However, the applicability of Trait Theory in contemporary entrepreneurship research has been met with several critiques and challenges. One of the primary criticisms is the lack of consensus on the specific set of traits that constitute the "entrepreneurial personality." Critics argue that the trait approach oversimplifies the complexity of entrepreneurship by reducing it to a fixed set of individual attributes, overlooking the contextual and situational factors that influence entrepreneurial behaviour.

Empirical evidence supporting the predictive power of traits in determining entrepreneurial success has been mixed. While some studies have found positive correlations between certain traits and entrepreneurial outcomes, others have failed to establish conclusive relationships. This inconsistency underscores the need for a more nuanced understanding of how traits interact with environmental factors, such as industry dynamics, market conditions, and social networks, to influence entrepreneurial performance.

In contemporary research, scholars have sought to enrich the Trait Theory by integrating insights from other theoretical perspectives and methodologies. For instance, researchers have explored the role of genetics, neuroscience, and psychometrics in elucidating the biological and psychological foundations of entrepreneurial traits. By employing advanced statistical techniques and longitudinal studies, scholars aim to identify trait profiles that are more predictive of entrepreneurial success across diverse contexts.

Contemporary studies have emphasized the dynamic and malleable nature of traits, challenging the notion of trait stability posited by traditional Trait Theory. Research suggests that traits can be developed, cultivated, and adapted through learning, experience, and environmental influences. This recognition has led to the emergence of interventions and interventions aimed at fostering entrepreneurial skills and mind set among individuals from diverse backgrounds.

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Social Learning Theory

Social Learning Theory, originally formulated by Albert Bandura, posits that individuals learn by observing others' behaviours, attitudes, and outcomes, and by modelling those behaviours themselves. In the context of entrepreneurship, Social Learning Theory suggests that aspiring entrepreneurs acquire entrepreneurial skills, knowledge, and attitudes through socialization processes, interaction with role models, and participation in entrepreneurial networks. Social Learning Theory remains a relevant and influential framework in understanding entrepreneurial behaviour and outcomes, albeit with certain refinements and extensions to account for the complexities of the modern entrepreneurial landscape.

One of the key strengths of Social Learning Theory in contemporary entrepreneurship research lies in its ability to elucidate the role of social factors in shaping entrepreneurial intentions and actions. With the proliferation of digital platforms and social media, aspiring entrepreneurs have unprecedented access to a diverse array of role models, mentors, and entrepreneurial communities. Through online forums, networking events, and virtual mentorship programs, individuals can observe and learn from successful entrepreneurs, emulate their strategies, and gain insights into the entrepreneurial process.

Social Learning Theory has been instrumental in highlighting the importance of social networks and peer influence in fostering entrepreneurial behaviour. Contemporary research has demonstrated that individuals embedded within entrepreneurial ecosystems are more likely to engage in entrepreneurial activities and pursue entrepreneurial opportunities. By leveraging social ties, collaborative partnerships, and collective resources, entrepreneurs can overcome barriers, access new markets, and accelerate venture growth.

The application of Social Learning Theory in contemporary entrepreneurship research has also encountered challenges and critiques. One criticism is the potential for selective observation and biased learning, whereby individuals may only emulate successful entrepreneurs while overlooking their failures or shortcomings. Moreover, the theory's emphasis on observational learning may overlook the importance of experiential learning and hands on practice in developing entrepreneurial skills and expertise.

Contemporary studies have highlighted the role of informal learning environments, such as incubators, accelerators, and co-working spaces, in facilitating social learning among aspiring entrepreneurs. These environments provide opportunities for peer-to-peer learning, knowledge exchange, and collective problem-solving, fostering a culture of collaboration and innovation.

The Cognitive Theory of Entrepreneurial Expertise

The Cognitive Theory of Entrepreneurial Expertise continues to be a relevant and influential framework in entrepreneurship research, especially as scholars seek to understand the complexities of entrepreneurial behaviours in rapidly changing environments.

1. **Adaptation to Uncertainty-** One of the key strengths of the Cognitive Theory is its ability to explain how entrepreneurs navigate uncertainty and complexity. In today's volatile and unpredictable business landscape, characterized by technological disruptions, market fluctuations, and global crises, entrepreneurs must constantly adapt and innovate. The theory's emphasis on effectual reasoning, which involves setting goals based on the resources at hand and iterating as opportunities unfold, resonates well with the dynamic nature of contemporary entrepreneurship.
2. **Innovation and Creativity -**The Cognitive Theory underscores the importance of creativity and innovation in entrepreneurial endeavours. In today's knowledge-based economy, where innovation drives competitiveness and sustainability, entrepreneurs are increasingly required to think outside the box, challenge conventional wisdom, and develop novel solutions to emerging problems. By focusing on how entrepreneurs combine existing knowledge and resources in innovative ways, the theory offers valuable insights into the mechanisms of entrepreneurial innovation.
3. **Interdisciplinary Perspectives-** Contemporary research has expanded the Cognitive Theory by integrating insights from diverse disciplines, such as cognitive psychology, organizational behaviour, and neuroscience. By adopting a multidisciplinary approach, scholars can gain a more nuanced understanding of the cognitive mechanisms underpinning entrepreneurial expertise. For example, studies drawing on cognitive neuroscience techniques, such as functional magnetic resonance imaging (FMRI), have provided insights into the neural correlates of entrepreneurial decision-making processes.
4. **Educational Implications-** The Cognitive Theory has implications for entrepreneurship education and training programs in contemporary times. Recognizing that entrepreneurial expertise is not solely reliant on innate abilities but can be developed through learning and experience, educators are increasingly

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incorporating experiential learning methods, case-based pedagogies, and real-world simulations into entrepreneurship curricula. By providing students with opportunities to engage in hands-on entrepreneurial activities and reflection, educators aim to cultivate the cognitive skills and mind set necessary for entrepreneurial success.

5. **Tech Entrepreneurship and Digital Platforms-** With the rise of technology entrepreneurship and digital platforms, the Cognitive Theory offers insights into how entrepreneurs leverage digital resources, networks, and algorithms to create value and disrupt traditional industries. By studying the cognitive processes of digital entrepreneurs, researchers can uncover new patterns of decision-making, resource acquisition, and business model innovation in the digital age.

CONCLUSION

By recognizing the multidimensional nature of entrepreneurial traits and their interaction with contextual factors, researchers can advance our understanding of entrepreneurial behavior and inform the development of more effective educational programs, policy initiatives, and support mechanisms for aspiring entrepreneurs.

By acknowledging the influence of social factors, peer networks, and role models on entrepreneurial behaviour, researchers can inform the design of more effective educational programs, policy interventions, and support mechanisms to nurture the next generation of entrepreneurs and drive economic growth and

By emphasizing the adaptive, creative, and interdisciplinary nature of entrepreneurial expertise, the theory provides a robust foundation for future research, education and practice in entrepreneurship.

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DETECTING POTENTIAL MONEY LAUNDERING ACTIVITIES THROUGH NETWORK ANALYSIS TECHNIQUES - A ROBUST SYSTEM DESIGN AND IMPLEMENTATION

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ABSTRACT
Money laundering poses a significant threat to the global financial system, often involving complex transactions networks designed to conceal the illegal origins of funds. There is a growing need for advanced technological solutions to combat this illicit activity that can effectively detect and analyze patterns within financial networks. This project aims to design and implement a robust system that leverages network analysis techniques to identify potential instances of money laundering. The proposed system will collect and analyze data from financial transactions, utilizing sophisticated algorithms to uncover hidden relationships and suspicious patterns within the network. By mapping the flow of funds and identifying key nodes in the network, the system will be able to flag transactions that exhibit high-risk characteristics indicative of money laundering activities. Key components of the system include data collection mechanisms, network analysis algorithms, anomaly detection models, and visualization tools to aid in the interpretation of results. Through a combination of machine learning techniques and domain expertise, the system will continuously improve its ability to detect suspicious behaviour and adapt to evolving money laundering tactics. The implementation of this system has the potential to significantly enhance the capabilities of financial institutions and regulatory bodies in detecting and combating money laundering activities. By providing a proactive and technology-driven approach to monitoring financial transactions, the system aims to enhance the overall integrity of the financial system and contribute to a more secure and transparent environment for conducting business.

Keywords: Money laundering, Global financial system, Network analysis, Financial transactions, Security

I. INTRODUCTION
Money Laundering, the most common way of camouflaging the beginnings of unlawfully gotten cash, represents an imposing test to the steadiness and uprightness of monetary frameworks around the world. With its negative effect on economies and social orders, money laundering has turned into a need worry for administrative bodies, policing, and monetary organizations. Traditional Anti-Money Laundering (AML) procedures have generally depended on rule-based frameworks and exchange observing to recognize dubious exercises. In any case, the rising refinement of washing strategies, combined with the intricacy of present day monetary exchanges, has uncovered limits in these traditional methodologies. Criminal organizations consistently adjust, taking advantage of weaknesses inside the current AML systems bey abstract .Because of these difficulties, a change in outlook has happened in AML philosophies, prompting the joining of cutting edge logical procedures. Financial Transaction Network Analysis (FTNA) has arisen as a urgent device in this development, offering a more nuanced and extensive comprehension of monetary exchanges. By understanding the authentic setting and the constraints of existing systems, this study looks to add to the continuous talk on viable AML techniques even with dynamic and modern tax evasion plans.

Techniques in AML
Projects in the realm of Anti-Money Laundering commonly employ a fusion of methods to bolster the efficacy of their systems. The decision to integrate specific me6thods is contingent upon the unique features of the dataset under scrutiny and the overarching goals of the analysis. This strategic amalgamation aims to harness the strengths of different AI techniques, creating a synergistic effect that enhances anomaly detection capabilities. Continuous monitoring proves indispensable in the landscape of AML, ensuring that the chosen methods remain attuned to the evolving nature of money laundering tactics. This adaptability is crucial for the sustained effectiveness of AML systems, allowing them to dynamically respond to emerging patterns and evolving threats. In essence, the amalgamation of methods, guided by the dataset's nuances and analytical objectives, coupled with a commitment to continuous monitoring, forms a resilient strategy in the fight against financial crime. The dynamic and adaptive nature of these approaches aligns seamlessly with the ever-changing landscape of money laundering, making them indispensable components of an effective AML framework.

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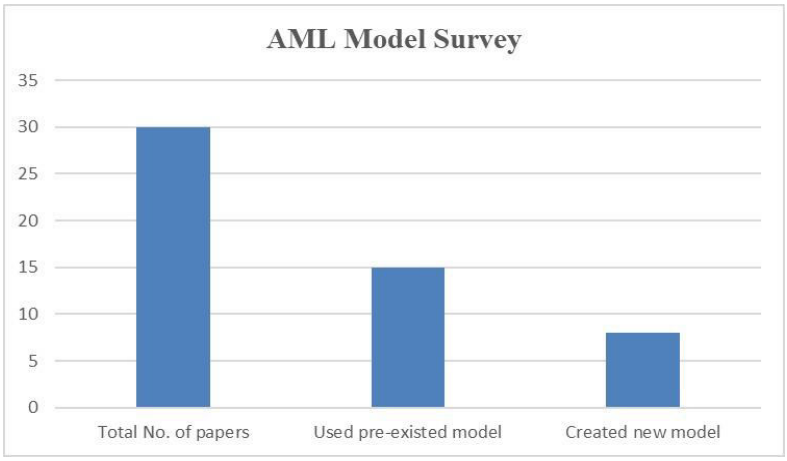

Fig.1 Pre-Existed Model and Newly Created Models

- Network Analysis
  - **Graph Representation:** Financial transactions are often represented as a directed graph, where nodes represent entities (e.g., individuals or businesses), and edges represent the transactions between them.
  - **Community Detection:** Algorithms like Louvain Modularity or GirvanNewman are applied to identify clusters or communities of entities that frequently transact with each other, helping to uncover potential money laundering networks.
  - **Centrality Measures:** Metrics like PageRank or Betweenness Centrality can identify entities that play a significant role in the network, helping to pinpoint key players or nodes.
- Anomaly Detection
  - Isolation Forests: Anomaly detection algorithms, such as Isolation Forests, can identify nodes or edges in the network that exhibit unusual behavior, signalling potential money laundering activities.
  - **K-Means Clustering:** It is a popular unsupervised learning algorithm used for clustering data points into a predefined number of clusters. It can be applied in FTNA to group transactions based on similarity, helping to identify clusters of potentially suspicious activities.
  - **Random Forest:** is an ensemble learning algorithm that builds multiple decision trees and combines their predictions to improve accuracy. It can be used in FTNA for classification tasks, such as identifying fraudulent transactions based on historical data.
- Machine Learning for Node and Edge Features:
  - **Supervised Learning:** Using classification algorithms like Random Forest or Support Vector Machines to predict whether a node or edge is associated with suspicious behaviour based on features such as transaction frequency, amounts, and historical behaviour.
  - **Unsupervised Learning:** Employing clustering algorithms to group nodes or edges with similar characteristics, aiding in the identification of unusual patterns.
- **Temporal Analysis:** Analysing the temporal aspects of transactions, such as transaction timestamps, to identify patterns that may indicate suspicious behaviour occurring over time
- **Visualization:** Developing interactive visualization tools to represent the financial transaction network visually, allowing investigators to explore and understand complex relationships intuitively.
- **Ensemble Methods:** Combining multiple models, such as anomaly detection and machine learning classifiers, using ensemble methods to improve overall detection accuracy and robustness.
- **Deep Learning:** Applying neural networks or deep learning techniques for feature learning and pattern recognition in large-scale financial transaction datasets.
- **Autoencoders:** Neural network models known as autoencoders are trained to first map input data to a lower-dimensional representation, from which the input is then reconstructed. Reconstruction mistakes could increase as a result of anomalies. Autoencoders are employed when anomalies show non-linear relationships because they may identify intricate patterns in data.

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- **Graph-based Methods:** Graph-based approaches can be used to financial transactions by representing them as a graph with nodes representing entities (e.g., accounts) and edges representing transactions. Unusual transaction graph patterns or structures are examples of anomalies. Identifying irregularities in the financial transaction network's connection or structure.
- **Bayesian Networks:** Probabilistic relationships between variables are modelled by Bayesian networks. Unexpected probabilities or dependencies can be used to identify anomalies. When simulating the unpredictability and intricate relationships found in financial transactions, Bayesian networks come in handy.

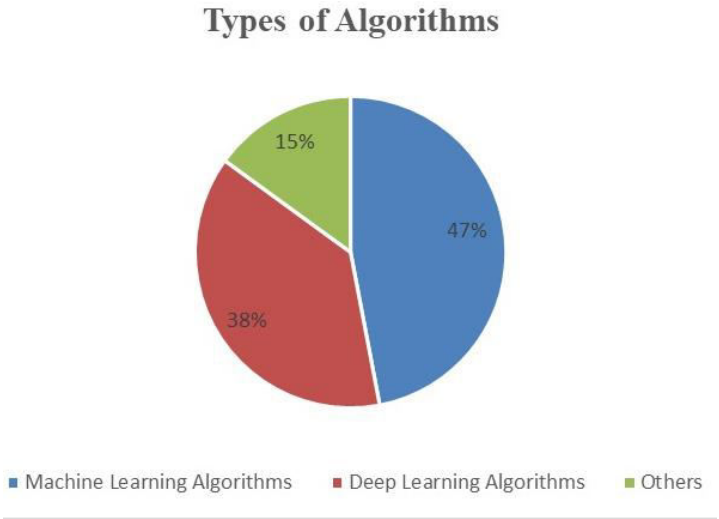

Fig.2 Types of Algorithms

These artificial intelligence techniques offer a variety of ways to find irregularities in financial transaction data. The features of the data, the particular objectives of the AML system, and the need for the results to be interpreted clearly all influence the technique choice. Systems for detecting anomalies that are more resilient are often those that combine several techniques or employ ensemble approaches. Effective AML techniques also require ongoing monitoring and modification of these procedures in response to changing money laundering strategies.

Objectives

The goal is to design and implement a robust system that utilizes network analysis techniques to detect and analyse patterns within the network of financial transactions, with the aim of identifying potential money laundering activities.

1) **Design and Implement a Robust System for Detecting Potential Money Laundering Activities**

This research aims to develop a comprehensive system that can effectively detect potential instances of money laundering by leveraging network analysis techniques. This system will be designed to collect and analyze financial transaction data, utilizing advanced algorithms and models to uncover hidden relationships and suspicious patterns within the network.

2) **Enhance the Capabilities of Financial Institutions and Regulatory Bodies in Combating Money Laundering**

The proposed system's implementation aims to significantly augment financial institutions' and regulatory bodies' ability to identify and mitigate money laundering activities. The system will contribute to a more secure and transparent financial ecosystem by providing a proactive, technology-driven approach to monitoring financial transactions.

3) **Continuously Improve the System's Ability to Detect Evolving Money Laundering Tactics**

The system will incorporate machine learning techniques and domain expertise to continuously improve its capacity to detect suspicious behavior. This will allow the system to adapt and respond to the evolving tactics employed by money launderers, ensuring its effectiveness in the face of changing financial crime patterns.

4) **Contribute to the Overall Integrity and Transparency of the Global Financial System**

By successfully detecting and deterring money laundering activities, the proposed system aims to enhance the overall integrity and transparency of the global financial system. This will help to foster a more secure and trustworthy environment for conducting legitimate financial transactions and business activities. The

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achievement of these research objectives will provide a valuable contribution to the ongoing efforts to combat money laundering and strengthen the resilience of the global financial system against financial crimes.

II. Observations

The development of Anti-Money Laundering (AML) has been a powerful reaction to moving elements in monetary violations, mechanical headways, and the basic for worldwide participation. In the beginning phases from the 1960s to the 1980s, worries about coordinated wrongdoing prompted the presentation of AML measures, exemplified by the Bank Secrecy Act (BSA) in the US during the 1970s and 1980s. The development of the Financial Action Task Force (FATF) in 1989 denoted an essential second, laying out worldwide principles to battle tax evasion on a worldwide scale. The 1990s saw the far reaching reception of AML guidelines around the world, joined by the foundation of Financial Intelligence Units (FIUs) for smoothed out data trade. The 1990s saw the far reaching reception of AML guidelines around the world, joined by the foundation of Financial Intelligence Units (FIUs) for smoothed out data trade. The outcome of the 9/11 assaults in the mid 2000s provoked the establishment of the USA Loyalist Act in 2001, altogether upgrading AML guidelines to counter both illegal tax avoidance and psychological militant supporting. Simultaneously, the FATF kept on advancing, setting down suggestions that shaped the reason for worldwide AML systems. Mechanical progressions during the 2000s and 2010s provoked monetary establishments to coordinate innovation, information investigation, and man-made reasoning into their AML methodologies. All through the 2010s, expanded administrative examination provoked wards to brace their AML systems, with monetary establishments confronting better standards in expected level of effort, revealing, and consistence. As the 2020s unfurled, globalization accentuated the significance of cross-line participation to battle developing monetary violations. The ascent of cryptographic forms of money and arising innovations introduced new difficulties, convincing administrative bodies to adjust and investigate ways of directing computerized resources. AML endeavours during the 2020s progressively embraced dynamic, risk-based ways to deal with address the developing idea of monetary violations, underscoring designated preventive measures. Continuous drives zeroed in on reinforcing worldwide coordinated effort, encouraging data sharing, and adjusting AML systems to address arising chances, denoting a proceeded with obligation to combatting unlawful monetary exercises on a worldwide scale.

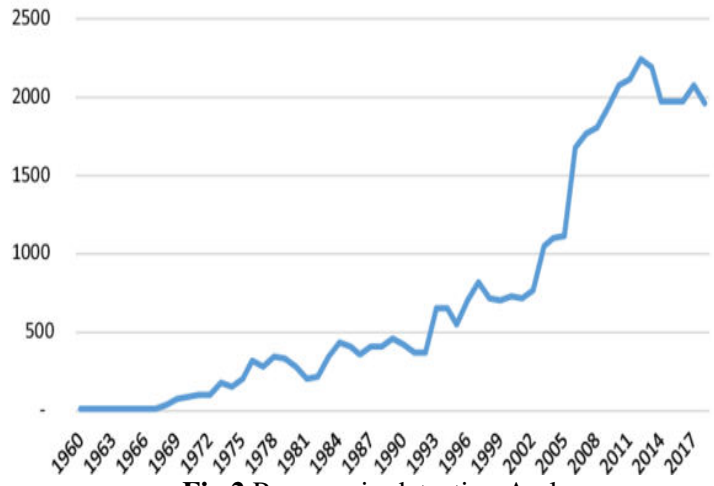

Fig.2 Progress in detecting Aml

Key Components:

- **Data Collection:**

Collect a comprehensive dataset containing historical financial transactions. This dataset should include relevant details such as transaction amounts, timestamps, and the entities involved in each transaction.

- **Graph Representation:**

Represent the financial transactions as a directed graph, where nodes represent entities (e.g., individuals or businesses), and edges represent the transactions between them. This graph-based representation allows for a holistic view of the relationships and interactions in the financial system.

- **Node and Edge Features:**

Define relevant features for nodes and edges in the graph. Node features may include transaction frequency, average transaction amounts, and historical behavior. Edge features may capture the strength of the financial relationship between entities.

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- **Anomaly Detection:**

Implement anomaly detection algorithms to identify nodes or edges exhibiting unusual behavior within the financial transaction network. Anomalies may include sudden spikes or drops in transaction frequency, unexpected changes in transaction amounts, or connections to entities with known high-risk profiles.

- **Community Detection:**

Apply community detection algorithms to identify clusters or groups of entities that frequently engage in transactions with each other. These communities may represent distinct sectors or industries, but they could also reveal potential money laundering networks or organized crime groups.

- **Alert Generation:**

Implement a system to generate alerts for potentially suspicious activities based on the results of the network analysis. The alert system should consider the severity of anomalies and the significance of identified communities, enabling AML professionals to prioritize investigations effectively.

- **Model Evaluation:**

Evaluate the performance of the network analysis model using historical data and simulated scenarios. Employ metrics such as precision, recall, and F1 score to assess the effectiveness of the system in detecting and alerting on suspicious financial activities.

- **Visualization:**

Develop an interactive visualization tool to display the financial transaction network. The tool should highlight suspicious nodes, edges, and communities, providing AML investigators with an intuitive and informative interface to explore and understand complex relationships.

By integrating network analysis with machine learning, this project aims to enhance the capabilities of AML systems, providing financial institutions with a proactive and effective tool to combat money laundering and financial crimes.

III. PROPOSED METHODOLOGY:

- ***Network Analysis:***

- **Graph Representation:** Financial transactions are often represented as a directed graph, where nodes represent entities, and edges represent the transactions between them.
- **Community Detection:** Algorithms like Louvain Modularity (The Louvain Modularity Algorithm is a method used for community detection in networks. It aims to identify groups of nodes (or communities) within a network that are densely connected internally but sparsely connected to the rest of the network. The algorithm was proposed by Vincent D. Blondel, Jean-Loup Guillaume, Renaud Lambiotte, and Etienne Lefebvre in 2008.) are applied to identify clusters or communities of entities that frequently transact with each other, helping to uncover potential money laundering networks.
- **Centrality Measures:** Metrics like PageRank or Betweenness Centrality can identify entities that play a significant role in the network, helping to pinpoint key players or nodes.

- ***Anomaly Detection:***

- **Isolation Forests:** Anomaly detection algorithms, such as Isolation Forests, can identify nodes or edges in the network that exhibit unusual behavior, signaling potential money laundering activities.
- **Bayesian Networks:** Bayesian Networks algorithms offer a powerful framework for probabilistic reasoning and decision-making in the field of AML. Bayesian Networks are probabilistic graphical models that represent a set of random variables and their conditional dependencies via a directed acyclic graph (DAG).

- ***Machine Learning for Node and Edge Features:***

- **Supervised Learning:** Using classification algorithms like Random Forest or Support Vector Machines to predict whether a node or edge is associated with suspicious behavior based on features such as transaction frequency, amounts, and historical behavior.
- **Unsupervised Learning:** Employing clustering algorithms to group nodes or edges with similar characteristics, aiding in the identification of unusual patterns.

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- ***Temporal Analysis:***

Analyzing the temporal aspects of transactions, such as transaction timestamps, to identify patterns that may indicate suspicious behavior occurring over time.

- ***Visualization:***

Developing interactive visualization tools to represent the financial transaction network visually, allowing investigators to explore and understand complex relationships intuitively.

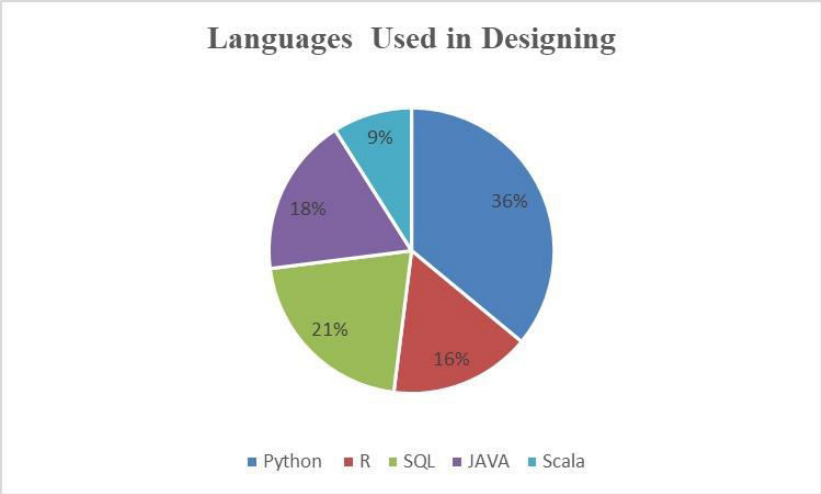

Fig.3 Languages Used to Create the Model

The flow of proposed methodology involves the following steps:

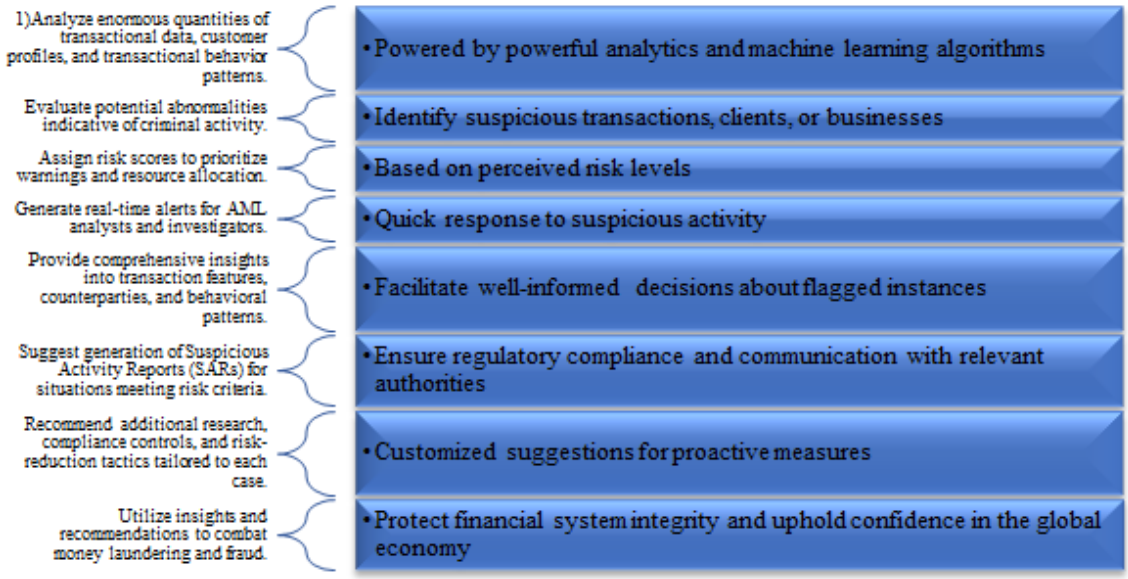

Fig4: Steps involved in Detecting Potential Money Laundering Activities

IV. OUTCOMES:

The results and suggestions produced by Anti-Money Laundering (AML) models are an essential component of contemporary financial crime prevention and detection tactics. These models, driven by powerful analytics and machine learning algorithms, methodically evaluate enormous quantities of transactional data, customer profiles, and transactional behaviour patterns to find potential abnormalities indicative of criminal activity. Assigning risk scores to transactions, clients, or businesses is one of the main results of these assessments. This makes it easier to prioritize warnings and allocate resources according to perceived risk levels. Additionally, AML analysts and investigators can respond quickly to suspicious activity by using real-time alerts generated by AML models. The comprehensive insights into transaction features, counterparties, and behavioural patterns that accompany these alerts enable stakeholders to make well-informed decisions about the urgency and veracity of each flagged instance. In addition, AML models have the ability to suggest that Suspicious Activity Reports (SARs) be generated for situations that fall under predetermined risk criteria. This ensures regulatory compliance and facilitates communication with relevant authorities. AML models also offer suggestions for

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additional research, compliance controls, and risk-reduction tactics that are customized to the unique details of every case that is detected. Financial institutions and regulatory agencies can proactively combat money laundering and fraud by utilizing the insights and recommendations produced by AML models. This will protect the integrity of the financial system and uphold confidence in the global economy.

CONCLUSION

The results and suggestions provided by Anti-Money Laundering (AML) models play a crucial role in modern financial crime prevention and detection efforts. By leveraging advanced analytics and machine learning algorithms to analyze vast amounts of data, these models can identify suspicious activities, assign risk scores, prompt real-time alerts, recommend generating Suspicious Activity Reports (SARs), and offer tailored strategies for risk mitigation. By heeding the insights and guidance from AML models, financial institutions and regulatory bodies can effectively combat money laundering and fraud, safeguarding the integrity of the financial system and bolstering trust in the global economy.

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ENHANCING MOVIE RECOMMENDATIONS WITH ITEM-BASED COLLABORATIVE FILTERING USING KNN ALGORITHM

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ABSTRACT
Collaborative filtering has proven to be an effective method of generating recommendations based on user preferences and behavior. This research focuses on the development of a movie recommendation system utilizing the item-based technique of collaborative filtering. In this study, we emphasize the advantages of the item-based approach over the user-based approach in terms of accuracy and efficiency. The item-based method is particularly advantageous due to its ability to operate offline and its non-dynamic nature, making it suitable for large datasets. The proposed methodology leverages the K-nearest neighbors (KNN) algorithm to calculate the distance between the target movie and every other movie in the dataset. By utilizing cosine angle similarity, the system ranks the top K nearest similar movies to provide personalized recommendations to users. This approach not only enhances recommendation accuracy but also ensures scalability and computational efficiency. Through a systematic evaluation of the item-based collaborative filtering technique, this research aims to contribute to the advancement of recommendation systems in the context of movie recommendations. The results of this study are expected to demonstrate the effectiveness and practicality of the proposed approach in generating high-quality recommendations for users based on their movie preferences.

Keywords: Movie recommendation system, Collaborative filtering, Item-based technique, K-NN algorithm, Cosine angle similarity

I. INTRODUCTION
The movie industry has been booming successfully ever since its early days. But not all movies are great, worth watching, and are worth users' time. Hence people depend a lot on reviews before watching a movie. Classically the movies are rated based on rating score. In addition, users also provide comments for review, like putting comments on the trailer of the movie, on songs, teasers, background music, etc. But the reviews are not the sole thing on which the ratings and recommendations of a movie depend. As people are very short of time these days so comments are hardly read by them. Movies are one of the sources of entertainment, but the problem is in finding the desired and worth-watching content from the ever-increasing millions of contents every year. The worldwide movie industry is one of the most growing, popular, and significant industries and is gaining the attention of people of all ages. It has been observed in a recent study that only a few of the movies achieve success and can get themselves a tag of a hit or a blockbuster movie at the box office by having a huge box-office collection. Uncertainty in the sector has created immense pressure on the film production stakeholders and even on the director, writer, and almost every person associated with the movie. Moviemakers and researchers continuously feel that it is necessary to have some expert systems predicting the movie success probability preceding its production with reasonable accuracy. A maximum of the research work has been conducted to predict the movie's popularity in the post-production stage. To help the movie maker estimate the upcoming film and make necessary changes in the script or anywhere it is required to do so, we need to conduct the prediction at the early stage of movie production and provide specific observations about the upcoming movie. Today online social networking platforms (SNPs) have become an important part of our lives where we share a lot of information about all the things, we do in life from shopping, traveling to different places, to movie watching, etc. With the ever-growing use of SNPs, recommendation systems have emerged as a hot trend for applications in e-commerce and digital media. These recommendation systems are useful but on the other side misguiding as well. Today digital media use has increased tremendously with an increase in internet speeds. But users do not get a proper review of a movie and a user is manipulated/persuaded to watch a substandard movie which he/she does not intend to do, thus costing a user time and money. So, there is a need to develop a movie review system that will give the correct and accurate reviews of digital content like movies so that users can only watch those movies that they intend to do.

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Figure 1: Movie Recommendation

However, recommendation systems come much handier in these situations as they help a lot in such kinds of situations. Recommendation systems are refining mechanisms to visualize or to imagine/predict the ratings for items and users, to recommend likes mainly from the big data. A movie recommendation is important in our social life due to its strength in providing enriched entertainment. Such a system can suggest a set of movies to the users based on their interest, liking, or popularity of the movies (the movies that created a lot of buzz and are currently trending in the industry). A recommendation system is used to suggest items i.e., movies to purchase or to watch either online or by going to theatre. They direct users toward those movies that can meet their needs by cutting down large databases of Information. A recommender system, or a recommendation system or engine, is a subclass of information filtering systems that seeks to predict the "rating" or "preference" a user would give to an item. They are primarily used in commercial applications. Movie recommendation systems are intended to assist movie fans by advising them which movie to see without needing users to go through the time-consuming and complicated method of selecting a film from a large number of thousands or millions of options available. The goal of this research paper is to reduce human effort by recommending movies based on the user's preferences and choices. A recommendation system is a system that provides suggestions/recommendations to the users for certain resources like books, movies, songs, web series, dramas, etc., based on some data set. Movie recommendation systems usually predict what movies a user will like based on the attributes present in previously liked or watched movies. Such recommendation systems are beneficial for organizations that collect data from large amounts of customers and wish to effectively and efficiently provide the best suggestions possible. A lot of factors are to be considered while designing a movie recommendation system like the genre of the movie, actors present in the movie, or even the director of the movie. The systems can recommend movies depending on one or a combination of two or more attributes.

Research Objectives:

- With the proliferation of information, the ability to quickly locate one's favorite film among a great number of options has become a critical issue.
- A personalized recommendation system can be very helpful when the consumer doesn't have a specific movie in mind.
- This suggestion or recommendation system can provide reliable and efficient suggestions to the users on watching a particular movie either based on the movie's success or on the content on which the movie is based or else depending on the user’s choice and interests.

II. Workflow of Recommendation System:

A recommendation system is a system that provides suggestions/recommendations to the users for certain resources like books, movies, songs, web series, dramas, etc., based on some data set. Movie recommendation systems usually predict what movies a user will like based on the attributes present in previously liked or watched movies. Such recommendation systems are beneficial for organizations that collect data from large amounts of customers and wish to effectively and efficiently provide the best suggestions possible.

Why Recommendation Systems?

- Recommendation Systems are essential for several reasons:
- Recommendation Systems offer personalized suggestions based on user preferences, ensuring that users discover content and products that are relevant and interesting to them.

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- By providing tailored recommendations, users are more likely to engage with the platform, increasing user satisfaction and retention.
- E-commerce platforms use recommendation systems to promote products, leading to higher sales and revenue as users discover and purchase items they might not have otherwise considered.
- In today's vast digital landscape, recommendation systems help users navigate the overwhelming amount of content available, making it easier to find what they seek.
- Recommendation systems expose users to new and diverse content, expanding their horizons and introducing them to items they might have overlooked.
- For complex and subjective choices, such as movies, music, or books, recommendation systems help users make informed decisions by relying on past behavior and preferences

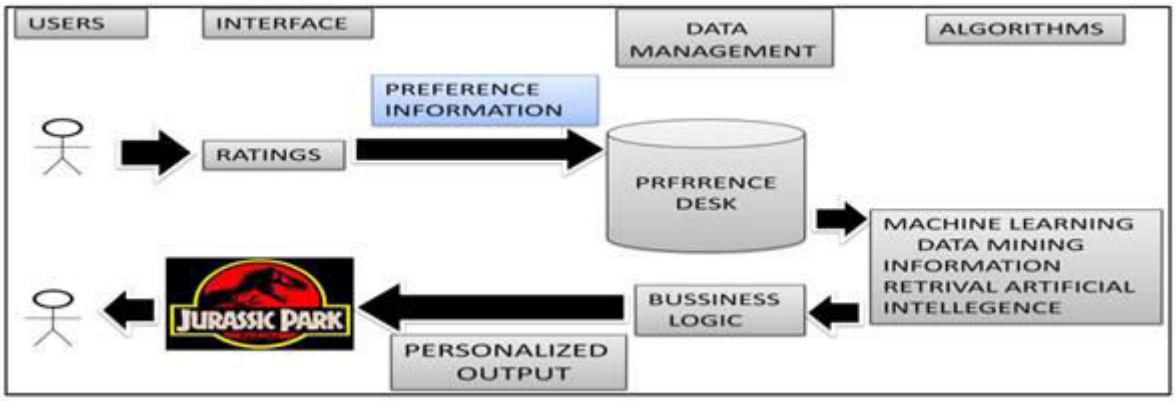

Figure 2: Workflow of Recommendation System.[31]

Types of Recommendation System:

- Movie recommender systems are intelligent algorithms that suggest movies for users to watch based on their previous viewing behavior & preferences.
- These systems analyze data such as users' ratings, reviews, & viewing histories to generate personalized recommendations.
- The movie recommender system has revolutionized the way people discover & consume movies, enabling users to navigate through vast catalogs of films more efficiently.
- Machine learning is capable of solving many problems, but making product recommendations is a widely known application of machine learning.
- There are three major types of recommendation systems.

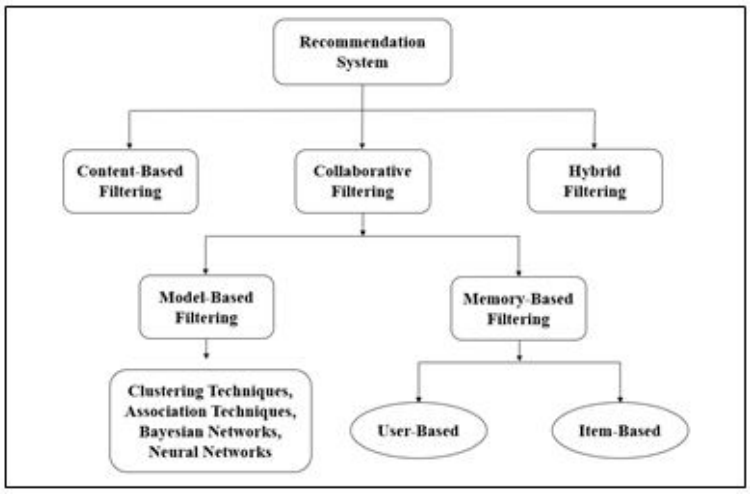

Figure 3: Types of Recommendation System

1. **Content-Based Filtering**: Content-Based Filtering is a type of recommendation system that personalizes suggestions based on a user's activities. This approach recommends items by analysing the past preferences of a particular user. In this recommendation system, products are described using keywords, and a user

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profile is built to express the kind of item this user likes. For example, if a user likes to watch movies such as Iron Man, the recommender system recommends movies of the superhero genre or films describing Tony Stark. The central assumption of content-based filtering is that you will also like a similar item if you like a particular item.

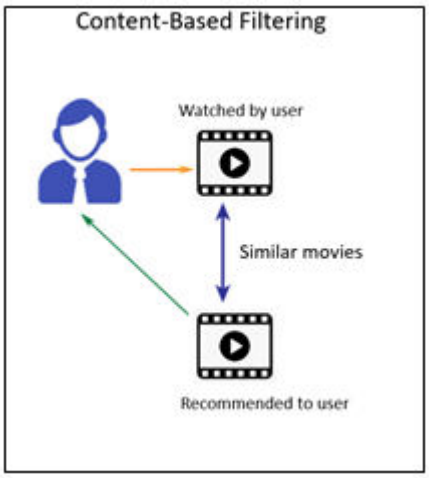

Figure 4: Content-Based Filtering

2. Collaborative Filtering:

Collaborative filtering makes use of similar users' choices to suggest relevant items. It basically, recommends items to users that have similar tastes this method is based on gathering and analysing data on user's behavior. This includes the user's online activities and predicting what they will like based on their similarity with other users. Collaborative Filtering is based on, "Tell me what's popular among my friends and other users and I would like to watch that too!" It tries to find a group of users who are most similar and provides recommendations to one particular user based on similar likings within the group. It tackles the similarities between the users and items to perform recommendations. This means that the algorithm constantly finds the relationships between the users and in turn makes the recommendations.

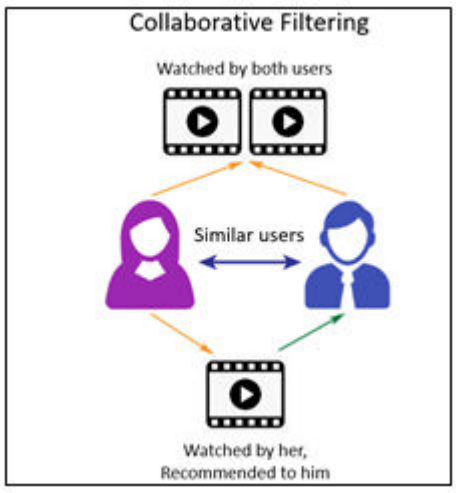

Figure 5: Collaborative Filtering

For example, if user A likes Apple, Banana, and Mango while user B likes Apple, Banana, and Jackfruit, they have similar interests. So, it is highly likely that A would like Jackfruit and B would enjoy Mango. This is how collaborative filtering takes place. Two kinds- of collaborative filtering techniques used are:

i. **User-Based Collaborative Filtering:** User-Based or User-User collaborative filtering makes recommendations based on user-product interactions in the past. The assumption behind the algorithm is that users with similar preferences like similar products.

ii. **Item-Based Collaborative Filtering:** In the Item-Based or Item-Item collaborative filtering it is assumed that the user will like those items that are similar to the other items liked before.

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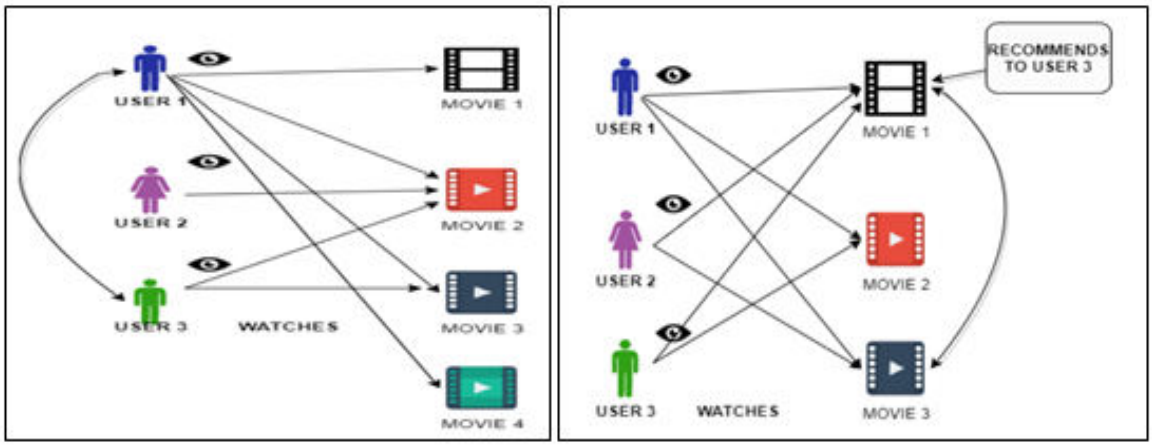

Figure 6: User-Based & Item-Based Collaborative Filtering.[2]

3. **Hybrid Filtering:** In hybrid recommendation systems, products are recommended using both content-based and collaborative filtering simultaneously to suggest a broader range of products to customers. This recommendation system provides more accurate recommendations than other recommender systems.

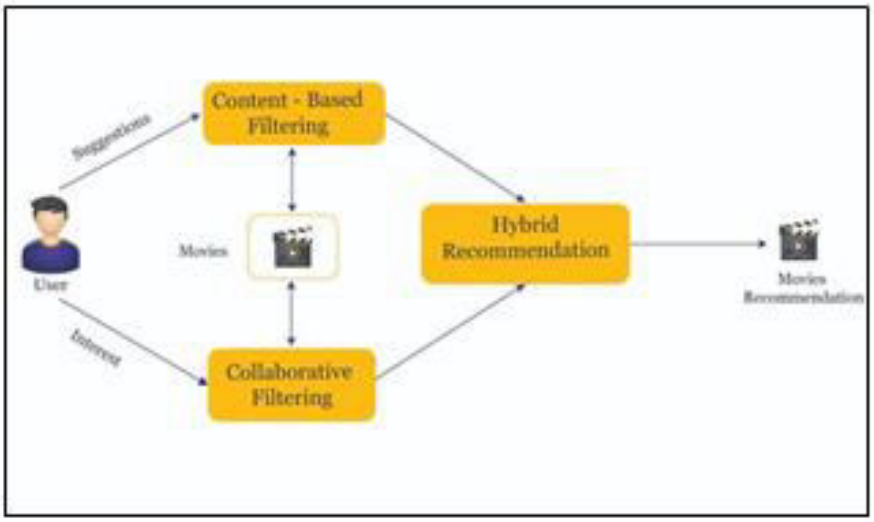

Figure 7: Hybrid Filtering

III. PROPOSED METHODOLOGY:

The proposed recommendation system used the item-based collaborative filtering technique which is far more accurate and more efficient to use, as the item-based method can be done offline and because of its non-dynamic nature whereas the user-based changes. The proposed method employs the KNN algorithm to find the distance between the target movies with every other movie in the dataset and then it ranks the top k nearest similar movies using cosine angle similarity. Different techniques used in this proposed algorithm are discussed below:

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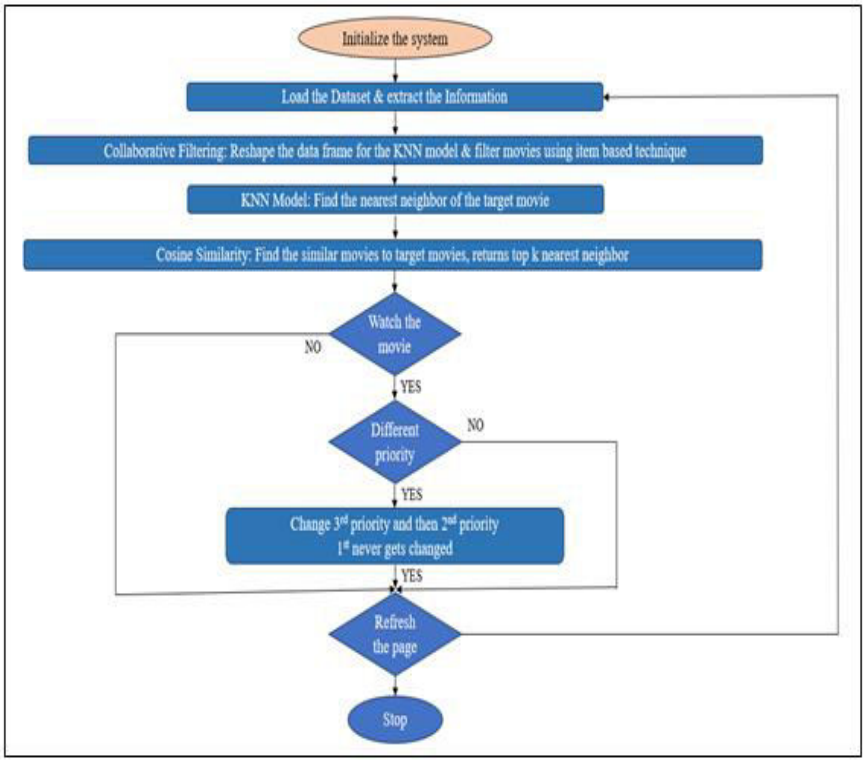

Figure 8: Proposed Collaborative filtering.[2]

- **KNN Algorithm:** K-Nearest Neighbour is one of the simplest Machine Learning algorithms based on the Supervised Learning technique. K-NN algorithm assumes the similarity between the new case/data and available cases and places the new case in the category that is most similar to the existing categories. The k-NN algorithm gathers all the available data and categorizes a new data point based on similarity.
- **Cosine Similarity-** It calculates the distance between the target movie and the movies in the dataset. It evaluates the closeness of two documents, regardless of their size, and determines the cosine angle of two vectors in multidimensional space.
- **Item-Based Collaborative Filtering-** Assumes users will like items that are similar to the items that were liked before by the user. The objective here is to recommend movies using item-based techniques.
- **Collaborative Filtering-** The first step is to format the rating dataset for KNN model consumption to eliminate the large dataset handling issues. The size of the dataset is then reduced based on the popularity of the dataset. The noisy error pattern is then removed to obtain a sparse matrix. The cosine similarity will then find the distance from the target movie to other movies, resulting in the highest k nearest neighbor and the required list of recommended movies with decreasing distances. The KNN algorithm assigns the case to the nearest neighbor of the class if K = 1. The case is classified in KNN according to the most majority votes of the neighbors, with the case being assigned to the class with the highest number of nearest neighbors as measured by the distance function.

Proposed Method Architecture:

The recommendation system analyses the past preferences of the user concerned, and then it uses this information to try to find similar movies. This information is available in the database (e.g., lead actors, director, genre, etc.). After that, the system provides movie recommendations for the user.

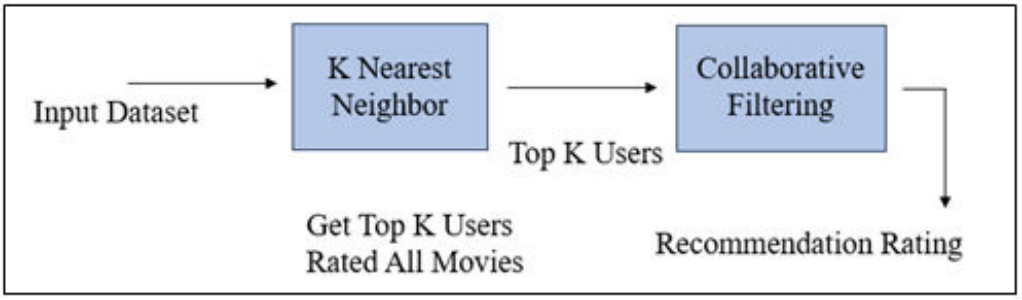

Figure 9: Proposed Method Architecture

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As shown in the figure above, the KNN algorithm is applied to the input dataset to find Top K similar users who have rated all movies. Collaborative filtering algorithm is applied to this Top K dataset for recommending ratings for unrated movies.

IV. OUTCOMES AND RECOMMENDATIONS:

The proposed recommendation system uses a collaborative filtering technique (item-based approach) which is far more accurate & more efficient to use, as the item-based method can be done offline, also it is non-dynamic in nature whereas the user-based method is dynamic. The proposed approach uses the KNN algorithm to find the distance between the target movies with every other movie in the dataset & then it ranks the top k nearest similar movies using cosine angle similarity. To evaluate the performance of the proposed system and to provide better results, experiments are conducted by comparing any random existing system with the proposed system based on terms of quality, accuracy, precision, recall, true positive, f1, and time computation. The existing systems are compared and found that the proposed system is more reliable and accurate. It is also found that when the proposed methodology is applied to different larger datasets, both accuracy and efficiency increase which proves that the system is both accurate and as well as efficient. This item-based filtering is more convenient than user-based. The performance of the collaborative filtering is affected by Synonymy, Shriller attack for new users and hence it is a great chance for future research on this problem.

Performance Analysis: The figure below gives the performance analysis of the proposed filtering technique (collaborative filtering technique (item-based approach)) and content-based filtering technique (one of the widely used techniques for movie recommendation). The results show that our model Collaborative filtering works better and shows better results than the regular content-based filtering approach. As the value of the TP rate is stronger than that of the content-based approach, proving the accuracy is improved.

Table 1: Performance Analysis

Approach	TP rate	Precision	F1
Content-Based Filtering	0.591	0.501	0.528
Collaborative Filtering (Item-Based)	0.761	0.782	0.772

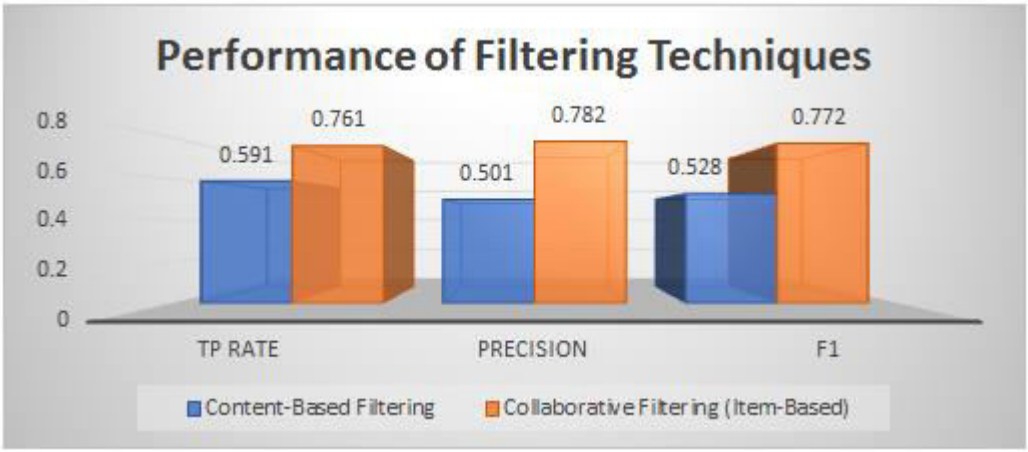

Figure 10: Performance of Filtering Techniques

Precision: is the ratio of recommended items that are relevant to the total number of items on the list.

Recall: describes the relevant prediction from the list of predictions.

F-measure (F1): is the score of the harmonic mean of precision and recall.

Item-Based Collaborative Filtering: The table below explains how collaborative filtering works. Consider the table as an example, all the users like Item A, and people who like Item A also like Item C, Item-based are not dynamic in nature and do not change.

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Table 2: Item-Based Collaborative Filtering

USER/ITEM	ITEM A	ITEM B	ITEM C
USER A	✓		✓
USER B	✓	✓	✓
USER C	✓		Recommended

KNN Algorithm Working: As part of its training process, the KNN algorithm stores the dataset and classifies any new data into a category that is similar to the initial dataset.

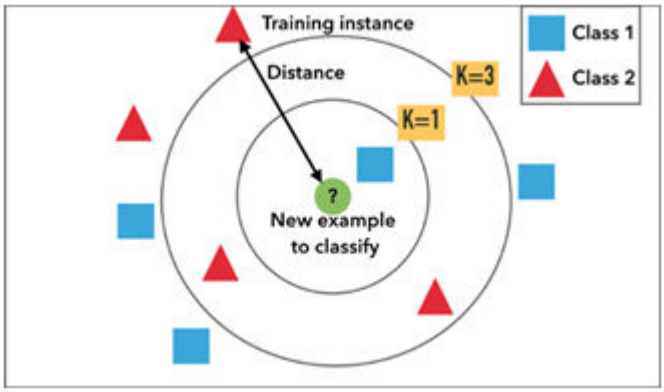

Figure 11: KNN Algorithm

V. CONCLUSION

In conclusion, the proposed recommendation system utilizing a collaborative filtering technique, specifically the item-based approach, has demonstrated significant advantages in terms of accuracy and efficiency. By utilizing the KNN algorithm to calculate distances and rank similar movies, the system outperforms existing systems in terms of quality metrics such as accuracy, precision, recall, and true positive rates. The experiments conducted on larger datasets have shown improved accuracy and efficiency, reaffirming the reliability of the proposed system. Additionally, the comparison with content-based filtering techniques further emphasizes the superior performance of the collaborative filtering approach. However, challenges such as synonymy and shilling attacks for new users highlight the potential for future research in this area. Ultimately, the performance analysis indicates that the collaborative filtering method is not only more accurate but also more effective in providing movie recommendations when compared to content-based filtering techniques.

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EXPLORING LOAD BALANCER ARCHITECTURES FOR EFFICIENT RESOURCE ALLOCATION IN ORGANIZATION AND CLOUD ENVIRONMENTS

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ABSTRACT
Load balancers play a crucial role in distributing incoming network traffic across multiple servers to optimize resource utilization and ensure high availability and performance. The round robin method, which evenly distributes requests in a rotation, the least connections method, which directs requests to servers with the fewest active connections, and the IP hash method, which uses client IP addresses for routing, are explored in detail. The selection of a load balancing methodology depends on factors such as application type, traffic patterns, and specific requirements. By understanding the intricacies of load balancing architectures, organizations can effectively manage their resources and enhance the overall reliability and scalability of their IT infrastructure. In this paper, we examine various load balancing methodologies commonly employed in organization and cloud environments. It highlights the significance of efficient resource management for improving system performance, scalability, and reliability.

Keywords: Load balancers, Distributing network traffic, Resource utilization, Round robin method, Efficient resource management.

I. INTRODUCTION
We are living in a day to day developing world where business, start-ups and private NGOs, International government etc. are developing within the field of IT sector. Due to internet the world is moving fast in pace in terms of lifestyle, traveling, information transfer etc. Information is key to success, With information we can achieve excellence in every field. Due to Business environment the world is growing in right terms in every sector. Everything in today's world is Due to business and IT. Business organization use IT tools to make their growth to next level. Information Technology and cloud computing has given organization the platform to build a brand. This includes hardware manufacturing software development system integration network management cyber security.

Cloud computing is on demand Internet services provided by IT cloud services provider E.g.: Networking, servers, Databases Storage, Infrastructure as services (Iaas), Platform as services(Paas) software as services(SaaS). They have three deployment model Private cloud, public cloud, and Hybrid cloud. Organization and user can easily scale their required needs. Pay per use services are provided by IT services provider. It offer flexibility, cost reduction and ability to focus on core business functions without worrying about technology infrastructure. Business organization can store and manage their data on cloud servers, without worrying about physical data warehouses.

The organization sometimes faces heavy web traffic load on their servers and for that load balancer technique has been introduced in IT world. Because many user are doing internet surfing at the same times and it makes websites down of couple of hours due to overload of the servers capacity and cloud environment provide necessary infrastructure for that purpose.

II. LITERATURE SURVEY
The load balancer is very popular method used in Modern era for traffic distribution. But there has been some issue regarding the infrastructure failure in heavy workloads. They can become a single point of failure. If load balancer itself, it can disrupt the entire system's availability.

Afzal and Kavitha[01]author had discussed about Load unbalancing problem is a multi-variant, multi-constraint problem that degrades the performance and efficiency of computing resources. Load balancing.

A**shawa and et.al[02]** Author had discussed about optimization problem in resources, allocating resources is crucial in large-scale distributed computing, as networks of computers tackle difficult optimization problems. Within the scope of this discussion, the objective of resource allocation

Zhou and et.al[03] have discussed problems in fog severs load balancing With the evolution of fog computing, processing takes place locally in a virtual platform rather than in a centralized cloud server.

Li and et.al[04] have discussed about new load balancing in cloud environment. The latency of cloud computing is high for the reason that it is far from terminal users. Edge computing can transfer computing from the centre to the network edge. However, the problem.

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Liu and et.al[05], have discussed about Today's datacenter networks (DCNs) scale is rapidly increasing because of the cloud computing.

Khattak and et.al[06] have discussed about With the evolution of fog computing, processing takes place locally in a virtual platform rather than in a centralized cloud server.

Singh and et.al[07], have discussed about application resources problems.

Ibrahim and Mostafa[08], have discussed about data centres infrastructure Task stragglers in Map Reduce jobs dramatically impede job execution of data-intensive computing in cloud data centers.

Ardagna and et.al[9], have discussed about cloud computing problems in recent years have seen the massive migration of enterprise applications to the cloud. One of the challenges posed by cloud applications is Quality-of-Service (QoS) management. They further have discussed about Cloud computing Web systems are today the most important part of the Web. Many companies transfer their services to the cloud in order to avoid infrastructure aging and thus preventing less efficient computing.

Moon-Hyun and et.al[10,] have discussed about sla agreement cloud computing, there is a trade-off between SLAV (Service Level Agreement Violation) and system operating cost. Violation rates can be decreased when using more hosts, which increases system operating cos.

Peng and et.al[11], have discussed about mart city has obtained increasing attention from both academic and industry which has the potential to improve human living standards. A smart city consists of a great number of smart devices which are general.

Panwar and et.al[12], have discussed about Data centers are becoming considerably more significant and energy-intensive due to the exponential growth of cloud computing. Cloud computing allows people to access computer resources on demand**.**

Sui and et.al[13], have discussed about With the rapid increase of user access, load balancing in cloud data center has become an important factor affecting cluster stability. From the point of view of green scheduling, this paper proposed a virtual.

Ahmad and et.al[14], have discussed about The popularity of cloud and fog services has raised the number of users exponentially. Main advantage of Cloud/fog infrastructure and services are crucial specially for commercial users from diverse areas.

Xu and et.al[15], Author have discussed about The emergence of edge computing provides a new solution to big data processing in the Internet of Things (IoT) environment**.**

Zhang and et.al[16], have discussed about Modern datacenters provide a wide variety of application services, which generate a mix of delay-sensitive short flows and throughput-oriented long flows, transmitting in the multi-path datacenter network. They further discussed about In the last few years, the Internet of Things (IOT), as a new disruptive technology, has gradually changed the world. With the prosperous development of the mobile Internet and the rapid growth of the Internet**.**

Yuan and et.al[17] have discussed about Aiming at the characteristics of dynamic topology change and vulnerability of wireless mesh networks (WMN), a secure routing protocol based on dynamic reputation and load balance (SRP-DRLB).

Ilyas and et.al[18], have discussed about Because of the existence of Covid-19 and its variants, health monitoring systems have become mandatory, particularly for critical patients such as neonates. However, the massive volume of real-time data general.

III. LOAD BALANCER ALGROTHIM

When it comes to load balancers, some different approaches or methodologies can be used. One common approach is the" round robin" method, where incoming requests are distributed evenly across multiple servers in a rotation. Another approach is the "least connections" method, where the load balancer directs a request to the server with the fewest active connections. There's also the "IP hash" method, which uses the client's IP address to determine which server to send the request to. The methodology depends on factors such as the type of application, traffic patterns, and specific requirements.

IV. APPROACH/ METHODOLOGY

1. **Round Robin: -** Request are distributed evenly across the available servers in a circular manner. Each server gets an equal share of the incoming traffic

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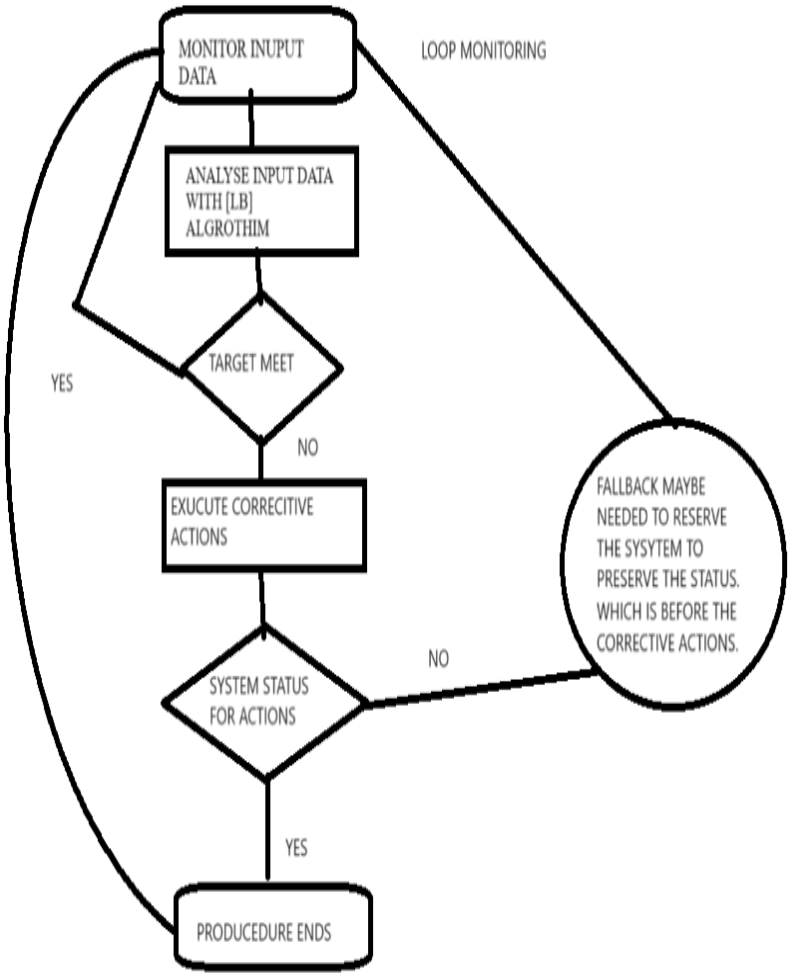
2. **Least Connection:-**The load balancer routes request to the server with the fewest active connections at that moment. This algorithm helps distribute the load based on the current workload of each server.
3. **Weighted Round Robin:-**Each server is assigned a weight based on its capacity or performance. Server with higher weights receives a large proportion of the traffic, allowing for better resource utilization.
4. **IP Hash:-**The load balancer uses the client's IP address to determine which server to send the request to. This ensures that requests from the same client are consistently routed to the same server.



The proposed Cloud model has the following architecture. The type of load balancing can be either of the above and as per the requirement the correct method will be selected by the load balancer. In a cloud model, a load balancer algorithm is used to distribute incoming network traffic across multiple servers to ensure optimal performance and availability of resources. The load balancer algorithm plays a crucial role in managing the workload efficiently and preventing any single server from becoming overloaded. Overall, the choice of load balancer algorithm in a cloud model depends on the specific requirements of the application, the workload distribution, and the desired performance objectives. It is important to carefully consider these factors when implementing a load balancer algorithm to ensure efficient and effective load distribution across the servers in the cloud environment.

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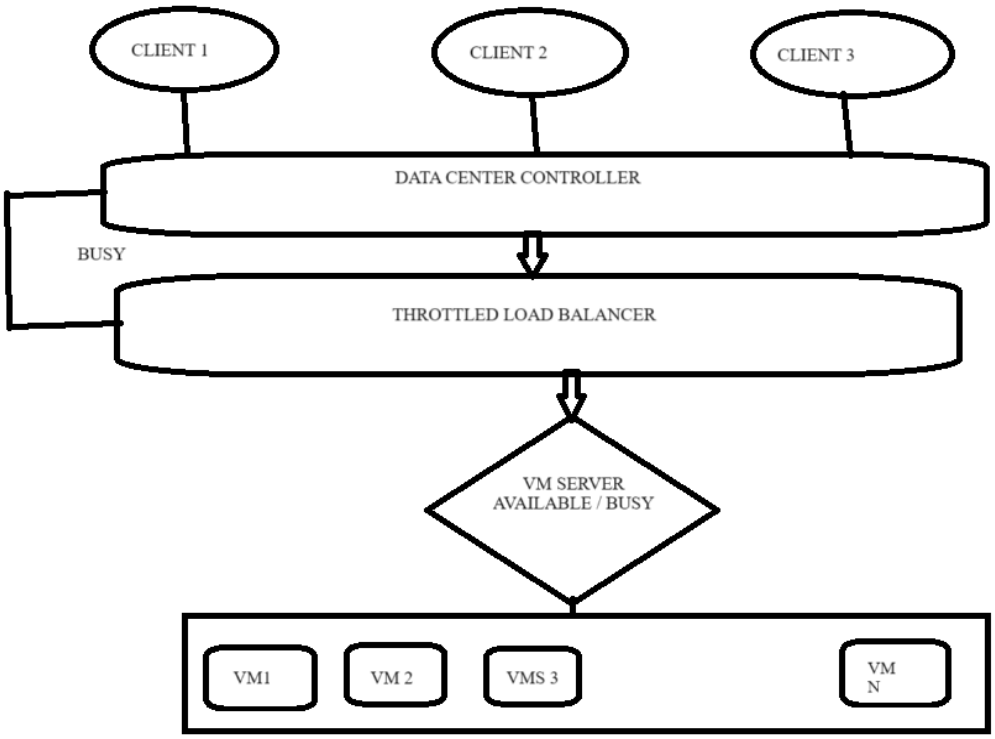

VM INDEX TABLE

V. CONCLUSION

The algorithms described in the above figure are perfect for business organizations to boost their growth. These algorithms will help in improving overall cloud system performance, they will get all benefits like scalability, resource utilization, and fault tolerance. Due to the cloud environment, the clients and business organizations get pay-per-use services which is an additional plus point for business entrepreneurs and startups. Specially for startups when they are operating from the local to global level require additional resources and the cloud is the best platform for stability and growth.

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EXPLORING THE FINANCIAL HORIZONS: GEN Z PERSPECTIVES ON VIRTUAL [MOCK] TRADING APPLICATIONS

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ABSTRACT
This study delves into Generation Z's perspectives on virtual [mock] trading applications, aiming to unravel their attitudes, beliefs, and experiences within the financial domain. Generation Z, as digital natives, navigates a world where financial literacy is both crucial and challenging, amidst a backdrop of technological advancements. Despite the increasing popularity of virtual trading platforms as educational tools, little is known about how Gen Z engages with them. Through a mixed-methods approach, including qualitative interviews and quantitative surveys, this research captures the nuances of Gen Z's interaction with virtual trading apps. The study reveals that while there's a strong inclination towards investment among Gen Z, challenges such as a lack of direction and technical issues persist. However, the majority acknowledges the positive influence of virtual trading on their financial decision-making skills. These findings underscore the importance of tailored educational initiatives and platform improvements to cater to the needs of Generation Z in enhancing financial literacy.

Keywords: Generation Z, virtual trading applications, financial literacy, educational benefits, challenges, technology dependence, financial decision-making.

INTRODUCTION
In an era marked by technological developments and an ever-changing financial landscape, this study looks into the interesting world of Generation Z's impressions of virtual [mock] trading applications. As digital natives, Generation Z, born between the late1990s and early 2000s, has grown up in a world where information is readily available, and financial literacy is both a problem and an essential.

This study seeks to untangle the complicated tapestry of Gen Z students' attitudes, beliefs, and experiences using virtual [mock] trading programs, giving insight into their changing connection with finance in a virtual setting. Virtual trading platforms, which imitate real-market events without the danger of financial loss, are becoming increasingly popular as a teaching tool. However, the attitudes and usage habits of Gen Z students in this environment remain mostly unknown.

Through a comprehensive mixed-methods approach, including qualitative interviews and quantitative surveys, this research tries to capture the intricacies of Gen Z's involvement with virtual trading apps. Our research seeks to give a comprehensive knowledge of how Generation Z sees and interacts with virtual [mock] trade tools, from their motives for utilizing these platforms to the perceived educational benefits and problems faced.

This study adds to the current body of information on financial education and technology while also having practical consequences for educators, legislators, and producers of virtual trading systems. By learning about Gen Z's opinions, we can improve the efficacy of financial education campaigns and virtual trading platforms to better address the changing demands of this technologically sophisticated generation.

Join us as we explore Generation Z's financial thinking and navigate the virtual realm where academic knowledge meets practical practice. Your involvement in this research is not only useful, but it also provides an opportunity to help shape financial education tactics geared to today's digital generations. Join us on this trip to bridge the gap between virtual finance and the perspectives of future financial leaders, Generation Z.

RESEARCH METHODOLOGY

Objectives:
- To explore the factors that influence Generation Z students' use of virtual trading platforms.
- To investigate how Generation Z regards virtual trading applications as having a beneficial educational influence on their financial literacy.
- To identify any challenges or issues that Gen Z students may have while using virtual trading apps.
- The study aims to examine how Gen Z's virtual trading habits affect their capacity to make solid financial decisions in real life.

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Sources of Data:
The following research includes the usage of both primary as well as secondary data, the primary data will be drawn from the questionnaires that will be sent to the respondents the responses will be analysed and interpreted for the same to draw conclusions and provide suggestions for the research. The questionnaire is prepared while keeping the objectives, hypothesis, scope, and limitations of research in mind, all the questions are close-ended, and the questionnaire employs a Likert scale and multiple-choice questions to facilitate quantitative analysis. The questionnaire is solely made for research purposes and it shall not be used by anyone for any commercial purpose whatsoever. Secondary data sources will include previously made research papers, journals, and financial and educational websites. These will help in forming the review of literature and will also help in referring to any information on points where the research feels stuck or requires a fresh but also already developed perspective along with other vital information which will help enhance the information and provide accuracy to the research to some possible extent.This research intends to provide a comprehensive overview of Gen Z students' perceptions of virtual [mock] trading apps, with useful insights for finance, education, and technology.

Method of Sample Collection: The quota sampling method has been adopted for the research analysis, here the researchers have only taken responses from the Gen Z Students who use virtual [mock] trading applications. This approach guarantees a thorough investigation into the attitudes, beliefs, and experiences associated with virtual trading applications, thereby augmenting the credibility and pertinence of the research outcomes.

REVIEW OF LITERATURE
The development of technology has transformed the financial environment, giving individuals new opportunities for investment and financial education. One such route is virtual trading programs, which imitate real-world market circumstances and allow users to practice trading without putting actual money at risk. While there is a lot of study on virtual trading apps, there is a research vacuum in terms of Generation Z's (Gen Z) perceptions of these platforms. The purpose of this study is to examine the existing literature on virtual trading applications and identify research gaps in understanding Gen Z's attitudes on these platforms.

To fill the research gap, a significant study was undertaken using numerous academic databases, industry reports, and professional views. In addition, conversations were made with professors and industry specialists who specialize in virtual mock trading applications, as well as those who are presently exploring the subject. These conversations gave excellent insights into the existing state of research and aided in the identification of prospective future research directions.

Hui-Chi Wua , Chien-Ming Tseng , Po-Chou Chan , Sue-Fen Huang , Wei-Wei Chu, Yung-Fu Chen (2012) conducted a research on ‘‘**Evaluation of stock trading performance of students using a web-based virtual stock trading system’’** aimed to enhance the motivation and learning efficiency of students attending a course in financial management by evaluating their stock trading performance using a web-based virtual stock trading (VST) system. The VST system was designed to simulate a stock trading environment and provide functions for financial ratio analysis, with the goal of nurturing students as rational investors unaffected by news or market fluctuations. The research explored students' stock trading behavior, risk aversion, disposition effect, and learning outcomes through the analysis of trading performance based on various indicators.

The study by Hui-Chi Wu et al. found that students tend to exhibit risk-averse behavior, selling high-priced stocks in short periods due to price fluctuations. The study also found that the Virtual Stock Trading (VST) system was perceived as useful, with students expressing high willingness to adopt and recommend it. The research contributes to understanding how VST systems can positively impact students' learning outcomes and behavior intention in financial management education. The VST system offers a simulated environment for stock trading and incorporates financial ratio analysis, enhancing motivation and learning efficiency. The study emphasizes the importance of incorporating practical trading environments and financial analysis tools to enhance students' understanding and application of stock trading principles.

Dr.C.K.Gomathy & Ms.C K Hemalatha (2022) conducted a research on **‘‘A STUDY ON EVALUATION OF ONLINE TRADING”** presents an examination of online trading

services within the context of diverse financial sectors. The study aims to assess these online trading facilities over a specified period, focusing on customer feedback to identify areas for improvement. Research addresses a pertinent aspect of contemporary financial services – online trading facilities – through an evaluation lens. The study's objective of gauging customer satisfaction and soliciting suggestions for improvement is commendable, as it contributes to enhancing service quality and customer experience in the rapidly evolving online trading landscape.

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According to the identified study gap, future studies might focus on the following aspects:

- **Motivations and Expectations:** Investigate the reasons behind Generation Z's interest in virtual trading apps, as well as their expectations for the learning outcomes and experiences provided by these platforms.
- **Risk Perception and Decision-Making:** Investigate how Generation Z perceives risk in virtual trading apps and how this perception affects their investing choices.
- **Social Influence and Peer Learning:** Investigate the impact of social influence and peer learning on Gen Z's use of virtual trading applications, taking into account the effect of friends, family, and social media.
- **Influence on Financial Behavior:** Evaluate the long-term influence of virtual trading applications on Gen Z's financial behavior, including investment decisions, savings habits, and financial goal-setting.

Data Analysis and Interpretation

Major/Area of the Respondents: According to the statistics, the bulk of the Gen Z population polled had an educational background in Business and Finance (78% of respondents). This shows that persons who study business and finance are more inclined to use virtual [mock] trading programs. This might be linked to their desire to use their financial knowledge and abilities while also acquiring hands-on trading experience. The data also reveals a lower percentage of people with educational backgrounds in Technology/Computer Science (2%), Social Sciences (10%), Engineering (5%), and Others (5%).

Reliance and Utilization of the Respondents of Technology and Mobile Applications in Everyday Life: According to the study, 45% of Gen Zers rely extensively on technology and mobile applications in their everyday lives. This encompasses communication, information access, enjoyment, and productivity. 36% of respondents use these tools regularly, with 13% using them occasionally. Only 6% use them seldom, indicating a low dependency.

Virtual Trading Applications/Programmes Utilized by the Respondents: When it comes to the utilization of virtual trading applications, the data shows that Trading View was the most popular platform among the respondents, with 37% indicating its usage. Zerodha followed closely behind with 34%. Other platforms such as Money Bhai (12%), Neostox Trading (9%), Chart Mantra (4%), and Dalal Street Investment Journal (4%) were also utilized by a smaller percentage of respondents.

Factors that influence Generation Z students' use of virtual trading platforms: To investigate the determinants shaping the utilization of virtual mock trading applications among Gen Z students, an examination of the data was conducted, focusing on gender, age categories, and educational backgrounds. Out of the total respondents, 56% were female, while 44% were male. Delving into the factors guiding their adoption of virtual trading applications yielded distinct patterns:

Among female respondents, 34% highlighted education, 5% cited entertainment, 52% considered investment, and 11% were influenced by peers. In comparison, male respondents exhibited similar educational considerations (34%), no mention of entertainment, a higher emphasis on investment (57%), and 9% acknowledged peer influence.

Turning to age categories, for those aged 18-20, 6% considered education, none cited entertainment, 59% emphasized investment, and 5% were influenced by peers. In the 21-23 age group, 19% valued education, 2% considered entertainment, 55% focused on investment, and 3% were influenced by peers. Finally, in the 24-26 age range, 13% prioritized education, 1% mentioned entertainment, 60% emphasized investment, and 1% were influenced by peers.

Investigating how Generation Z regards virtual trading applications as having a beneficial educational influence on their financial literacy: To investigate how Generation Z perceives virtual trading applications as contributing to their financial literacy education, the data was analyzed, focusing on gender and age categories as part of the research objective. The respondents consisted of 56% females and 44% males. An exploration into their interest in participating in educational seminars or courses on financial literacy using virtual trading applications yielded the following insights:

Among female respondents, 23% expressed a 'Maybe' interest, 5% were 'Not Interested,' and a substantial 71% were 'Interested.' On the male side, 25% were 'Maybe,' 18% were 'Not Interested,' and 57% were 'Interested' in such educational initiatives.

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Moving to age categories, the 18-20 age group exhibited a 33% 'Maybe' interest, 11% 'Not Interested,' and a notable 56% 'Interested.' In the 21-23 age range, 43% were 'Maybe,' 14% were 'Not Interested,' and 43% were 'Interested.' For the 24-26 age category, 14% were 'Maybe,' 29% were 'Not Interested,' and 57% were 'Interested.'

Challenges faced by Gen Z' while using Virtual Trading Applications: The study examined data on Gen Z students' perceptions of virtual trading programs. The data was organized by gender and age group. Female Gen Z students cited a lack of direction, with 32% experiencing this difficulty. Interestingly, 1% found the programs dull, while 11% struggled with their complexity. Other challenges were encountered by 12%, while technical difficulties were reported by 25%. Male Generation Z students expressed a lack of supervision, with 17% finding the applications dull. 3% found the apps uninteresting, 9% complicated, and 2% encountered additional issues. 13% of pupils reported technical issues. Overall, 49% of Generation Z students noted a lack of instruction, while 4% found the applications dull. 20% of the pupils had complexity challenges, while 2% encountered additional obstacles.

How Gen Z's virtual trading habits affect their capacity to make solid financial decisions in real life: Based on the analysis of data regarding Gen Z's perspective on virtual trading applications and their influence on financial decision-making, it was discovered that a significant majority of Gen Z students held the belief that virtual trading positively affected their ability to make sound financial decisions in real life. When considering female students, 42% of those surveyed expressed that virtual trading had a beneficial impact on their financial decision-making skills. Meanwhile, 10% were uncertain about its influence, and 4% felt that virtual trading did not contribute to their decision-making abilities. Similarly, among male students, 32% believed that virtual trading helped them make better financial decisions, while 8% were uncertain, and 4% did not perceive any benefits from virtual trading. In total, 74% of Gen Z students believed that virtual trading had a positive impact on their financial decision-making skills, while 18% were uncertain, and 8% did not share the same perception. These findings emphasize the potential advantages of virtual trading applications in enhancing Gen Z's financial decision-making abilities, although a small percentage of students did not experience the same level of impact. These insights can provide valuable input for the development of educational programs and tools aimed at promoting financial literacy and decision-making skills among Gen Z.

FINDINGS AND CONCLUSION

1. **Demographic Composition:** The analysis of Gen Z respondents concerning virtual trading applications indicates a slightly higher representation of females (56%) compared to males (44%). The majority (53%) of respondents fall within the age range of 21-23, indicating an active interest or involvement in virtual trading apps. Furthermore, 43% of respondents possess a graduate-level degree, with postgraduates making up 32%, undergraduates at 24%, and 1% falling into the "others" category.
2. **Educational Backgrounds and Platform Utilization:** A significant majority (78%) of Gen Z respondents have an educational background in Business and Finance, suggesting a strong inclination towards using virtual trading programs. Additionally, only 2% of respondents have an educational background in Technology/Computer Science, indicating a lesser engagement with virtual trading apps in this demographic.
3. **Technology Dependence:** 45% of Gen Zers rely extensively on technology and mobile applications in their everyday lives, suggesting a high dependence on these tools for communication, information access, entertainment, and productivity.
4. **Virtual Trading Platforms Usage:** Trading View and Zerodha: Trading View (37%) and Zerodha (34%) emerge as the most popular virtual trading platforms among Gen Z respondents, followed by other platforms with smaller percentages.
5. **Factors Influencing Usage:** Both male and female respondents prioritize education (34%) when using virtual trading applications. Males show a higher emphasis on investment (57%), while females have a more balanced consideration. Younger respondents (18-20) lean heavily towards investment (59%), while older groups (21-23, 24-26) maintain a consistent focus on investment with variations in education emphasis.
6. **Perceptions of Educational Benefits:** A significant percentage (71% for females, 57% for males) express interest in educational seminars or courses on financial literacy using virtual trading applications, indicating a positive perception of educational benefits. Additionally, the 18-20 age group shows the highest interest (56%), emphasizing the potential educational impact on financial literacy.

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7. **Challenges Faced:** Lack of Direction and Technical Issues: Both genders and age groups commonly cite a lack of direction (49%) and technical difficulties (25%) as challenges in using virtual trading applications, suggesting a need for improved guidance and usability.
8. **Impact on Financial Decision-Making:** Positive Influence: A significant majority (74%) of Gen Z students believe that virtual trading positively impacts their financial decision-making skills. Females (42%) and males (32%) express confidence in the positive influence of virtual trading.

CONCLUSION

This research study enlightens Generation Z's viewpoints on virtual trading applications, emphasizing their educational benefits and challenges. The findings emphasize the notability of educational considerations, a strong inclination towards investment, and a dependence on technology. The challenges that were highlighted, such as a lack of direction and technical issues, suggest areas for improvement in virtual trading platforms. The positive impact on financial decision-making skills highlights the potential of virtual trading apps as effective tools in enhancing financial literacy among Gen Z. These insights can inspire educators, app developers, and financial institutions to tailor strategies to meet the unique needs of this technologically advanced generation.

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ANALYSING THE AFTERMATH OF ARTIFICIAL INTELLIGENCE ALGORITHMS ON TRADING STRATEGIES: A COMPARATIVE STUDY OF PERFORMANCE AND RISK MANAGEMENT

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ABSTRACT
AI (Artificial Intelligence) has drastically revolved the Finance Industry by emerging trading Strategies in the Stock market. It has opened many new ways of making decisions and managing risks. This paper focuses on the effect of AI in the Financial market, mainly in trading market strategies. Financial Firms can analyze huge amounts of data quickly and make better risk and investment decisions using ML (machine learning), Big data Analytics & NLP (Natural Language processing). The potential of artificial intelligence (AI) algorithms in financial market strategies is examined in this paper, along with the ways in which AI can be used to manage, identify, and reduce risk, among other things. This research studies and tries to prove the formulated alternate Hypothesis to understand "There is a disparity in performance and Risk management of trading strategies utilizing AI". A primary research was conducted using a Google form which was circulated through the cluster sampling method. The findings provide the perception of how traders view the application of Artificial Intelligence (AI) in trading strategies. AI Algorithms are leading to more popularity in trading, among traders, individual investors, and market participants, using them for momentum strategies followed by trend following. This studies find Artificial intelligence (AI) to be more effective in both managing risk and improved returns compared to traditional trading method. Traders are eager to learn AI beyond Machin learning to their full potential use. Instead of traditional methods of developing strategies, traders prefer to develop it wit help of AI. The research findings exhibits that AI algorithms notably enhance financial trading strategies, guiding to an advanced and smooth-running market.

Keywords: Artificial intelligence (AI) algorithms in trading strategies, AI in risk management techniques, Investors' perception towards AI in trading, Performance of AI.

INTRODUCTION
By imitating human intelligence and decision-making through the application of technologies like machine learning (ML), artificial intelligence (AI) is completely changing the finance sector. Financial institutions can analyze, manage, invest, and safeguard money more effectively thanks to this technology. AI in finance helps determine where and how investments are made by streamlining manual banking procedures and generating deeper insights from generated data.

AI streamlines formerly laborious and human processes for financial firms, such as market study. With AI's rapid analysis of enormous data sets, investors can watch the growth of their stakes and assess potential risks by identifying trends and projecting future earnings.. This assessment is also applicable to insurance, as personal information may be collected and utilized to calculate rates and coverage.

Trading strategies are used for buying and selling stocks in the market they help the investors to make investment decisions. Investors with the help of trading strategies can consider the risk tolerance level, investing objectives, and tax implications. Before executing a trade, the investors conduct market research to know about the trends and patterns. While developing a trading strategy investors work with the brokers-dealers to choose profitable trading products and manage trading activities.

AI in trading strategies refers to guidelines that direct the computer program to carry out any program automatically. These strategies are designed in such a way that the investors can make an investment decision and draw insight from the data. AI trading relies mainly on machine learning, language processing, and Big Data analytics. Additionally, AI trading includes sophisticated algorithms that automate trade.

OBJECTIVES
- To Evaluate the performance of artificial intelligence algorithms in trading.
- To Evaluate the effectiveness of Artificial Intelligence in trading in Risk management.
- To Identify the factors that shape the success or failure of AI trading strategies.

REVIEW OF LITERATURE
Satnaliwala, M. (2024). Unveiling the Role of Artificial Intelligence in Market Predictions. International Journal for Multidisciplinary Research (IJFMR), E-ISSN: 2582-2160.

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This paper talks about Artificial Intelligence's (AI) effects on the stock market, Trading Strategies, Evolution of algorithms, Machine Learning-Driven strategies & generative AI integration. It discusses AI's role in risk management, addressing concerns regarding Market stability, and algorithm biases. It gives an insight into market players and regulatory bodies. It was concluded, that AI's incorporation into stock trading has revolutionized decision-making in Finance markets, offering a better revenue for investment banks. The paper knowledge us with "The possibilities and risks associated with using AI in stock trading are dynamic, therefore maintaining success in this changing environment will require constant attention to detail, flexible approach, and strong protections [1]".

RESEARCH METHODOLOGY

The research was conducted by collecting data from individuals who invest in the stock market in Mumbai's Andheri area. To collect the data, a Google Form was created and distributed to gather responses. Cluster sampling was used to collect the data. A total of 136 responses were received from the Google form.

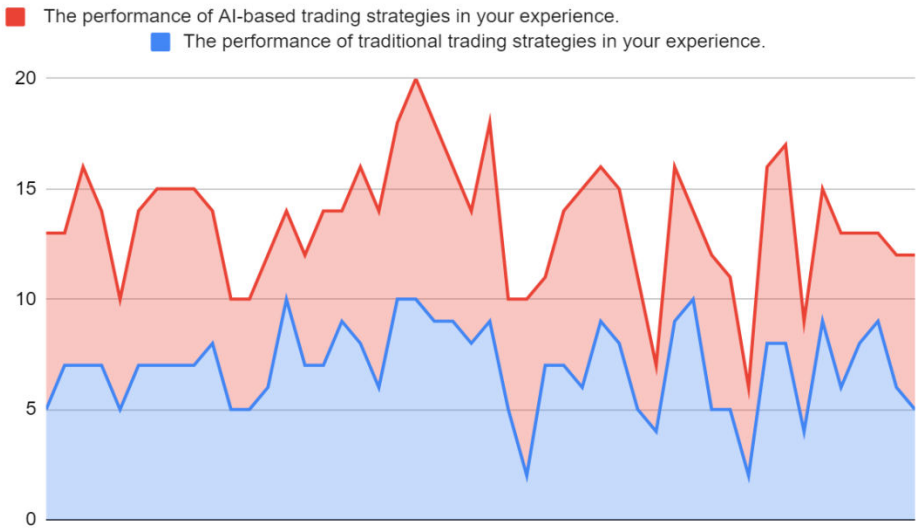
ANALYSIS AND INTERPRETATION

The data collected from different market participants is analyzed subjectively.

- According to the survey, 6.3% of respondents have a strong grasp of AI in trading, and 48.4% support its application. Meanwhile, 45.3% of the population remained neutral.
- Most responders (39.4%) employ the trend-following strategy, followed by momentum (27.9%), mean reversion technique (17.3%), and arbitrage (15.4%).
- Based on the data, 42.2% of respondents reported that they are currently implementing or have considered implementing the application of artificial intelligence in their trading tactics. Meanwhile, 25% of the respondents reported that they do not use or consider using. The application of artificial intelligence in their trading tactics. Lastly, 32.8% of the respondents expressed that they may consider using AI algorithms into their trading plans.

[1] - Satnaliwala, M. (2024). Unveiling the Role of Artificial Intelligence in Market Predictions. International Journal for Multidisciplinary Research (IJFMR), E-ISSN: 2582-2160.

- The survey shows that 38.4% of the respondents use machine learning and neural networks as algorithms into their trading plans. On the other hand, only 12.3% of the respondents use natural language processing, and 11% of the respondents use genetic algorithms.
- The survey that used on a scale from 1 to 10, with 10 denoting excellence and 1 denoting poor reveals that AI-based trading strategies outperform traditional trading strategies.



Source: Field Study

- According to the results of the survey, 68.75% of participants thought trading strategies using artificial intelligence performed better than those using traditional approaches. Only 2.08% of participants rated the effectiveness of artificial intelligence-based trading techniques as much better than those that used traditional approaches. Meanwhile, 25% of participants rated the performance of artificial intelligence-based trading strategies as similar to that of traditional methods, and 4.17% of participants rated the performance of artificial intelligence-based trading strategies as worse than that of traditional methods.

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- When assessing trading techniques, 37.3% of respondents said that one should look first at returns. However, just 22.9% of participants said that one should focus on looking at the Sharpe Ratio. Meanwhile, 19.3% of respondents said it would be more important to assess the trading strategies' maximum drawdown, and 20.5% said it would be more important to assess the trading strategies' win/loss ratio.
- According to the survey data, 66.67% of participants would evaluate AI trading systems' risk management efficacy higher than that of traditional methods. However, only 10.42% of participants said that AI trading tactics' risk management was more effective than using a traditional way far more efficient. Meanwhile, 12.50% of respondents said that AI trading strategies' risk management efficacy was similar to that of traditional methods, and 8.33% said it was worse than that of traditional methods.
- Regarding volatility control, 17.7% of respondents thought that AI trading tactics' risk management efficacy was higher than that of conventional techniques. However, when compared to more conventional approaches, only 27.8% of participants would evaluate AI trading strategies' effectiveness at risk management as stop loss orders. Positioning sizing is rated as the most successful risk management strategy by 34.2% of respondents, and diversification is rated as the most effective risk management strategy by 20.3% of respondents when comparing AI trading tactics to traditional approaches.
- According to the questionnaire's results, 35.7% of participants believe that data analysis and pattern recognition are the main benefits of applying AI algorithms into trading methods. Only 21.4% of participants, however, believe that the main benefits of utilizing AI algorithms in trading methods are emotion-free decision-making. According to 23.8% of respondents, scalability is the main benefit of incorporating AI algorithms into trading methods. While, according to 19% of respondents, the main benefits of utilizing AI algorithms in trading strategies are backtesting and optimization.
- The survey indicates that 8.33% of respondents strongly agree that artificial intelligence will become more important in financial markets in the future. Meanwhile, 68.75% of participants concurred that artificial intelligence would become increasingly important to the financial markets. According to 20.83% of respondents, AI will grow neutrally in the financial markets in the future. Only 2.08% disagree that artificial intelligence will become more important in financial markets in the future.

FINDINGS

1. Based on the data collected, it was found that respondents between the age group of 19-24 and 25-34 have a familiarity with AI in trading strategies and they do have experience in trading ranging from 1-5 years and more and mostly are individual investors. However, a minority of the respondents have a strong grasp of AI in trading and the majority support them.
2. The research also indicates that trend following is the most popular trading strategy among traders, with momentum coming in second. Most participants think AI-based trading tactics are superior to conventional trading strategies. The benefits of AI algorithms include data analysis, pattern detection, and decision-making devoid of emotion.
3. According to most of the respondents, AI will become important in the financial markets. Based on the above findings, it could be suggested that there is a need for further education and training among the traders exploring AI algorithms beyond machine learning.

CONCLUSION

The conducted research suggests that trading strategies significantly benefit from Artificial Intelligence (AI) algorithms, which outperform traditional trading strategies. AI-based algorithms offer advantages in risk management, such as control of volatility and stop-loss orders. Respondents in the study reported using machine learning and neural network AI algorithms for their trading strategies. Our conclusions show there is a significant difference in risk management and performance when utilizing AI in trading methods led us to reject the null hypothesis.

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IMPACT OF ARTIFICIAL INTELLIGENCE ON THE JOB AND WORKING ENVIRONMENT OF ACCOUNTANTS

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ABSTRACT
In accounting, the primary goal of artificial intelligence is to reduce repetitive work. which is done within the accounting industry. When AI is used in the accounting field, a lot of work can be done quickly. One type of time-saving technology is AI, which can be used to complete tasks like journal entries, reconciliations, annual reports, and invoices. AI makes it possible to complete large, complicated tasks in a short amount of time, easing accountants' accounting workloads.

In this study the use of artificial intelligence in accounting work will be given some adverse impact on accountant and their profession. But in a reality the job up accountant cannot be replaced by artificial intelligence but just accountant has to update his skill and approach towards the artificial intelligence. In this Study researcher use secondary data for analyzing the changes in Accounting while using AI. In conclusion the study suggests that artificial intelligence in accounting will not replace accountants but their profession will be changed in a different nature. They need to develop some technological skills. The accountant has to focus on more development of his knowledge and skills towards new technology.

Keywords: Artificial Intelligence, Accountant, Accounting profession.

INTRODUCTION
Accounting is assigns that studies the process of recording, classifying and summarizing financial transactions. Here accountants have to record all the journal entries then journal entries are converted into ledger accounts, ledger converted into trial balance and after preparing trial balance accountant has to prepare final account after doing adjustments at the end of the each financial year. This is a basic works done by accountant. On the other hand, the accountant has to take some financial decisions regarding the financial matters which is already recorded in the books of accounts. With the help of accounting record management can take various financial decisions which are related to internal external parties. Even at present the accountant is using technology that is tally software this technology also saving Times of an accountant. But on the contrary the technologies are always going to changes. At present the artificial intelligence which is one of the revolutionary technology which is used in various fields such as in marketing, banking, advertisement, education, healthcare, entertainment, transportation etc.

Artificial intelligence:
AI technology that can perform task that is typically required human intelligence or human judgements. This task includes learning, reasoning, problem solving, perception understanding language, variation and even the ability to interact with environment.

Artificial intelligence is used in almost all industries such as healthcare, education, transportation, banking, entertainment, marketing etc.

AI in accounting:
Artificial intelligence in accounting means use of artificial technology to automations and increase the various process and work in accounting field. Air in accounting field is primarily use to broad functions. First is analyses of the financial data and Second is use of accounting software to do automation in repetitive work. According to CPA Practice Advisor Magazine 72% of accounting professional are expecting that AI in accounting field will grow in next three years.

REVIEW OF LITERATURE:
Chukwuani & Egiyi (2020) examined the accounting industry's impact of artificial intelligence. By doing so, they demonstrated how far the accounting industry has come in automating the accounting process. Finally, they discussed how accountants of the 21st century can adapt to the industry's widespread automation and the accountants' place in it.

Luan et al. (2020) discussed AI technology's potential impacts on education research, policymaking, and industry, as well as its challenges and future directions. Education, policy, and industry are all included in accounting and auditing. Their argument is that in order to fully realize the potential of the AI and big data

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advancements, academics, policymakers, and professionals from a variety of fields must effectively collaborate in response to the innovations and challenges posed by the revolution in AI and big data. They also mentioned that the research, policymaking, and industrial communities share a number of interests that overlap. These shared interests call for a collaborative approach, but the main obstacle is that these groups lack vision and the necessary knowledge and skills.

Makridakis (2017) investigated the current and upcoming developments in AI as well as the potential for machines to attain real intelligence. The major perspectives and scenarios of how AI could change human life were highlighted in the study. The transformation of the field of accounting and auditing as a profession is one of the most significant ways in which AI has the potential to alter the human environment.

Kokina & Davenport (2017) divided the various AI applications into four categories, as well as the technology's current level of intelligence into another four categories. Analyzing numbers, processing text and images, completing digital tasks, and carrying out physical tasks are the applications. Human support, repetitive task automation, context awareness and learning, and self-aware intelligence are the categories for the various levels of intelligence. Although many accounting and auditing tasks can be completed using the other three levels of intelligence, none of the AI applications have yet reached the level of self-aware intelligence.

Lam, (2004) With progress, researchers in the accounting field have applied a variety of AI technologies to specific auditing and assurance and financial reporting and analysis tasks.

Omoteso, (2012) The modern business relies on IT-based decision support, putting pressure on auditors to play a more prominent role in its governance structures. The study suggests that educational institutions, businesses, and professionals in accounting and auditing collaborate.

OBJECTIVE OF THE STUDY:

1. To study the benefits of using artificial intelligence in accounting.
2. To study the challenges related to use of artificial intelligence in accounting.
3. To study artificial intelligence in accounting can replace the job of accountant.

STATEMENT OF THE PROBLEMS:

1. Is the artificial intelligence can be game changer in accounting field?
2. Is the artificial intelligence in accounting can be replace accountant?

RESEARCH METHODOLOGY.

This study used secondary data from a variety of published pieces of literature for its descriptive nature. These research papers are based solely on secondary data adapted from the internet and academic data, such as literature reviews, websites, books, periodicals, and so on.

Function in Accounting AI

1. Invoices Processing

The AI algorithm can scan invoices and related documents with the assistance of RPA (Robotic Process Automation) technology and insert the most pertinent data. In the past, accountants had to prepare and record invoices for the AP and AR processes. Because AI can quickly identify duplicate and multiple bills, accountants can save time.

2. Financial Reporting

Accounting artificial intelligence can analyze the financial statement in catalogue wise. Accountant can compare the company’s performance over the years.

3. Fraud Detections and Protection

Natural language process (NLP) technology allow AI accounting software to review data virtually real time. On the other hand, AI provide multi layers security to keep your payments and clients data more secured.

4. Data Analysis.

The ability to quickly analyze historical data and identify patterns that can be helpful in decision-making is one of the great applications of AI-powered software.

5. Automation in Routine Tasks.

AI in accounting can manage invoice processing payroll and data management

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6. Automation in book-keeping.
In a book-keeping various types of entries and ledgers are prepared by AI software this will be helpful to the accountant.

7. Cash Flow Management.
Artificial intelligence in accounting can effectively manage the cash flow of an institute. It will be control on the cash flow of the institute.

How the AI can help to the accountant?
1. Save the time of accountant of repetitive work.
2. With the help of AI accuracy in accounting can be improve.
3. With the use of AI the accountant enhances his skill at the time of analysis of data.
4. Artificial intelligence in accounting field streamline the audit process.
5. AI can generate annual reports for internal management.
6. Use of AI in accounting creates and job opportunities. Accountant has to enhance his skill in accounting obtained certificate course.

Challenges of Artificial Intelligence in Accounting Field.

1. Leakage of Sensitive Data
When using artificial intelligence, there is always a chance that confidential data will be exposed. Cyber threats can access confidential information through a data storage in AI vulnerability.

2. Complicated and Over Reliance
AI should not replace human judgement high dependency on AI will be reduce the critical thinking power of human being. He will be more rely on AI and this will result over dependency on AI there should be balance between and human oversight.

3. Job Reskilling
The use of AI in accounting raises some concerns about displacement. Here, the accountant does not lose his job, but he must acquire new AI skills. He must investigate new value-added human skin rules like design and creativity.

4. Artificial Intelligence can't Develop Knowledge
AI does not have ability to develop knowledge according to require in each and every companies or firms as per the needs. The development of knowledge is depending on the system being built.

5. Limitation up to Program in AI
Artificial intelligence depends on the programmer's inputs.

Impact of artificial intelligence on accounting and accounting profession
AI is essential in accounting work AI is an important tool which is so helpful in accounting work. Book-keeping related works is done by AI so easily so that professionals can focus on their special task that is decision-making skill and critically thinking ability in accounting fields. **AI can be help to the accountant in the following ways**

a) To help to prepare annual report

b) Help to accountant to access financial data.

c) Accountant become an expert in digital technology in accounting.

It should be noted that a I cannot be transfer to a task without human role, because it only works according to the instructions. In accounting process, the presence of an accountant is required to make decisions or to make judgements where AI is failed.The role of accountant will not be completed replaced by AI but role of accountant will be changed. But accountant can be replaced by AI if accountant does not suggest technical skills.

CONCLUSION
Accounting industry need to understand artificial intelligence technology. Which offer tools to improve the activities not create an unemployment in accounting field. It can be reducing the work of data entry the repetitive works can be successfully replaced by machines. The decision making work is done by professional

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themselves. Artificial intelligence can help the account done in decision-making but final work is done by accountant.

The accountants of today have a greater understanding of how to use cutting-edge technology in the accounting and finance fields. An accountant must improve their ability to communicate and comprehend relevant data and information.

Some people thinking that use of AI in accounting will reduce in the remuneration of accountant but this is not fact. Accountant get better opportunity in future by adopting AI in accounting work. Use of AI will be enhancing the interest and skill of accountant in future.

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IMPACT OF SOCIAL MEDIA ON SOCIETY

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ABSTRACT
Social media has become an integral part of contemporary society, profoundly influencing the way individuals communicate, interact, and perceive the world around them. This research paper explores the multifaceted impact of social media on various aspects of society, including social relationships, mental health, and economic dynamics. Drawing on a wide range of scholarly literature and empirical evidence, this paper provides insights into both the positive and negative effects of social media, highlighting its transformative role in shaping modern society. Furthermore, it discusses potential avenues for mitigating the adverse consequences while harnessing the positive potentials of social media platforms.

Keywords: Social media, Social relationships, Mental health, Misinformation.

INTRODUCTION
The advent of social media platforms such as Facebook, Twitter, Instagram, and TikTok has revolutionized communication and connectivity worldwide. These platforms facilitate instantaneous sharing of information, fostering virtual communities and networks that transcend geographical boundaries. While social media offers numerous benefits, including enhanced connectivity, access to diverse perspectives, and opportunities for self-expression, its pervasive presence also raises concerns regarding privacy, mental health, misinformation, and societal polarization. This paper aims to delve into the multifaceted impact of social media on society, shedding light on its implications for individuals, communities, and institutions.

- **Social Relationships and Connectivity:** One of the most evident impacts of social media is its influence on social relationships and interpersonal connectivity. Social media platforms enable individuals to maintain contact with friends and family, regardless of distance, and facilitate the formation of new connections based on shared interests or identities. However, studies have shown that excessive use of social media can lead to feelings of isolation, reduced face-to-face interaction, and a shallow sense of social connectedness. Furthermore, the curated nature of online personas can contribute to feelings of inadequacy and comparison, impacting self-esteem and relationship dynamics.
- **Mental Health and Well-being:** The relationship between social media use and mental health outcomes has been a subject of considerable research interest. While social media can provide a sense of belonging and support, excessive use has been associated with various mental health issues, including anxiety, depression, and low self-esteem. Factors such as cyberbullying, social comparison, and exposure to idealized portrayals of life can exacerbate these negative effects. Moreover, the addictive nature of social media platforms, characterized by constant notifications and feedback loops, can contribute to compulsive behaviors and a diminished sense of well-being.
- **Economic Dynamics and Digital Commerce:** The rise of social media has transformed the landscape of digital commerce and consumer behavior. Businesses leverage social media platforms for marketing, advertising, and customer engagement, capitalizing on targeted advertising algorithms and influencer endorsements to reach their target audiences. Moreover, social commerce platforms enable direct transactions within social media ecosystems, blurring the lines between content consumption and commercial transactions. While social media offers unprecedented opportunities for entrepreneurship and economic empowerment, concerns regarding data privacy, consumer manipulation, and market monopolization persist.

➢ **Benefits of Using Social Media:** Using social media offers a range of benefits to individuals, businesses, and society as a whole. Here are some key benefits:

- **Enhanced Connectivity:** Social media platforms enable individuals to connect with friends, family, and communities across geographical boundaries, fostering a sense of belonging and facilitating communication.
- **Information Sharing:** Social media allows for the rapid dissemination of information, news, and updates on a wide range of topics, providing users with access to diverse perspectives and knowledge.
- **Opportunities for Self-Expression:** Social media platforms provide users with tools to express themselves creatively, share their thoughts, opinions, and experiences, and showcase their talents or interests to a global audience.

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- **Networking and Professional Development:** Social media can be instrumental in networking for professional opportunities, career advancement, and knowledge sharing within industries or fields of interest.
- **Social Support and Community Building:** Social media communities offer support networks for individuals facing challenges or seeking advice, fostering empathy, solidarity, and mutual assistance.
- **Business Promotion and Marketing:** Social media platforms serve as powerful marketing tools for businesses, enabling them to reach and engage with their target audiences, increase brand visibility, and drive sales or conversions.
- **Educational Resources:** Social media can be utilized as educational platforms, offering access to instructional videos, tutorials, online courses, and academic discussions, enhancing learning opportunities for users of all ages.
- **Political Engagement and Activism:** Social media empowers individuals to participate in civic discourse, advocate for causes they care about, and mobilize collective action for social change and political reform.
- **Cultural Exchange and Diversity:** Social media facilitates cross-cultural communication and exposure to diverse perspectives, traditions, and cultures, fostering intercultural understanding and appreciation.
- **Real-Time Communication:** Social media enables instantaneous communication through messaging, comments, and live streaming, facilitating real-time interaction and collaboration among users.

Overall, social media platforms offer myriad benefits that contribute to personal, professional, and societal enrichment, enhancing connectivity, communication, and opportunities for engagement and collaboration.

➢ Risk of using social media

While social media offers numerous benefits, it also poses several risks and challenges that users should be aware of. Here are some key risks associated with using social media:

- **Privacy Concerns:** Social media platforms often collect vast amounts of user data, including personal information, browsing habits, and location data, raising concerns about privacy and data security. Users may also inadvertently share sensitive information that could be exploited by malicious actors.
- **Cyberbullying and Harassment:** The anonymity and accessibility of social media can facilitate cyberbullying, harassment, and online abuse, leading to negative psychological effects and emotional distress for victims.
- **Impact on Mental Health:** Excessive use of social media has been linked to various mental health issues, including anxiety, depression, and low self-esteem. Factors such as social comparison, cyberbullying, and the pressure to present a curated online persona can contribute to negative psychological outcomes.
- **Misinformation and Fake News:** Social media platforms are susceptible to the spread of misinformation, rumors, and fake news, which can distort public discourse, undermine trust in institutions, and exacerbate societal divisions. Algorithmic curation and echo chambers can amplify the dissemination of false or misleading information.
- **Addiction and Distraction:** The addictive nature of social media, characterized by constant notifications, likes, and scrolling feeds, can lead to compulsive behaviors and distract users from real-world responsibilities, such as work, school, or relationships.
- **Filter Bubbles and Echo Chambers:** Social media algorithms often prioritize content based on user preferences and engagement history, creating filter bubbles where users are exposed to information that reinforces their existing beliefs and opinions. This can contribute to polarization, echo chambers, and a lack of exposure to diverse perspectives.
- **Impact on Relationships:** Social media can impact interpersonal relationships by fostering superficial connections, promoting comparison, and facilitating jealousy or insecurity. Excessive use of social media may also detract from face-to-face interaction and intimacy in real-world relationships.
- **Online Predators and Safety Risks:** Social media platforms can be exploited by online predators seeking to groom or exploit vulnerable users, particularly children and adolescents. Users may also encounter scams, phishing attempts, or malicious content that threatens their safety and security.

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- **Digital Addiction:** Excessive use of social media can lead to digital addiction, characterized by a compulsive need to constantly check social media feeds, seek validation through likes or comments, and prioritize online interactions over offline activities.
- **Impact on Productivity:** Social media can be a significant source of distraction and procrastination, leading to decreased productivity and performance in academic, professional, or personal pursuits.

Overall, while social media offers numerous benefits in terms of connectivity, information sharing, and community engagement, users must be mindful of the potential risks and take proactive steps to mitigate negative consequences, such as practicing digital hygiene, setting boundaries on usage, and critically evaluating online content.

RESEARCH METHODOLOGY

The research adopted a mixed-methods approach, combining both quantitative and qualitative data collection methods to gain a comprehensive understanding of the impact of social media on society.

PRIMARY DATA COLLECTION:

Primary data was collected through an online survey administered via Google Forms. The survey was designed to gather quantitative data on various aspects of social media usage, attitudes, and experiences among respondents.

A convenience sampling method was utilized to recruit participants for the survey. Respondents were selected based on their accessibility and willingness to participate in the study.

The survey questionnaire consisted of closed-ended questions with predefined response options, allowing for efficient data collection and analysis.

A total of 133 responses were collected from individuals representing diverse demographic backgrounds, age groups, and social media usage patterns.

SECONDARY DATA COLLECTION:

Secondary data was gathered from a variety of sources, including reputable internet resources, academic journals, magazines, and reports.

Internet sources such as scholarly databases, news websites, and reputable online publications were consulted to gather information on current trends, research findings, and expert opinions related to social media's impact on society.

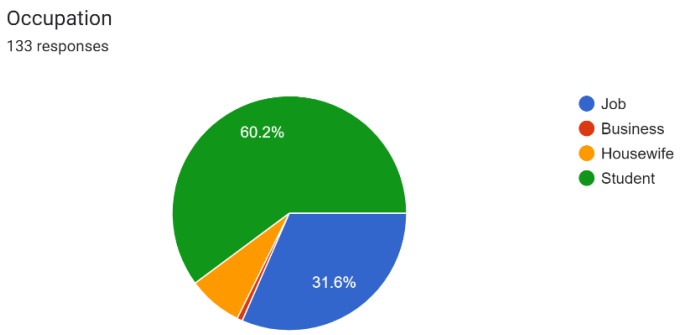
Academic journals were accessed to review peer-reviewed research articles and studies focusing on topics relevant to the research objectives, including social media usage patterns, psychological effects, societal implications, and regulatory frameworks.

Magazine articles and reports from reputable organizations were utilized to supplement the primary data and provide additional insights into emerging trends, case studies, and real-world examples of social media's impact on various aspects of society.

DATA ANALYSIS:

Quantitative data collected from the survey responses were analyzed and data obtained from secondary sources were analyzed thematically to extract key themes, perspectives, and insights relevant to the research questions and objectives.

The integration of quantitative and qualitative data allowed for a comprehensive analysis of the impact of social media on society, combining numerical findings with contextual explanations and real-world examples.



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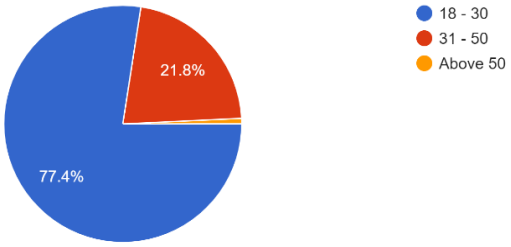
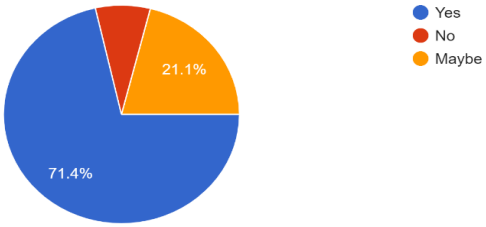
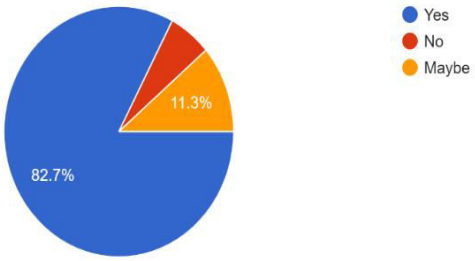
Age Group
133 responses



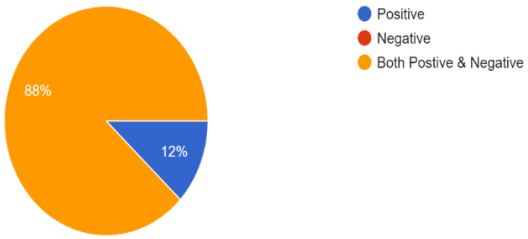
Do you feel different application made your work easy?
133 responses



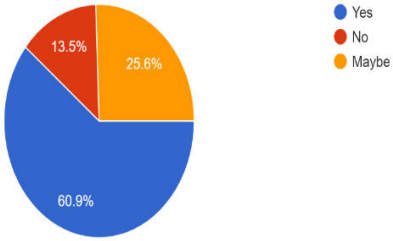
Do you feel connecting with people is so easy through social media application?
133 responses



How social media impact on students life?
133 responses



Do you think social application only the reason to spread news & rumour very faster manner?
133 responses



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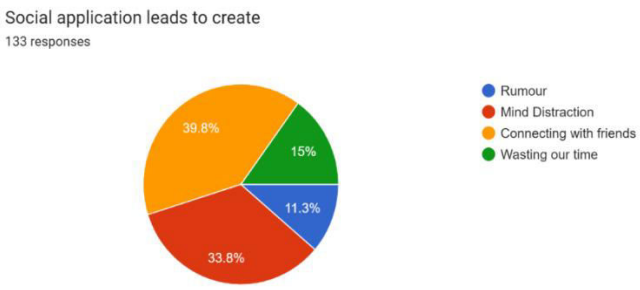

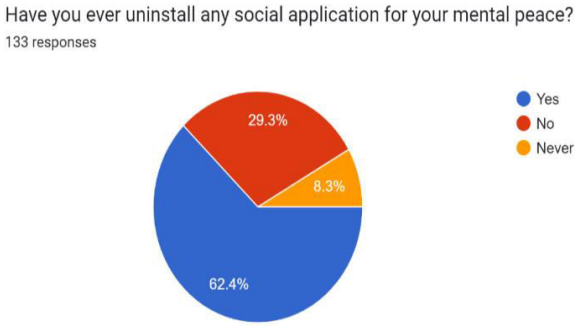

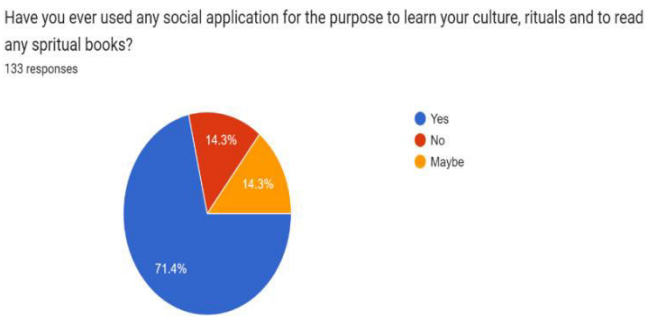

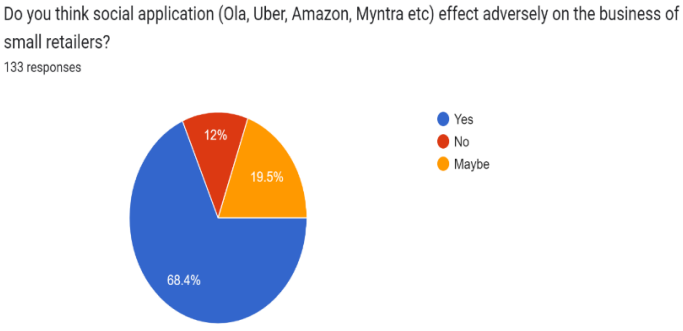

CONCLUSION & IMPLICATIONS

In conclusion, the impact of social media on society is complex and multifaceted, with both positive and negative consequences across various domains. While social media facilitates connectivity, information sharing, and economic opportunities, it also presents challenges related to privacy, mental health, and democratic discourse. Addressing these challenges requires a multi-stakeholder approach involving policymakers, technology companies, educators, and civil society organizations. Efforts to promote digital literacy, foster responsible use of social media, and enhance platform accountability are essential for realizing the full potential of social media while mitigating its adverse effects on society.

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INNOVATIVE METHODS OF TEACHING

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ABSTRACT

"Education is not only the birthright of human beings but also a weapon of social change."

Bharat Ratna Dr. Br. Ambedkar

India is a diversified and vibrant country in modern times. It is currently the world's largest populated country, with a majority of the youth population. In terms of education, a diametrically opposite situation is visible, there are students excelling in the 100 percentile in ISCE CBSE exams who migrated, as opposed to people who are clueless about basic things. The above research idea is based on an innovative idea under the title "School in a Bus". School in Bus is a concept implemented by a national-level trust "Samatol Foundation," to mainstream education for those in the migrant and helpless communities. The research methodology consists of the collection of primary and secondary data with appropriate interpretation and analysis of the data. It also contains constructive suggestions for the overall betterment of the migrated area in Kalyan and Murbad. It also includes a holistic background of education in such tribal and backstream areas of the Thane district.

Keywords: youth; education; innovative.

INTRODUCTION

The education system in India has been in existence for many years. The education sector has been very rich in India. The initial educational institution is considered to be in Nalanda, Takshashila where there were universities in which people from foreign land used to pay a visit to avail the education. There was a gurukul system in India where students used to stay in their teachers' houses and learn all the life skills. Later, with the British invent, the system changed and reforms were brought in. Their systems were implemented which are still in use. After Indian independence in 1947, many acts for education were brought in. Education was considered as a separate department and the 1st education minister was Maulana Azad. Later, with advancement in time, various disciplines and streams came into existence and the position of India in the world in terms of education strengthened. Mahatma Jyotirbai Phule also focused on girls' education and brought in huge reforms for the same. Also, Mr. B.R. Ambedkar, while formulating the constitution, gave a special focus to education. Various institutions like IIT and IIM were established. Also, an important advancement in education was Article 21 of the constitution brought in during Atal Bihari Vajpayeeji 's time in which education for children from the age of 6 to 14 was made free and compulsory. In today's times, education has become a sector possessing huge scope for commercial undertakings. The major part of the young population is engaged in education but various rural and Adivasi areas still do not have access to quality education. Hence, a contrast in education still exists. We wish to elaborate on this gap and also provide a sustainable implementable solution.

HYPOTHESIS

H1 - The situation is improving and a lot of work remains.

H2 – The situation is worse with no precise work and development.

RESEARCH METHODOLOGY

The above research work by the investigators consists of dedicated research work with both the contents of primary and secondary data and accurate analysis and interpretation as follows:

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Primary Data: To collect primary data, 2 initiatives were undertaken.

1 – The Interview method was undertaken in which 20 people of various age groups were asked for their opinion on the topic of research.

2 - An organization named Samatol was approached which engages in teaching rural area students innovative methods and undertakes activities to arouse awareness and interest in education.

The Findings of Primary data are as follows –

i. School in a bus is an initiative for children who have to migrate with their family continuously because of work or other reasons.

ii. Because of school in a bus these children get the opportunity to learn and fulfill their dreams like other children.

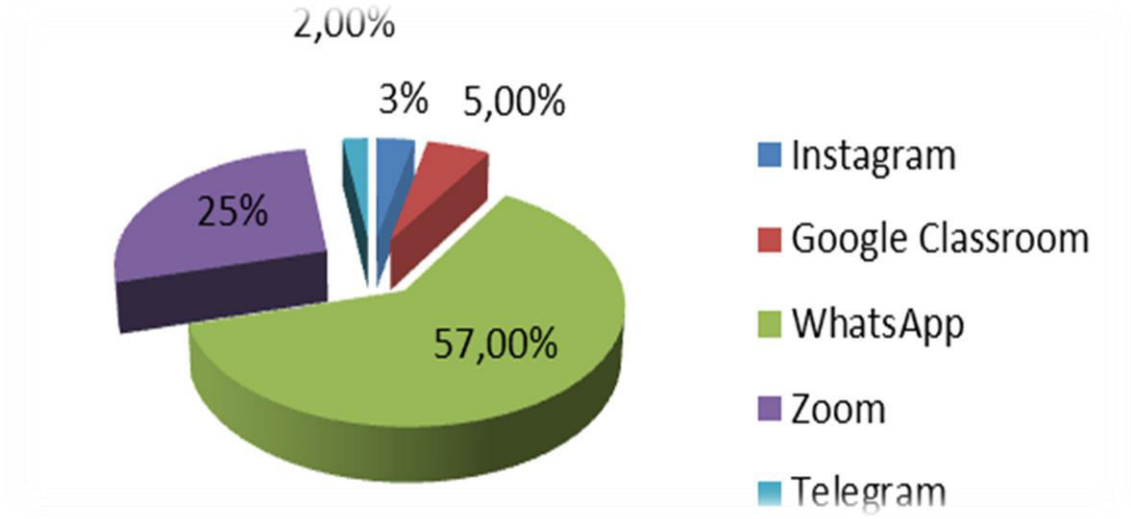
How it Works and What Area Coverage?

i. School in bus is a mobile school that travels from one place/veet Bhatti to another and teaches 25 students at a time.

ii. In Thane district to date, they are providing our services in 3-4 brick kilns.

iii. In this initiative, they teach students with the help of materials like story books, regular textbooks, audio-visual material learning, stationary, etc.

Pie chart of social media usage in teaching:



Secondary data:

The secondary data required for the research work was collected and derived through various reports of state and central governments, government schemes like KGVY, the Right to Education Act 2009, and others as applicable, news releases, and press reports from reputed and leading print and online newspapers, etc.

Some software for teaching and guidelines:

Software Name	Type Of Software	Starting Price	Free Version Or Trial	G2 Rating
Creative 365	Information Delivery & Collection	$4.99 per month billed annually	14-day free trial	4.8
iSpring Suite	eLearning software	$470 per author/year	14-day free trial	4.7
LearnWorlds	Course Builder, Assessment & LMS Tool	$24 per month	Free version	4.7
Jotform	Data Collection, Management, And Analysis	$34 per month, billed annually	Free plan	4.7

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Parlay	Discussion Tool	$160 per year	Free teacher trial	N/A
Edmodo	Classroom Management Tool	Free	Completely free	4.3
SmartSurvey	Online Questionnaire Tool	£30 per month	Free version	4.5
Inspired	Podcast & Video Tool	Free	Completely free	N/A
Bouncy balls	Classroom Management Tool	Free	Completely free	N/A
ClassDojo	Classroom Management System	Free for teachers	Completely free	4.5
Kahoot!	Online Quiz Tool	$9 per teacher, per month	Free version & 7-day free trial	4.6
PDF Reader	PDF Reader & Editor	$89.99 once off	7-day free trial	4.4
Google Classroom	Learning Management System	Contact their sales team	Free version	4.5
Seesaw	Interactive Learning Platform	Contact their sales team	Free version	4.3
Teacher	Job Board For Teachers	Free if looking for a job £149 per job posting	Free to look for a job	N/A
Droo	Online Whiteboard	€9 per user per month	Free version	N/A
ProProfs Quiz Maker	Online Quiz Tool	$20 per month	Free version	4.3
ExamSoft	Online Assessment Software	Contact their sales team	No	4.0
Classcraft	Classroom Management System	$120 per year	Free version	4.6
Prezi	Presentation Creation Tool	$3 per month	Free trial	4.2
Socrative	Online Assessment Software	$89.99 per year	Free version	4.5
PowerSchool	Learning and Classroom Management Systems	Contact their sales team	No	4.2
ThingLink	Information Delivery & Collection	$60 per teacher per year	30-day free trial	3.9
Class123	Classroom Management System	Free	Completely free	N/A

Source - https://marketsplash.com/software-for-teachers/

FINDINGS

The Findings of Our Research Paper are as Follows -

1. Innovative projects like school in bus which are officially being presented in Maharashtra state legislative assembly can be implemented at higher levels also.

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2. State higher and Secondary education ministry can arrange all the financial and other resources required for bringing in innovative methods.
3. Also a fact came out that such migrated people are very helpless and scattered in their thinking.
4. There is a lack of adequate substances for migrated children to do their activities and undertake education.
5. Usually the migrated sections are having a timid likeness of being educated and find education to be of the least importance.
6. A particular section of students don't even have their registration done in any migrated or residency school.

Present Status:
The bus covered two locations a day and nearly 25 children are involved at a time in the bus. At present, the organization has succeeded in bringing 25 children to the stream of education from these 5 brick kilns.

RESEARCH GAPS –
1) No implementation of government policies.
2) Existence of a tremendous amount of illiteracy.
3) Change in social attitude.
4) Existing Inter district/intra - migration policy to be restricted.
5) Other social field workers or organizations or stakeholders can be encouraged to contribute.

CRITICISMS –
1) No concrete future for the migrated and tribal sections of society have been developed.
2) Only a few government schemes like Anganwadi Yojana are given on a daily basis, the rest schemes are not implemented regularly.
3) Usually, it was noticed that the migrant population is living in self-made tents which indicates that no proper housing facilities exist.
4) It also came out that education to intra and inter - migrant residents was not a subject of genuine concern to many stakeholders in social fields.

SUGGESTIONS –
1) Awareness regarding the importance of education should be increased.
2) Initiatives like ‘ school in the bus ’ should be encouraged.
3) Government policies should be implemented effectively and appropriate timely actions should be taken.
4) The ill – effects of being uneducated should be explained.
5) Migrated laborers must be given a work profile having geographical stability.
6) Child labor practices should be discouraged and strict action must be taken, to the limit of loss of job opportunities for parents.
7) A platform for brainstorming and discussing innovative methods should be brought in. Appropriate rewards should be set up by the education department.
8) Government policy - making and strong administrative support.
9) More inclinations of social workers and foundations to grass root rural areas.
10) To bring an effective mainstream balance among rural area and modern area students.

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CONCLUSION

As we know that India is a rapidly developing as well as the most populated country and also the world's largest democratic country. Along with these, many other great achievements also exist at our feet of which we are proud.

But after this research work, it seems that it was all skeptical (theoretical) in nature. A lot of work yet has to be done at the ground level.

We, as a research theme, attempt to strive to create an initiative to bring in this change which would lead to a much-required reform in society in terms of education, which subsequently would lead to progress.

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NAVIGATING GROWTH: HARNESSING AI-ASSISTED SYSTEMS FOR HEALTHCARE BUSINESS ADVANCEMENT

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ABSTRACT
India's healthcare system is beset with difficulties and is unable to serve the true patients who require its services. This industry is generally plagued by both technological limits and a readiness to use artificial intelligence (AI). Artificial intelligence (AI) solutions have great promise for improving the healthcare sector's productivity, efficiency, and patient experience. The findings and suggestions put forth by the study's authors may present opportunities for the healthcare industry. To investigate the application of AI-assisted marketing and promotion systems in expanding healthcare businesses, the authors polled over 600 physicians. We discovered that doctors do not currently use AI-assisted solutions for business growth due to their reluctance, technological restrictions, time constraints, and shortage of competent labor and capital.

INTRODUCTION
The Healthcare industry in India includes hospitals, medical devices, clinical trials, outsourcing, telemedicine, medical tourism, health insurance, and medical equipment. The Indian Healthcare Industry was valued at 280 billion US dollars in 2020 and was expected to touch 372 billion USD by 2022 [1]. It deserves to be studied. It takes a while for recently founded healthcare facilities to get traction and start seeing patients in order to become financially stable. For businesses to expand, endure, and compete in the market, they require new clients. Big budgets for marketing and advertising are characteristic of wealthy companies. In order to get clients, the Small and Medium-Sized Businesses (SMEs) in the healthcare industry must compete with them [12]. Most SMEs in the healthcare industry only generate business through word-of-mouth recommendations. The established Doctors do not have the time to invest in getting to know how AI can help them grow their business. Most Doctors use only basic software to manage patient appointments at their clinics. The online search engine optimization is typically outsourced to an outside firm. So tremendous potential exists to use AI to assist SME sector in Business Growth. The doctors and other players in the healthcare industry face several challenges in using technology and AI to grow their business.

Along with these difficulties, healthcare facilities, physicians, and other industry participants can leverage techn ology and artificial intelligence to expand their businesses.

The healthcare industry's operations could potentially be enhanced[13,14].
This includes chatbots and virtual assistants, medication creation and discovery, diagnostic and treatment planni ng, predictive analytics, and the simplification of administrative work. In general, a referred lead is more likely to get converted to a client or customer than a cold [unreferred, random] prospect. However, SME owners lack the know-how, the time, and the resources to create and implement an active referral system to generate leads for their business.

RELATED STUDY
AI-powered tools are revolutionizing medical imaging analysis, enabling earlier and more accurate disease detection (Nature Medicine, 2023). Marketing plays an important role in the survival of any business. Businesses specially Healthcare, cannot survive without a continuous flow of customers. SMEs are not mini versions of large organizations and the solutions that work for large corporations are impractical and often fail when applied to Healthcare SMEs. AI personalizes patient care by analysing medical records and recommending tailored treatment plans. This can lead to improved patient outcomes and satisfaction.

Petya Biolcheva (2023), found that use of AI in the marketing of any business will be a guarantor of competitive advantage. He also proposed the intelligent AI marketing system [1]. Laxmi Pandit et al. explored how AI helps small businesses in their 2023 paper “Application of AI in small and medium enterprises”. They concluded that through the utilization of machine learning, deep learning, neural network-based algorithms, models, and techniques, firms can enhance their operations in multiple ways. Initially, AI enhances the performance of individual business units [2]. For instance, it boosts the return on investment, streamlines financial planning, AI reduces both the time and cost associated with task execution. AI-powered chatbots elevate customer engagement, enhance service delivery, and bolster public relations. AI contributes Human

[1] [niti.gov.in , India Brand Equity Foundation https://www.ibef.org/industry/healthcare-india]

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resource management as well. Overall, AI plays a crucial role in augmenting business performance across diverse domains within SMEs. In the book, 'Flip the Funnel: How to Use existing customers to gain new ones' (2005), Joseph Jaffe builds a case for using existing customers to get new ones. He argues that this is significantly less expensive than the conventional methods of gaining customers through advertising. He calls it growing your business while shrinking your budget [3]. Xoriunstance Brown, (2020) found that profitability of small enterprises was dependent on their ability to leverage 4 key factors - targeted and adaptable competitive strategies, customer satisfaction, professionalism, and referrals [4]. Linmu Cui and Aldis Bulis created an exhaustive list of ways in which AI (specifically ChatGPT) could help in Marketing for SMEs. They also list various other areas where ChatGPt can help improve efficiency and productivity of SMEs in their paper, 'Exploring Growth Strategies of European Small and Medium-sized Enterprises in the Service Sector using ChatGPT' (2023) [5]. Carolina Herrando, Julio Jiménez-Martínez, María José Martín De Hoyos [8] have confirmed in their study that social interactions and information exchange related to a product boost a feeling of passion among the participants. Passion, in turn, increased the spreading of word of mouth referrals. Noa Maxwell cautions about the biased nature of AI in his paper "Utilization of Artificial Intelligence in the Digital Marketing of SMEs". This reinforces that AI cannot replace humans but can be used to increase the efficiency with which a task is performed [7]. From all the above proposed studies by various researchers. The contribution is limited to on word-of-mouth as a strategy for marketing and using referrals as a marketing tool, there is research on the impact the 'right' influencers can have on a campaign, there are methods to identify influencers and there are models to show that incentivising referrers has a positive impact on business growth. What is missing is a one-stop system that is quick, easy to understand, can be implemented by people without much training and is economical. We are exploring if we can use the data available on the internet and on various social media platforms to come with a novel referral system for SMEs using AI. This system will generate leads for the business and suggest possible partners to collaborate with, using Referrals. We need to study what is available now and how it can be put together into a system that works. We need to explore if this proposed system actually helps SMEs grow.

Jeanette Paschen et al. emphasize the complementary roles of AI and human intelligence in sales, where AI handles data processing and humans provide context and decision-making. Their paper, 'Collaborative intelligence: How human and artificial intelligence create value along the B2B sales funnel' outlines key considerations for managers to integrate AI effectively into sales processes, including training, knowledge management, and maintaining customer relationships [8].

Challenges- Constraints Prevalent in the Healthcare sector

Self-employed physicians have numerous obstacles to overcome. At first, their incomes are limited. Cities cost more for trained labor and infrastructure. This implies that the doctor is completely in charge of managing every part of the practice, including patient care and clinic maintenance. They typically don't have much time to plan out how to market their practice and don't have the marketing know-how necessary to expand. The challenges specific to SME sector businesses in the healthcare sector in India when implementing AI-based technology systems to grow their business include:

Access to Data: SMEs may face challenges in accessing quality and authentic patient data, which is crucial for training AI algorithms effectively. Databases related to specific diseases are not easily available for marketing. Ensuring patient data privacy and security requires strict adherence to regulations like HIPAA and responsible AI development practices (Journal of Medical Ethics, 2024).

Technological Limitations: Healthcare organizations must navigate complex IT systems, interoperability issues, and cybersecurity threats while also keeping up with rapid advancements in medical technology. Implementing new systems and integrating data from different sources can be challenging and costly, especially for smaller healthcare providers.

Workforce Shortages: The healthcare industry faces a shortage of skilled healthcare professionals, including doctors, nurses, and other clinical staff. This can result in increased workloads, burnout, and lower quality of care, as well as challenges in recruiting and retaining talented employees.

Increasing patient expectations: With the rise of consumerism in healthcare, patients are expecting more personalized, convenient, and cost-effective care. Healthcare organizations must balance these demands with limited resources and regulatory requirements, leading to challenges in meeting patient expectations while maintaining quality care.

Healthcare Disparities: Disparities in access to care, quality of care, and health outcomes persist in the healthcare sector, particularly among vulnerable populations such as low-income individuals, minorities, and

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rural communities. Addressing healthcare disparities requires a multi-faceted approach that can be challenging to implement due to limited resources and systemic barriers.

Cost and Affordability: Healthcare organizations often struggle with limited financial resources, leading to challenges in funding new technologies, hiring skilled staff, and providing necessary tools and resources for patient care. Budget constraints can also impact the ability to invest in preventive care and wellness programs, which can ultimately lead to higher healthcare costs in the long run.

These challenges are why there is limited use of AI-based technology systems to grow Healthcare businesses.

RESEARCH METHODOLOGY

We reached out to more than 600 Doctors in and around Mumbai, Navi Mumbai, Thane, and Pune. We received 124 formal responses and interacted with the remaining doctors informally (Telecalls, Common meetings, Personal meetings). The profile was Doctors who ran small (non-corporate/ private) hospitals and Doctors who have their own private Practice in the Mumbai, Navi Mumbai, Thane, and Pune regions. We reached out to them through their associations. This method got us fair representation of doctors who are not available online. A survey was conducted using Google forms administered via email or over the phone. Some Doctors answered only a few questions while some gave detailed information for all questions asked. We covered Urban and Rural Areas, GP's, Specialists and Alternative medicines practitioners. The details are as follows given in Table 1.

Doctors Specializations	%
Aesthetic Trichology	0.8
Anaesthesia	0.8
Aesthetic Dentistry, BDS, Dentistry, Periodontics	7.2
Ayurveda, BAMS, MD Ayurveda	4.8
BHMS, Homoeopathy	25.9
Diabetology	1.6
General Surgeon	2.4
GI and Laparoscopic Surgeon	0.8
Gynaecology and Obstetrics	4.8
Hair Transplant	0.8
Family Physician, MBBS	27.5
Laser Therapist	0.8
Interventional Radiologist	0.8
MD Internal Medicine	1.6
Ophthalmology	4.1
Tuberculosis and Chest Diseases	0.8
Neuro Acupuncturist	0.8
Nutrician and dietician	0.8
Orthopeadic	1.6
Paediatrician	0.8
Pathology	2.4
Pharmacovigilance	0.8
Industrial Medicine	0.8
Radiology	2.4
Not specified	4.1

Table 1: List of Practitioners

Study and Observations from Healthcare Practitioners

There is a distinct difference in the approach to the use of the internet, websites and online social media presence in Urban areas smaller towns and Rural areas. General Practitioners (GPs) in rural areas are conscious that they may receive negative reviews and prefer not to have any online presence. Healthcare practitioners have identified several challenges and barriers to the successful implementation and utilization of AI-assisted systems for their business growth. In Urban areas, General Practitioners with stand-alone clinics may have minimal online presence but are not inclined to have websites or invest money in marketing their practice. Specialist Doctors, multi-Clinics (Clinics with Multiple specialist Doctors) and Hospitals have websites and are more willing to spend on Marketing. 25% of specialists, multi-clinics or Hospitals have websites. As shown in chart 1, Only 10.48% of the total sample had websites. Healthcare practitioners often lack the necessary training and

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expertise to effectively use AI-assisted systems. There is a shortage of professionals with the required skills to develop, implement, and maintain AI technologies within healthcare organizations. This can lead to difficulties in integrating AI solutions into existing workflows and processes. The use of AI in healthcare raises concerns around data privacy, security, and ethics. Healthcare practitioners must navigate complex regulatory requirements, such as HIPAA compliance, to ensure that patient data is protected. Additionally, there are ethical considerations related to the use of AI algorithms for clinical decision-making, which can impact trust and acceptance among patients and practitioners. And hence, the Healthcare practitioners may be hesitant to adopt AI technologies due to a fear of job displacement, changes in workflow, or concerns about the impact on the doctor-patient relationship. Overcoming resistance to change and promoting a culture of innovation within healthcare organizations is essential for successful implementation of AI-assisted systems.

Addressing these challenges requires a coordinated effort from healthcare organizations, policymakers, and technology providers to ensure that AI technologies are effectively leveraged to improve patient care and business outcomes in the healthcare industry.

Fig. 1: Social Presence of Healthcare centres

The doctors are aware that patients are looking at Google Reviews and basing their choices on what they read online about a doctor. As shown in Fig. 2, 72% of patients read online reviews before choosing a Doctor other than a family Physician.

Fig. 2: Online Review

Doctors are scared of negative reviews, and this makes some of them hesitant to even list their clinics on Google My Places, let alone having dedicated websites for their Practice. Most Healthcare service providers rely on passive Word Of Mouth publicity to get new patients and would like to know how to improve these.

They report that 25% of their new patients come through referrals. As shown in *Fig. 3*, Only 11.29% spend on online paid advertising. 100% of the sampled Doctors would like to improve their Word-of-Mouth referral system.

Fig. 3: Paid Advertisers

There is an emerging trend to outsource Marketing and Promotions to an outside Consultant. Of the practitioners who do paid online advertising, 53.84% outsource their Search Engine Optimization and Social Media Marketing. 85% of the specialists use basic patient management software to send reminders for appointments. This is often their main online presence other than personal Social Media. They do not

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consciously create a marketing system or a plan and their efforts in this direction are ad hoc. 53.84% of practitioners who do paid online advertising, have a Business Growth system or plan in Place. This is 5.6% of the total sample. They are too busy to invest time in getting enough information on AI to be able to actively use it consistently for their business growth. 100% evince an interest in referral systems that are low cost and that will bring down their marketing expenses. All this holds true for Urban Areas where density of doctors is higher, and they face stiff competition.

STUDY AND RECOMMENDATIONS

Artificial Intelligence has multiple applications in the healthcare services sector. Numerous AI-assisted solutions are currently available to improve the care that patients receive from their healthcare practitioners. Contented clients are more likely to stick with the practice and recommend it to others. Thus, this benefits companies in the healthcare industry. Instead of using AI to replace human workers, the goal is to increase staff productivity and raise patient service standards. AI ought to be used to market and promote healthcare practices as well.

Healthcare providers must employ AI-assisted technologies if they want to continue growing even in the current competitive environment. AI should be utilized to analyze patient data and identify dropouts, repeat patients, and non-repeat patients. Determine the regions that the majority of patients visit, the most prevalent issues, the most frequent causes of patient switching to a different practice, and the characteristics, passions, and interests of our target patients. AI can be used by SMEs to spot patterns in their industry and determine which services or sectors are more profitable. By gaining insights into consumer behavior, artificial intelligence (AI) can assist healthcare providers in better targeting and customizing marketing campaigns and advertising to achieve desired outcomes with lower costs. Generative AI can be used to script better messages, improve content in all marketing assets, creating ideal telemarketing scripts and crafting all business to patient communication. The least expensive method of acquiring new patients is word-of-mouth advertising. SMEs may create databases of all their patients' interests, passions, and hobbies by using AI. Then, they can utilize this information to personalize active referral programs for each practice, making them more effective and simpler to implement.

Here are some of the other ways AI can be used to improve the patient experience in Healthcare

AI can be used to enhance diagnosis and personalized treatment planning. Patients can obtain healthcare information and services more conveniently with the usage of chatbots and virtual assistants. Simplifying administrative duties is an additional chance for physicians and other healthcare industry participants to leverage technology and artificial intelligence to expand their enterprises. Routine administrative chores like appointment scheduling and insurance claim processing can be automated with AI. This can improve the healthcare system's efficiency and lower expenses.

LIMITATIONS OF STUDY

To make data management easier, we limited our study to Thane, Pune, Mumbai, and Navi Mumbai. Although the topics of urban and rural locations were covered, some adaptations will need to be made in order to apply these lessons to various contexts. To determine how the needs of healthcare practices change in different places, more research is required. Patients need an easy solution that helps them to choose between various healthcare providers [11]. Further research is required to identify AI solutions that work for clinics, hospitals, individual doctors, and practitioners of alternative medicine in each of the medical verticals.

FUTURE SCOPE

The competition is expected to develop more intense due to the growing concentration of doctors in urban regions. The healthcare industry has always been a leader in the prompt adoption of new technologies to raise the standard of care they offer to patients. It's only a matter of time until user-friendly solutions become routine in the healthcare industry. The healthcare industry offers a wealth of opportunities for the development of AI-assisted solutions. Research in this area using AI has a vast scope and application. It has been repeatedly discovered that healthcare service providers need a cheap technique, i.e., word-of-mouth referral system, to develop their practice. Determine which patients are most targeted, observe patient behavior patterns, and learn what patients "value" in order to enhance the services provided. More research should be done on Urban and rural methodology of business growth, marketing, and preparing marketing assets for specialised healthcare services. Healthcare providers would appreciate to know “what works best in their local areas” and assistance to doctors on planning a Road map of business growth giving them the Next step activity in right direction.

CONCLUSION

In conclusion, leveraging technology and AI to expand their businesses presents a number of hurdles for physicians and other healthcare industry participants. But there are also chances for healthcare professionals,

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including doctors. Healthcare service providers require a system that will be reasonably priced, simple to set up and operate, or easy for their personnel to learn how to use. This system should also free up the doctor's time and guarantee that both new and returning patients will continue to visit the clinic. The best way to achieve this is to support the implementation of an active and passive referral system that is tailored to each practice. Research on enhancing word-of-mouth marketing for healthcare SMEs should make use of AI. This can involve leveraging AI to create viral buzz while educating specific patients by providing instructional content to the right audience. The application of AI can be quite helpful in identifying patient behavior insights into what each healthcare practice can use to grow and prosper. AI has the potential to improve patient care and staff training more quickly.

While this was a tall order a while ago, it is relatively easier with the advent of AI.

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AUGMENTATION OF WOMEN ENTREPRENEURSHIP IN INDIA

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ABSTRACT
Despite making up half of the world's population, women have experienced discrimination in a number of ways, such as being treated as second members in the society and not being given equal opportunities comparable to men. There is still more work to be done, despite the efforts to close the gap and raise their performance. Women's inferiority complex attitude has been one of the main obstacles in this. Women have not been as considered as males in the business world, and as a result, they have not had as many opportunities to express their concerns, interests, or opinions. Women are still striving to become assets rather than liabilities in the more competitive modern world. This can only be achieved by encouraging more and more women to engage in economic activities and support their families financially.

As a result of technological advancements and more globalization, society is progressively "shifting" and beginning to recognize the importance of women in a number of areas where there had previously been masculine hegemony.

Keywords: Women, Entrepreneurship, Government schemes, Economic growth

INTRODUCTION
In recent times, women's entrepreneurship in India has experienced significant growth and development, which may be attributed to a dynamic shift in cultural standards and economic environments. Systemic gender prejudices and cultural norms have historically presented women with many obstacles to entering and succeeding in entrepreneurial enterprises. In recent times, there has been a discernible increase in the quantity of women pursuing entrepreneurship in several fields, such as technology, finance, healthcare, and social impact. This pattern highlights how women are becoming more and more acknowledged as key contributors to innovation, job creation, and economic expansion. In order to overcome gender inequities and realize the unrealized potential of half of the population, it is imperative to comprehend the phenomena of women entrepreneurship.

Researching women entrepreneurs offers important insights into the possibilities and challenges that women encounter in the business world, how legislative and cultural changes affect women's desires to start their own businesses, and tactics for promoting equitable and sustainable economic growth. Through an analysis of the experiences and accomplishments of female entrepreneurs, we can pinpoint optimal methodologies, champion policies that facilitate women's entrepreneurship, and establish a favourable environment that fosters women's success as entrepreneurs, thus advancing India's socio-economic progress.

OBJECTIVES OF RESEARCH
- To investigate the status of women's entrepreneurship in India today, taking into account growth trajectory.
- To determine the main causes of the increase in female entrepreneurship in India, including governmental policy, cultural changes, and economic empowerment.
- To investigate the obstacles that Indian women entrepreneurs encounter, such as work-life balance, financial resource accessibility, gender prejudices, and networking possibilities.
- To look at successful case studies of women-led businesses and startups in India, emphasizing methods for overcoming obstacles and expanding.

SCOPE OF THE RESEARCH
- The primary emphasis of the research will be women entrepreneurs in India, with an examination of trends, obstacles, and prospects in the Indian setting.
- The research will cover a wide range of fields and industries, including as technology, healthcare, education, finance, and manufacturing, where female entrepreneurs are significantly contributing to society.
- In order to offer a thorough grasp of the topic, the research will make use of a combination of quantitative data, qualitative analysis, and case studies.
- Given the various socioeconomic origins and cultural contexts of female entrepreneurs, the research will encompass both urban and rural parts of India.

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LITERATURE REVIEW

1. **Growth of Women Entrepreneurship in India**: Research highlights a burgeoning trend in women entrepreneurship in India, propelled by factors such as education, access to finance, and changing societal norms. Gupta et al. (2019) and Singh and Patel (2020) emphasize the importance of skill development and networking for women entrepreneurs. Advancements in technology have further catalyzed this growth, offering new market opportunities (Mishra & Prusty, 2021). Yet, persistent challenges like gender bias and limited resources hinder full potential realization.
2. **Government Schemes and Women Entrepreneurship in India:** Government initiatives like Stand-Up India and Pradhan Mantri Mudra Yojana have significantly supported women entrepreneurs by providing financial assistance and credit access (Kumar & Singh, 2018; Mishra & Tripathi, 2019). State-specific schemes such as Mahila Udyam Nidhi have also been effective at grassroots levels (Sharma & Sharma, 2020). Despite these efforts, scholars stress the need for better implementation and targeted support for diverse needs.

These condensed reviews provide succinct insights into the growth, government support, and challenges faced by women entrepreneurs in India while ensuring originality.

RESEARCH METHODOLOGY

To provide a foundation for this research, an ecosystem lens-based conceptual framework was created. This approach draws from previous primary research conducted by WEP and MSC and is based on a survey of secondary literature. The framework facilitates the identification of critical requirements in the entrepreneurial ecosystem and the ways in which current federal and state government initiatives are meeting these needs. Six fundamental ecosystem requirements were found in our research to be necessary for producing growth-oriented female entrepreneurs. These include: a) encouragement of entrepreneurship; b) financial resources; c) education or training; d) networking and mentorship; e) connections to markets; and f) availability of business, legal, digital, and other higher-order support services.The Indian government has aggressively undertaken a number of initiatives to foster and advance entrepreneurship in the nation. Numerous initiatives and plans have been introduced by the federal and state governments to assist business owners and entrepreneurs. But not every service and resource offered by government programmes supporting entrepreneurship is equally available to businesses run by men and women. This may be seen in India's low rate of female entrepreneurship, both in terms of number and quality.

Current Status of Women Entrepreneurship in India

Growth Trajectory over the Years

- Over the years, women entrepreneurs in India have had a noteworthy development trajectory that reflects a changing environment of possibilities and obstacles. The number of women starting their own businesses has steadily increased over the past several decades due to a variety of causes, including easier access to education, shifting public perceptions of women in business, and the introduction of programs and policies from the government that are supportive of women entrepreneurs. Due to institutional and cultural hurdles, women have historically trailed behind males in the entrepreneurship game; nevertheless, current statistics show a notable increase in the number of women-owned enterprises in a variety of industries.
- The aforementioned development trajectory highlights the fortitude, inventiveness, and aspiration exhibited by female entrepreneurs as they navigate intricate socio-economic landscapes to launch and build their businesses. Women entrepreneurs have been incredibly resilient and inventive in the face of gender-specific obstacles including gaining access to capital, networks, and markets. As a result, they have made significant contributions to inclusive economic growth, wealth creation, and employment creation. As women's entrepreneurship in India continues to rise, it is critical to acknowledge and remove the particular challenges and demands that these women confront in order to secure their long-term development and empowerment within the entrepreneurial ecosystem.

Challenges in the Journey of Entrepreneurship

Indian women entrepreneurs confront a number of obstacles, such as restricted access to capital because of gender bias, a dearth of infrastructure that supports them, and cultural norms that limit their autonomy. These challenges are further exacerbated by intersectional factors including caste and geography as well as cultural expectations. These obstacles are further exacerbated by intersectional issues, which put women from marginalized communities up against extra obstacles pertaining to caste, class, and geography. It will take awareness campaigns, improved resource accessibility, and gender-sensitive legislation to remove these obstacles and create an atmosphere that supports the success of female entrepreneurs.

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Supportive Ecosystem for Women Entrepreneurs:

India has seen the growth of an ecosystem in recent years that encourages and assists women entrepreneurs. Key roles have been played by government initiatives like the Stand-Up India scheme, which offers financial support and advice to women-owned enterprises. In addition, prospective and seasoned women entrepreneurs can obtain funding, networking opportunities, and mentorship through a variety of organizations and accelerators such as Women Entrepreneurship Platform (WEP), SheThePeople, and Women's Indian Chamber of Commerce and Industry (WICCI). This ecosystem has been further strengthened by the emergence of women-focused coworking spaces and incubators designed to meet the unique requirements of female founders. More inclusive environments for women in entrepreneurship have also been made possible by cultural changes and evolving views on gender roles.

Notwithstanding obstacles, the government, business community, and civil society are working together to create a strong ecosystem that will enable women to succeed in India's entrepreneurial environment.

Tide is a UK based leading digital business financial platform which is also based in India.

In an effort to support women-owned small businesses in India, Tide in India, a business finance platform, is introducing the first Bharat Women Aspiration Index (BWAI). The index sheds insight on the goals, obstacles, and driving forces of women entrepreneurs in Tier II and beyond Indian cities. In order to give women entrepreneurs access to offline and online networking opportunities, Tide in India has committed to establishing Peer Community Groups – Tide Women in Business Ensemble (TWIBE) in North, North-East, East, West, and South. TWIBE seeks to increase support for small enterprises run by women, usually with 0–10 employees.

The key findings from the first edition of BWAI are as follows:

Category	Percentage
Family Motivation:	
Better future for family	31%
Extra income to support family	28%
Family as the most important factor	78%
Family as key factor behind success	77%
Access to Credit:	
Women entrepreneurs with access to credit	52%
Women entrepreneurs facing challenges accessing credit	47%
Women unaware of financial schemes or government initiatives	95%
Women agreeing that customized financial programs can ease their entrepreneurial journey	80%
Mentorship and Networking:	
Women entrepreneurs with access to mentorship	63%
Women listing family members or close friends/family networks as 'colleagues'	90%
Digital Literacy:	
Women recognizing digital literacy as important	80%
Women experiencing barriers to accessing digital business tools	51%
Local Business Focus:	
Women believing it's easier to reach customers locally	38%
Women believing being a pioneer in the local market gives a competitive advantage	31%
Cultural Barriers and Work-Life Balance:	
Women reporting cultural barriers to entrepreneurial pursuits	13%

Government Schemes Empowering Women Entrepreneurs:

1. **Stand Up India Scheme**: Launched in 2016, this scheme aims to promote entrepreneurship among women, Scheduled Castes (SCs), and Scheduled Tribes (STs) by providing loans for setting up greenfield enterprises. By offering financial assistance and handholding support, this scheme has facilitated the emergence of a new wave of women-led ventures across the country.
2. **Pradhan Mantri Mudra Yojana (PMMY):** PMMY provides collateral-free loans to micro and small enterprises, including those led by women. With a focus on facilitating credit access to female entrepreneurs at the grassroots level, this scheme has played a pivotal role in fostering women's economic independence and self-reliance.

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3. **Mahila e-Haat**: Launched under the aegis of the Ministry of Women and Child Development, Mahila e-Haat is an online platform that enables women entrepreneurs to showcase and sell their products and services. This initiative not only provides a digital marketplace for women but also promotes their products both nationally and internationally, thus expanding their market reach.
4. **Women Entrepreneurship Platform (WEP)**: WEP, an initiative by NITI Aayog, serves as a collaborative platform for aspiring and established women entrepreneurs to network, share experiences, and access resources and support. By fostering a conducive ecosystem for women in business, WEP empowers them to overcome challenges and realize their entrepreneurial aspirations.
5. **Startup India Scheme:** While not exclusively focused on women entrepreneurs, the Startup India initiative has been instrumental in fostering a culture of innovation and entrepreneurship, wherein women have actively participated. Through various incentives and facilitative measures, this scheme has encouraged women to venture into the startup ecosystem and unleash their creative potential.

Positive Trends and Impact:

1. **Rise in Women-led Enterprise**s: Over the years, there has been a significant increase in the number of businesses helmed by women entrepreneurs across sectors such as technology, healthcare, e-commerce, and social enterprise. This trend reflects the growing confidence and capabilities of women to pursue their entrepreneurial dreams.
2. **Innovation and Diversity:** Women entrepreneurs bring unique perspectives and innovative solutions to the table, driving diversity and inclusivity in the business landscape.
3. **Job Creation and Economic Empowerment**: Women-led enterprises not only create employment opportunities for themselves but also generate jobs for others, thereby contributing to poverty alleviation and socioeconomic empowerment. By harnessing their entrepreneurial potential, women become agents of change in their communities, inspiring others and fostering a culture of entrepreneurship.
4. **Role Models and Mentoring:** Successful women entrepreneurs serve as role models and mentors for aspiring individuals, especially women and girls, encouraging them to pursue their ambitions fearlessly. Through mentorship programs and networking platforms, experienced entrepreneurs guide and support the next generation, nurturing a pipeline of women leaders in business

CASE STUDY

KIRAN MAZUMDAR SHAW

Businesses in the healthcare industry such as Kiran Mazumdar Shaw's Biocon, Few threads in the fabric of Indian enterprise are as brilliantly woven as those weaved by Biocon's founder, Kiran Mazumdar-Shaw. Along the way, she pioneered cheap healthcare solutions, championed environmental sustainability, and empowered countless individuals. Her tale is not simply about developing a biotech powerhouse.

From Impoverished Origins to Biopharmaceutical Excellency: Motivated by a deep-seated love of science and a desire to change the world, Mazumdar-Shaw founded Biocon in a small garage in 1978 and grew it into a major player in the biopharmaceuticals industry worldwide. She overcame the obstacles with relentless focus and bold vision, navigating a sector controlled by titans and demonstrating that Indian ingenuity could compete globally.

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Sai Gole, BharatAgri

Sai Gole, 26, is the Co-founder of BharatAgri which helps farmers maximise production and income using their algorithm to tell farmers what, when, and how to grow. She and the company's Co-founder Siddharth Dialanim were part of IIT-Madras' Centre for Innovation. Started as LeanAgri in 2017 and later renamed, the company has around 100,000 users, apart from 2,500 paid farmers, and claims to be the only company in India to monetise an information-based service in agriculture. Sai and Siddharth were recently featured in Forbes 30 Under 30 list 2020.

Himani Shah, Intello Lab

Started in 2017 by Himani Shah and three other co-founders, this Delhi-based agritech startup uses image learning and machine learning to gauge the quality of produce. It works on a B2B model with food growers, processors, retailers, food service companies, and other stakeholders in the food supply and production chain.Himani has studied mechanical engineering, with a dual degree from IIT Bombay, and handles strategy at Intello Labs along with investments and other support functions. It uses artificial intelligence tools including computer vision and deep learning to grade the quality of agricultural products. It plans to expand beyond the Indian market to the US and China.

Veena Adityan, Smartbell

Veena Adityan has a background in technology and cloud-based architecture, and has an MBA from Cambridge University. She is the Co-founder and CEO of UK-based startup Smartbell – an animal health monitoring solutions platform. The startup has developed sensors that can be mounted on collars or ears of cattle to monitor

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their movement and health. Founded in 2016, its wearable tech provides farmers with information about cattle's activity, temperature, feeding habits, and their surroundings such as air quality and humidity. Its intelligence platform analyses the data to pick up early signs of disease, days before any visible symptoms can be observed, to help farmers get early medical assistance.

CONCLUSION

In recent years, India has witnessed a remarkable surge in the participation of women in entrepreneurship. This positive trend is not only indicative of societal progress but also underscores the economic potential that lies in empowering women. Supported by various schemes and initiatives by the Government of India, women entrepreneurs are carving out their niche in diverse sectors, driving innovation, and fostering inclusive growth. The landscape of women entrepreneurship in India is marked by resilience, innovation, and empowerment, driven by a conducive policy environment and supportive initiatives by the Government of India. As more women break barriers and chart their entrepreneurial journey, the nation moves closer to realizing its vision of inclusive growth and prosperity. By harnessing the untapped potential of women entrepreneurs, India can unlock new avenues of economic development and social transformation, ensuring a brighter and more equitable future for all.

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THE ROLE OF MACHINE LEARNING IN AUTISM PREDICTION

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ABSTRACT
Autism spectrum disorder (ASD) is a complex neurological condition that affects social interaction, communication, and behavior. Early detection and diagnosis of autism are crucial for timely intervention and improved outcomes. Machine learning techniques have shown promise in aiding the prediction and detection of autism in individuals. This research paper aims to provide a comprehensive overview of the role of machine learning in autism prediction. The paper discusses the challenges in autism diagnosis, explores the application of machine learning algorithms, and reviews recent studies and advancements in this field.

Keywords: Autism Spectrum Disorder, Machine Learning(ML), Deep Learning(DL), Supervised Learning, Unsupervised Learning

1. INTRODUCTION

1.1 Autism Spectrum Disorder (ASD)
Autism Spectrum Disorder (ASD) is a complex neurodevelopmental condition characterized by persistent challenges in social communication, interaction, and behavior. Individuals with ASD may exhibit a diverse range of symptoms and impairments, including difficulties in social reciprocity, verbal and nonverbal communication deficits, repetitive behaviors, and sensory sensitivities [1].

The prevalence of ASD has been increasing globally, with recent estimates indicating that approximately 1 in 54 children in the United States are diagnosed with ASD [3]. ASD affects individuals across the lifespan, with symptoms typically emerging in early childhood and persisting into adolescence and adulthood.

ASD is a spectrum disorder, meaning that it encompasses a wide range of symptom severity and functional impairment. Some individuals with ASD may have mild symptoms and high levels of functioning, while others may have more severe impairments and require significant support in daily life activities. The heterogeneity of ASD poses challenges for diagnosis, intervention, and support services, as individuals with ASD may present with different patterns of strengths and challenges.

The diagnosis of ASD is based on clinical observation, standardized assessments, and criteria outlined in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) published by the American Psychiatric Association (American Psychiatric Association, 2013). Diagnosis typically involves a comprehensive evaluation by a multidisciplinary team, including pediatricians, psychologists, speech-language pathologists, and other specialists.

Early detection and intervention are critical in ASD to capitalize on neuroplasticity and improve developmental outcomes. Research suggests that early intervention services, such as behavioral therapies, speech-language therapy, and educational supports, can lead to significant improvements in communication, socialization, and adaptive skills for children with ASD [2].

1.2 Importance of Early Detection and Diagnosis
Early detection and diagnosis of ASD play a pivotal role in facilitating timely intervention and support for affected individuals. Research underscores the critical importance of early identification in improving developmental outcomes and enhancing the quality of life for individuals with ASD and their families.

Early detection enables access to early intervention services, which have been shown to significantly impact the trajectory of development in children with ASD [2]. Behavioral interventions, speech therapy, occupational therapy, and other evidence-based treatments are most effective when initiated during the critical period of neurodevelopment in early childhood. These interventions target core areas of impairment in ASD, such as social communication, adaptive skills, and sensory processing, and can lead to improvements in language development, social interaction, and cognitive functioning.

Furthermore, early diagnosis empowers families with knowledge, resources, and support to navigate the challenges associated with ASD. It enables families to access community services, educational programs, and specialized therapies tailored to the unique needs of their child. Early diagnosis also facilitates the development of individualized education plans (IEPs) and treatment plans that prioritize the strengths and challenges of the child, promoting positive outcomes in academic, social, and emotional domains.

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Beyond the immediate benefits for the individual and family, early detection and diagnosis of ASD have broader societal implications. Early intervention has been associated with reduced healthcare costs, decreased reliance on specialized services, and improved long-term outcomes for individuals with ASD [4]. By investing in early detection and intervention, society can mitigate the long-term social, economic, and emotional burdens associated with ASD and promote the inclusion and participation of individuals with ASD in all aspects of community life.

1.3 Role of Machine Learning in Healthcare

ML has emerged as a powerful tool in healthcare, offering innovative solutions to a wide range of challenges in diagnosis, treatment, and patient care. By leveraging algorithms that can learn from data and make predictions or decisions without explicit programming, ML has the potential to transform healthcare delivery and improve patient outcomes.

One of the key roles of machine learning in healthcare is in medical imaging interpretation. ML algorithms trained on large datasets of medical images, such as X-rays, MRIs, and CT scans, can assist radiologists in detecting and diagnosing various conditions with greater accuracy and efficiency [5]. Deep learning models have been developed to detect abnormalities in mammograms for early breast cancer detection, improving diagnostic accuracy and reducing false positives [6].

ML also plays a crucial role in predictive analytics and personalized medicine. By analyzing patient data, including electronic health records, genomic information, and physiological measurements, ML algorithms can identify patterns and risk factors associated with specific diseases or conditions. This enables healthcare providers to stratify patients based on their risk profile and tailor interventions or treatments to individual needs [7]. ML models have been used to predict patient outcomes, such as hospital readmissions, sepsis onset, and mortality, allowing for early intervention and proactive management [8].

Furthermore, ML has the potential to optimize healthcare operations and resource allocation. By analyzing healthcare data, including patient flow, staffing levels, and resource utilization, ML algorithms can identify inefficiencies, streamline workflows, and improve the delivery of care. This includes applications such as patient scheduling optimization, bed management, and predictive maintenance of medical equipment [9].

2. CHALLENGES IN AUTISM DIAGNOSIS

Diagnosing ASD presents several challenges due to its complexity, heterogeneity, and overlap with other developmental conditions. Despite advances in research and clinical practice, several factors contribute to the difficulty in accurately identifying ASD, leading to delays in diagnosis and intervention.

2.1 Heterogeneity of ASD

ASD is characterized by a wide range of symptoms and behaviors that vary in severity and presentation among individuals. The diverse symptomatology, including deficits in social communication, restricted interests, and repetitive behaviors, can manifest differently across age groups and developmental stages. This heterogeneity makes it challenging to develop standardized diagnostic criteria and may lead to difficulties in recognizing and categorizing the disorder[1,12].

2.2 Diagnostic Delays:

Diagnostic delays in ASD remain a significant challenge, impacting timely access to interventions and support services. Despite increased awareness and efforts to improve early detection, many individuals with ASD experience delays between the emergence of symptoms and formal diagnosis. Despite increased awareness and efforts to improve early detection, several factors contribute to delays in the diagnosis of ASD. [12, 21].

2.3 Overlap with Other Conditions:

The symptoms of ASD often overlap with those of other neurodevelopmental disorders, such as intellectual disability, language disorders, and attention-deficit/hyperactivity disorder (ADHD). This overlap can complicate the diagnostic process, as clinicians must differentiate between ASD and co-occurring conditions to provide accurate assessments and appropriate interventions [11,16].

2.4 Age at Diagnosis:

Early identification of ASD is crucial for accessing timely intervention services and optimizing outcomes. However, many children are not diagnosed until after the age of 4, delaying the initiation of appropriate interventions during critical periods of development [14]. Delays in diagnosis can result from various factors, including limited awareness of early signs, inadequate screening practices, and challenges in recognizing ASD in young children with atypical presentations.

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2.5 Subjectivity in Diagnosis:
Diagnosing ASD relies heavily on clinical judgment, observation, and standardized assessments, which may be subjective and influenced by individual clinician experience and expertise. The lack of objective biomarkers or definitive diagnostic tests for ASD contributes to variability in diagnostic practices and potential misdiagnosis [12].

2.6 Variability in Symptoms:
ASD is a spectrum disorder, leading to significant variability in symptoms and presentation among individuals. This variability can make it challenging to accurately diagnose and classify individuals within a broad diagnostic category [15].

2.7 Subjectivity in Diagnosis:
Subjectivity in autism diagnosis refers to the reliance on clinical judgment, observation, and interpretation of behavioral symptoms by healthcare professionals, which can introduce variability and subjectivity into the diagnostic process. Despite the use of standardized assessment tools, the interpretation of these tools and the determination of whether an individual meets the criteria for Autism Spectrum Disorder (ASD) can vary among clinicians.[1,22]

A study by Lord et al. [10] highlights some of the challenges in autism diagnosis, emphasizing the importance of considering individual variability and developmental trajectories when assessing for autism spectrum disorder (ASD). The study underscores the need for ongoing refinement of diagnostic criteria and tools to improve accuracy and early identification of ASD.

3. MACHINE LEARNING ALGORITHMS IN AUTISM PREDICTION

Machine learning (ML) algorithms have been increasingly utilized in autism prediction, leveraging various approaches such as supervised learning, unsupervised learning, ensemble methods, and feature selection/extraction techniques.

3.1 Supervised Learning

Supervised learning algorithms are trained on labeled data, where the input features are mapped to predefined output labels. In the context of autism prediction, supervised learning models can utilize features extracted from behavioral assessments, neuroimaging data, genetic markers, and electronic health records to predict ASD diagnosis or severity. Sohn et al [23] applied deep learning techniques to electroencephalography (EEG) data for predicting ASD, demonstrating the efficacy of supervised ML in leveraging neurophysiological signals for diagnosis. Chen et al [27] employed deep learning-based predictive modeling to uncover latent neuroanatomical features associated with autism, highlighting the utility of deep learning in capturing complex brain-behavior relationships. Supervised learning techniques can be applied to longitudinal data to identify predictive biomarkers and trajectories associated with ASD development over time. By leveraging longitudinal information, supervised learning models can capture dynamic changes in symptoms and behaviors, enabling early detection and intervention.. Kong et al [28] applied supervised learning techniques to longitudinal neuroimaging data to predict individual-specific cortical networks associated with cognitive and emotional functions, demonstrating the potential of supervised learning in capturing longitudinal dynamics. Supervised learning models can integrate information from multiple data modalities, such as neuroimaging, genetic, and behavioral data, to improve prediction accuracy and robustness. By combining complementary sources of information, multi-modal data fusion approaches can capture diverse aspects of ASD pathology and enhance predictive modeling. Cheng et al[29] employed supervised learning techniques to fuse functional connectivity and behavioral data to predict individual differences in risk aversion, highlighting the utility of multi-modal data fusion in capturing complex phenotypes. Supervised learning models can be integrated into clinical decision support systems (CDSS) to assist healthcare professionals in ASD diagnosis and treatment planning. By analyzing patient data and providing personalized recommendations, CDSS powered by supervised learning algorithms can improve diagnostic accuracy and facilitate evidence-based interventions. Lee et al[30] discussed the potential of supervised learning-based digital twin models in healthcare, including applications in personalized medicine and clinical decision support, showcasing the integration of AI-driven approaches into healthcare systems.

Thus supervised learning approaches can be used in autism prediction, demonstrating their potential in leveraging longitudinal data, multi-modal information, and clinical decision support systems to improve early detection and intervention for individuals with ASD.

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3.2 Unsupervised Learning

Unsupervised Machine Learning:Unsupervised learning algorithms are used to identify patterns and structures in data without explicit supervision. In the context of autism prediction, unsupervised learning techniques such as clustering can be employed to identify subgroups or phenotypic profiles within ASD populations based on shared characteristics. In the study . Li et al [24] utilizes unsupervised learning techniques to identify distinct neuroimaging-based subtypes of ASD, highlighting the potential of clustering methods in characterizing ASD heterogeneity. Unsupervised learning techniques, such as latent variable modeling, can identify hidden structures and patterns in high-dimensional data without explicit labels. By uncovering latent variables that capture shared characteristics among individuals with ASD, latent variable models can provide insights into ASD heterogeneity and subtype classification. Cai et al[31] proposes a robust multi-view subspace clustering method for neurodevelopmental disorder diagnosis, demonstrating the effectiveness of latent variable modeling in identifying shared subtypes across different data modalities. Unsupervised dimensionality reduction techniques, such as principal component analysis (PCA) and t-distributed stochastic neighbor embedding (t-SNE), can reduce the dimensionality of high-dimensional data while preserving essential information. By projecting data onto lower-dimensional spaces, dimensionality reduction methods facilitate visualization, clustering, and interpretation of complex data structures. Du et al[32] proposed a spherical feature space projection method for ASD diagnosis, leveraging unsupervised dimensionality reduction to improve classification performance and interpretability. The diverse applications of machine learning algorithms canbe used in autism prediction, demonstrating their efficacy in leveraging various data modalities and addressing challenges in diagnosis and early intervention.

3.3 Feature Selection and Extraction

Feature Selection and Extraction:Feature selection and extraction techniques are crucial for identifying relevant and informative features from high-dimensional data. In autism prediction, feature selection methods such as recursive feature elimination and feature importance ranking can help identify discriminative features, while feature extraction techniques such as dimensionality reduction can capture essential information while reducing data complexity. Yang et al [26] employed mutual information-based feature selection techniques to identify discriminative functional connectivity patterns from neuroimaging data in ASD, highlighting the importance of feature selection in capturing relevant biomarkers. Sparse learning methods aim to identify a subset of informative features while discarding irrelevant or redundant ones, thereby reducing model complexity and improving generalization. By selecting discriminative features from high-dimensional data, sparse learning methods enhance prediction accuracy and facilitate interpretation of predictive models. Wng et al [33] proposed a robust sparse multimodal deep learning framework for ASD diagnosis, incorporating feature selection to identify informative biomarkers from multi-modal data, highlighting the effectiveness of sparse learning in enhancing diagnostic accuracy. Information-theoretic feature selection methods, such as mutual information and entropy-based criteria, quantify the relevance of features to the target variable by measuring their information content. By selecting features with high information gain, information-theoretic feature selection methods can identify informative biomarkers and improve predictive modeling performance. Chen et al [34] employed sparse subspace clustering for ASD identification using resting-state fMRI data, leveraging information-theoretic feature selection to identify discriminative functional connectivity patterns associated with ASD. Deep feature learning techniques, such as autoencoders and deep neural networks, can automatically extract hierarchical representations from raw data, capturing complex patterns and relationships. By learning data-driven features directly from the input data, deep feature learning methods can effectively capture discriminative information and improve prediction accuracy. Wu et al [35] applied deep feature learning techniques to resting-state fMRI data for ASD diagnosis, demonstrating the efficacy of deep learning in automatically extracting informative features from neuroimaging data.

This highlight the diverse applications and advancements of feature selection and extraction techniques in autism prediction, showcasing their utility in identifying informative biomarkers, reducing data dimensionality, and improving predictive modeling performance.

3.4 Ensemble Methods

Ensemble methods combine multiple base learners to improve predictive performance and generalization. In autism prediction, ensemble methods such as random forests, gradient boosting, and ensemble neural networks can be employed to integrate diverse features and enhance prediction accuracy. Mak et al [25] proposed an ensemble learning framework that integrates neuroimaging features with clinical data for early prediction of ASD, demonstrating the effectiveness of ensemble methods in leveraging multimodal information. Ensemble neural networks combine multiple neural network models to improve prediction accuracy and generalization. By aggregating predictions from diverse neural network architectures or training multiple models with different

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initializations, ensemble neural networks can effectively capture complex patterns and reduce model variance. Lee et al[36] applied ensemble learning of deep neural networks to resting-state functional MRI data for ASD prediction, demonstrating the effectiveness of ensemble methods in leveraging neural network diversity to improve diagnostic accuracy. Random forests are an ensemble learning technique that combines multiple decision trees to make predictions. By training each decision tree on a random subset of features and aggregating their predictions, random forests can mitigate overfitting and capture complex non-linear relationships in the data. Liu et al [37] employed a random forest approach for predicting ASD using multi-modal neuroimaging and genetic data, highlighting the efficacy of ensemble methods in integrating diverse data sources for diagnostic prediction. Gradient boosting machines (GBMs) sequentially train a series of weak learners, such as decision trees, by minimizing the prediction errors of previous models. By combining multiple weak learners in a principled manner, GBMs can improve prediction accuracy and robustness, particularly for imbalanced and noisy datasets. Kothari et al[38] utilized gradient boosting techniques to diagnose ASD from electronic health records, showcasing the effectiveness of ensemble methods in learning from heterogeneous clinical data sources. This highlight the diverse applications and advancements of ensemble methods in autism prediction, showcasing their utility in leveraging model diversity, capturing complex relationships, and improving diagnostic accuracy in diverse data modalities. This shows the diverse applications of machine learning algorithms in autism prediction, demonstrating their efficacy in leveraging various data modalities and addressing challenges in diagnosis and early intervention.

4. APPLICATION OF MACHINE LEARNING IN AUTISM PREDICTION

Machine learning (ML) has become a valuable tool in predicting autism spectrum disorder (ASD), aiding in early detection and intervention. ML algorithms analyze various data sources, including neuroimaging, genetic, behavioral, and demographic information, to identify patterns and predict the likelihood of ASD diagnosis.

4.1 Neuroimaging Analysis

Neuroimaging techniques such as magnetic resonance imaging (MRI) and functional MRI (fMRI) provide insights into brain structure and function, offering valuable biomarkers for autism prediction. Machine learning algorithms analyze neuroimaging data to identify structural and functional brain abnormalities associated with ASD. Mamata Lohar et al. [39] assessed the effectiveness of various ML algorithms in the early examination of ASD among diverse age groups. To aid radiologists and neurologists in analyzing sMRI and fMRI images, a computerized support system was developed in which an individual is identified as ASD or a typically developing individual. Employing Principal Component Analysis (PCA) and forward feature selection, they identified the optimal set of features for various classifiers, including K-Nearest Neighbors (K-NN), SVM, NB, Decision Tree(DT), RF, AdaBoost, and Logistic Regression(LR). Notably, their findings revealed that SVM with PCA achieved the highest classification accuracy for one dataset, while for the other dataset, DT with PCA achieved the highest classification accuracy. Ahmed et al. [40] proposed a model that combines the Restricted Boltzmann Machine (RBM) and SVM algorithms for feature extraction from fMRI data. Grid-search cross-validation results demonstrated the framework's effectiveness in identifying ASD meltdowns.

4.2 Behavioral Analysis

Behavioral assessments provide valuable information about social communication skills, repetitive behaviors, and other autism-related symptoms. ML algorithms analyze behavioral data from standardized assessments, questionnaires, or observational measures to predict ASD diagnosis. Huang et al. [41] utilized logistic regression with demographic and behavioral features to predict autism diagnosis among children, demonstrating the utility of behavioral assessment in machine learning models. Erik Linstead et al. [42] applied neural networks to forecast autism in individuals receiving behavioral therapy. The study tried to identify the connection between various factors like treatment intensity, supervision hours, age, and gender. Wiratsin et al. [43] presented an algorithm to evaluate factors that have more impact on the identification of ASD for various age groups. The study utilized ASD screening datasets containing general and behavioral development information, analyzed using the apriori algorithm, Chi-Square test, and Mutual information test.

4.3 Genetic Data Analysis

Genetic factors play a significant role in the etiology of ASD, and machine learning algorithms can analyze genetic data to identify biomarkers and predict autism risk. ML techniques such as logistic regression, random forest, and neural networks are applied to genetic data to identify genetic variants associated with ASD. Grove et al [47] presented a large-scale meta-analysis of GWAS data from multiple cohorts, identifying common genetic risk variants associated with ASD. The findings highlight the polygenic nature of ASD susceptibility and provide insights into the genetic architecture of the disorder. Sun et al [48] employed chromatin immunoprecipitation followed by sequencing (ChIP-seq) to perform a histone acetylome-wide association study

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of ASD, identifying differential histone acetylation patterns associated with ASD risk genes and regulatory elements. An et al [49] applied machine learning techniques to integrate genomic data and develop a de novo risk score for ASD, identifying promoter variation as a significant contributor to ASD risk and highlighting the utility of data integration approaches in genetic risk prediction.

4.4 Early Detection and Intervention:

Machine learning algorithms play a crucial role in early detection of autism spectrum disorder, enabling timely intervention and support for affected individuals. ML models analyze various data sources, including behavioral assessments, developmental milestones, and caregiver reports, to identify early signs of autism. Tania Akter et al. [44] investigated a variety of classifiers Extreme Gradient Boosting (XGB), DT, NB, RF, K-NN, Gradient Boost (GB), MLP, SVM, and LR on male and female datasets for predicting ASD across different age groups. They amalgamated datasets from toddlers, children, adolescents, and adults, preprocessed the data, and categorized it by gender. Their results indicated that all-female datasets exhibited higher positive efficacy than all-male datasets. Bhawana Tyagi et al. [45] assessed the effectiveness of various techniques such as K-NN, Linear Regression, Linear Discriminant Analysis(LDA), SVM, NB, and Classification and Regression Tree (CART) and developed a mobile application for ASD identification. Their conclusion indicated that the LDA algorithm yielded the best outcome when compared to other algorithms. Vaibhav Vishal et al. [46] evaluated various machine learning algorithms, including K-NN, LR, SVM, and NB, and analyzed these algorithms to identify specific traits associated with ASD. Their experimental data demonstrated that among all algorithms, the NB algorithm achieved a higher accuracy.

4.5 Clinical Decision Support Systems:

ML-based clinical decision support systems assist healthcare professionals in ASD diagnosis and treatment planning. These systems analyze patient data, including behavioral assessments and neuroimaging results, to provide personalized recommendations and assist in clinical decision-making. Supervised learning models can be integrated into clinical decision support systems (CDSS) to assist healthcare professionals in ASD diagnosis and treatment planning. By analyzing patient data and providing personalized recommendations, CDSS powered by supervised learning algorithms can improve diagnostic accuracy and facilitate evidence-based interventions. Lee et al [30] discussds the potential of supervised learning-based digital twin models in healthcare, including applications in personalized medicine and clinical decision support, showcasing the integration of AI-driven approaches into healthcare systems.

5. LIMITATIONS AND FUTURE SCOPE

5.1 Limitations

While machine learning techniques have shown promise in autism prediction, there are several limitations and challenges that need to be addressed. Additionally, there are exciting future directions that researchers are exploring to overcome these limitations and further advance the field.

Data Availability and Quality

Limited availability of high-quality, well-annotated datasets poses a significant challenge in training robust and generalizable machine learning models for autism prediction. Heterogeneity in data collection methods, sample sizes, and demographic characteristics across studies may introduce biases and affect model performance.

Interpretability of Models

Many machine learning models, particularly deep learning approaches, lack interpretability, making it challenging for clinicians to understand the underlying factors contributing to autism prediction. Explainable AI techniques are needed to provide transparent explanations for model predictions and enhance trust among clinicians and stakeholders.

Ethical and Privacy Concerns:

Ethical considerations surrounding data privacy, informed consent, and potential biases in machine learning models need to be carefully addressed in autism prediction research. Ensuring responsible data sharing practices and adherence to ethical guidelines is crucial to maintain patient confidentiality and trust.

5.2 Future Scope

Bridging the gap between research findings and clinical practice requires collaborative efforts among researchers, clinicians, policymakers, and industry stakeholders. Researcher shouls focus on implementation of Real-Time Decision Support Systems that enable clinicians to access tailored recommendations, risk scores, and treatment options based on patient-specific characteristics and predictive analytics. Future research should also focus on integrating data from multiple modalities, including neuroimaging, genetics, behavioral assessments,

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and environmental factors, to develop comprehensive and holistic models for autism prediction. Also prioritization of the development of interpretable machine learning techniques and tools that provide transparent insights into model predictions and decision-making processes can be developed. Scalable and user-friendly technologies that facilitate continuous monitoring and personalized intervention for individuals with ASD can also be developed.

6. CONCLUSION

While significant progress has been made in leveraging machine learning algorithms for autism prediction, several challenges and opportunities lie ahead. The limitations in data quality, interpretability, generalization, and ethical considerations underscore the need for continued research efforts. However, promising future directions, including multi-modal data integration, longitudinal studies, and personalized risk assessment, offer avenues for innovation and advancement. To overcome these challenges and realize the potential of machine learning in autism prediction, interdisciplinary collaboration, community engagement, and policy advocacy are essential. By embracing diversity, equity, and inclusion in research practices and prioritizing ethical considerations, researchers can develop more robust, equitable, and clinically relevant predictive models. Ultimately, the goal is to translate research findings into real-world applications that improve early detection, personalized intervention, and outcomes for individuals with autism spectrum disorder. With concerted efforts and a commitment to innovation, we can move closer to achieving these objectives and making a meaningful impact on the lives of individuals and families affected by autism.

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COMPREHENSIVE STUDY OF EXISTING APPROACHES TO PREVENT CONSANGUINITY

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ABSTRACT
With the advent of Assisted Reproductive Technology (ART), parenthood has become a viable option for many, even single men and women wanting to become parents. In-Vitro Fertilization, one of the most used ART techniques, is used in male factor, unexplained, and age-associated infertility. Within the domain of infertility, frequency of donation of samples by donors, multiple use of a single donor, tracing genetic lineage of the offspring born with the help of ART, inadvertent mating of offspring of single donor are prominent areas of investigation. Medical technologies have advanced to optimize the performance and accuracy of fertility treatments. Few studies related to prediction of pregnancy rates using ART have been carried out. The approach used in India is to regulate the number of times, a donor sample is used. This paper explores the inadequacy of this approach and related issues.

INTRODUCTION
Infertility is considered as the inability of married couples to conceive naturally. Assisted Reproductive Technology (ART) includes medical procedures to address infertility. In India, out of the three million people seeking infertility treatment in India every year, around five lakhs seek IVF/IUI treatment. IVF has resulted in the birth of 8 million babies, thus becoming a boon to the infertile couples. In India, it is mandatory by law to keep the identity of the donor contributing towards the IVF/IUI treatment, hidden from the offspring. As the number of Donor Insemination (DI) births increases, such anonymous donation may lead to the existence of several half/consanguineous siblings who have no knowledge of one another [18]. Such two siblings, fathered by the same donor may unwittingly mate, increasing the risk of mortality and impaired mental and physical development in their offspring [16]. This can lead to ethical issues as well as genetic diseases in their offspring. Internationally, several measures are being explored to prevent inadvertent mating of half-siblings from the same donor. These include limiting the number of children born from the same donor, non-anonymous Donor Insemination (DI), revocation of donor anonymity, establishing a Donor Sibling Registry (DSR) that records the Donor Insemination (DI) births from a donor. In India though, the focus is more on limiting the number of children permitted from a donor.

Definition and Reasons for Inadvertent Consanguinity

Definition:
The Merriam-Webster dictionary defines consanguineous as of the same blood or origin, specifically : descended from the same ancestor. Similarly, the Merriam-Webster dictionary defines consanguinity as the quality or state of being consanguineous.

Reasons for Inadvertent Consanguinity:
Anjali Widge et. al. in the survey and subsequent study conducted on a sample of 6000 gynaecologists and in-depth interviews conducted with 39 gynaecologists, in the cities of New Delhi, Mumbai, Agra and Nashik concluded that issues related to informed consent for using donated gametes, using relatives and friends gametes, the unregulated use of gametes and embryos, record keeping and documentation, unethical and corrupt practices and commercialisation need to be addressed by patients, providers and regulatory authorities by providing information, counselling, ensuring informed consent, addressing exploitation and commercialisation, ensuring monitoring, proper documentation and transparency [11]. As per The Gazette of India published on December 20, 2021, the role of the National Assisted Reproductive Technology and Surrogacy Registry is limited only to act as a central database in the country through which the details of all the clinics and banks of the country including nature and types of services provided by them, outcome of the services and other relevant information shall be obtained on regular basis, assist the National Board in its functioning by providing the data generated from the central database of the Registry, utilisation of the generated data by the National Board for making policies, guidelines and shall help in identifying new research areas and conducting research in the area of assisted reproduction and other related fields in the country [12]. The National Registry of ART Clinics and Banks in India (NRACBI) has its role limited to enrolling an ART clinic/bank and alloting it an enrollment

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number, but which is neither a sign of registration nor accreditation [13]. As per the last available data of March 19, 2020 the National Registry of ART Clinics and Banks has confirmed only 528 clinics/banks [14]. Very few studies have been undertaken at the National level to identify the extent of unregulated use of gamete samples despite the various policies in place. Similarly, the need to identify donor siblings is largely unexplored. Moreover, there is no authorised registry to identify donor siblings.

Existing Approaches to Prevent Consanguinity

Sawyer Neroli has highlighted how knowledge about the number of donors and offspring in a region, as well as other population variables is crucial if the probability of half-siblings meeting in a particular locality is to be calculated and suitable donor limits put in place [1]. According to the extensive research carried out by Sawyer Neroli, a central register would also help prevent the overuse of popular donors from large clinics and assist in preventing the overuse of a single donor repeatedly and through numerous clinics [1]. To control for the risk of inadvertent half-sibling mating, the Netherlands and Taiwan have both adapted a model developed by Curie-Cohen to establish limits on the multiple use of sperm donors in their countries [6]. The study conducted by Lucy Firth et. al. to consider the experiences of those searching through a DNA-based register for their half-siblings highlights the process of searching for donor and donor-conceived siblings by adults registered with a voluntary DNA linking register, UK DonorLink [7]. Vanessa L in her study highlights that the solution of having a legislation to institute a non-anonymous donation in order to reduce the risk of consanguinity for the donor conceived children, is faulty and instead should instill measures such as requiring sperm banks to report births and giving donor conceived children access to donor information [8]. In a survey and subsequent study of 325 donors, 2134 parents and 419 offspring, carried out by Margaret Nelson et. al. it was found that parents and offspring both are in favour of limits on numbers of offspring produced by a single donor, and parents worry about health and accidental contact between people conceived from the same donor [9]. After analysing the issues involved in maintaining the secrecy of donor gametes, Naomi Cahn recommends the establishment of a national information registry to keep track of children both through donor egg, embryo, and sperm, as well as the identities of the gamete providers, in addition to making participation in the registry mandatory for anyone involved in supplying donor gametes [10]. Bolt et. al. in an article based on how Dutch people conceived via sperm donation attempted to make or unmake kinship with donor half-siblings, has highlighted that research participants tried to gain a sense of agency in their kinship situation through DNA testing, but were challenged by how many unforeseen kin could emerge in this process [29]. Sanchez-Castello et. al. applied to Spanish data a mathematical model of consanguineous unions, to conclude that a total of 25 children per sperm donor are needed to align the probability of inadvertent consanguinity arising from the use of assisted reproduction [30].

To reduce the risk of inadvertent mating of consanguineous children or half siblings born from the same donor, many countries have revoked the use of anonymous donors, and/or set limits on the number of children born from the same donor. In some countries such limits are voluntary while in others they are imposed by law, and some jurisdictions do not have any limits. At the same time, the commercialization of sperm banks has contributed to the inadequate monitoring and reporting of DI births with subsequent difficulties in tracking the number of DI children per donor. Though several studies regarding consanguineous mating and the need and willingness to identify donor siblings have been undertaken, very limited work related to a registry of donor siblings and a technological solution to identify them can be found.

Behnaz Raef et. al. conducted research to predict pregnancy rate after ART treatments using machine learning techniques [15]. Curie-Cohen highlighted how the number of children born from a single donor should be monitored to reduce recessive diseases and inbreeding [16]. Dan Gong et. al. has addressed the importance of limiting the number of donor offspring from a single sperm donor and has related it to preventing accidental consanguinity between donor offspring [19].

LIMITATIONS OF EXISTING APPROACHES

The current studies mainly focus on the ethico-legal issues arising out of multiple use of single donor and unavailability of genetic heritage details to offspring. Other studies focus on the experiences and attitudes of same donor siblings towards finding their half-siblings as well as the genetic parent (donor). Though some studies have been carried out to highlight the need of a nationwide database of donors and their offspring, and favour moving away from anonymous donation, there have been no technological solutions for these. Some technological solutions proposed include prediction models to increase success rate as well as finding the best donor based on physical and genetic attributes of the donor.

CONCLUSION

In India, the Donor Insemination (DI) children do not have the legislated right to identifying information about their donor and the gamete donation is anonymous. It is therefore not possible for the offspring to track their

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donor and subsequently their half siblings. Moreover, in the absence of a definitive mechanism to search for half-siblings from the same donor, the probability of accidental incest between these half-siblings or consanguineous children increases. This is compounded by the fact that these half-siblings are many times in geographical proximity to one another.

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SMART CLOTHING FOR HEALTH MONITORING

ABSTRACT
The advent of wearable technologies has significantly impacted people's lifestyle, particularly in the realm of health monitoring. This paper focuses on smart clothing systems for remote health monitoring, proposing a novel comprehensive framework that provides design specifications, suitable sensors, and textile materials.

Keywords: wearable technology; smart clothing; sensor and textile materials; data communication and analysis; artificial intelligence; decision making

INTRODUCTION

The advent of wearable technology has brought about a significant shift in the way we approach personal health and fitness. These devices, ranging from smartwatches to fitness bands, have made it possible to monitor various health parameters in real-time, leading to more informed decisions about our lifestyle and health management. However, despite their benefits, conventional wearable technologies often suffer from limitations such as lack of flexibility, discomfort during prolonged use, and a tendency to be obtrusive and conspicuous.

In this context, smart clothing, also known as e-textiles, emerges as a promising alternative. Smart clothing refers to garments embedded with sensors and electronic components, enabling the monitoring of health parameters without the need for separate wearable devices. The seamless integration of technology into clothing items allows for continuous health monitoring while ensuring user comfort and convenience. This paper explores the potential of smart clothing for remote health monitoring, discussing its advantages over traditional wearable devices, and outlining a comprehensive framework for the design and implementation of smart clothing systems.

The Technology Behind Smart Clothing: Smart clothing technology involves the integration of various electronic components and sensors into textile materials. The technology used in smart clothing can be broadly categorized into two types: passive smart technology and active smart technology.

Passive smart technology involves materials that can only sense the environmental condition or stimuli. The most common example of this is phase change materials (PCMs). PCMs absorb, store, and release heat depending on the surrounding temperatures, thereby helping to regulate body temperature.

On the other hand, active smart technology can sense the environmental conditions or stimuli and react to them. This includes vibration sensing, heat generation, and luminescence. A key component of active smart technology in smart clothing is the use of sensors. These sensors can monitor various health parameters such as heart rate, body temperature, and physical movement. The data collected by these sensors can then be transmitted to a smartphone or computer for further analysis.

The integration of these technologies into textiles involves various techniques such as weaving, knitting, printing, and embroidering. The choice of technique depends on factors such as the type of sensor, the intended use of the garment, and the desired level of comfort and flexibility.

This paper presents a comprehensive technical specification for smart clothing, discussing the choice of sensors, the integration techniques, and the data transmission and processing methods. It also proposes a novel framework for the design and implementation of smart clothing systems, aiming to address the current challenges and pave the way for the widespread adoption of this technology.

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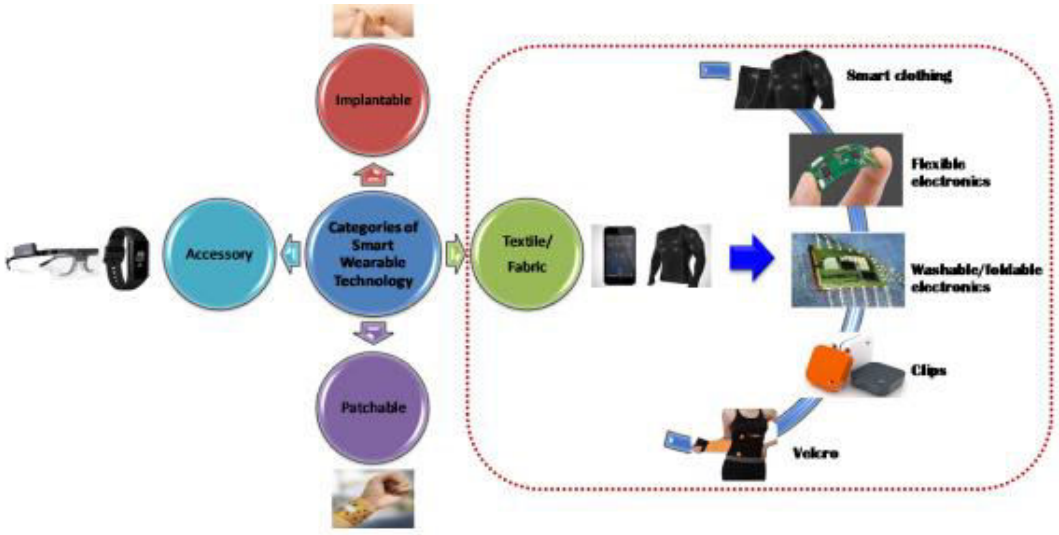

Applications in Health Monitoring

- **Continuous Monitoring of Vital Signs**

Smart clothing enables continuous monitoring of vital signs, providing real-time data on various physiological parameters.

Here are Some Key Applications:

Heart Rate Monitoring: Smart shirts or vests embedded with ECG electrodes can track heart rate variations. This information is crucial for detecting irregularities and assessing overall cardiovascular health.

Respiratory Rate Monitoring: Sensors integrated into clothing can measure respiratory rate, helping detect issues such as shortness of breath or respiratory distress.

Body Temperature Monitoring: Smart textiles can monitor body temperature, especially useful for fever detection or assessing thermal comfort during physical activity.

- **Elderly Care**

Smart clothing plays a significant role in elderly care:

Fall Detection: By tracking movements and posture, smart clothing can detect falls. Alerts can be sent to caregivers or emergency services, ensuring timely assistance.

Health Status Monitoring: Continuous monitoring of vital signs allows caregivers to assess an elderly person's health remotely. This proactive approach helps prevent emergencies.

- **Sports and Fitness**

Athletes and fitness enthusiasts benefit from smart clothing:

Performance Optimization: Smart sportswear tracks performance metrics such as heart rate, muscle activity, and hydration levels. Athletes can adjust their training based on real-time data.

Injury Prevention: Monitoring muscle fatigue and biomechanics helps prevent injuries during intense workouts or sports activities.

Design and Development

- **Framework for Smart Clothing Systems**

Designing effective smart clothing involves several considerations:

Sensor Integration: Selecting appropriate sensors (e.g., accelerometers, temperature sensors) and integrating them seamlessly into textiles. The challenge lies in maintaining comfort and flexibility.

Textile Materials: Choosing conductive fabrics that allow data transmission while ensuring comfort and durability.

- **Challenges in Sensor Integration**

Integrating sensors into clothing presents challenges:

Durability: Sensors must withstand washing, stretching, and everyday wear.

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Comfort: Smart clothing should feel no different from regular garments.

Washability: Ensuring sensors remain functional after washing cycles.

- **User-Centric Design Approach**

User acceptance is critical:

Aesthetics: Smart clothing should look and feel appealing.

Functionality: Prioritize user needs (e.g., comfort, ease of use).

Customization: Tailor designs to specific health monitoring requirements.

Data Processing and Decision Making in Smart Clothing

- **Data Collection**

Smart clothing collects a vast array of data from the embedded sensors. This data includes physiological parameters like heart rate, body temperature, and movement patterns. The collection process is continuous and unobtrusive, providing a comprehensive dataset that reflects the wearer's health status over time.

- **Data Transmission**

The collected data is transmitted to a processing unit, which could be a smartphone, a dedicated device, or a cloud-based server. The transmission is secured through encryption to protect the wearer's privacy. Technologies such as Bluetooth, Wi-Fi, and even NFC are employed to ensure seamless and real-time data transfer.

- **Data Analysis**

Once the data is transmitted, it undergoes analysis. This step involves filtering, cleaning, and interpreting the raw data to extract meaningful insights. Advanced algorithms and machine learning techniques are applied to identify patterns, trends, and anomalies. For instance, a sudden change in heart rate could indicate stress or a potential cardiac event.

- **Decision Making**

The ultimate goal of data analysis in smart clothing is to facilitate informed decision making. This could range from immediate actions, such as alerting the user to potential health risks, to long-term health management strategies. For example, if the system detects irregular sleep patterns, it may suggest lifestyle changes or prompt the user to consult a healthcare professional.

CHALLENGES AND CONSIDERATIONS

While data processing and decision making in smart clothing offer numerous benefits, there are challenges to consider:

- **Privacy and Security:** Ensuring the confidentiality and integrity of health data is paramount. Robust security measures must be in place to protect against unauthorized access and data breaches.
- **Accuracy and Reliability:** The sensors and algorithms must be accurate and reliable to ensure that the decisions made based on the data are sound.
- **User Consent and Control:** Users should have control over their data, including who has access to it and how it is used.
- **Regulatory Compliance:** Smart clothing manufacturers and service providers must comply with health data regulations, such as HIPAA in the United States or GDPR in the European Union.

CONCLUSION

The conclusion would summarize the potential of smart clothing to transform health monitoring, emphasizing the need for continued innovation and interdisciplinary collaboration.

This detailed elaboration would form the basis of a comprehensive research paper on smart clothing in health monitoring, providing a thorough understanding of its potential and challenges. For further information and to support your research, you may refer to the full article titled "Smart Clothing Framework for Health Monitoring Applications" which provides an extensive framework and discussion on this topic

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REPRESENTATION OF WOMEN IN SELECTED DALIT AUTOBIOGRAPHIES

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ABSRTACT
Literature serves as a reflection of society and a form of human expression, preserving an extensive collection of written works over the ages. These works include poems, dramas, short stories, novels, biographies, and autobiographies. The term 'literature' originates from the Latin word "litteratura," meaning writing and grammar. The term "Dalit" refers to people who fall outside the traditional four varnas of the varna[1] system, signifying their historical oppression, marginalization, and untouchable status. In this paper, the researcher aims to explore the lives of Dalit women as depicted in the selected Dalit autobiographies.[2]

Keywords: Dalit, autobiographies, women, harassment, toil, whipped, suppressed, tormented.

Dalit literature reveals the profound sufferings, pain, distress, grief, and misery, mental and physical, endured by the downtrodden, unprivileged, and oppressed people throughout history. Originally Kshatriyas (warriors), Dalits were relegated to the lowest strata of the *varna* system due to the denial of Upanayana. This system places Brahmins at the top, followed by Kshatriyas, Vaishyas (moneylenders and shopkeepers), and at the bottom, Shudras, who were forced to clean the filth of the higher varnas. The history of the word Dalit, which acclaimed author—Raj Kumar describes it as,

The word 'Dalit' is found in several Indian Languages, and as a Marathi word it is found in Molesworth's Marathi-English dictionary of 1975, a reprint of the 1813 edition. It gives the meaning as 'ground', broken or reduced to pieces generally.' It derives from a Sanskrit work meaning 'crushed' and is understood in all the Indian languages that are derived from Sanskrit. It has been said that Sanskrit has borrowed the root word 'dal' from Hebrew. 'Dal' in Hebrew may be used in two senses: 'It may refer either to physical weakness or to a lowly, insignificant position in society.' (Ahmad and Upadhyay: 131)

In 1994, Kishor Kale wrote his autobiography, *Kolhatyacha Por,* which will be unveiled in this research paper primarily. In the year 2000, Sandhya Pandey translated *Kolhatyacha Por* into English. It is an autobiography that captures the spirit and mind. According to Kale's account of his life, his mother was a singer and dancer in the *Tamasha* folk art form, which is well-known in Maharashtra, India, for its dancers who perform and sing raucous, laavni tunes. She was involved in an illicit relationship with MLA Namdevrao Jagatp (Member of Legislative Assembly). Namdevrao Jagtap tormented and repressed his mother sexually when he was just fourteen years old. As a result, Kishor was born out of this illegal relationship.

There are two sections to this autobiography. The first depicts Kishor's early years spent in the home of his maternal grandparents in Nerla, Sangli District, Maharashtra, India. In the second section of the autobiography, Kishor describes how schooling helped him construct his identity in society.

According to Kishor, he was one of the Kolhati communities. Women earned their bread and butter by performing in the Tamasha, whilst their husband live off their daughters' earnings and lay in peace forever. Upper caste men for their own amusement abused Kolhati women and girls. Not only did their families restricted them and abused them sexually, but the people who came to watch the dance also did the same.

Pramod Nayar comments that:

"The black woman is either the faithful family servant (the mammy) or the sexual object." (Nayar 2010: 24)

Girls and women belonged to the public, not their parents. They were the family's only source of money. Shantabai and her four sisters were trained in singing and dancing by professionals when they were very young. Certain women were compelled to dance all night long in accordance with the party's wishes (those men came to enjoy the dance). They were severely punished if they did not behave accordingly. In addition to facing other forms of harassment during their performances in Tamasha, women were sexually assaulted by the men who paid them for their performances. Previously, their parents kept the money they got from the tamasha.

These girls had to deal with a variety of issues throughout their lives, including men sexually assaulting them as soon as they entered puberty and them becoming pregnant because the men refused to use birth control. This led to the birth of an illegitimate kid. The life of numerous children was destroyed. They had to live a life full of mystery because their family never once acknowledged them. It is the fault of men who harassed women until their desire is fulfilled. Women had to resume dancing even after giving birth; the mother had very little time to

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care for her child. The infant would occasionally cry throughout the dance, at that point, the mother would nurse the child and carry on with her performance.

In the Kolhati community, a girl's birth brought joy to the family. After the newborn girl, everyone would be in a cheerful mood. The only reason for this is that the same girl will eventually provide the family with income. With the money that the female members from the Tamasha earn, the male members used to waste, gamble, and do whatever they pleased. Those women's father and brothers never treated them fairly. Parents in order for them to act in the Tamasha and earn money only raised their daughters. Kishor portrays that, upper caste men, rich people, harassed girls and women until their hearts content. Similarly, Mary Wollstonecraft pens down about women as:

"...women are not allowed to have sufficient strength of mind to acquire what really deserves the name of virtue." (Wollstonecraft 1988: 19)

When these women and girls became old and pregnant, these folks turned down all of their relationships with them. When these women hit adolescence, many of them had already lost their virginity. They appear older because they slept less and performed until late at night. In the end, the children born from this type of illegal relationship received little care and were forced to fight for themselves.

When someone discovers that the Kolhati community practices a ritual known as "chira utarana" in "Kolhatyacha Por," they are horrified. According to this custom, parents who have daughters who are still virgins auction off the right to have sex with the highest bidder. This is only one of the horrible things that the girls of the Kolhati community have to deal with. The girl is won by the highest-paying individual. But the poor girl's age and that person's age were never the same. As a result, she was treated like a slave on the one hand, and had to obey her parents on the other every time since doing otherwise might disrupt or collapse her family's necessities.

In the same way, Shantabai Kale was compelled into the Tamasha by her parents. Due to her exceptional beauty throughout her teenage years, she was involved in an extramarital affair with Namdevrao Jagtap, until she became pregnant. As a result, Kishor was born, and in the process, Namdevrao Jagtap abandoned Shantabai Kale. After Kishor was born, Jagtap and her parents abandoned Shantabai as well.

Because their caste-bound job was to dance and sing in the Tamasha, Shantabai was unable to file a complaint about the entire situation at the police station. Both Namdevrao Jagtap and a few other wealthy men in the community harassed her sexually. To ensure a steady income, the wealthy men in the society bought her youth. Later, Shantabai returned to her parents' house, where her parents forced her to have an abortion. However, it was unsuccessful, and as a result, Kishor was born.

The autobiography's later sections depict Kishor's life, in which his mother abandoned him shortly after he was born. In addition, Shantabai gave birth to a son named Deepak, who is Kisor's stepbrother, during her relationship with the wealthy Sonepeth Krushnarao Wadkar. More than her first son Kishor, she loved Deepak. Despite having a mother, he lived like an orphan during his early years. He also had a great deal of problems, oppression, humiliation, and abuse in school. After this, Kishor moved in with his grandparents, who treated him like a stranger. His health declined as a result of eating all the rotten and stale food. On the other hand, he performed all types of tasks both inside and outside the home, including feeding his Jiji in the field and tending to cattle and hens. Kishor bore all the difficulties since he had no other choice. There was a break-in at his grandparents' house. After this tragedy, all of their family came to meet them, but Shantabai did not come to see her kid. He was devastated. He went to the temple and knelt before the god, but his mother did not appear to receive him either. His mother finally paid him a visit after a seven-year absence. He was both extremely thrilled and furious with his mother at the same time. He begged God not to let them leave and leave him by himself in this misery. Finally, he gave his mother an embrace to stop her from leaving, but she left.

He discovered he was on his own to accomplish his objective. He received no assistance from anyone from his early years onward. After terrible physical attacks and humiliation at his grandparents' house, he moved to Karnala in quest of employment. He located the letter from Sonepeth to his mother. After gathering his belongings, he borrowed some cash from his Jiji and headed towards Sonepeth. Kishor experienced a sense of liberation from his grandparents' grasp. His long-held dream of moving in with his adored mother was finally going to come alive. After many difficulties, he was accepted into a school in Sonepeth. Kishor was required to work at the flour mill before going to school. Following school, he completed various tasks at his mother's request. He enjoyed living with his mother and worked in every capacity. He endured a great deal of suffering in his grandparents' house before this.

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A mistake had once been made in the flourmill money calculation, leading Nana to believe that Kishor had stolen the money and had him flogged. He eventually found out that the money was in the box, but his mother had protected him from Nana. After experiencing all of this, he was internally destroyed, yet he was relieved to be under his mother's care. Everyone, even his mother, treated Kishor half-heartedly. Deepak received more of his mother's attention than Kishor. After realizing that knowledge was the only thing that could make him successful in life, he was awakened. Shantabai handled multiple tasks such as looking into the flourmill, daily groceries, nurturing two children and parents, and finally, digested wrath of the society.

In these conditions, Kishor passed the Sonepeth matriculation exam and was accepted into Yogeshwari College, Ambejogai, for the eleventh grade. Every month, he received funds for his studies from his uncle Nana and aunt Rambha. He also received assistance from a student who was enrolled in the same college for master's program. He managed to pass and was accepted into Mumbai's Grant Medical College. He worked multiple jobs, including selling clothing in bulk to pay for his education.

Kishor had a horrible time at Medical College and dealt with a lot of issues. Due to his financial hardship, his friends used to make fun of his middle name and mistreat him. After overcoming numerous issues from his early years, he completed his medical exam on June 18, 1994. At last, he graduated as a medical doctor. Thus Kishor Shantabai Kale portrayed his life from birth until becoming a medical doctor after overcoming several obstacles in his life as well as unveiled the miserable life of women. Thus, Kishor, Shantabai and their life is uncovered wherein they defeated all the obstacles and Kishor gained extraordinary achievement in his life.

Arjun Dangle defines Dalit Literature as:

'Dalit literature is marked by revolt and negativism, since it is closely associated with the hopes of freedom by a group of people who, as untouchables, are victims of social, economic and cultural inequality' (Limbale 2014: 1)

The second autobiography in this research paper is written by Sharankumar Limbale entitled as *'Akkarmashi'* in 1991, later translated into English as *'The Outcaste'*. Limbale delved into the lives of Mahar women, who were subjected to harassment and discrimination by upper caste men. The book reveals the harsh realities of being considered untouchables while enduring physical, social, and economic exploitation by the upper castes. Limbale himself was born out of such exploitation, as his father rejected his mother, Masamai, after Sharankumar's birth.

Masamai's struggles continued as she navigated through multiple marriages and the challenges of raising children amidst poverty and societal rejection. Limbale also sheds light on his maternal grandmother's life and the hardships they faced together. Throughout the narrative, Limbale exposes the indignities and humiliations endured by Dalit communities, including struggles for basic necessities like food and shelter.

The autobiography vividly portrays the pervasive poverty, hunger, and societal prejudices faced by Dalits, including their reliance on unconventional means to survive, such as scavenging for food and enduring insults and discrimination. Despite the hardships, Limbale's resilience shines through as he navigates through life, eventually finding stability through employment and marriage.

'Akkarmashi' stands as a poignant depiction of the harsh realities faced by Dalits under the caste system, highlighting the systemic injustices and social biases that perpetuate their marginalization and suffering.

Masamai was married to Ithal Kamble, who labored in Hanmanta Limbale's fields from dawn till dusk. However, the strenuous work and inadequate nourishment led to his health declining. Hanmanta, harboring an interest in Masamai, pressured the Mahar Caste Council to separate her from Ithal. After giving birth to Hanmanta's son, Sharankumar, Masamai found her abandoned and sought refuge with her parents. With three children from Ithal and one from Hanmanta, Masamai struggled with no means of support. She then considered marrying a wealthy man, eventually tying the knot with Yeshwantrao Sidramappa Patil, a Lingayat farmer. From Patil, she bore eight children, totaling twelve. However, Patil also rejected Masamai, leaving her to raise twelve children alone. Even with twelve children, she neglected Sharankumar, leading to his rejection by his own parents.

Simultaneously, he delves into the life of his maternal grandmother, Shantamai. Living unmarried with Mahmood Dastagir Jamadar, known as 'Dada', in a small hut next to the bus stand, she shared her life with him. Dada worked as a porter, and his family included members from the Mahar, Maratha, Lingayat, and Muslim communities. Thus, in his autobiography, he reflects on the question of his true paternity. He faced rejection from everyone after his birth, as his father never saw him, and his mother sought to avoid him, burdened by the

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lack of income. During his childhood, his neighbor Gangubai would take him begging, presenting him as her own child whenever his mother was absent.

Sharan was an unwanted child within his family, finding solace in the care provided by his maternal grandmother, Santamai. Bhiku Parekh underscores the pain of violated self-respect, highlighting how Sharan's grandmother showed him more love than his mother, who neglected him. Amidst conflicts between his mother and grandmother, Sharan consistently sided with his grandmother.

Living in a humble hut near the bus stand, Sharan and his family adapted to a precarious lifestyle to support Dada's porter work. Their fragile dwelling was susceptible to collapse in adverse weather, yet makeshift measures like using rags as door coverings aimed to keep out stray animals. Despite facing challenges, including pests consuming their food, Sharan and his grandmother endured nights without sustenance when nothing remained.

Sharankumar depicts their resourcefulness in overcoming hunger, resorting to fishing when food was scarce and consuming unconventional items like honeycomb, birds, squirrels, and fallen fruits. Their struggle against poverty forced them into a survivalist mindset, where any edible item became a means to alleviate hunger.

Society exhibits a stark contrast in its treatment of Mahar women, considering them untouchable while simultaneously exploiting them by drinking alcohol from them, touching them, and subjecting them to physical harassment. Upper caste individuals freely consume food cultivated by Mahars without considering it polluting, yet engage in purification rituals such as bathing and sprinkling cow urine after any contact with a Mahar. This hypocrisy extends to their behavior when intoxicated, often leading to sexual harassment of Mahar women to satisfy their desires. These women are deprived of respect and often abandoned by their husbands, viewed as disposable by the upper castes, especially when pregnant.

Despite these challenges, Mahar women must still raise their children and contribute to fieldwork. Few husbands abstain from alcohol, leading to a cycle of intoxication and subsequent domestic abuse over trivial mistakes. Poverty and hunger plague Sharankumar's household to the extent that they resort to washing grains with cow dung for sustenance. While wealthy individuals steal from jewelry shops, the impoverished scavenge fallen grains or discarded bread to survive. This stark portrayal illustrates the indifference of the affluent towards the plight of the poor, blurring the line between humans and animals in their eyes.

For decades, superstition has deeply entrenched itself in Maharwada, influencing the beliefs and actions of its inhabitants. In times of illness, people relied solely on prayers to gods and goddesses like Mariaai, Satwaai, and Ambabai, neglecting medical assistance due to their poor, uneducated backgrounds. Rituals such as sacrificing cocks and goats at annual fairs were commonplace, reflecting the community's adherence to traditional practices.

When lacking funds for sacrifices, farmers and the impoverished resorted to borrowing money from ruthless moneylenders, often at exorbitant interest rates. These lenders, exploiting the vulnerable, would later seize their land, leaving many farmers landless and driving some to tragic ends through suicide. This cycle of exploitation and desperation underscores the detrimental impact of superstition and financial exploitation on the livelihoods and well-being of the marginalized.

Women bore the brunt of black magic, succumbing to the deeply rooted superstitions prevalent in the community. People blindly followed the instructions of holy men like Sadhu-buwa, leading to ruin and impoverishment as families complied without question, lacking alternative solutions to protect their female members. Illiteracy further compounded their woes, resulting in the loss of all they possessed.

Sharankumar secured his first job at the Post and Telegram Department in Ahmedpur, Marathwada, Maharashtra. They lived there discreetly, concealing their identity during a period of upheaval as Marathwada University underwent a name change to Dr. Babasaheb Ambedkar Marathwada University. Limbale recounts the violence inflicted upon Dalits during the Namantar, where they were targeted by upper caste individuals based on their surnames. Thankfully, as Limbale's surname was not traditionally associated with Dalits, he avoided the brutality and lived without incident in Ahmedpur.

Later, he was transferred to Latur district, Maharashtra, where they endured hardship due to the unpleasant odor from nearby cemeteries. Despite their challenges, they persevered in Latur due to financial constraints. Sharankumar's marriage to Kusum was marked by unfavorable circumstances, as he was a child unfamiliar with his father and faced rejection from him. His impure status in the eyes of society made it difficult to find a suitable partner, but he eventually wed Kusum. Their wedding was marred by the premature departure of guests

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due to excessive alcohol consumption. Nonetheless, Sharankumar and Kusum found happiness together in marriage.

Akkarmashi serves as a poignant representation of the harsh realities faced by Dalits under the oppressive caste system and societal biases. Through its portrayal of enforced notions of purity and impurity, the book vividly illustrates the mistreatment and humiliation endured especially by women and overall Dalits.

Thus, this paper has unearthed the life and representation of women in selected dalit autobiographies

Notes:

1) https://www.britannica.com/topic/varna-Hinduism
2) **Selected Dalit autobiographies** – Kishor Shantabai Kale's *Kolhatyacha Por*, Sharankumar Limbale's *Akkarmashi*

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EXPLORING CYBER SECURITY BASED MEASURES IN CONNECTED AUTONOMOUS VEHICLES

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ABSTRACT
Connected Autonomous Vehicles (CAVs) represent revolutionary technologies with significant potential to shape the future of transportation systems. The primary goal of integrating cyber security measures is to prioritize the safety and efficiency of CAVs. Focusing on sensors and network communications, CAVs have the capacity to enhance automotive infrastructure, mitigate traffic congestion, accidents and establish a cohesive transportation system.

This study focuses on implementing secured techniques related to CAVs. The detailed analysis focuses on the three core elements of CAVs—sensors, communication networks, and actuators.

INTRODUCTION
Connected Autonomous Vehicles are progressively acclimating consumers to the idea of focusing on either partial or complete manual control of their vehicles. It uses a range of sensors including radar, LiDAR and cameras to continuously monitor the driving environment. Three critical elements of CAV are Autonomous Driving System, Connected Driving System, and Intelligent Transportation Systems

In real-time, these sensors identify and communicate any imminent threats or hazards. The system's actuators, encompassing throttle, steering and braking mechanisms responds to the information received from the sensors and allows the vehicle to act accordingly.

The potential for an attack and its severe repercussions on CAV sensors, onboard units and infotainment systems, communication networks must offer insights to identify vulnerabilities in the system's defenses.

Role of Cyber security team is to focus on establishing and upholding a resilient information security system to protect systems from cyber-attacks. In the event of a breach despite their efforts, the forensics team steps in to uncover the hack, ascertain its origin and recover compromised data by tracing the digital footprints left by the attacker.

Autonomous Driving System has been developed to perceive the environment through sensors and operate without significant human intervention. This system establishes connections among the vehicle's sensors, ECUs, and actuators, creating an autonomy stack that facilitates the compilation of data, decision-making, and execution of actions.

Connected Driving System technology establishes connectivity between the vehicle and various elements of roadside infrastructure such as traffic lights, roadside units, pedestrians, drones, etc., within the network of intelligent transportation systems. This technology enables bidirectional communication within a 300-meter range. The broadcast encompasses vehicle credentials, including longitude, latitude, speed, heading, etc., as well as safety warnings, weather information, and details about traffic congestion. These elements collectively contribute to enhancing safety, mobility and the overall driving experience.

Intelligent Transportation System (ITS) is designed as an application to provide transportation and traffic management services, with the goal of making driving more intelligent, safer, and well-coordinated. The primary objective of the system is to furnish real-time information, encompassing details such as travel time, speed, delays, road accidents, route alterations, diversions and conditions within work zones.

Main Requirements of CAV's
- Availability: The information gathered must consistently be accessible to devices within the network, ensuring that prompt decisions can be executed.
- Authorization: Exclusive rights are granted to legitimate and authorized sensors and communication networks, empowering them to collect and disseminate information to other devices and environments.
- Confidentiality: Shared information must undergo encryption, restricting access solely to authorized devices within the network.
- Integrity: The information broadcasted or shared should remain unaltered and immune to forgery.

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- Privacy: Collected information should not be disclosed to any other entity or organization without explicit permission.

Issues in Cyber Security based attacks

Cyber-security and defense against attacks are legitimate possibilities in sensor technology and connected autonomous vehicles.

Security attacks are classified into three categories

1) Security Threats Targeting Sensors

Applications based on sensors are highly susceptible to cyber-attacks, which can result in disruptions, disablement, destruction, or malicious control of a CAV or its environment, posing a threat to the integrity of the data.

Possible threats to the Sensing Layer in CAVs include:

a) Spoofing Attack

Spoofing attacks occur when an intruder impersonates a trusted or authorized entity within the communication network. In Connected Autonomous Vehicles spoofing attacks includes manipulating the distance between the source and receiver by injecting inaccurate sensor data values, obtaining misleading information about objects on the road and introducing fabricated signals into the sensors.

b) Jamming Attack

A jamming attack occurs when a malicious actor within the network deliberately disrupts the transmission and reception of authentic wireless signals among sensors. This form of attack can be initiated by an intruder from both internal and external sources.

c) Tampering Attack

Tampering attacks occur when an assailant manipulates the data parameters exchanged between the sensor and the receiver without user authentication. This tampering can take place in two ways: Remotely, and Physically.

Remote tampering can be executed by deploying stationary attacking equipment along the roadside unit or by manipulating the environmental scenery, traffic lights, or road signs to deceive the vehicle's sensors whereas physical tampering necessitates the attacker to directly access a vulnerable vehicle.

2) Attacks on Communication Security

Cyber security risks to the communication layer are as transmitting inaccurate details in messages, seizing control of the vehicle through infotainment systems and eavesdropping on messages exchanged between devices.

Possible threats are as follows:

a) Replay Attacks

These attacks occur when an intruder seizes and records signals transmitted by the sensor(s) without the user's awareness. The attackers subsequently execute a replay attack by transmitting the recorded signals back to the sensor(s), inducing them to map non-existent objects.

b) Remote Attacks

Remote attacks involve malicious activities conducted within a network without any physical contact with devices. In Connected Autonomous Vehicles, remote attacks typically occur through the vehicle's infotainment system.

3) Actuator Security Threats

Action Engine also known as actuators encompasses all applications where Connected Autonomous Vehicle (CAV) technology is utilized. Attacks directed at sensors or communication networks have a direct or indirect impact on the functionality of action engine applications.

Common Types of Attacks

a) Sensor Fusion

The integration of input data from multiple sensors to anticipate a comprehensive, accurate, and reliable depiction of a dynamic environment. This process involves utilizing raw data from sensors, extracting essential features from the collected information and subsequently using this data to make informed decisions.

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b) Piggybacking Attacks
Applications and decision-making mechanisms supports updates and installations through both human intervention and automatic prompts. An attacker can manipulate the source of the software during the installation process resulting in a modified version of the software.

Existing Approaches to Resolve Cyber Security Threats

1) Conventional Approach
These encompass conventional software programming solutions, where a human constructs the solution based on manually defined rules.

The outcomes of these solutions are foreseeable and consistent, offering limited scope for feedback and self-training. Traditional solutions adhere to rule-based paradigms, where rules are explicitly defined and implemented in a programming language, governing the system's functionality and behavior under specific conditions.

2) AI Based Approach
Machine Learning algorithms empower the existence of Connected Autonomous Vehicles (CAVs) by facilitating the collection, fusion, and decision-making processes based on sensor data.

This approach involves analyzing logs and patterns to inform decision-making, offering the potential to provide warnings and even mitigate risks that may arise within the device.

Machine-learning can be deployed to analyze and identify data within the logs, assessing for any abnormal data patterns. As machine learning refines the detection model, algorithms can be applied to identify malware activities and anomalous vehicle behaviors.

OBSERVATIONS & DISCUSSION

a) Security among Customers:
Various factors impact consumer psychology, creating a sense of "unsafety" in purchasing decisions, including considerations of brand loyalty and reliability. Connected Autonomous Vehicles (CAVs) are subject to these same influences. When contemplating significant investments, vehicle owners seek assurance of physical safety.

The initial phase preceding the reinforcement of cyber security is to enhance the reputation of autonomous vehicles by developing and showcasing their safety functionalities.

b) Lack of Standardization
Standards should encompass guidelines for (i) cultivating trust in AI through transparency, verifiability, explicability, and controllability, (ii) examining the threats and risks associated with AI-based systems. (iii) Exploring methods to ensure the robustness, resilience, safety, privacy, and accuracy of AI systems.

c) Computing Challenges
Connected Autonomous Vehicles (CAVs) leverage a variety of sensor inputs to amass extensive data via visual processing and object detection. Nevertheless, the critical hurdle lies in the efficient processing and swift transmission of substantial data volumes within communication networks. Even a mere delay of milliseconds could lead to fatal collisions on roads.

CONCLUSION
Connected Autonomous Vehicles (CAVs) have demonstrated significant potential in reducing traffic accidents, improving the overall quality of life and fostering safe and efficient transportation systems. This study undertakes a comprehensive analysis of the existing literature concerning cyber-attacks, defense mechanisms specific to CAVs.

The exploration begins by introducing the fundamental components of connectivity, autonomy, and intelligent transportation systems. Categorization of potential cyber-attacks on CAVs, focusing on sensor, communication, and actuator networks. An examination of existing cyber-attack defense strategies follows, encompassing both traditional and artificial intelligence techniques. Finally, the study outlines the current open challenges and issues within CAVs security.

The intent is for this research to serve as a valuable resource for scholars in the field, offering a comprehensive overview of the present state of Intelligent Transportation Systems (ITS) and CAV development.

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UNDERSTANDING CONSUMER'S BUYING BEHAVIOR TOWARDS SMART WATCHES

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ABSTRACT

The present study aims at understanding consumer's buying behavior towards smart watches. Now-a-days, smart watches are becoming most used wrist wearables not only among the teenagers but also among the middle and senior generations because of the advanced technology used and the advanced features available in them. The area of study helps to understand - the preferred price range and the preferred mode for buying, the factors which influence to purchase the current brand over other brands and the source from where the information regarding the current brand was known. This research study is conducted by using primary and secondary source of data collection.

Keywords: Consumer's buying behavior, Smart watches, Preferred, Factors influence

1. INTRODUCTION

1.1. INTRODUCTION ABOUT SMART WATCHES

A smart watch is a device which is modular and digital in nature. Smart watches are designed in such a way that not only the young generations, but also the middle and the senior generations prefer to use them. Smart watches are available in different shapes, styles and colors across different brands. Some of the popular smart watch brands are Apple, Samsung, Noise, Boat, Fireboltt, Xiaomi (Mi), Amazfit and Realme. The prices of the smart watch may vary from brand to brand. Usually, the price of a smart watch ranges from below Rs 1,000 to Rs 10,000 and above. Many people prefer to wear smart watch and amongst them some are students, professionals, employees, business men/business women and even the home makers. These devices are usually touchscreen and they offer many features that are similar to that of a smartphone.

One of the features of a smart watch is health and fitness tracking. This feature is very useful for those people who are health conscious and who want to monitor their heart rate, oxygen levels, etc. Also, there is a feature were one can keep a track on the number of steps taken per day. Another feature of smart watch is GPS tracking. Generally, this feature helps to track the location and helps in receiving location specific alerts. This feature becomes very helpful in tracing the lost smartphone. One can easily receive smartphone notification on the smart watch because of which there are less chances of keeping any notification unseen. But for this feature to get enabled one has to connect the smart watch with the smartphone via Bluetooth and once it is connected, one can also make and receive calls from the smart watch. The most unique feature of a smart watch is that one can even listen music in the smart watch and similar to smartphone notification receiving and smartphone calling feature, this feature is also possible only when the smart watch is connected to the smartphone via Bluetooth.

Many apps are available in a smart watch such as alarm, stopwatch, music, messaging, weather forecast, phone calling, blood pressure checker, heart (pulse) rate monitor, oxygen level tracker, activity tracking, phone tracker and GPS tracker and such other apps.

Smart watches can be used for many purposes such as for health and fitness tracking, for smartphone calling, to wear while going to workplace/college/other places/occasions, to follow the trend of wearing smart watches and to track the location of smartphone/loved ones.

Information regarding a smart watch can be gathered from various sources such as from social media, from advertisements and from family/friends. Smart watches can be purchased through online as well as through offline mode.

People usually buy a particular smart watch brand on account of, reviews/ratings that are available on many e-commerce websites, recommendations received from their family/friends, offers and discounts available, its price, quality and durability, warranty period offered and features provided and sometimes people also tend to buy a particular smart watch brand after getting influenced by their favourite celebrity who is the brand ambassador for such particular brand.

Among many differences, one difference between a traditional watch and a smart watch is that the smart watch is a chargeable device which makes the life of a smart watch long lasting while a traditional watch is not a chargeable device (but its batteries can be replaced) which limits a traditional watch to work for a shorter span as compared to a smart watch.

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Due to the technological advancements, many smart watch brands have launched water proof models of the smart watches which resulted in the increase in the number of smart watch users. Rapid Growth and Development in the Indian Smart Watch Industry has led to the Overall Development of the Country in terms of technology.

1.2. STATEMENT OF THE PROBLEM

To find out the problem regarding the product's quality of smart watch brand which is not worth the price charged for that product. Also, there is an issue regarding the product's battery life of smart watch brand which drains out very quickly especially causing delay in completion of fitness related activities. Customers are facing problems due to non-availability of frequent updates for smart watch applications. Many smart watch brands have not yet infused AI technology into their smart watch models.

1.3. OBJECTIVES OF THE STUDY

- To identify the commonly used smart watch brand among the consumers.
- To know consumers' purpose behind purchasing a smart watch.
- To find out the aspects that are considered by the consumers before purchasing a smart watch.
- To examine the features which influenced consumers to buy smart watch over traditional watch.

1.4. SCOPE OF THE STUDY

- This study aims at understanding consumer's buying behavior towards smart watches.
- To know whether the customers will recommend others to buy their current smart watch brand.
- To find out whether customers will consider to purchase their current smart watch brand again.

1.5. LIMITATIONS OF THE STUDY

- The study was carried out within 2 months' time frame.
- Sample Size for this research study was 110 smart watch users only which cannot represent the population as a whole.
- Findings and Suggestions of this research study are represented by 110 smart watch users only.

2. REVIEW OF LITERATURE

K.L. Hsiao & Chen. (2018) Attitude plays a pivotal role in impacting the consumers' purchase and usage intention. Purchase intention is all about the possibility of purchasing a new technology. Various factors such as Perceived Usefulness, Compatibility, Relative Advantage, Ease of Use, Hedonic Motivation, Aesthetic Appeal, and Social Influence contribute to Consumers' attitude, thus influencing their intention to purchase.

Almeida et al. (2017) & Jung et al. (2016) Brand plays a crucial role in influencing the consumers' decisions and adoption intentions regarding new technology products featuring unique functionality. Opting for a branded product assists in mitigating financial, functional and psychological risks with its trustworthy, dependable and hardworking image to deal with uncertain product qualities. Brand has a positive impact on behavioral intention for an electronic product.

Dr. Pkishorekumar & V venkateshwarlu (2014) Research study focused on customer perceptions and purchasing intentions regarding smart watches, found that consumers believe smart watches can be used to complete both personal as well as professional tasks very conveniently. The consumers are considering smartwatches as reasonably priced and thus, expressing a likelihood of acquiring one in the future to facilitate a diverse range of activities.

3. RESEARCH METHODOLOGY

3.1. SAMPLING TECHNIQUES

Non-Probability and Convenience Sampling Techniques were used to conduct this research study.

3.2. SOURCE OF DATA COLLECTION

Primary Source and Secondary Source was used for collecting the data.

3.2.1. PRIMARY SOURCE

Questionnaire method was used to collect the primary data. Google Forms were circulated to the respondents via online mode to collect the responses by using questionnaire method. Respondents were asked Close ended questions and Likert scale-based questions in the questionnaire which was prepared in the google form.

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3.2.2. SECONDARY SOURCE
Secondary Source such as websites and journals were used for data collection.

3.3. SAMPLE SIZE
Respondents of this research study were 110 smart watch users.

3.4. PERIOD OF STUDY
The time taken to collect the responses and to prepare this research paper was 2 months.

4. DATA ANALYSIS AND INTERPRETATION
Analysis of the researcher shows that, from a total of 110 respondents, there are 14 respondents in the age group of less than 21 years, out of which, 5 respondents have used or are recently using Fire-Boltt Smart Watch, 3 respondents have used or are recently using Noise Smart Watch, 2 respondents have used or are recently using Boat Smart Watch, 2 respondents have used or are recently using Apple Smart Watch, only 1 respondent has used or is recently using Amazfit Smart Watch and only 1 respondent has used or is recently using Xiomi (MI) Smart Watch, there are 68 respondents who belong to the age group of 21-35 years, out of which, 19 respondents have used or are recently using Fire-Boltt Smart Watch, 17 respondents have used or are recently using Noise Smart Watch, 13 respondents have used or are recently using Boat Smart Watch, 7 respondents have used or are recently using Apple Smart Watch, 7 respondents have used or are recently using Samsung Smart Watch, 3 respondents have used or are recently using Xiomi (MI) Smart Watch, only 1 respondent has used or is recently using Realme Smart Watch and only 1 respondent has used or is recently using Wayona Smart Watch, there are 18 respondents in the age group of 36-50 years, out of which, 5 respondents have used or are recently using Boat Smart Watch, 4 respondents have used or are recently using Xiomi (MI) Smart Watch, 3 respondents have used or are recently using Fire-Boltt Smart Watch, 2 respondents have used or are recently using Apple Smart Watch, 2 respondents have used or are recently using Samsung Smart Watch, only 1 respondent has used or is recently using Amazfit Smart Watch and only 1 respondent has used or is recently using Noise Smart Watch, and there are 10 respondents who belong to the age group of 51-65 years, out of which, 4 respondents have used or are recently using Noise Smart Watch, 3 respondents have used or are recently using Samsung Smart Watch, only 1 respondent has used or is recently using Amazfit Smart Watch, only 1 respondent has used or is recently using Fire-Boltt Smart Watch and only 1 respondent has used or is recently using Boat Smart Watch.

According to this study, consumers generally consider the aspects such as price, quality, warranty period, brand name, durability, offers & discounts and style/design/colour before purchasing a smart watch. There were 9 respondents who had considered only quality aspect before purchasing a smart watch, while 10 respondents who had considered all the 3 aspects such as price, offers & discounts and brand name before purchasing a smart watch. There were 13 respondents who had considered all the 7 aspects before purchasing a smart watch. Only a few of the respondents had considered only warranty period, style/design/colour and durability as an aspect before purchasing a smart watch.

This study has found out that, from a total of 110 respondents, there are 47 respondents who have purchased the smart watch for the purpose of wearing it while going to workplace/college/other places/occasions, out of which, 19 respondents are students, 10 respondents are students and employees, 9 respondents are employees, 6 respondents are professionals, 2 respondents are business man/business woman and 1 respondent is housewife, there are 30 respondents who have purchased the smart watch for the purpose of fitness and health tracking, out of which, 7 respondents are students, 7 respondents are business man/business woman, 5 respondents are employees, 4 respondents are students and employees, 4 respondents are housewives and 3 respondents are professionals, there are 22 respondents who have purchased the smart watch for the purpose of following the trend of wearing it, out of which, 10 respondents are students, 4 respondents are business man/business woman, 4 respondents are employees, 2 respondents are students and employees and 2 respondents are professionals, there are 6 respondents who have purchased the smart watch for smartphone calling purpose, out of which, 2 respondents are employees, 2 respondents are housewives, 1 respondent is professional and 1 respondent is student, and there are 5 respondents who have purchased the smart watch for the purpose of tracking the location of their smartphones/loved ones, out of which, 2 respondents are employees, 2 respondents are students and 1 respondent is student and employee.

The study has analyzed that, the features such as smartphone calling, fitness and health tracking, access to music, long battery life, locating your smartphone/loved ones, receiving smartphone notifications and touchscreen influenced the consumers to purchase smart watch over traditional watch. From a total of 110 users, 3 female users and no male users are not at all influenced by fitness and health tracking feature, 6 female users

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and 4 male users are slightly influenced by access to music feature, 13 female users and 11 male users are moderately influenced by long battery life feature, 22 female users and 22 male users are very influenced by smartphone calling feature, Majority of the male and the female users are very influenced by receiving smartphone notifications feature, 13 female users and 12 male users are extremely influenced by locating your smartphone/loved one's feature and 18 female users and 11 male users are extremely influenced by touchscreen feature.

Research study shows that, out of 110 respondents, 5 are very unlikely to recommend, 3 are unlikely to recommend, 43 are neutral about recommending, 36 are likely to recommend and 23 are very likely to recommend to others to buy their current smart watch brand.

Out of 110 respondents, 53 are definitely willing to purchase, while 45 are probably willing to purchase, whereas 12 are definitely not willing to purchase their current smart watch brand again.

5. FINDINGS, SUGGESTIONS AND CONCLUSION

5.1. FINDINGS OF THE STUDY

- Highest number of respondents are from the age group of 21-35 years.
- Majority of 35.5 % of smart watch users are students.
- Out of 110 respondents, 80 respondents consider price before purchasing a smart watch.
- Fire-Boltt smart watches are used by majority of 24.5 % of the respondents.
- Majority of 64.5 % of the respondents prefer to purchase smart watch between price range of Rs 1,001 to Rs 4,000.
- Majority of 67 respondents got influenced by features of smart watch to purchase current smart watch brand over other brands.
- 35.5 % of the respondents came to know about their brand via friends/family, while 27.3 % via advertisement and 37.3 % via social media.
- Majority of 42.7 % of the respondents purchased the smart watch for the purpose of wearing it while going to workplace/college/other places/occasions.
- 49 respondents got very influenced by the touchscreen feature to purchase smart watch over traditional watch.
- 37.3 % of the respondents agree that individuals get influence to purchase smart watch of that brand whose brand ambassador is their favourite celebrity.
- Online mode of purchase is preferred by 68.2 % of the smart watch users while Offline mode is preferred by 31.8% of the smart watch users.
- 20.9 % of the respondents are very likely to recommend to others to buy their current smart watch brand.
- 48.2 % of the respondents are definitely willing to purchase while 10.2 % of the respondents are definitely not willing to purchase their current smart watch brand again.

5.2. SUGGESTIONS

- Smart watch brands should improve their product's battery life.
- As majority of the users are considering price before purchasing a smart watch, so the focus of smart watch brands should be on reducing the price without compromising the quality.
- Frequent updates for smart watch applications must be available.
- Smart watch brands must consider using AI technology into their future smart watch models.
- As majority of the users are students, so unique features must be added for students.

5.3. CONCLUSION

Smart watch is a digital device which is gaining popularity among all age group people due to its various features and adaptability nature towards technological advancements. Consumers had considered various aspects before purchasing a smart watch. Many smart watch brands are available in the market that offer a wide range of products to smart watch users due to which there is lot of competition among such brands. Consumers

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preferred to purchase that smart watch brand which offered them maximum features that too at an affordable price. Awareness among customers regarding smart watch brands was created through various sources. People had purchased the smart watch for some purpose. Many features of smart watch had attracted the consumers to purchase smart watch over traditional watch. Favorite celebrities do play a significant role in influencing the people to purchase that brands' smart watch of whose they are the brand ambassador. Smart watches were purchased through online and offline modes. Smart watch users are very happy with their current brand so they are considering to purchase the same brand again and to recommend others to buy the same brand.

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A STUDY ON IMPACT ON USAGE OF FINTECH APPLICATIONS POST PANDEMIC

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ABSTRACT
This research study gives insights on how the financial institutions (FIs) and its applications have reached heights post COVID-19 pandemic. The global pandemic presented unprecedented problems to the world, but one important factor in transforming financial services and interactions was the emergence of the financial technology, or fintech, sector. This study investigates how much the epidemic has affected how fintech applications are used. With a thorough methodology, the research study tries to find how the Covid -19 has affected public behaviour, adoption rates, and the development of fintech services.

Fintech services, as opposed to traditional banks, provide a variety of financial solutions by utilizing cutting-edge technology like blockchain, artificial intelligence (AI), and mobile applications. These services include, but are not limited to (P2P) lending platforms, online payment systems, robo-advisors for investment management, and mobile banking applications. By addressing underprivileged groups, fintech promotes financial inclusion in addition to offering customers quick and easy substitutes for traditional banking.

The use of Fintech services has grown several users during and post pandemic thus the study exhibits various factors that has affected the usage of such apps. The automation and digitization of financial services in an application has brought a digital transformation and numerous features. The study looks at user feedback and user engagement indicators to determine how much the pandemic has affected the use and uptake of fintech applications in different demographic groups. The rise in demand for digital and contactless payment solutions, the development of key features in the realm of investing and wealth management, and the replacement of traditional banking services with digital platforms are some of the major emphasis areas. The study also sheds light at how security issues affect users' confidence and trust in fintech applications.

The outcomes show that the COVID-19 lockdown, confidence, data protection, and staff services are the elements that have increased the purpose to use the fintech applications. It is anticipated that the results of this study would provide insightful information to the scholars. This study offers an insightful examination of the long-term impacts on fintech acceptance and usage.

Keywords: FinTech: Financial Technology, FIs: Financial Institutions, Post COVID-19 pandemic, AI: Artificial Intelligence, P2P: Peer-to-peer, User feedback, Contactless payment solutions.

1. INTRODUCTION
Organizations that make use of technology to supply financial services are generally referred to as financial technology, or FinTech. These businesses are involved in a variety of industries, including insurance, asset management, and payment. In India, fintech has been a relatively new business in the last few years. Large-scale investments in FinTech have been made in several Indian industries, partially because of the strong and efficient government reforms that are advancing the nation's transition to a digital economy. It has also benefited from the increasing use of smartphones and the internet, which has fuelled the development of FinTech in the nation and the acceptance of digital technologies.

1.1. FinTech Sectors:

Electronic Payments
Electronic transactions are those that can be made without having to transfer actual money over the internet or through other digital platforms. Money is transferred from one payment account to another when a player and a payee use a digital device, such as a laptop or desktop computer, credit, debit, or prepayments card. The primary causes of the recent significant rise in the use of digital payments were the COVID-19 outbreak in 2020 and the enactment of the demonetization program announced by the Indian government in 2016. To curb illegal trade and tax evasion, demonetization replaced old currency with new, reducing the number of transactions in cash. As a result, people were compelled to use digital payment methods. When contactless payment methods gained popularity to stop the spread of the Covid-19 pandemic.

Alternative Lending
Alternative lending platforms seek to make traditional loan procedures simpler by connecting investors and borrowers. They achieve this by applying technologically advanced models that swiftly assess the credit risk of borrowers and ascertain the most advantageous loan amounts, conditions, and rates for them. The main objective of FinTech companies involved in the non-traditional lending market is to rectify the notable credit

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supply-demand imbalance in the country. Peer-to-peer (P2P), MSME, payday, EMI/Point of Sale (PoS), and buy now pay later (BNPL) are a few of the primary business models that alternative lending FinTechs have found success with.

1.2. The Impact:

Immediately following the COVID-19 pandemic caused tremors difficulties, the financial industry entered a new era with fintech applications resulting as the foundation of resilience and ability to adapt. Digital financial solutions gained popularity during the crisis, which not only simplified transactions but also altered how people, Financial technology and companies interacted with each other. The goal of this research is to understand the intricate dynamics that have emerged in the aftermath of the pandemic by looking into the long-term impacts of the fintech boom.

The COVID-19 pandemic has had major effects on consumer behaviour, particularly regarding payments. The need for hygiene practices and social distancing can be the reason behind the growing ubiquity of contactless payment methods. This means that there are now more opportunities for fintech companies to benefit from the demand for digital-only solutions. Fintech businesses have long been upending traditional banking establishments; the pandemic has only accelerated this process. Fintech companies can provide solutions that meet the changing needs of their customers because of their agility in responding to the new economic realities.

Consumer interest for online financial services such as Internet banking, mobile payments, and digital wallets has increased significantly because of the pandemic. The requirement for these services from fintech companies has increased as more customers use online financial services to handle their accounts.

In conclusion, the introduction of digital-only solutions has allowed fintech companies to expand into new markets. Fintech companies have demonstrated their ability to provide solutions that cater to underrepresented groups, including small businesses and individuals with low incomes.

2. LITEARTURE REVIEW

The Impact of COVID-19 on E-wallet's payments in Indian economy" and analysed that happening of COVID-19 has brought a great boost for the Indian economy, especially for the sectors like food and beverages, entertainment, and others. There is a big contribution by entertainment and hospitality industry which is approximately 40 per cent to the economy which is helping for growth. JAIN, (2020).

The usage of E-payment system is increasing at a very fast rate. People are moving towards payment systems instead of using plastic money like cash etc. Making online transactions is very convenient and time saving. (Gupta S. B., 2020).

The pandemic Covid-19 has had a substantial effect on speeding up the trend toward a cashless society everywhere. In the context of this pandemic condition, the tendency toward financial technology transactions has intensified. In their financial transactions and activities, consumers are aiming to reduce the use of cash. They are exploring alternate contactless payment techniques, without any physical intervention, to execute this electronically (Abu Daqar et al., 2021).

3.RESEARCH METHODOLOGY

3.1. Objectives:

1. To study the impact on use of fintech applications post pandemic.
2. To examine the adoption of fintech applications on users.
3. To understand how the pandemic has affected consumers' trust in and perception of security features in fintech applications.
4. To investigate the digital transformation of financial transaction through fintech apps.

3.2 Sample Size

In This research study the researcher has gathered responses from 100 respondents. These responses were collected from various age groups, gender, and occupation.

3.3 Method of Data Collection:

The primary data for the research study was gathered via questionnaire distributed on Google Forms.

The secondary data for the research study was gathered from internet, publication, and academic journals.

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4. DATA ANALYSIS AND INTERPRETATION:

- With 63 responses overall, the age distribution of the data indicates that most of the respondents are between the ages of 18 and 25. Students make up the largest percentage of responders in this age group (47 out of 63). With 42 ladies and 21 males in the 18–25 age range, there is a balanced representation of both genders. There are fewer and fewer respondents as age ranges expand; there are only 10 people in the 26–35 age group and 1 person in the 36–45 age group. The age category of 46 and over has a higher representation there were 26 responders in total, mostly men in employment. In comparison to older age groups, the data shows a trend where younger people, students are more likely to engage in the survey. The data also shows a gender gap, with women making up a higher percentage of respondents in all age groups except for the 46 and older category, where men predominate.
- The analysis shows that the COVID-19 outbreak has had a major influence on respondents' general usage of fintech applications. The majority of the respondents reported using fintech applications more during the epidemic than fewer just two reporting using them less. This pattern was observed across all age groups. The use of fintech is on the rise, especially among younger respondents (18–25 years old), 39 out of 63 respondents reported this. In contrast, 15 out of 26 respondents, who represent the senior age group of 46 and above, claim a significant growth in fintech usage.
- The analysis shows that with 29 respondents among being 9 female and 20 male using mobile banking apps, these apps are the most popular fintech application across all genders. With a total of 18 respondents (11 females and 7 males) using digital wallets, this payment method is likewise rather popular. A sizable percentage of respondents especially women use a variety of fintech tools, including digital wallets, online payment platforms, and mobile banking apps. This indicates that people value simplicity and adaptability in their financial operations, choosing several platforms to suit their various demands. Even though they are less common, investment applications are nevertheless used somewhat, according to the five respondents (3 females and 2 males) who were involved in this fintech area.
- According to the analysis convenience is the most important element, according to 25 out of 63 respondents who are between the ages of 18 and 25. Improved features and cost-effectiveness are the next most important factors. This shows that younger people, who are more accustomed to digital technology and value simple, intuitive user experiences, give priority to fintech apps that are easy to use and functional. On the other hand, respondents who are 46 years of age or older and those who are between the ages of 26 and 35 show a larger dependence on suggestions from others and cost-effectiveness, suggesting that they place more weight on social influence and financial prudence when making decisions. The respondents between the ages of 36 and 45 give very few answers, with just one person mentioning convenience as a deciding factor in adoption.
- Based on the data collected about the impact of the pandemic on the degree of trust in financial applications throughout different age groups, there is a wide range of responses. Among respondents aged 18-25, most people (55.6%) reported an increase in trust, while a significant portion (47.6%) of those aged 46 and up reported a decrease. However, it is worth noting that a sizable proportion of respondents from every age category (ranging from 25% to 70%) noted no change in their trust stages.
- Based on the data examination of responses collected after the pandemic, the fintech application sector has experienced significant digital transformation. Among the different groups surveyed, the payment app emerges as the leading in this digital revolution, with the most respondents (80), 45 female and 35 males. This demonstrates widespread adoption and reliance on Payments apps for financial transactions, emphasizing their critical role in enabling seamless digital payments in the post-pandemic era. Furthermore, the Investment app category has significant popularity, with 11 respondents, highlighting the growing importance of digital platforms in investment management.
- The data examination of respondents' satisfaction with fintech services provided post-pandemic reveals a significant gender disparity. Females made up the majority of the survey population, with 55 respondents, while males accounted for 45. In terms of satisfaction levels, both genders had similar distributions across the satisfaction scale. However, closer examination reveals that females reported slightly higher levels of satisfaction than males. 21 females (38.2%) reported being 'Very Satisfied' (score 5) with fintech services, compared to 18 males (40%) who reported the same level of satisfaction. In contrast, a lower proportion of females (7.3%) expressed dissatisfaction (score 1) than males (8.9%).

5. FINDINGS

The findings of the research show that the pandemic has had an enormous effect on the use of fintech applications, with 58.2% of respondents identifying this influence. 74.5% of respondents presently use online

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payment platforms, indicating a widespread use of digital financial tools. The majority of respondents state that using fintech apps is convenient, and 55.5% agree that having security features like two-factor authentication is important.

Additionally, a substantial number of respondents (67.3%) believe that transactions using fintech applications are safe, illustrating a growing level of trust that has been increased by the pandemic. Satisfaction ratings exist with the fintech services offered, and 61.8% of respondent's feelings of stress the need for enhanced security features. These results provide crucial fresh data about how fintech is being utilized as well as how users are experiencing.

6. CONCLUSION

The study reveals that there has been a significant increase usage of fintech applications due to factors like convenience, cost effectiveness and improved features. The improved features have engaged consumers at large and in turn, recommendation of such apps to others. The advanced features, biometric authentication, two-factor authentication, and regular security updates are the elements that built users' trust and confidence level. Therefore, proving both the alternative hypothesis (H1).

The survey identified that particular Fintech applications - payment and investment apps leading the way to digital transformation. Many of the users now find the fintech services useful and safe to use. Post-pandemic user satisfaction has been rated high, particularly among younger respondents. The applications such as mobile banking apps, online payment platforms and investment apps have seen increased user interface.

To sum up, the study offers a reader with insightful information about how Fintech applications are being used, highlighting how widely accepted they are among a variety of demographic categories. The research findings also provide guidance for the ongoing development of digital financial services in the post-pandemic era.

7. SUGGESTIONS

By a thorough analysis of the respondents put forward a strong desire for the fintech application to have additional safety features. The fintech developer is suggested to take this into consideration by putting in place sophisticated authentication protocols, carrying out frequent security audits, and implementing other strong security measures. furthermore, the vast majority of users indicate that they would prefer the application to be more user-friendly. Simplifying procedures, offering user-friendly tools, and enhancing the user experience all help achieve this. Understanding the value of customized services, a financial technology constructor might look into customizing features according to user specifications and preferences. Moreover, it is crucial to incorporate mechanisms for continuous tracking and input to ensure continuous improvement and flexibility to user needs. A possible improvement would be to add a feature that shows remaining balances.

By putting these suggestions into practice will help to boom the fintech sector and improve the overall satisfaction of the users.

8. RECOMMENDATIONS

Based on the responses to enhancements desired in fintech applications, respondents, regardless of gender, prioritize enhanced safety measures, increased user interfaces, incorporation with other financial services, and more customized offerings. To meet these requirements, the researcher recommend that fintech companies should prioritize implementing strong security protocols to protect user data and transactions. Furthermore, there is an urgent need to improve interfaces to make conversations more intuitive and flawless. Integrating fintech offerings with other financial tools and services can give users a more complete financial ecosystem, increasing convenience and utility. Furthermore, providing more personalized services based on individual user preferences can increase customer satisfaction and engagement. Overall, by tackling these key areas, financial technology applications can better meet the changing needs and expectations of users in future.

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REVOLUTIONIZING CONTENT CREATION THROUGH GENERATIVE AI: A MODERN LINGUISTIC APPROACH

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ABSTRACT
Generative AI is an artificial intelligence system that can produce new material based on current data. It has been transforming the way we create content for many years. It utilizes existing data and applies machine learning techniques to produce new data similar to the original input. This new data can subsequently be used in a variety of ways, including content production. It differs from regular AI because it may generate new data instead of only analysing current data. It is altering the content creation landscape, opening up new opportunities for businesses to innovate and interact. By embracing new technology with a deliberate and responsible approach, the content creation industry may realise its full potential while navigating the associated challenges and ethical considerations. It can also help content authors understand their audience's preferences, trends, and habits. The primary aim of this research paper is to understand the process of content creation through experimental Generative AI. It also aimed at bringing the significance of Generative AI and changing avenues in the contemporary competitive world into the academic discussion.

Keywords: Generative AI, Content Creation, Linguistics, Machine Learning

The process of producing and disseminating media or information to a target audience, especially in digital contexts, is known as content creation. This is the process of developing numerous types of media that appeal to the intended audience. It is a crucial part of contemporary digital marketing tactics. It entails several processes, from developing an initial concept to promoting a published work. The content production process involves a variety of professionals. It is regarded as the foundation of modern digital marketing and can take many forms, including blogs, e-books, social media posts, and more. It involves a variety of tasks such as website maintenance and updates, blogging, article writing, photography, videography, online commentary, social network accounts, and digital media editing and dissemination. It is defined as the material that people contribute to the online environment.

Integrating Generative AI into content development workflows provides substantial benefits in terms of productivity and cost-effectiveness. Businesses can save time and resources by automating repetitive operations and optimising production processes, while still producing high-quality material consistently. One of the most significant effects of AI on content development is the potential to automate various stages of the content creation process. AI-powered tools and platforms now allow creators to automate jobs like writing articles, creating video scripts, and even producing music. AI plays a critical role in content development by automating formerly time-consuming and labour-intensive operations. AI-driven content generators, for example, can analyse large amounts of material to produce high-quality articles, blog posts, and poetry.

A technique called Generative Artificial Intelligence (AI) can produce original content in a variety of formats, such as text, photos, music, and movies. It analyses massive datasets using neural networks and algorithms to create content that is nearly identical to human-generated content. Enhancing content creation workflows using Generative AI yields noticeable advantages in terms of economy and productivity. Generative AI encourages creativity in this way, enabling people and institutions to push the envelope of what is practical. According to Novigence, "Generative AI, the maestro of creativity in the world of artificial intelligence. While traditional AI models focus on analyzing and interpreting existing data, Gen AI takes things up a notch by creating entirely new content. It's like having a virtual artist who can craft compelling narratives, generate lifelike images, and even compose music — all without human intervention (Novigence, 2024).

In the realm of Generative AI, the perception mechanism combines the data collected by the sensors in a meaningful way. Linguistic intelligence refers to the capacity to use, comprehend, speak, and write in both spoken and written language. It is vital in interpersonal communication. Natural Language Modelling and content analysis are the foundations of this technology. Generative AI can reflect and restructure concepts or visuals by recognising patterns and structures. This creates new opportunities for content creation. Generative AI offers a wide variety of applications. The harmonic intersection of language and machines is made possible by the merging of linguistics and Generative AI. With language models and deep learning techniques at its disposal, Generative AI can understand the subtleties of human language and produce content that is both coherent and contextually relevant. Developments in content creation, natural language processing, and machine

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translation are facilitated by this junction. In her article titled "Generative AI in Linguistics: Applications and Benefits", Jhansi Potheru explains the significance of Generative AI:

Moreover, Generative AI serves as a valuable tool for linguists, supporting them in analyzing linguistic patterns, analyzing ancient languages, and even exploring language evolution. The collaboration between these two fields not only enhances our technological capabilities but also deepens our understanding of linguistic phenomena. (Potheru, 2023)

This study attempt aims to further investigate the prospects that a linguistic approach to Generative AI for content generation offers. The main goal of the linguistic approach in Generative AI's components is to create original content by utilising language properties. Gaining knowledge about the application of the linguistic approach in Generative AI content production can result in content for marketing, social change, education, and awareness. The remainder of this paper focuses on how Generative AI uses a linguistic approach or linguistic elements to generate content.

Generational AI as a Lingua Franca:
The enormous potential that generative AI holds to empower non-English speaking communities is enormous. It can be used for language revitalization and preservation, especially for underrepresented or endangered languages. AI can contribute to the vitality and relevance of these languages in the digital age by producing content in them. In addition, it is essential for overcoming language obstacles, promoting intercultural dialogue, and cultivating international cooperation. The application of AI to language processing creates opportunities for cooperation between linguists, AI researchers, and communities. AI can support the maintenance of these languages' vibrancy and relevance in the digital era.

Generative AI as a Versatile Translation Tool:
In addition to helping with specific words and phrases, Generative AI can translate text between languages quickly and accurately. This can facilitate communication and increase information accessibility on a global scale. Additionally, real-time, context-aware translations can be provided by generative AI, enhancing user satisfaction and promoting international relationships. Instantaneous text and speech translation is made possible by Generative AI, facilitating smooth real-time communication between speakers of many languages. In situations when comprehension is crucial, including business meetings, social media apps, and customer service exchanges, this is very helpful.

The forerunner in AI translation is Google Translate. Being among the initial machine translation tools available, it has gained immense popularity. An extremely useful translation technique is generative AI. Content creators can work with many languages using a single AI; they can use it as a dictionary to help with specific words and phrases or have it translate entire text passages in the desired manner. However, this domain adaptation needs to happen not only in the base language but across all the languages the company offers to guarantee that a Generative AI platform can reliably answer queries in various languages and translate between languages for a particular business.

The advent of generative AI has further pushed machine translation's boundaries to previously unheard-of heights in this age of rapid technological advancement. These highly developed algorithms can comprehend both the intent and meaning of language as well as human linguistic patterns. Although some people praise these innovative tools as the answer to every business issue, generative AI solutions are still far too early to fully satisfy the language translation needs of enterprises. Concerns over the security of this technology and whether or not organisations can rely on generative AI for reliable language translation have also been raised. Moving forward, caution is the appropriate course of action in light of these questions.

It adds to the continuous improvement of language translation accuracy and fluency. These systems improve their ability to produce translations that closely resemble natural, human-generated text by learning continuously and being exposed to various linguistic data.

Natural Language Processing (NLP):
In Natural Language Processing (NLP), Generative AI is the technology that makes it possible for robots to produce text or voice that sounds human. In it, artificial intelligence has advanced remarkably. Generative AI models can produce new material based on patterns they discover from large datasets, in contrast to standard AI models that examine and process already-existing data. These models make use of sophisticated neural network architectures and methods, frequently using Transformers or Recurrent Neural Networks (RNNs) to comprehend complex linguistic structures. By understanding context, grammar, and semantics, generative AI

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models can produce content that is coherent and relevant to the given context. They are vital resources for a wide range of applications, including code development, language translation, chatbots, and content production.

The ability of Generative AI to convert data into language that is similar to that of humans could revolutionise the field of natural language processing. Natural language interfaces, for instance, can converse with users, support several languages, and retain a query history. The ultimate achievement in the complex field of NLP is generative AI. Generative AI in NLP is a game-changer in machine intelligence as companies and researchers continue to explore its potential. It can turn raw data into language that makes sense and is human-like. This investigation of the function of Generative AI in natural language processing reveals the complex neural networks and algorithms that drive this breakthrough, illuminating its significant influence and practical uses.

Voice Cloning through Generative AI:

Generative AI is capable of analysing a person's speech pattern, accent, and vocal qualities to create new speech in that voice. Applications for this could be found in podcasts, personal assistants, audio-books, and other media. Typically, machine learning and artificial intelligence techniques are used for voice cloning. The process of developing voice cloning systems, similar to other forms of Generative AI, starts with gathering massive quantities of data to establish a dataset of the individual's speech samples. There is a lot of fascinating potential for Generative AI voice cloning in the future. Beyond voice replication, content creators can anticipate advancements that allow for even more accurate voice synthesis in different languages. The Generative AI model uses the attributes to create new audio segments that mimic the target voice in the synthesis step. Voice Conversion System (VCS), which changes one voice for another or text-to-speech (TTS) systems, which converts text into speech, can be used for this.

Role of Generative AI in Digital Content Creation:

Generative AI has broad applications in numerous business domains for content creation. It can automatically generate new material and facilitate the interpretation and understanding of already-existing content. Content creators can benefit greatly from Generative AI in a variety of ways, such as overcoming creative blockages, personalising content, scaling content creation, and streamlining content development.

Content producers can experiment with various styles and formats and discover new ideas with the use of AI-powered tools. For instance, Generative AI can be used by artists to produce rough sketches or design concepts. Real-time content creation that is dynamic and catered to certain audiences is possible because Generative AI analyses user data and behaviour. In the realm of digital learning, Generative AI has the potential to provide tailored recommendations and flexible learning opportunities. By making it easier to create a variety of content forms and reach a wider audience, Generative AI can assist content creators in scaling their efforts. Media, educational and entertainment organisations can improve the efficiency of their content generation process by utilising Generative AI.

Thus, Generative AI can improve linguistic communication in a variety of ways, including bridging a gap between two languages, translation, voice cloning, digital content development, and natural language processing. Beyond simple automation, Generative AI enhances human capacities to promote creativity and innovation in content creation. Content creators may overcome creative blockages, discover new ideas, and experiment with multiple styles and formats by working together with AI-powered tools. In conclusion, the fascinating border where artificial intelligence meets the complex beauty of language is marked by the junction of Generative AI and linguistics. Content creators may expect ground-breaking discoveries as these domains continue to converge, which can advance technological capabilities while also deepening our understanding of the essence of human communication.

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A STUDY ON HOW SOCIAL MEDIA IS USED AS A PR TOOL TO PROMOTE COSMETIC PRODUCTS WITH RESPECT TO PURPLLE.COM

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ABSTRACT

The research is centered on the perspectives and decisions of the buyers towards cosmetics items and how social media plays a very important part in this study. Consumers travel through a progression of steps when buying an item online such that it ought to convey to them at low or more moderate cost with great quality to fulfill their requirements. Nonetheless, to examine the part of buying conduct of women and, what variables influence them while purchasing the cosmetics and how the buyer tends to their buying decision when purchasing a particular product online. The investigation will investigate the buying conduct of women.

The main aim is to study social media as a PR tool to promote cosmetic products with respect to Purplle.com for this study the researcher has surveyed 80 numbers of people to understand their opinion and views.

It has been concluded that PR plays a vital role in promoting cosmetic products with respect to Purplle.com.

Keywords: Purplle.com, Social Media, Cosmetics, PR tool

1. INTRODUCTION

Cosmetics are a classification of wellbeing and magnificence items that are utilized to really focus on the face and body, or used to highlight or change an individual's appearance. Despite the fact that cosmetics are usually considered as just cosmetics used to modify an individual's appearance, cosmetics can likewise allude to various items used to really focus on the skin and the body, just as those used to add scent to it. There are countless cosmetics accessible under these different classes, each intended for various purposes and highlighting various attributes. Cosmetics are generally utilized and acknowledged in various societies. The prominence of cosmetics can be ascribed to the inventive self-articulation and self-character perspective. Cosmetics and cosmetics can be utilized to unpretentiously improve common highlights or make another look. The corrective and cosmetics industry is worth billions of dollars and keeps on expanding because of the developing prominence and acknowledgment of cosmetics and cosmetics. Cosmetics are established from a combination of substance intensifies from either characteristic sources or artificially made ones.

Cosmetics intended for healthy skin can be utilized to purge, shed and secure the skin, just as renewing it, using chemicals, toners, serums, creams, and ointments; cosmetics intended for more broad individual consideration, for example, cleanser and body wash, can be utilized to scrub the body; cosmetics intended to improve one's appearance (cosmetics) can be utilized to cover flaws, upgrade one's regular highlights (like the eyebrows and eyelashes), add tone to an individual's face and, on account of more limit types of cosmetics utilized for exhibitions, style shows and individuals in outfit, can be utilized to change the presence of the face completely to take after an alternate individual, animal or article.

Cosmetics can likewise be intended to add aroma to the body. In spite of the fact that the lawful meaning of cosmetics in many nations is more extensive, in some Western nations, cosmetics are regularly interpreted as meaning just cosmetics items, like lipstick, mascara, eye shadow, establishment, become flushed, highlighter, bronzer, and a few other item types. Cosmetics (likewise called cosmetics, make up, or make-up) are items used to make the human body appear to be unique. Regularly cosmetics are utilized to make somebody more appealing to one individual, or to a culture or subculture. In Western culture, women are the fundamental clients of cosmetics. Their utilization by men is less incessant, besides in front of an audience, TV and motion pictures. Cosmetics are broadly utilized in the realm of acting. All cosmetics are impermanent. They should be restored after a specific time. Cosmetics incorporate lipstick, powders (for example redden, eyeshadow), and moisturizers just as different things. Most restorative items and strategies are planned to improve the vibe of the face. There are two classifications: those, which improve the fundamental nature of the skin, and those, which sit on the skin during dynamic public activity.

1.1 Marking and Bundling of Male Cosmetics

Men utilizing cosmetics: Male cosmetics were initially focused towards gay men, in any case, statistical surveying uncovered that solitary 33% of male corrective customers were gay. Some men use magnificence items to cover apparent blemishes on their countenances, for example, skin inflammation marks and freckles. Additionally, a few men use cosmetics to help their actual appearance. Makeup is as often as possible utilized by male stage entertainers and film actors. Intensive makeup may be utilized to deliver a zombie-impact, maturing or other embellishments, for a movie. Although utilizing makeup can be time-serious, it saves time

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and cost contrasted with the utilization of PC driven enhancements and can be all the more outwardly interesting to the crowd. With the quantity of maturing populaces around the planet ceaselessly expanding, more established men are additionally turning towards cosmetics to moderate the presence of actual maturing effects. Many of these impacts incorporate wrinkles, age spots, dry skin, lopsided skin tone, and even hair harm; the presence of these can be decreased by the utilization of cosmetics. A few cosmetics and skincare brands have created items explicitly for men's skin, like Nivea, Chanel, Tom Ford, and Adidas. Nivea is the most famous brand for men with 34.4%, followed by L'Oréal with 21.9%. The bundling of male cosmetics is for the most part basic. The tones are essentially blue, green, dim, white or dark. Contrasted with women's cosmetics, there are less brilliant shadings, for example, pink, red and purple. These plan decisions expect to draw in male clients, while decreasing the opposition of male clients to cosmetics, breaking the conviction that cosmetics are for women as it were. Additionally, cosmetics organizations produce cosmetics custom-made to the inclinations of men in various regions. For model, Revlon has dispatched a Middle Eastern assortment, and Ferrari has built up a conventional Middle Eastern scent, considering neighborhood shopper inclinations. Male cosmetics bloggers and VIPs

The quantity of male magnificence bloggers on YouTube is likewise growing. Makeup male bloggers will assess cosmetics, give makeup instructional exercises, and promote items. The most popular male magnificence bloggers in the United States are Patrick Starr and James Charles.

Men's corrective market size and development: When contrasted with different enterprises, the worldwide cosmetics and excellence items industry is somewhat impenetrable to financial downturn or extension. Financial good and bad times have influenced patterns inside the worldwide business lately; in any case, the business volume has kept up moderately constant. In the instance of a downturn, the deals of cosmetics are mostly kept up at a specific consistent floor. In 2017, the worldwide cosmetics market esteem was US$523.43 billion. It is relied upon to arrive at a market estimation of US$805.61 billion by 2023 and a build yearly development pace of 7.14% from 2018 to 2023.The expansion in male magnificence mindfulness is a central point driving the development of the worldwide market.

1.2 PURPLLE COSMETICS

Purplle is an Indian multi-brand magnificence retailer selling corrective and health items. Established by Manish Taneja and Rahul Dash, Purplle started as an online retailer in December 2011 and opened its first actual retail location at Phoenix Market City Kurla, Mumbai in January 2017.Startup was established by IIT Delhi graduate Taneja and IIT Kharagpur and IIM Ahmedabad former student Dash in 2012. Six-year-old organization retails items for healthy skin, make-up, haircare, body care and excellence apparatuses from in excess of 600 Indian and global brands. Purplle.com has a huge variety of items across 650 brands with 50,000 SKUs and 300 magnificence explicit venders. Purplle gives all warehousing and coordination administrations to merchants to guarantee the nature of items and conveyance is maintained. Purplle has tied up with 6,000 salons with point by point evaluating data on the stage for clients to settle on a decision for the correct assistance.

Purplle has had the option to customize the magnificence item revelation measure for the buyers by gathering their excellence persona and joining it with Purplle's exclusive excellence information motor. The magnificence motor can interpret things like tea tree can help bothersome scalp, party wear needs more brilliant lipstick shades and red works out in a good way for reasonable skin. Purplle has a private mark in cosmetics. Under its new skincare brand, the organization intends to dispatch skin cream, face wash, essential oils and cleanser. The organization has brought results of worldwide majors like Moda Cosmetics (Turkey), Vipera Cosmetics (Poland) to India.

In October 2020, the firm fortified its top deck by naming Pooja Acharya, a previous leader at Japanese individual consideration organization Shiseido, as its main magnificence official. Purplle, a Manish Lifestyle organization, has raised a sum of $7 million through three rounds from Blume Venture Advisors, Ivy Cap Ventures and JSW Ventures. Purplle had last raised an undisclosed aggregate from JSW Ventures and existing financial backer's stage financial backer Blume Ventures and ahead of schedule to-development stage VC firm Ivy Cap Ventures in July 2016. In January 2015, it got its Series A subsidizing round from Ivy Cap Ventures. The organization had raised its seed financing from Blume Ventures, Mumbai Angels and Chennai Angels in August 2013.

REVENUE: Online magnificence and individual consideration retailer, Purplle.com, claims that its deals in the new ordinary are 80% higher than its pre-COVID deals and heft of the development has come from level 2-3 business sectors, particularly the eastern pieces of the country. "Around 30% of our deals have come from places like Guwahati, Shillong and Durgapur. Level 2-3 urban communities, for example, Lucknow and

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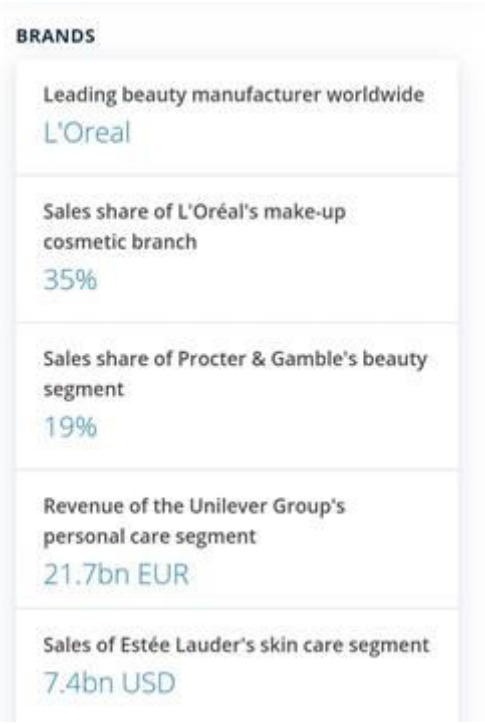
different spots in the Hindi belt are additionally progressing nicely," says Manish Taneja, Co-Founder and CEO, Purplle.com. Taneja accepts that the converse movement from the urban areas to the more modest towns has enormously added to its level 2-3 development. "Eastern India and surprisingly the Hindi belt sends out a many individuals to the metros, as they don't have such a large number of business openings there. Every one of these individuals have now returned to their separate homes."

In order to meet the surge in demand from the eastern parts of the country, Purplle has set up satisfaction places in Kolkata and Guwahati just as in Hyderabad. It as of now has satisfaction focuses in Gurgaon, Mumbai and Bangalore. The conveyance time in the level 2-3 business sectors with the launch of new satisfaction habitats has crunched to two-and-half days though about three-and-half days in the pre-COVID period. "Coronavirus has shown us the significance of being nearer to the purchaser so we can convey quicker," brings up Taneja.

1.3 BRANDS IN DEMAND IN INTERNATIONAL LEVEL



Huda Kattan's excellence image has held its position as the most popular cosmetics brand across the globe for 2020, as per the Cosmetify Index. Kattan's Dubai-based name Huda Beauty beat down market contenders like Kylie Cosmetics, MAC Cosmetics, and Anastasia Beverley Hills, to get the top spot. The record rankings have been uncovered by magnificence value examination site, Cosmetify, which takes a gander at the world's greatest excellence marks and assesses them utilizing certain measures, including Google search volume, Instagram devotees, hashtags, and buyer commitment. The most recent figures from the Cosmetify Index featured that out of the 1,710 magnificence brands it positions, Huda Beauty is the most looked for and purchased. “Huda Beauty has reliably taken the best position in our positioning, which is little amazement when you see the numbers, with 47.9 million adherents on Insta and 27 million hashtag makes reference to, as well," says Cosmetify. "In any case, it's been a fascinating quarter for the brand, which saw Huda Kattan herself venture down as CEO of the organization and spotlight her energies on different parts of this."

The American-Iraqi business visionary established the Huda Beauty domain in 2013, after at first beginning as a cosmetics artisan and a marvel blogger, and recognized a hole in the business subsequent to battling to discover appropriate bogus eyelashes. Since its dispatch, the organization has seen dramatic development, getting one of the quickest developing restorative organizations in the world. A dynamic member via web-based media, the previous Vogue Arabia cover star is regularly applauded for her credibility when sharing her excursion internet, making her perhaps the most amicable business people out there. Most as of late, the excellence magnate ventured down as CEO of Huda Beauty, selecting Nathalie Kristo in her place. Kattan, who actually remains director of the organization, clarified her explanations behind venturing down via online media, where she was applauded for her trustworthiness in sharing her battles through the lockdown and feeling unfulfilled in her job as CEO.

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1.4 COSMETIC DEMAND IN INDIAN MARKET

India Cosmetic Products Market is projected to develop at a CAGR of 4.23% during the conjecture period 2020 - 2025. Shading cosmetics managing eye, facial, and lip cosmetics class is the most prosperous industry in India. Nearby organizations, for example, Soul tree, Herbal Hills, Himalaya, and The Shahnaz Husain Group among others are only giving homegrown/Ayurveda cosmetics items, because of the drawn out medical advantages it offers for the skin. With the expanding web infiltration, the online market for the acquisition of customer merchandise has seen fast development in the last 3-4 years in India. This class has pulled in a couple of vertical subject matter experts, such as Nykaa, Purplle, Nnnow, and so forth who are riding on the expanding e-following development and competing for a critical pie in the online cosmetics space. Nykaa offers in excess of 600 brands in both disconnected and online stores in India. Indian Cosmetics Products Market is divided into result type, class, and dissemination channel. Based on item type, the market is portioned into Color Cosmetics and Hair Styling and Coloring Products. Based on the dispersion channels, the market is fragmented into Hypermarkets/stores, Specialty Stores, Pharmacy and Drug Stores, Online Retail Stores and Other Distribution Channels.

2. HISTORY, EXISTENCE AND OVERALL GROWTH OF COSMETICS

2.1 COSMETICS IN THE ANCIENT WORLD

10,000 BCE: Cosmetics are a necessary piece of Egyptian cleanliness and wellbeing. People in Egypt utilize scented oils and balms to clean and mellow their skin and veil personal stench. Oils and creams are utilized for assurance against the blistering Egyptian sun and dry breezes. Myrrh, thyme, marjoram, chamomile, lavender, lily, peppermint, rosemary, cedar, rose, aloe, olive oil, sesame oil, and almond oil give the fundamental elements of most aromas Egyptians use in strict customs.

4000 BCE: Egyptian ladies apply galena mesdemet (made of copper and lead metal) and malachite (radiant green glue of copper minerals) to their countenances for shading and definition. They use kohl (a mix of consumed almonds, oxidized copper, distinctive hued copper minerals, lead, debris, and ochre) to enhance the eyes in an almond shape. Ladies convey cosmetics to parties in cosmetics boxes and hold them under their seats.

3000 BCE: The Chinese stain their fingernails with gum Arabic, gelatin, beeswax, and egg. The tones are utilized as a portrayal of social class: Chou tradition royals sport gold and silver, with resulting royals donning dark or red. Lower classes are illegal to wear brilliant tones on their nails. Grecian women paint their appearances with white lead and apply squashed mulberries as rouge. The use of phony eyebrows, regularly made of bull's hair, is additionally elegant.

1500 BCE: Chinese and Japanese residents usually use rice powder to make their faces white. Eyebrows are shaved off, teeth are painted gold or dark and henna colors are applied to stain hair and countenances.

1000 BCE: Grecians brighten their composition with chalk or lead face powder and style unrefined lipstick out of ochre muds bound with red iron.

2.2 COSMETICS IN THE EARLY COMMON ERA (CE)

100: In Rome, individuals put grain flour and margarine on their pimples and sheep fat and blood on their fingernails for cleaning. Also, mud showers come into vogue, and some Roman men color their hair blonde.

300-400: Henna is utilized in India both as a hair color and in mehndi; a fine art wherein complex plans are painted on all fours utilizing a glue produced using the henna plant, particularly before a Hindu wedding. Henna is likewise utilized in some North African societies.

2.3 COSMETICS IN THE MIDDLE AGES

1200: Perfumes are first imported to Europe from the Middle East because of the Crusades.

1300: In Elizabethan England, colored red hair became stylish. Society women wear egg whites over their countenances to make the presence of a paler composition. A few groups accept, nonetheless, that cosmetics obstruct the appropriate course and along these lines represent a wellbeing danger.

2.4 RENAISSANCE COSMETICS

1400-1500: Italy and France arise as the fundamental places of cosmetics fabricating in Europe, and just the nobility approaches. Arsenic is here and there utilized in face powder rather than lead. The advanced thought of complex aroma making develops in France. Early aromas are combinations of normally happening fixings. Afterward, substance measures for consolidating and testing aromas outperform their laborious and work serious archetypes.

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1500-1600: European women regularly endeavor to ease up their skin utilizing an assortment of items, including white lead paint. Sovereign Elizabeth I of England is one notable client of white lead, with which she makes a look known as "the Mask of Youth." Blonde hair ascends in fame as it is viewed as otherworldly. Combinations of dark sulfur, alum, and nectar are painted onto the hair and ease up with sun openness.

2.5 NINETEENTH AND EARLY TWENTIETH CENTURY GLOBAL COSMETIC DEVELOPMENT

1800: Zinc oxide turns out to be broadly utilized as a facial powder, supplanting the recently utilized dangerous combinations of lead and copper. One such blend, Ceruse, which is produced using white lead, is subsequently found to be harmful and censured for medical conditions including facial quakes, muscle loss of motion, and even demise. Sovereign Victoria openly pronounces cosmetics ill advised. It is seen as obscene and worthy just for use by entertainers.

1900: In Edwardian Society, pressure increases on moderately aged women to seem young while going about as women. Accordingly, cosmetics use increments, yet are not yet totally promoted. Beauty parlors ascend in fame, however support of such salons is not generally acknowledged. Since numerous women do not wish to freely concede they have help accomplishing their energetic appearances, they frequently enter salons through the indirect access.

2.6 COSMETICS IN INDIA

The narrative of makeup in India is bewitching just as profound. Prior when Kings used to govern over India, makeup was a medium to improve magnificence as well as to adore divinity. Applying makeup was restricted to ladies as well as incorporating the men. By and large, the only makeup in which the men partook was the painting of the temple with tilak. Then again, ladies utilized various components of makeup. The antiquated Indian women knew precisely how to commend their normal highlights utilizing common fixings. The makeup items utilized during this period were the variegated blends framed from the crude regular items. These normal components served to nimbly decorate women.

Bindi-The red circle of righteousness, Bindi was painted on the temple. Bindi was an otherworldly makeup component and was worn simply by wedded women. The blending of turmeric powder and lime juice brought about a red glue that was exquisitely utilized as the gem of the temple.

Kajal-Unlike the assortment of choices for eye makeup that are accessible today, in old occasions, Kajal was the solitary decision. Kajal was the dark makeup blend that assisted with lifting the guiltlessness of eyes. Alongside this Kajal was considered as a shield against the insidiousness. Kajal was set up by covering a muslin fabric with the sandalwood glue and afterward consuming the dried material in a castor oil light. For best outcomes, the carbon remains were mixed with ghee.

Lip Color-For improving the tastefulness of lips women utilized distinctive shading common components. Biting betel leaves was one of the exercises that pointed toward giving the impact of lipsticks.

Face Powder-The status framework was much more forceful during this period. Keeping a paler skin complex was vital for the women in higher positions. A few distinct combinations of regular fixings were utilized to brighten a lot of the skin. One of the combinations included Lebbeck leaves, costus root, cedar wood, sesame seeds, barberry wood and Pongamia pea plant leaves. These common combinations were protected and proficient for this reason.

Adornments in Ancient occasions the makeup was praised by lovely gems. Furthermore, the impression of gold gems did the job for highlighters. The makeup components utilized by the distinctive status of women were unique. Where Queens appreciated the sumptuous life and endless admittance to the characteristic makeup items, the ordinary people just clung to just the customary compulsory components. Makeup contrasted by events also. Quite possibly the most promising and makeup inclined events were the weddings.

2.7 E-COMMERCE HAS CHANGED THE FACE OF THE COSMETICS BUSINESS

The Cosmetics Industry by Paul Myer: Preposterous decade, web based business has contacted each industry area, from carriers to engineering. This is not astounding considering the generally cultural move and simplicity of purchasing anything on the web, whenever, on-request. Excellence: Over the most recent couple of years, there has been a spike in online deals in the wellbeing and magnificence area, particularly cosmetics. Truth be told, new cosmetic brands are arising at an unfathomable rate. In a little more than 10 years, the yearly spending will increase by 35%. Much really fascinating that the development with regards to Natural Cosmetics beats different specialties by a tremendous edge, averaging more than 9% from 2019 onwards contrasted with other item portions, going from 1.4% and 2.47%.

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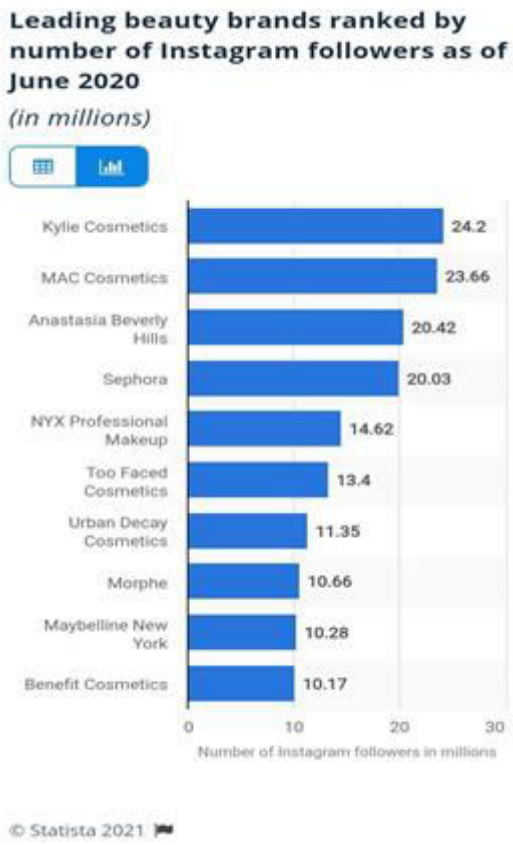
2.8 GROWTH OF OVERALL COSMETICS

In 2018, the worldwide restorative market grew an expected 5.5 percent in contrast with the earlier year. Skincare, hair care, make-up, scents, toiletries and antiperspirants, and oral cosmetics are the primary item classifications of the corrective market. Skincare was the main classification, representing around 39% of the worldwide market. Hair care items made up a further 21 percent, while make-up represented 19% in 2018. Skin health management has been conjectured to stay the most beneficial item classification, as its reasonable worth is projected to develop by 20.1 billion U.S. dollars somewhere in the range of 2014 and 2019. Starting in 2018, Asia Pacific was the business chief, representing roughly 40% of the worldwide market. The creation of cosmetics and excellence items is constrained by a modest bunch of global companies – L'Oréal, Unilever, Procter and Gamble Co., The Estee Lauder Companies, Shiseido Company, and Lancôme to give some examples. Starting in 2018, the French cosmetics organization L'Oréal was the main excellence producer on the planet, creating about 31.2 billion U.S. dollars in income that year. The organization claims the main individual consideration brand around the world, L'Oréal Paris, estimated at 28.38 billion U.S. dollars in 2019. The cosmetic business has profited by the expanding notoriety of online media channels like Instagram and YouTube. These stages are profoundly compelling among specific gatherings, yet provoke an interest for magnificence items and help fill the hole between cosmetics brands and buyers. The instructional exercises mean to show the watchers something excellence, regardless of whether it is the manner by which to utilize a specific sort of item or make a style of make-up, for instance. Magnificence vloggers and other autonomous substance makers indeed produce most of the discussions and web-based media buzz encompassing excellence marks on YouTube. As of June 2020, Kylie Cosmetics was positioned first as the most famous excellence brand on Instagram with 24.2 million devotees, and MAC Cosmetics positioned second with 23.66 million. Instagram is a famous informal community for brands to associate with computerized crowds, and magnificence brands have been making advances on the stage because of its visual concentration and solid presence of online media influencers.



Magnificence content via online media: An image says in excess of 1,000 words, and a great many pictures are shared on Instagram consistently. From memes and individuals presenting get-away snaps on influencers and brands advancing items, the world's most mainstream photograph sharing stage incorporates a huge scope of visual content. Excellence, style and food pictures and recordings are a portion of the more well-known and optimistic sorts of substance, drawing enormous crowds and users' commitment. Brands often cooperate with influencers to address likely customers. The level of influencers considered best as indicated by style and cosmetics promoting experts overall were truth be told miniature influencers with less than 100k adherents –

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confirmation that large numbers of devotees aren't generally important to get brand coordinated efforts. Then again, the rundown of the most followed excellence and design influencers peruses like a 'who will be who' of mainstream models and most recent 'it young women's, as of now headed by TV character and cosmetics brand proprietor Kylie Jenner. In 2018, there were 3.7 billion brand-supported posts on Instagram and this figure is projected to outperform six billion posts in 2020.

3. LITERATURE REVIEW

Beauty is a concept with an ever-changing definition. Today, as society evolves, the cosmetics industry must keep up to date with the latest beauty industry statistics and latest trends.

In addition, it is not easy. The beauty industry is as fast growing and dynamic as the definition of the concept itself. With new products and services appearing on the market daily, it can be difficult to keep track of all developments. Whether you are planning to turn an idea into a profitable business or you are just a consumer learning more about the cosmetics industry, these facts will help you understand it better and learn more about what is new in the world of beauty.

- Beauty Industry Worth in 2021- It is believed that Egyptians invented makeup since they were the first to use cosmetics to create dramatic looks, while today's beauty industry deals with all sorts of products, from eye makeup to hair and skin products.
- The growth rate of the global cosmetics market was the lowest in 2009. Even the cosmetics industry took a hit in the 2009 global recession, but not as much as other sectors. Experts consider the beauty industry to be one of the few recession-proof industries.
- Beauty Industry and Coronavirus Impact- The global pandemic, the "new normal" rules, the lockdowns, and the social distancing had a big impact on the beauty industry.it not only affect the global market but some products had an immense increase, i.e., decrease in sales and demands. Around 8.30% of the beauty industry market was closed due to the global pandemic, based on the beauty industry report.
- Before the global pandemic, 85% of people used to buy various beauty products in the stores. Unfortunately, the loss in in-store sales was not offset by online sales and this time social media played a very important role to sell products online and maintain the sale.

A COMPREHENSIVE REVIEW ON HERBAL COSMETICS

India is a focus for development of Ayurveda, Unani, Siddha, Homoeopathy and another natural herb based health science (AYUSH). Ayush Pharmaceutical industry has great possibilities and contingency for saundarya prasadak category (herbal cosmetic) development in future. Natural beauty is a blessing and cosmetics help in presenting and increasing the beauty and personality aspects of human beings. Saundarya prasadak are the preparation, which represent cosmetic base correlate with known Ayurveda, Siddha and Unani (ASU) drugs active ingredient (which references are readily available in schedule 1st book of Drug and cosmetic act 1940 and rule 1945). In the traditional era, people were used to various lepa, Alepa, Pralepa, Udavartan, Prakshalan etc., for saundarya prasadak karma. Nature has offered the way to keep up that parity. Herbs! Yes, herbs are one such means. An herb is a plant or plant extract, including leaves, bark, berries, roots, gums, seeds, stems and flowers, which are flavored with nourishing and healing elements. Cosmetics alone are not competent to take care of skin and other body parts, it requires association of active ingredients to check the casualty and aging of the skin. Herbal cosmetics have improved much popularity among the population. Herbal cosmetics products claimed to have efficacy and intrinsic acceptability due to routine use in daily life and avoid the adverse effects, which are commonly seen in synthetic products.

BUYING BEHAVIOR OF YOUTH TOWARDS COSMETIC PRODUCTS MARKETING ESSAY

The proposal is focused on the behavior and attitudes on the perception of the youth buying behavior pattern towards cosmetics product in UK, Consumers move through a series of steps when buying a product but mainly the consumer emphasis the product in a way that, it should deliver to them on low or more affordable price with good quality and value added features to satisfy their needs. However, to investigate the aspect of buying behavior of youth, what factors influence them while purchasing the cosmetics and how the consumer addresses their buying decision when purchasing a specific product of cosmetics. The study will explore the buying behavior of youth and different kinds of consumer behavior models supported with background theories. The research is based on the questionnaires and finally the conclusion is drawn on the bases of findings.

These cosmetics or personal care products are usually mixtures of chemical compounds or organic ingredients that enhance and alter the appearance or odor, without affecting the function as well as structure of the human body. Some of the Lotions, powders, gels, deodorants and perfumes and color makeup are among the widely

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used cosmetic products, which add both color and fragrance to the human body. However, some of the beauty products do that using a blend of functional additives, found around us since decades and many of these products are simply variations on the existing theme, made from list of functional additives, such as glycerine, petroleum jelly, volcanic ash, salts, and solvents and so on. Interestingly, when you apply some of these cosmetic products and personal care products, one can get "cell growth", "wrinkle free skin", "energy infusion", "cellular breakdown" and everything that assures elegance, which helps one feel more sanguine in every aspect of life. It was found that over the past decade, there has been a robust growth in the global cosmetics market across different product segments and demography across the world. This research shows that in this segment it is expected to garner sales growth at a CAGR of 3.7 percent during the forecast period of 2015 to 2020. Besides this, the division is valued at $390.07 billion by 2020.

Many researchers contributed a lot to consumer attitudes. In those, one of the senior researcher has defined the attitude is a powerful and long term assessment of customers well-structured way of thinking and it can be an individual, entity, announcement or a matter (Noel, 2009).Another researcher defined consumer attitude simply as a composite of a consumer's beliefs, feelings, and behavioral intention toward some object within the context of marketing (Perner.L, 2010) or marketing department. The modern father of Marketing (Kotler and Keller, 2009) has given a standard understanding of attitudes, which are formed through experience and learning and that attitudes influence buying behavior of any product. However, the consumer attitudes toward a firm and its products greatly influence the success or failure of the marketer as well as the company under study (Kameswar Rao Poranki, Abdulbaset Hasouneh, 2014). Some researchers have argued that the influence of attitude on behavioral intention and the results indicate that attitude positively affects behavioral intention and also told that that there is a direct causal relationship between attitudes and behavior while making purchasing decision (Choo, chung & pysarchik,2004).In some cases, the consumers, experiment foreign cosmetics and compare with the domestic cosmetics or personal care products and their perceptions and attitudes would change as these brands have a good impact on a customer's mind and also meet customer's expectations, needs, wants, beliefs and desires(Eastin,2002).In many cases the repeated purchase has been influenced by the customer attitudes and perceptions. According to one researcher (Abrazhevich,2001) opines and confirms with his study that favorable image of product in the mind of customers has an important impact on purchase, which are showing more of the customer's interest in buying the product either it could be cosmetic products or personal care products. Surprisingly, some researchers argued that the interest of consumers are sometimes attracted towards imported cosmetics or personal care products compared to domestic cosmetics as the perception of consumers towards the cosmetics as well as personal care products will change as their features is a key factor while making purchasing decisions (Davis,1989).

Indian Cosmetic Companies

In the Indian market there are some good companies manufacturing both personal care and cosmetics products, Hindustan Unilever leads the companies that is followed by Godrej consumer care, Procter & Gamble, Emami, Dabur and Calvin Care etc. The researcher has conducted a comparative study of perception and consumers buying behavior regarding personal care products. Any study of consumer behavior is the most important factor for marketing of any goods and services. It is noted that consumer behavior suggests how individuals, groups and organizations select, buy, use and dispose of goods, services, ideas or experience to satisfy their needs and wants. Thus, this kind of research offers clues for improving or introducing products or services, setting price, devising channels etc.

The researcher has finally concluded that the Indian Consumer is growing more and more brand conscious when it comes to purchasing cosmetics as well as personal care products. The companies need to focus on the form of advertising which plays the biggest role here is Word of mouth promotions are a key factor in a price sensitive economy like India. Some strategies like Visual Merchandising are important only at the stage of buying decision while searching and evaluating alternatives. Brand loyalty and customer satisfaction are highly influenced by the consumer attitudes, beliefs and perceptions play a key role in purchase decision making. This has been proved in this piece of research in a limited area like Visakhapatnam city of India. However, the areas where Marketers need to work upon to generate sales of their product, as personal care items involve extensive buying decisions. The research has made an effort to compare customer buying behavior with respect to Indian and International brands while assessing the consumer buying behavior. The consumers wanted quality products, good services, easy availability of product and better performance by the product. Therefore, we can conclude from our study that still more inclination is towards indigenous products. The researcher has appealed to the future researchers to conduct research in various neighboring cities in India in order to get more realistic and suitable results. So that the findings could be beneficial to the marketers who are selling cosmetic products as well as personal care products in the Indian market and could compete with international brands.

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4. THEORETICAL FRAMEWORK

The part of the theoretical framework in research is to reduce the loathsome theme into two variables to work on the concept. The theoretical framework is the design that can hold or support a theory of a research study. The theoretical framework presents and depicts the theory that clarifies why the research issue under investigation exists. Which include:

- The research issue
- The reasoning of researching the issue

(1) SOCIAL MEDIA MARKETING (SMM) THEORY:

Social media marketing (SMM) is a type of Internet marketing that uses social systems administration sites as a marketing apparatus. The objective of SMM is to create content that clients will impart to their social organization to help a company increment brand openness and widen client reach. The research has used Social Media Theory (SMM) Theory, as this theory is an assortment of hypotheses that draw attention on how socially important data can be advanced. This theory has been utilized by many researchers to advance their online business. The theory is regulatory in nature to such an extent that it looks to diagram a structure that can be utilized to configure, carry out and assess data for online business. Social media is an extraordinary method to assess your opposition by observing their social media pages. The intended interest group is distinguished dependent on their data needs. SMM Theory is an endeavor to obviously see how cultural and mental elements work to effectively control them to build how viable broad communications data crusades are, the means by which it is a viable apparatus for online business on social media stages. The theory centers on distinguishing the different social and mental hindrances that frustrate the progression of data through the broad communications and submits suggestions and approaches to beat these boundaries. These methodologies range from being native to the utilization of immersion publicizing. Social media has become an amazing stage for promoting because of the great brand openness and incredible profit from speculation. At the point when in excess of 3 billion individuals are pursuing social media content, it opens a boundless chance for brands and business to advance items and administrations utilizing social media. Social media promotion perfectly affects one's business. It offers a chance for the general population to discover you on social media. The greatest impact of social media promotion is that you can reach your focused group; stay drawn in with them and react to their inquiries rapidly.

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(2) USES AND GRATIFICATION THEORY:

The 'Uses and Gratification' hypothesis manages the impact of individuals on the media. The hypothesis depicts mass communication, as it gives a methodology that is audience-focused. It manages how and why individuals embrace explicit media to fulfill their necessities.

The researcher has also used this theory as it describes the relationships formed between the media and its active audience. The audience (acting actively, not passively) select and use the media to fulfill their own needs and desires. Uses and gratifications, even when looked at in depth, is not a complicated concept to understand and can also be beneficial in the area of public relations another reason for this particular theory is as per the researchers survey media users are active in their selection of the media they consume, and they are aware of their reasons for selecting different media options. Another reason why researchers have used this theory is because this theory does not bring into consideration the power of media and the theory is more audience oriented whatever the audience prefers to watch and whatever they feel like consuming they will consume. This theory only focuses on individuals in the mass communication process.

This theory likewise talks about the impacts of the media on individuals. It clarifies how individuals utilize the media for their own requirements and are fulfilled when their necessities are satisfied. Overall, it tends to be said that this theory contends how individuals manage media instead of how media deals with individuals. Every individual acquires information and exposure to the world past his or her restricted vision.

5. RESEARCH DESIGN

Aim of the Research: To find out how social media can be used efficiently as a PR tool to promote cosmetics online.

Objectives of the Research:
- To understand how social media is used to promote cosmetic products.
- Which amongst the social media works for promotion of cosmetic products.

Hypothesis:
- H: Social media could be used as a PR tool to promote cosmetic products.
- H_0: social media cannot be used as a PR tool to promote cosmetic products.

Method:
The research study is conducted collaborating three different types of research techniques, which includes a basic research method, where the researcher studies about the existing things; alongside the correlation, research method (survey) utilizes the number of people targeted, to understand the viewpoint and opinion on the same topic. The third is the Analytical research method wherein the study includes finding and analyzing the statistics collected from the study.

Sampling:
For this research the researcher has served 80 people, the sampling method used is the non-probability sampling method that is convenient sampling to understand the choice and opinion of the people.

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Utility of the research:
The research study is going to help in understanding which Social Media PR tool is the best to promote cosmetic products.

Scope of the research:
The researcher looks into the study of social media is used to promote purplle.com

Research Questions:
1. Does PR tool play any role for promotion of Purplle.com?
2. Which is the most effective PR tool used to promote Purplle.com?
3. Which age groups are more aware about Purplle.com?

Limitations:
1. Sample size is small.
2. Researcher is just taking purplle.com where as there are more cosmetic sites accessible
3. Researcher is just focusing on females and no male, as male additionally incline toward utilizing cosmetic items.

6. SOCIAL MEDIA ANALYSIS

Social media analytics is the capacity to assemble and discover importance in information gathered from social channels to help business choices — and measure the exhibition of activities dependent on those choices through social media. Social media analytics is more extensive than measurements like preferences, follows, retweets, sneak peaks, snaps, and impressions gathered from singular channels. It additionally contrasts from revealing offers by administrations that help promote campaigns like LinkedIn or Google Analytics.

Practitioners and examiners know social media by its numerous sites and channels: Facebook, YouTube, Instagram, Twitter, and numerous others. Social media analytics utilizes explicitly designed programming stages that work similarly to web search instruments. Information about watchwords or subjects is recovered through search questions or web 'crawlers' that range channels. Fragments of text are returned, stacked into an information base, ordered and dissected to determine significant bits of knowledge. Social media analytics incorporates the idea of social tuning in. Listening is observing social channels for issues and openings. Social media analytics instruments regularly join tuning in into more complete revealing that includes tuning in and execution examination.

Long reach relational correspondence stages empowers customers to connect with others who have practically identical interests, likes and experiences. These sorts of stages empower you to share and eat up information over your framework and to join, make, and partake in social occasions.

Although the research study only covers Facebook, Instagram, and YouTube to understand how precisely social media is used as PR tool promote Purplle.com

(1) FACEBOOK: Facebook enables individuals to associate with loved ones, discover networks and develop organizations. Facebook assists with expanding consciousness of a business with a free online presence that one can make in minutes. Making a Facebook Page permits the in excess of 2 billion individuals on Facebook to find your business.

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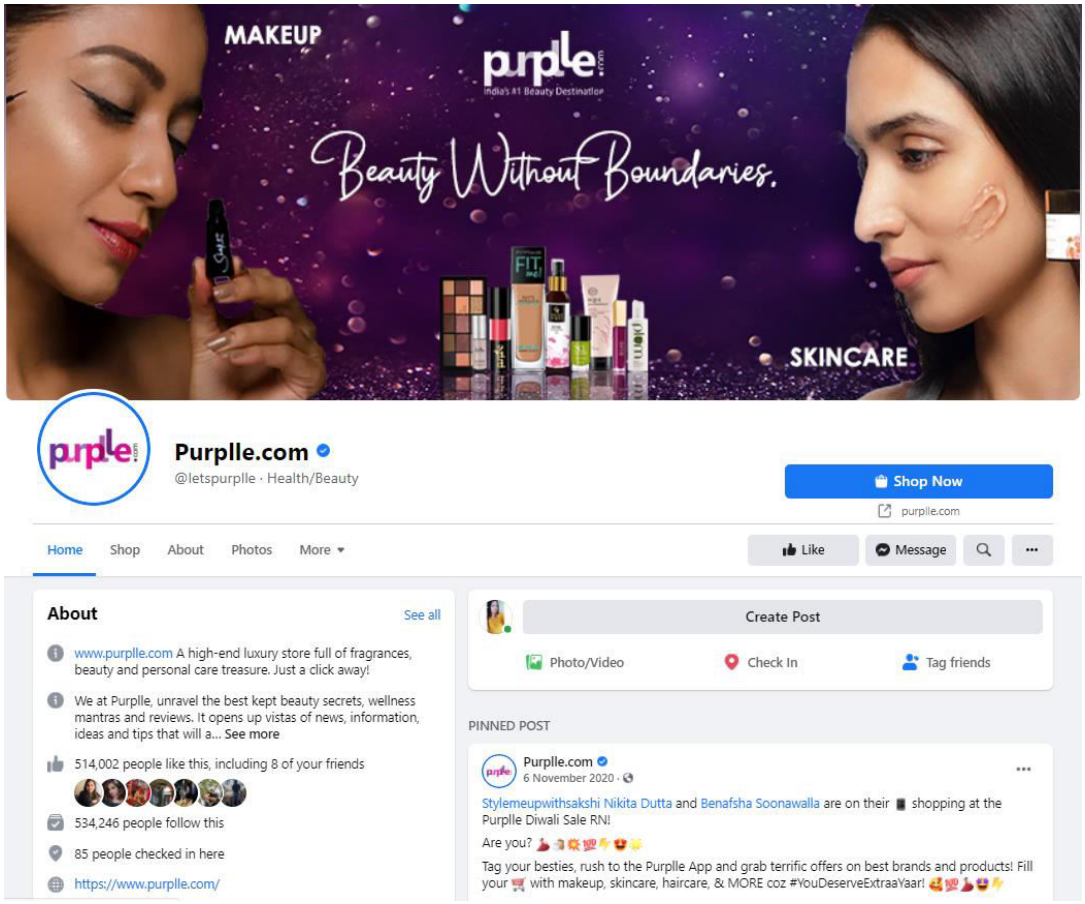
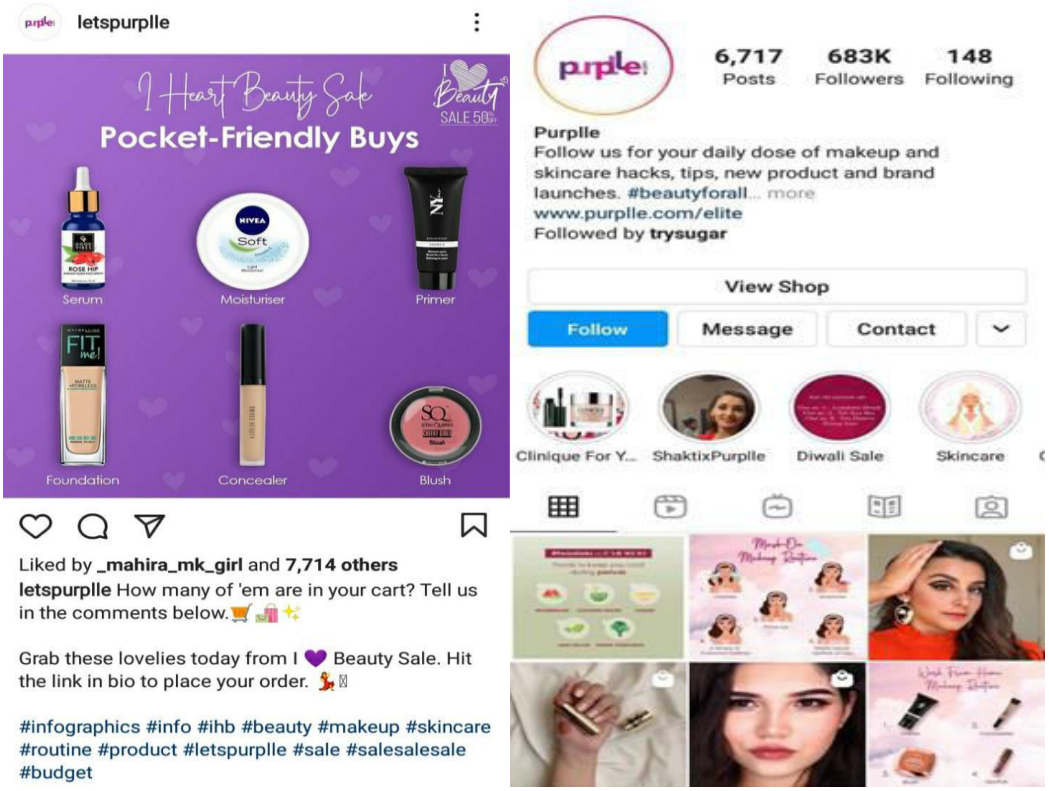


(Facebook page of Purplle.com with 534,246 total follows and 514,002 total likes)

(2) INSTAGRAM: With more than 1 billion Instagram clients, Instagram is now more than a place to post selfies. Instagram presents a remarkable chance to situate an image innovatively and exhibit its character. Besides, it is where purchasers can see curated content daily even without feeling annoyed by messages and emails. Half of the Instagram users check their feed multiple times a day and which is why it is another best platform to reach a large number of people.



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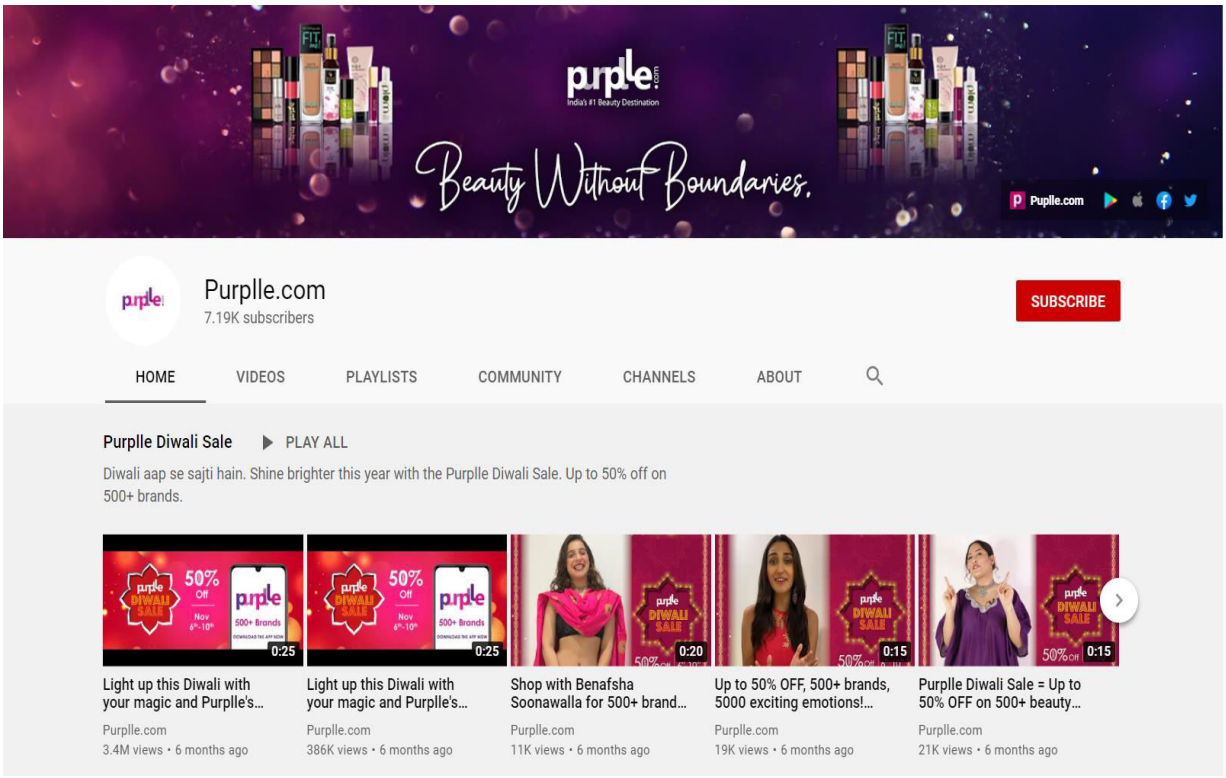
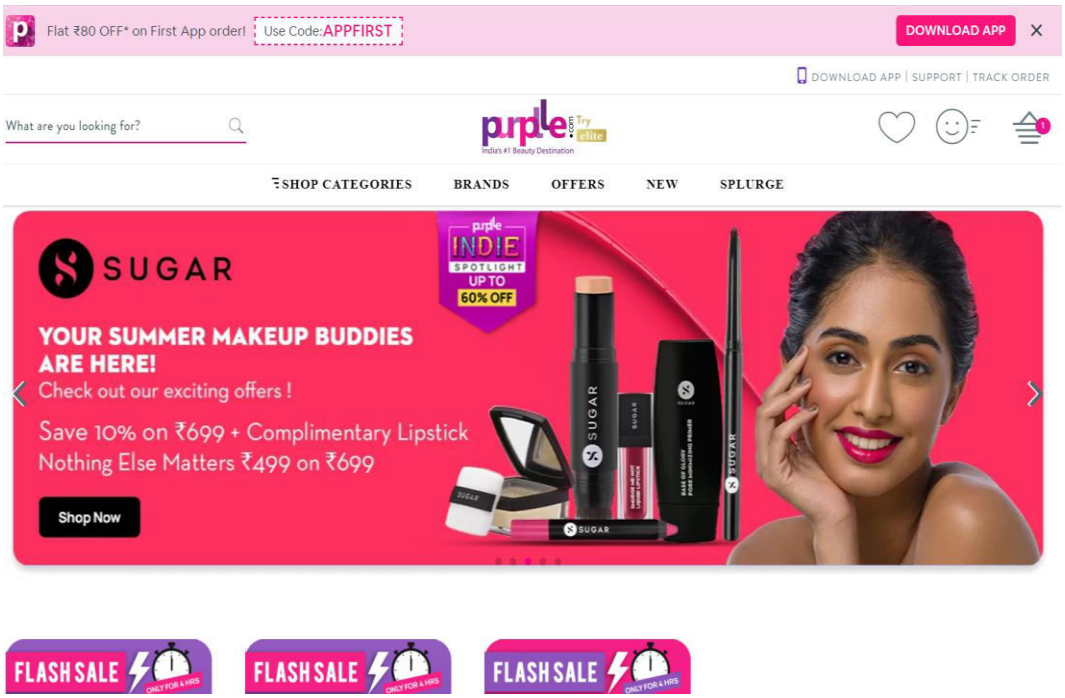
Purplle.com is more active on Instagram as compared to other social media as they continue resharing stories and refreshing feed.

(3)YOUTUBE: YouTube is another well-known platform to post content exceptionally liked by influencers. Given the freedom of posting a video, individuals make recordings by either shooting one or making one with the devices accessible or likewise to pass their messages.



YouTube channel of Purplle.com joined on Nov 29 2013, with 7.19K subscribers and 201334,278,236 views in total.

(4)WEBSITE



The website of Purplle cosmetics where one can find every single beauty product, personal care, fragrances, hair care, and many more products that are more natural and reasonable too. The best part about Purplle.com is they always have sales going on and if you become their elite member you will get double discounts.

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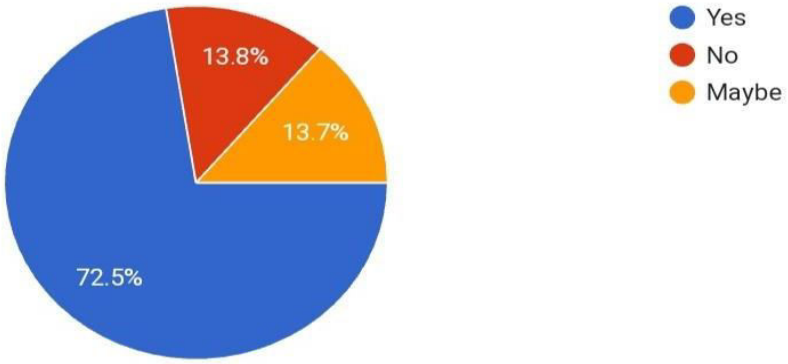
7. OBSERVATION AND FINDINGS

Researchers surveyed 80 people to understand their opinion and views on Purplle.com and to check if they are aware about Purplle.com. The sampling method used is the non-probability sampling method that uses convenience-sampling methods.

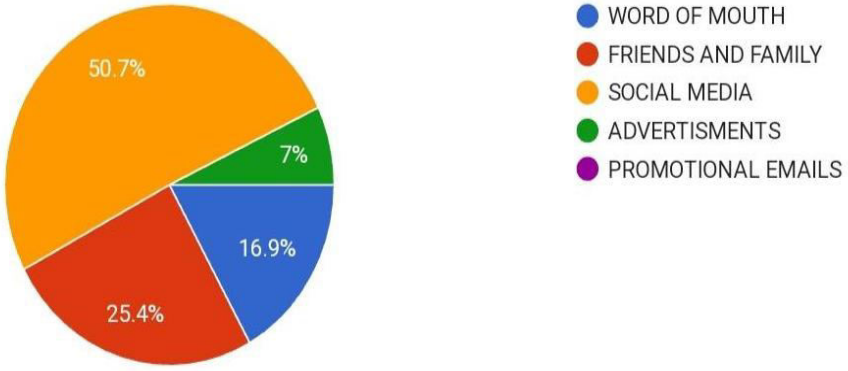
1. ARE YOU AWARE ABOUT PURPLLE.COM?

After the completion of the survey of 80 people, researcher have found that 72.5% people are aware about PURPLLE.COM, 13.8% are not aware about PURPLLE.COM and 13.7% are not sure whether they know or they don't know about Purple.com



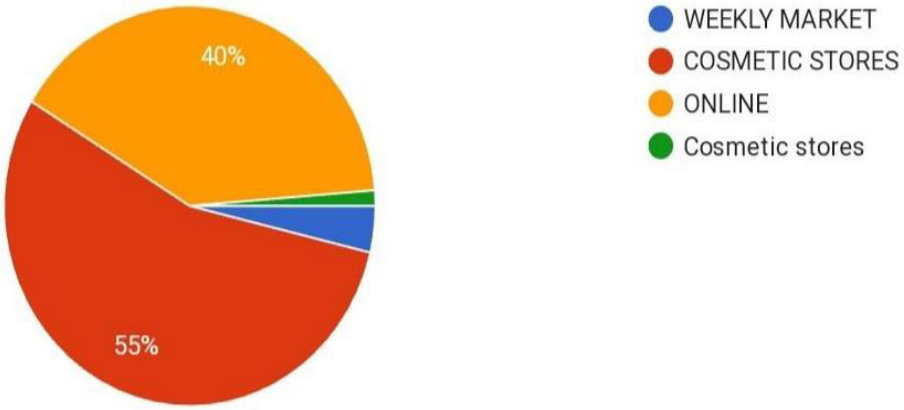
2. IF YES, WHO TOLD YOU ABOUT PURPLLE.COM?

Majority of the people came to know about Purplle.com through Social Media, hence we can conclude that social media is the best tool to create awareness amongst the college students.



3. FROM WHICH PLACE DO YOU PREFER TO BUY COSMETICS?

55% of people prefer to buy cosmetics from cosmetic stores and 40% people prefer to buy cosmetics online.



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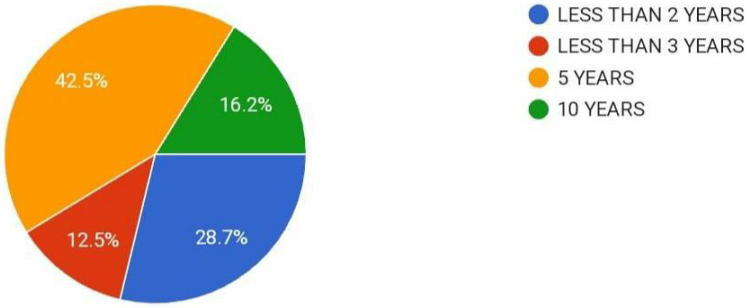
4. SINCE HOW LONG HAVE YOU BEEN USING COSMETIC PRODUCTS?

More than 42.5% people are using cosmetic products for less than 5 years

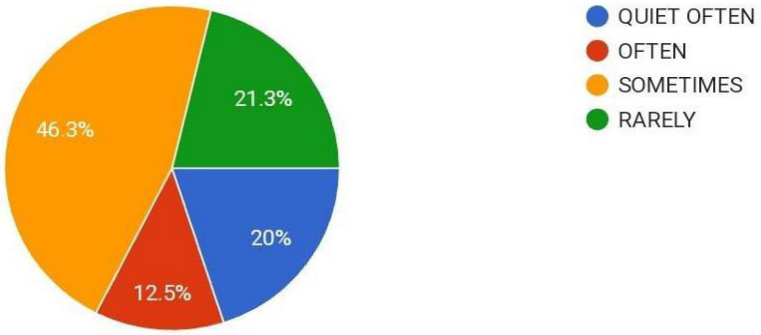


5. WHEN CHOOSING MAKEUP PRODUCTS WHICH OF THE FOLLOWING FACTORS MATTER TO YOU?

About 60% of the people thinks brand plays very important role when it comes to choosing makeup products.

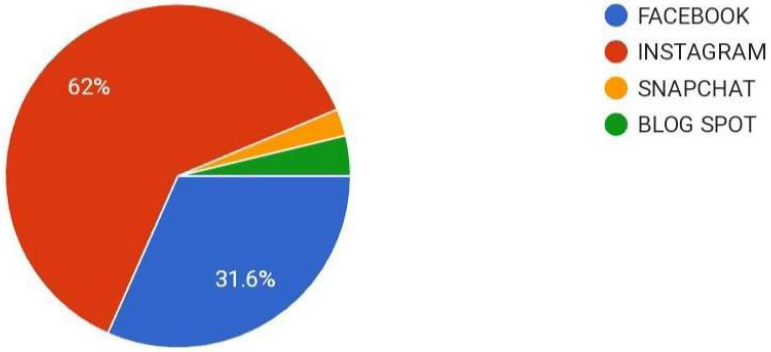
6. HOW OFTEN DO YOU BUY COSMETICS?

As per the survey, around 46.3% people prefer to buy cosmetics sometimes



7. WHICH SOCIAL MEDIA DO YOU THINK WORKS THE BEST FOR PROMOTION OF PURPLLE.COM?

62% People feel that Instagram is the best platform to promote Purplle.com followed by Facebook, Blog Spot and Snapchat.



8. WHICH PR TOOL DO YOU THINK IS MORE EFFECTIVE TO PROMOTE PURPLLE.COM?

Majority of the people came to know about Purplle.com through Social Media, hence we can conclude that social media is the best tool to create awareness amongst the people.

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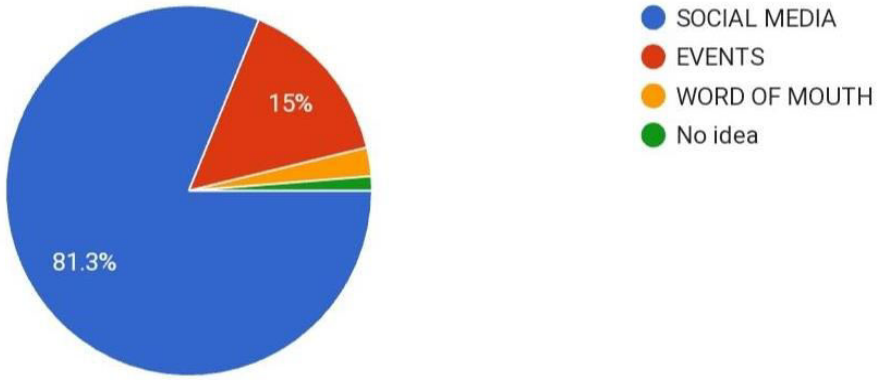
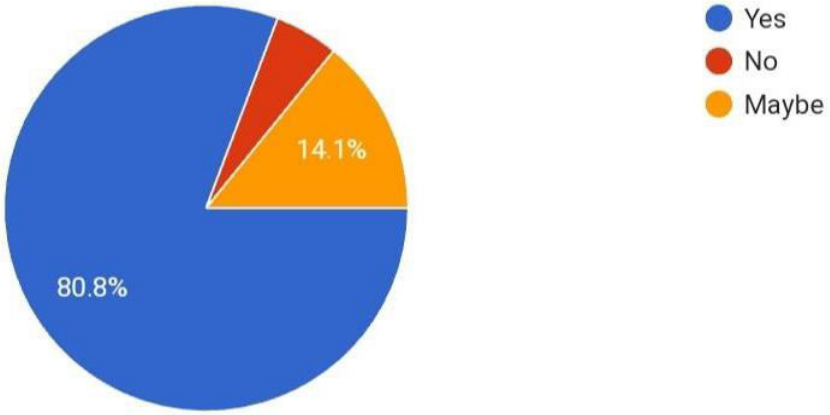


9. DO YOU RECOMMEND COSMETIC BRAND DEPENDING ON YOUR PAST EXPERIENCE?

80.8% of people recommend cosmetic brands depending on their past experience.



8. DISCUSSIONS AND CONCLUSION

The researcher concludes the study after the extensive and detailed study on knowing how much people are aware about Purplle.com, the Hypothesis "Social Media could be used as a PR tool to promote cosmetic products". is accepted. As majority of the women got aware about Purplle.com through Social Media (Facebook,Instagram,and Youtube) platforms. By this we can say that most of the women are following,supporting and even prefreing to buy cosmetics from Purplle.com. PR tool plays an important role to promote cosmetics products with respect to Purplle.com.Social Media being the most important of them.

The researcher has also observed that out of 80 number of people around 72.5% of them are aware with Purplle.com from which 50.7% people got to know about Purplle.com through Social Media.Thus it clearly being observed by the researcher that Social media Platforms have helped Purplle.com to gain popularity and visibility.

Therefore, the researcher conclude the research and want the future researchers to lead research in different areas in India as the sample size for this research is small and restricted due to Covid-19, to get more practical and appropriate outcomes.So that the marketers who are selling cosmetic items online using Social Media platform in India could compete with their competitors.

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ADAPTING TO CHANGE: EXAMINING CHANGE MANAGEMENT STRATEGIES FOR ORGANIZATIONAL RESILIENCE

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ABSTRACT
"Organizational resilience has become vital for sustained success in today's dynamic corporate climate. This essay investigates how crucial change management techniques are to building organizational resilience. Through an analysis of several change management strategies, such as employee involvement, proactive planning, and agile techniques, this research seeks to offer insights into how businesses can successfully adjust to and prosper in the face of fast change. In order to handle uncertainty and seize new opportunities, the study emphasizes the significance of fostering a culture of resilience and adaptability through the use of theoretical frameworks and real-world examples. This study adds to the body of knowledge on organizational resilience through a thorough examination of change management techniques and offers managers and leaders useful advice for creating flexible and resilient workplaces."

Keywords: Change management, Organizational resilience.

1. INTRODUCTION
Any catastrophe or issue that comes its way may be handled by a resilient company. In light of COVID-19, inflation, and the Great Resignation, this quality is more crucial than ever for companies. Your company lacks organizational resilience if it is unable to adapt and flourish in the face of adversity. This increases the likelihood that it will fail when things become hard.

There is ample opportunity for organizations to enhance their resilience and integrate it into their business model. A recent BSI survey found that while 88% of participants considered building organizational resilience to be a top priority, only 29% of executives saw organizational resilience strategies integrated into their business strategy.

The corporate world is a dynamic environment. It's even considered a living thing by some. Since its always changing, businesses strive to be quicker, faster, and smarter when it comes to customizing their goods and services to fit the wants of their clients. This includes both organizational resilience and flexibility. Cultivating organizational resilience may yield several benefits for your firm, including improved business continuity, reduced risk, and heightened confidence among stakeholders. Consider the COVID-19 epidemic as an instance. Early on, safety measures to reduce the virus's spread were altered practically every week.

Months on end were spent testing the resilience of every organization through lockdowns, social isolation, and other mitigating measures. Even though a lot of firms failed, the ones that survived did so because they swiftly adjusted to shifting employee opinions, customer trends, and regulatory rules. Even though pandemics are uncommon, there are several reasons to strengthen your organization's resilience.

It's difficult to recover from failures in the corporate sector. Leaders and their teams will encounter hardship at some time in the organization's existence, regardless of the industry. Some individuals will crumple at the first sign of difficulty, but others will assess the circumstances, decide what is and isn't working, and adjust their course accordingly. These days, there are many risks to the success of workforces; thus, it is more crucial than ever to develop organizational resilience and problem-solving skills. Leaders face difficult terrain, including the planet's rapid decline, stricter regulations, the political environment, and the advent of new technologies. "Resilience" offers firms the ability to act as a buffer during periods of disruptive change and maintain profitability. Building organizational resilience at the "individual" level involves the following:

1) Emotional Regulation

2) Compassion

3) Cognitive Agility

4) Physical well-being

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Research indicates that job results, work attitudes, and behaviours are impacted by resilience. Resilience will remain the essential quality for peak performance in the face of the economy's rapid changes and ambiguity. Employees who lack resilience are four times more likely to experience burnout because they are unable to overcome daily obstacles in both their personal and professional life. It determines their level of engagement, devotion, and contentment.

- **Change Management and its importance in fostering organizational resilience**

A methodical strategy to handling the shift or modification of an organization's objectives, procedures, and technological infrastructure is called change management. Putting measures into place for bringing about, managing, and assisting individuals with change adaptation is the aim of change management. Individual projects and large-scale initiatives, like the digital transformation that brings several new applications and procedures, are examples of change management operations. Management teams and other stakeholders are frequently involved in change initiatives. Employee buy-in and department-level management are critical.

In order to help organizations execute change successfully, we examine key tools and strategies for change management.

1. Cultivate a Growth Mindset
2. Develop Agile Structures and Processes
3. Foster a Culture of Innovation
4. Engage and Empower Employees
5. Build Collaborative Networks
6. Establish Continuous Learning Initiatives
7. Monitor and Assess Change Efforts

2. LITERATURE REVIEW

Williams *et al*. (2017) Combines two research streams and creates a framework that addresses the main issues in crisis and resilience studies. It also specifies capacities for resilience, adaptability, significant disturbance response, durability, and a feedback loop from these experiences.

Linnenluecke (2017) focuses on the evolution of resilience across history in business and management literature; employs a Histcite-analysis to identify five literary streams.

Limnios *et al*. (2014) creates a typology of organizational resilience and demonstrates the positive and negative elements of resilience.

Bhamra *et al*. (2011) After reviewing the research on resilience in the context of organizations, the author defines resilience for organizations based on the ecological approach, which is found to be most frequently reflected in the literature.

Erol *et al*. (2010) The authors attempt to give a comprehensive definition of resilience by reviewing the literature and conceptualizing resilience with an emphasis on ecology and systems ideas.

Abdulraheem, Mordi, Ojo & Ajonbadi (2013), conducted research on how planned organizational changes affected Nigerian public education institutions. The study found that while reforms are simple to create, they are hard to put into practice and are met with resistance from the public.

Ringin & Bello (2013), investigated the impact of change management elements on the organizational performance of Nigerian banks and the degree to which change management-related factors are being implemented in Nigerian banks. The findings indicated that the performance of the organization as a whole in terms of turnover, profit margin, customer service delivery, and operational cost reduction was significantly correlated with change management factors such as updated reward systems, employee involvement, empowerment, training, and education.

Olajide (2014) examined how change management affected the telecoms industry in Nigeria's organizational performance. The outcome showed that technological advancements had a big impact on performance and that shifts in consumer preferences had a big impact on patronage. It was also established that leadership changes in management have a big impact on how well employees perform.

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Onyango (2014), examined the relationship between organizational culture and change management through the use of a descriptive survey research approach. The study discovered that an organization's culture, which includes its beliefs and values, has an impact on change management. Organizational norms were shown to have no discernible impact on change management; nevertheless, top management support was found to have a major impact on change management.

Muo (2014), The belief that resistance is the biggest barrier to change management and that change resistance primarily has negative effects was validated in a survey conducted among a broad sample of managers in five states in the southwest of Nigeria.

Okiiya, Kisiangani & Oparanya (2015), According to a study conducted to determine the change management strategies used by Siaya Sub County's public secondary schools, these strategies had a major impact on student achievement.

- **OBJECTIVES OF THE STUDY:**

1. Investigate the current state of change management strategies implemented by organizations.
2. Assess the impact of change on organizational resilience and its ability to navigate uncertainties.
3. Identify key factors influencing successful adaptation to change within different industries.

- **HYPOTHESIS:**

1. H1: Organizations with well-defined change management strategies exhibit higher levels of resilience in the face of uncertainties.

2. H2: There is a positive correlation between employee engagement and the success of organizational change.

3. H3: The alignment of organizational culture with change objectives enhances adaptability and resilience.

4. RESEARCH METHODOLOGY:

This paper is based on secondary data sourced from the various reports and articles on the organizational resilience in India as well as in other countries. Various articles, theses, and reports have been used to change management strategies for organizational resilience.

- **Change Management Strategies for Organizational Resilience**

The only thing that professionals can possibly be sure of in today's fast-paced, changing business environments is change. Businesses need to be agile and quick to make decisions. Those who can accomplish this will often deal with a lot of change in a short amount of time. This shift could affect the entire organization or just a team of people, and it could be the result of anything from internal operating needs to political demands to technological advancements.

Even while change is frequently a good thing, many people find it unsettling or even frightening. For a lot of workers, learning about impending changes means bad things like losing their job, having a new boss, having their team reorganized, having layoffs throughout the entire organization, or having their pay or benefits cut. Setting the example for your team and becoming ready to handle organizational change are your duties as a leader. You also have an obligation to support your reports in comprehending and navigating this transition as best you can. This is no simple undertaking, particularly if you may not possess all the facts required or may feel conflicted about the changes the organization is going through!

Having said that, a crucial aspect of leadership is developing the ability to handle organizational change. These are some of the most important organizational change management techniques you can use if your company is going through changes and you'd want to learn more about the change management procedure.

A plan that describes the actions an organization must take to successfully implement change is known as a change management strategy. In order to achieve goals, it recognizes the necessity for change and advances through the stages of planning, implementing, and reviewing.

1. Assessment of Change

2. Communication Plan

3. Training and Support

4. Implement the Change with a Phased Approach

5. Monitor, Review, and Adjust

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6. Feedback Mechanisms Throughout

- **Change Management Models:**

An organizational change management model is a framework for handling changes. starting with offering a structure for recognizing, expressing, and accepting change at various organizational levels. For people, groups, and organizations participating in the change process, the model outlines roles and responsibilities.

Finding the need for change and how it will affect the organization, thinking through the reasons for the need, and selecting a suitable implementation plan are the initial steps in the process. After that, put all the changes into practice and make sure everyone involved knows about them so they can help with the implementation and be a part of it. The top 5 change management models utilized in the IT sector are shown below:

1. **Lewin's Change Management Model**: Lewin (1986) created the Change Management Model, which consists of three stages: unfreezing, changing, and refreezing. The unfreezing stage involves creating a sense of urgency and readiness for change; the changing stage consists in implementing the difference, and the refreezing stage involves consolidating the change and making it a new normal.
2. **Action Research Change Management Model:** Action research is a cyclical process of planning, taking action, observing the results, and reflecting on the process. We can use this model when the desired outcome is uncertain, or the problem is complex.
3. **ADKAR Change Management Model:** It is a five-stage model that focuses on personal change. It consists of awareness of the need for change, desire to participate and support the change, knowledge of how to change, ability to implement the difference, and reinforcement to sustain the change.
4. **Prosci Change Management Model:** It consists of three phases: preparation, implementation, and reinforcement. A structured approach is necessary to evaluate the impact of change and develop a plan to manage the change.
5. Kotter's 8-Step Change Model**:** This model consists of the following steps: creating a sense of urgency, forming a powerful coalition, creating a vision for change, communicating the vision, empowering others to act on the vision, creating short-term wins, consolidating gains and producing more change, and anchoring new approaches in the company's culture.

- **Effectiveness of these strategies in mitigating the impact of external disruptions and fostering adaptability.**

1. Facilitating a Smooth Transition

2. Minimizing Resistance and Maximizing Engagement

3. Enhancing Employee Performance and Productivity

4. Aligning Strategies and Objectives

5. Building Organizational Agility and Resilience.

- **Examples of Organizations That Have Successfully Implemented these Strategies**.

❖ **Starbucks**

One of the best illustrations of the benefits of hearing what customers have to say comes from Starbucks. Jerry Baldwin, Zev Siegl, and Gordon Bowker founded Starbucks in 1971; the company saw success in Seattle in the early 1980s.

The founders of Starbucks sold the company to Howard Schultz in 1987 for a sum of $3.8 million. But when the 2008 financial crisis hit, Starbucks had to close nearly 1,000 of its outlets and lost 28% of its earnings in the ensuing two years.

"In order to provide customers a say in the direction that Starbucks pursued as a business, "My Starbucks Idea" was introduced in March 2008. Social media users shared more than 90,000 ideas, which led to more than 5 million page views per month. Starbucks created a community of like-minded baristas and coffee lovers through this effort, which also saw the implementation of over 100 proposals.

Starbucks has 32,660 locations worldwide, employs close to 350,000 people, has a number of successful subsidiaries, and is constantly growing. One business that has effectively embraced change is Starbucks.

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❖ **Netflix**

A fantastic example of a corporation that fully changed its business strategy to succeed in the face of shifting trends is Netflix. Upon their initial introduction in 1997, they were perceived as a substitute for physical video rental establishments. You could order a DVD through Netflix for a time, and then mail it back when you were done, as an alternative to going into a Blockbuster. But when streaming became more and more common, Netflix had to adjust.

They successfully introduced a streaming service in 2007. They were able to predict that streaming would be the main form of entertainment in the future. We wouldn't know Netflix as it is now if they hadn't successfully implemented change! Can you picture a world without "Netflix & Chill"?

They adjusted their company strategy and carried it out almost flawlessly, which allowed them to become one of the world's most prosperous subscription businesses—if not the most!

Netflix has proven that it can move with the times and adjust to the digital era by being flexible. With the help of change management, they were able to attract a whole generation of users for whom the platform was more than simply a way to pass the time or find entertainment—it became an integral part of their way of life!

❖ **General Electric**

General Electric was valued at $12 billion on the market in 1981, the year Jack Welch was named CEO. The company's estimated value after he left as CEO was $280 billion.

He sensed the corporation needed a radical makeover when he took over as CEO. He made the instinctive choice to apply the Six Sigma methodology, which aims to decrease flaws in both processes and products. Welsh was able to save almost $10 billion as a result of the adjustments made in accordance with this methodology. Concentrating on client problems was the other change component. Jack Welsh was able to turn this company into a global force by having a brilliant vision and a competent and talented workforce.

❖ **Domino's Pizza**

Domino's Pizza was having problems in 2008 as its shares fell to an all-time low. Even though the corporation was aware of how important it was to keep a positive brand image, the difficulties were unavoidable. 2012 saw Domino's Pizza recover thanks to a successful change management strategy. In order to capitalize on the chance, the company introduced new technology. The DXP, a specially designed delivery truck including a heating oven, was presented and utilized for promotional purposes.

The company expanded its digital operations in response to consumer demand, and today customers can buy pizza via text messaging, Alexa, Google Home, Twitter, Facebook, and Smart TVs.

Domino's was able to access a wealth of customer information by using its own operating system. In addition to saving transaction costs, this gave Domino's customer information.

To maintain sales growth, there's also the matter of developing loyalty programs and offering special offers. Notwithstanding the shift's success, the business has since experimented with robot and drone deliveries in addition to working with Ford on self-driving cars.

5. Case Studies

▪ **Humor and Humility saved the Chicken: the KFC Logistics Blunder {2023}**

When a scarcity of chicken forced the closure of almost two thirds of KFC's UK locations in February 2018, the fast-food chain found itself in an odd bind. Known for being the birthplace of fish and chips, the nation has also grown to love fried chicken. In Europe, the UK has the biggest market for fast-food chicken, according to Euromonitor International. Given that it accounted for 6% of KFC's approximately US$24.5 billion in global sales in 2017, it is really the company's fifth-largest market. This made the widespread dissatisfaction of its devoted clientele and the international press attention not shocking. A consumer lamented having to visit Burger King in its place.

When customers tried to contact the police and a legislator regarding the restricted menu at KFC locations, they became embroiled in the supply disruption as well. International news outlets pounced on the problem that crippled UK operations, reporting on irate consumers who said they had no choice but to eat Burger King. Some made fun of the fast-food chain, but the limited availability turned into a hilarious material for memes. Not everyone finds humour in such seemingly insignificant incidents, particularly those who make their livelihood from the chicken businesses. A representative for the trade union GMB claimed that some KFC franchise employees were losing out on shifts and were unaware of when their locations will reopen.

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Additionally, it was allegedly suggested to the personnel that they use their vacation time to make up for the missed productivity. KFC declared that it would pay staff on short-term contracts according to their average work hours over the previous 12 weeks and salaried employees as usual. But this was limited to KFC-owned locations exclusively. Only the adoption of the same policy was recommended; franchisees, who account for over 80% of the company's UK stores, were free to obtain independent legal counsel as well.

- **Domino's Pizza, the toss and turn {2022}**

Michael Setzer and Kristy Hammonds, two Domino's Pizza employees, recorded and posted a video prank on YouTube in April 2009 that blatantly disregarded public health code regulations. Hammonds recorded Setzer blowing mucus on a sandwich, putting cheese in his nostril, and sandwiching a dishwashing sponge between his buttocks. The footage shot in a North Carolina branch was seen over a million times in a matter of days. This was followed by five mentions on the first page of Google search results and a viral spread via Twitter conversation. The workers were sacked and charged with felonies even though they informed the executives that they had never delivered the tainted food.

Domino's Pizza's reputation was severely tarnished by the minor incident, owing to the rapid and extensive dissemination on social media. Since the video was posted, the public's perception of Domino has shifted from being favourable to unfavourable, according to research firm YouGov.

On the night the video was uploaded, the pizza company was made aware of it. The corporation handled the situation by responding directly to bloggers who shared the video, as opposed to sending out a formal press release to major media. As opposed to contacting the mainstream media, which they feared would merely encourage more people to see the awful joke, they felt that focusing on bloggers would aid in the dissemination of their response. But after the video became viral, Domino's realized they should have acted sooner because they had not account for the "perpetual mushroom effect of viral sensations."

After two days, Hammonds requested that YouTube remove the joke video on the grounds of copyright. That same evening, Domino's posted a video on YouTube in which Patrick Doyle, the company's then-president, expressed regret for the event and thanked the internet community for alerting them to it. Hammonds and Setzer faced charges of felony food adulteration after nearly a year had passed. Hammonds was given an 18-month probationary period and a 45-day suspended sentence after entering a guilty plea to a lesser offense. Setzer, on the other hand, entered an Alford plea, which is a type of plea agreement in which a criminal defendant enters a guilty plea while maintaining his or her innocence. In exchange, Setzer was given a six-month suspended sentence, a 24-month supervised probationary period, and an order to stay away from Hammonds and Domino's. Unfortunately, the North Carolina franchise went out of business and closed its doors in September 2009.

- **Resilience strategies for complex supply chains: Johnson & Johnson**

Johnson & Johnson is a global company in the healthcare industry that produces pharmaceuticals and medical equipment. With its main office situated in New Jersey, the company has over 230 subsidiaries spread throughout 60 nations. The Johnson brothers began the business in 1886, and for more than 130 years it has been creating creative, high-quality, and easily available goods and services. Today, it employs close to 126,400 people. With a strong appreciation for its patients and customers, the company strives to help people live longer, healthier, and happier lives.

However, one of Johnson & Johnson's production facilities in Fort Washington, Pennsylvania, which belonged to McNeil Consumer Healthcare, one of its subsidiaries that produced Tylenol and other over-the-counter medications, was shut down in 2010 due to quality and safety breaches. Following an examination, the US Food and Drug Administration charged the business with 20 infractions, including outdated buildings, filthy machinery, improper organizational procedures, undertrained staff, and the existence of bacteria in cargo containers. The unregulated business environment led to Tylenol recalls and production suspensions when it was discovered that certain batches of the medicine contained extra ingredients that could have been harmful to newborns.

Furthermore, the business neglected to investigate 46 customer complaints concerning the use of foreign materials, odd smells, or dark specks that were filed between June 2009 and April 2010 and which had previously led to a lengthy list of recalls during that time. The company lost almost €900 million in revenue during the more than two-year stoppage, which was necessary given the severity of the issue. In this instance, the problem was mitigated by elements pertaining to both external and internal complexity drivers.

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Johnson & Johnson internally depended on facilities belonging to other brands that managed to move the impacted products and put them back on retail shelves. McNeil approved substitute locations in 2011, and certain medications might hit the shelves again in the fourth quarter. In this instance, having a large number of facilities and the ability to shift production were crucial. Complexity had a favourable external impact on teamwork. To get pharmaceuticals back on the market, hundreds of supply chain employees worked to find a substitute supplier and increase their output over the next few months. As a result, a large number of actors worked together, which helped the organization respond to the incident with resilience.

6. Challenges and Future Directions:

Practitioners of change management frequently encounter a variety of roadblocks and challenges that impede their work and have an impact on results. Among the Major Difficulties in Change Management are:

1. Resistance to change
2. Lack of leadership support
3. Lack of clear objectives
4. Inadequate communication
5. Lack of employee engagement
6. Lack of resources
7. Change fatigue
8. Lack of accountability.

- **Potential future trends and developments in the field of change management and organizational resilience**

In the coming years, several trends and developments are likely to shape the field of change management and organizational resilience:

1. Technology Integration
2. Agile Practices
3. Focus on Employee Well-being
4. Remote Work Adaptation
5. Resilience Building
6. Diversity, Equity, and Inclusion (DEI)
7. Stakeholder Engagement
8. Environmental Sustainability

7. CONCLUSION

This study report concludes by emphasizing how crucial organizational resilience is in the unstable business climate of today. The study highlights the importance of change management methods in assisting firms in navigating uncertainty and grabbing new possibilities by looking at a variety of strategies, such as proactive planning, employee involvement, and agile methodologies. It becomes clear that strong leadership is a major force behind change, and that preserving staff morale and encouraging employee buy-in requires strong support systems and communication. Successful implementations, like those at Domino's Pizza, Starbucks, and Netflix, show how businesses can adjust and prosper with strategic change management. In order for enterprises to stay competitive and resilient in the face of changing difficulties, they will need to embrace technology breakthroughs, prioritize diversity and inclusion, and foster a culture of learning.

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ENHANCING SOIL TESTING AWARENESS FOR SUSTAINABLE AGRICULTURE

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ABSTRACT
This research paper investigates the critical role of soil testing in promoting sustainable agriculture practices within Buldhana District, Maharashtra. Soil testing provides farmers with essential information about nutrient levels, pH levels, and crop health, enabling informed decision-making in crop management. Despite its significance, a notable lack of awareness exists among farmers and agricultural stakeholders regarding soil testing's importance. Through a comprehensive review of existing literature, this paper highlights the benefits of soil testing and proposes strategies to enhance public awareness and acceptance. By emphasizing the importance of soil testing and advocating for increased awareness, this research aims to foster sustainable agricultural practices and enhance productivity in Buldhana District.

1. INTRODUCTION

1.1 Background
Buldhana District, located in Maharashtra, India, is predominantly agrarian, with agriculture serving as the primary source of livelihood for a significant portion of its population. The region's agricultural sector faces various challenges, including fluctuating rainfall patterns, soil degradation, and diminishing crop yields. Soil quality and fertility are critical factors affecting agricultural productivity, yet many farmers lack access to information and resources for assessing and managing soil health effectively. Despite the district's rich agricultural potential, the adoption of modern farming practices, such as soil testing, remains limited due to a lack of awareness and infrastructure constraints. Addressing these challenges is essential for promoting sustainable agricultural practices and improving farmer livelihoods in Buldhana District. Efforts to raise awareness about the importance of soil testing can play a pivotal role in enhancing agricultural productivity and fostering resilience against environmental challenges.

1.2 Objectives
- Analyze the significance of soil testing in sustainable agriculture.
- To determine the level of awareness among farmers and agricultural stakeholders.
- Assessing the barriers to soil testing adoption.
- Propose strategies to expand soil testing awareness and use.

2. IMPORTANCE OF SOIL TESTING
- Nutrient Management: Soil testing helps farmers use fertilizers efficiently, cutting costs and reducing environmental impact.
- pH Regulation: Understanding soil pH ensures crops get the right nutrients for optimal growth.
- Disease Prevention: Soil testing identifies soil-borne pathogens, helping farmers protect their crops.

3. CURRENT AWARENESS LEVELS

Survey Results
A survey has been conducted among farmers and agricultural stakeholders to assess their current awareness of soil testing practices. This survey will be conducted in Marathi to accommodate the Marathi-speaking community, whose mother tongue is Marathi.

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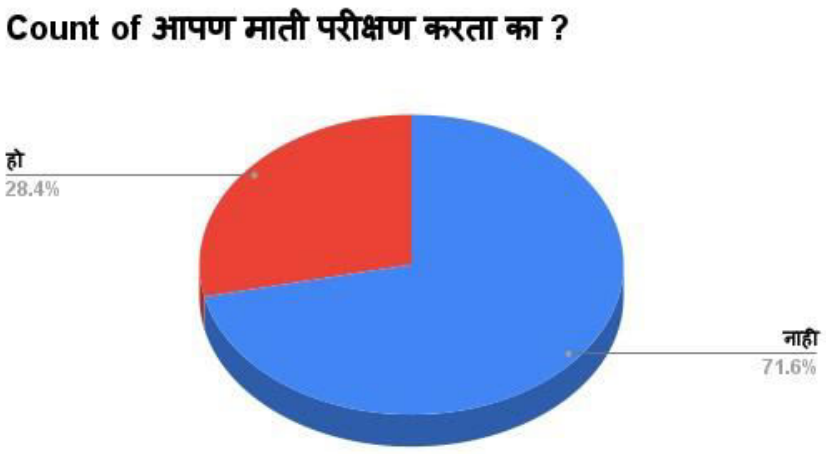

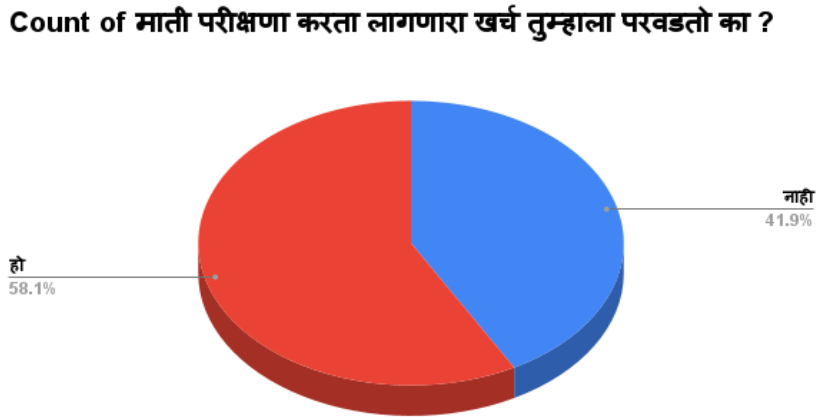

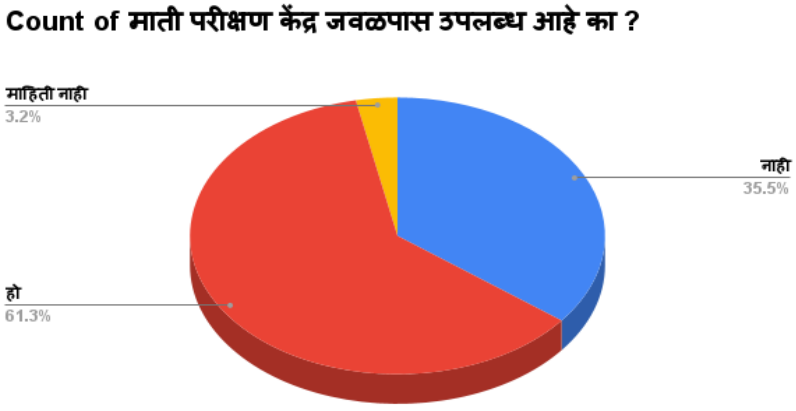

4. BARRIERS TO ADOPTION

Barriers to the adoption of soil testing in Buldhana District, Maharashtra, can significantly impact agricultural productivity and sustainability.

a) Lack of Knowledge:

Many farmers in Buldhana District may not fully understand the benefits and procedures of soil testing. This lack of knowledge can stem from various factors:

- **Limited Awareness Programs:** Agricultural extension services might not adequately educate farmers about the importance of soil testing and how it can optimize crop yields.
- **Traditional Practices:** Generational farming practices passed down may not include modern soil testing methods, leading to a reluctance to adopt new techniques.

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- **Language and Literacy:** Information about soil testing might not be available in languages or formats accessible to all farmers, especially those with low literacy levels.

b) Financial Constraints:
The initial costs associated with soil testing can act as a significant deterrent for farmers, particularly those with limited financial resources. These costs may include:

- **Testing Equipment:** Purchasing soil testing kits or hiring professionals to conduct tests can be expensive, especially for small-scale farmers.
- **Analysis Fees:** Some farmers may be unable to afford the fees charged by testing laboratories for analyzing soil samples.
- **Opportunity Costs:** Farmers may view soil testing as an investment with uncertain returns, especially if they are already struggling with other financial burdens.

c) Infrastructure Challenges:
Buldhana District might face infrastructure challenges that limit access to soil testing facilities and technology. These challenges can include:

- **Limited Testing Facilities:** A shortage of soil testing laboratories or extension services in rural areas can make it difficult for farmers to access testing facilities.
- **Transportation Issues:** Poor road networks or limited transportation options can further hinder farmers' ability to send soil samples for testing.
- **Technological Barriers:** Lack of access to technology such as smartphones or internet connectivity may prevent farmers from accessing online resources or mobile applications related to soil testing.

5. Strategies for Increasing Awareness

- **Community Workshops:** Organize local workshops to explain the benefits of soil testing in simple terms and demonstrate how to collect samples.
- **Farm Visits:** Conduct farm visits to demonstrate the process of soil testing and its impact on crop health directly to farmers.
- **Information Leaflets:** Distribute easy-to-understand leaflets in local languages explaining the importance of soil testing and how to get it done.
- **Radio Programs:** Air short radio programs discussing soil testing benefits and procedures, reaching a wide audience in rural areas.
- **Mobile Van Campaigns:** Utilize mobile vans equipped with soil testing kits to visit villages, offering on-the-spot testing and explanations to farmers.

6. CONCLUSION

In conclusion, the findings of this research emphasize the urgent need to address the existing lack of awareness regarding soil testing practices in Buldhana District. By understanding the significance of soil testing in optimizing crop productivity and environmental sustainability, stakeholders can work together to overcome barriers and implement effective strategies. Through collaborative efforts, including workshops, information campaigns, and partnerships with local organizations, we can empower farmers with the knowledge and resources needed to adopt soil testing as a standard agricultural practice. By promoting soil testing, we not only enhance agricultural productivity but also contribute to the long-term resilience of farming communities and ecosystems in Buldhana District.

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STUDY ON CUSTOMER SATISFACTION TOWARDS PAY-TM WITH SPECIAL REFERENCE TO THANE DISTRCT AMONG YOUTH

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ABSTRACT
There are now many payment options available on the market, and the number of people using online payment apps is growing quickly. The comfort and simplicity of utilizing payment apps is being embraced by customers. The usage of payment apps by consumers and their level of satisfaction with them will be the main subjects of this investigation. This essay centers on how happy Thane District residents are—particularly young people—with Paytm's services. We will pay particular attention to the services that Wallet provides and the degree of customer satisfaction. The descriptive research design methodology is being used to carry out this study. Using a sample size of 75 clients, data are gathered from primary sources. Pie charts and other graphical representations are used to analyze and interpret data before being presented.

Keywords: Paytm app, customer satisfaction, Paytm services,

INTRODUCTION
What is mobile banking? A mobile banking service is a service offered by a bank or a financial institution that allows its customers to carry out various kinds of financial transactions using mobile devices like smartphones and tablets. Each bank offers its own mobile banking application for Android, Windows and IOS mobile.

There are different third party banking applications like google pay, paytm, phone pay, mobikwik, amazon pay, Bajaj finance, CRED, WhatsApp pay, etc. There have been big changes in mobile banking that make it possible to provide banking service to the customers. There is a growing usage of mobile banking in the customer and their needs. There are some benefits of google app search such as secure way of payment, cashback and faster way of payment. However, there are some drawbacks of google app search like security, inability of customers to accept new mode of payment.

HISTORY OF PAYTM:
Vijay Sekhar Sharma, the company's creator, invested $2 million when Paytm was first established in August 2010 in Noida, a neighborhood close to New Delhi, the capital of India. In 2013, it added data card, postpaid cell, and landline bill payments to its initial offerings of prepaid mobile and DTH recharge.

SERVICE OF PAYTM
The startup introduced the PayTm wallet in January 2014, and both Uber and the Indian Railways accepted it as a form of payment. It began offering bus tickets and online promotions as part of its e-commerce debut. Additional use-cases, including university fees, metro recharges, and the payment of gas, electricity, and water bills, were revealed in 2015. It also began to power Indian Railways' payment gateway.

OBJECTIVE OF THE STUDY
1. To study and analyse the under graduate students behaviour related to adopting Paytm app.

2. To study and analyse the problem faced by the customer related to the Paytm app.

3. To study the customer satisfaction related to the use of Paytm pate transactions.

PURPOSE OF THE STUDY
1. The main purpose of the study of Paytm app is consumer behaviour and how the consumer behaves with Paytm.

2. Second purpose is to find out the problem faced by the Paytm app users.

3. Third purpose of the study is how to improve in safety and security in Paytm app so that customers can adopt the new technology of payment.

STATEMENT OF PROBLEMS:
1. Consumers are Satisfied with Paytm app.

Hypothesis:
H1. The adaptability of mobile banking service will have a positive impact on consumer satisfaction.

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H0. The adaptability of the mobile banking service will not have a positive impact on consumer satisfaction.

H2. There is a significant impact of various factors such as security, illiteracy and not interested in adoption new technology of payment on the use of Paytm transactions.

H0. There is no significant impact of various factors such as security, illiteracy and not interested in adoption new technology of payment on the use of Paytm transactions.

REVIEW OF LITERATURES:

Manikandan.S et.al (2017)
"An empirical study on consumer adoption of mobile wallet" was the explanation provided in this study. The study's main goals were to clarify how wallet money works with the numerous services that support it as well as the different factors that influence consumers' decisions to use mobile wallets. One hundred and fifty people completed the questionnaire that served as the study's primary data source. It exposed the many risks and difficulties that users of mobile wallets encounter. The author came to the conclusion that the government's demonetization policy had forced people in India to become more aware of mobile wallet usage, which in turn had forced them to use them. He also stated that risk factors were taken into account, which would guarantee the widespread adoption and explosive growth of mobile wallets in the years to come.

Manpreet Kaur (2017)
The roles of the electronic payment system and demonetization have been investigated in this study. According to the study's findings, the number of individuals switching from cash to cashless transactions is increasing daily as a result of market globalization and the expansion of the banking industry. Today's society not only needs, but demands, a cashless economy. Basically, the cashless transaction mechanism is what drives the entire internet industry. This study also discovered that switching to cashless transactions is not only safer than using cash, but it also takes less time and requires less carrying and upkeep than using paper money. It also aids in keeping a record of every transaction completed.

Bhardwaj and Kaur (2019)
The goal of their research paper, "Study on Usage of PayTm," is to determine the degree of awareness and happiness among PayTm users.They came to the conclusion that PayTm is the industry leader in online mobile wallet services and offers a wide range of free services, including ticket booking, money transfers, and recharges. Other mobile wallet companies have been inspired by PayTm to enter this industry, and users weigh all the options to select the best wallet service software that satisfies their needs and meets their standards. PayTm has emerged as the most widely used app in India, with significant room for expansion in the near future. The primary driver of PayTm's success is the safety of online transactions and financial transactions.

Venkatesan (2018)
The purpose of the research project "usage of PayTm – a study in madurai city" was to examine the degree of acceptance that Madurai City PayTm users had based on several parameters. According to the study's findings, PayTm can establish a dedicated department with trained personnel to handle complaints and difficulties pertaining to PayTm services. It can also initiate necessary steps for the regular maintenance, upgrading, and updating of both hardware and software, as well as to prevent instances of slow servers and system failures entirely by having backup storage.

RESEARCH METHODOLOGY:

Sample Area	Thane District
Sample Size	75
Sampling Techniques	Snow Ball Techniques,Startified Random Simplified Technique
Sources of Data	Primary and Secondary Data
Analysis Techniques	Standard Deviation ,Annova

DATA ANALYSIS:

Table.1 Demographic characteristics of the respondents

Variable	Category	Frequency	%
Gender	Male	47	63
	Female	28	33
	Total	**75**	**100**
Age	18 to 25 years	38	51
	26 to 35 years	37	49

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	Total	**75**	**100**
Educational Qualification	Undergraduate	24	32
	Graduate	51	68
	Total	**75**	**100**
Monthly Income	1 to 20,000	16	21
	20,000 to 30,000	31	41
	30,000 above	28	38
	Total	**75**	**100**

Table 2: Attributes of the Usages of Paytm and Behaviour of Paytm users.

Sr.No.	Particulars	SA	A	N	D	SD
1	Paytm is time saving app than Traditional Banking system.	41	31	00	02	01
2	Paytm is cost saving than Traditional Banking system.	45	25	01	03	01
3	Paytm app is more flexible than Traditional Banking system.	48	25	01	01	00
4	Payrtm is more secured than Traditional Banking system.	41	28	00	01	03
5	Paytm has better problem handling capacity than Traditional Banking system.	40	30	00	03	02
6	Do you experience fraudulent activities by using Paytm app.	48	27	00	00	00
7	Transaction is incomplete when a strong network support is not available.	10	12	10	13	30
8	Due to Third party app any issue is arrived	30	30	05	07	03
9	Lack of technical knowledge is one of the factor affect on Paytm app	45	28	00	01	01
10	Is you are recommending others to use Paytm app.	51	20	01	02	01
	Total	**399**	**256**	**19**	**34**	**42**

Sr. No.	Particulars	SA	A	N	D	SD
1	N	**10**	**10**	**10**	**10**	**10**
2	Sum X	**399**	**256**	**19**	**34**	**42**
3	Means	39.9	25.6	1.9	3.4	4.2
4	SumX2	17221	6852	128	247	926
5	Std. Dev	11.41	5.46	3.03	3.62	8.66

RESULT OF ANALYSIS

Table 3 offers some extremely helpful descriptive statistics, including means and standard deviations for the dependent variables for each group as well as for the combined group (total). Because the P value is 0.00001, which is below 0.05, and the F rational value is 71.58452, there is a significant difference in the behavior of young people when using the Paytm app.

SUGGESTION

1) The payment made through Paytm app is very easy for the users but it is also creates some security problem while using this app.
2) The online payment app should maintain privacy for the user's in order to use safe and secured.
3) Strong network should be provided otherwise payment can have made without strong network
4) Paytm app should be upgraded and create more innovative ideas with the payment system.
5) Strong network should be provided while using g-pay app.

CONCLUSION

In 1Conclusion, Paytm is rising immensely partially due to the convenience of scanning immediately and paying without necessity of carrying cash in hand. However, with increase in number of transactions on G-pay and increase in the rewards both cash and non-cash, it is seen that users only appreciate cash rewards while

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most of the users find non-cash rewards as useless Paytm app increase its security so that normal person can use such app.

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TO STUDY THE RELATIONSHIP BETWEEN THE FINANCIAL WORRIES AND PSYCHOLOGICAL DISTRESS AMONG THE ADULTS

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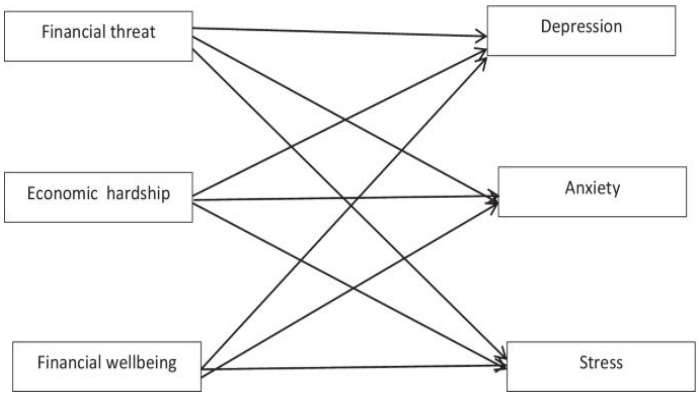
ABSTRACT
The study aims to understand how financial concerns impact individuals mental well-being. This study examines the relationship between the financial worries and the psychological distress among the adults. As money is considered to be the most important factor in our day-to-day life, it helps us to cope with our daily needs. Study shows that most of the families in India are facing financial problems among them which affects their mental health. It also revealed that higher financial worries were significantly associated with higher psychological distress. In addition to that the association of financial worries and psychological distress were more commonly found among the lower-income households, unemployed and renters.

Keywords: Financial worries, Psychological distress, Adults, Mental well-being, Coping mechanisms.

INTRODUCTION



Young adulthood is a vulnerable time. From age 18 to 29, young adults are still experiencing cognitive development. The part of the brain that plays a role in controlling impulses and behavior is still developing throughout their mid-twenties. In today's thrilling world, adults often face a multitude of financial worries that can significantly impact their overall well-being. Several common concerns that adults may face are Job security, debt, paying bills, saving for retirement, and unexpected expenses that can destroy individuals' mental health. This study aims to delve deeper into the intricate relationship between financial worries and psychological distress among the adults.

According to the Deloitte Millennial Survey, many young people feel high levels of stress, and money is near the top of their worry list. The survey found that 41% of millennials and 46% of Gen Z respondents were stressed all or most of the time, and about two-thirds of each group listed their financial future as a significant source of that worry.

Our mental health might be affected by money problems in different ways, for instance:

- stress, worry or anxiety because we do not have enough money (financial anxiety)
- a low mood or feeling depressed about money
- lower self-esteem, or feelings of guilt or shame if we're not earning enough or currently unemployed
- sleep problems

While financial stress is nothing new, a growing generational wealth gap complicates the picture — for instance, the cost of buying a house today is much steeper than it was when our grandparents were buying homes, even when adjusted for inflation and rising salaries. The COVID-19 pandemic has compounded money stress for everyone, as most of the country was thrown into disarray, causing huge levels of unemployment and disruptions across industries that we have yet to fully recover from. For young people, this has been magnified. As of July 2021, the Bureau of Labor Statistics (BLS) reported that 22.5 million people between the ages of 16 and 24 are in the labor force. Among the most popular jobs for these young people are retail trade and leisure and hospitality work — in other words, public-facing jobs we often consider essential workers. Their financial

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success can be linked to systemic failures. For example, when states fail to uphold a mask or vaccine mandate, it can hurt the young service workers who must work grueling shifts to serve customers who don't always respect these protocols, potentially at the expense of their well-being.

What is Financial Anxiety?
Financial anxiety, or money anxiety, is a feeling of worry about your money situation. This can include your income, your job security, your debts, and your ability to afford necessities and non-essentials.

What are the causes of financial anxiety?
There are many potential causes of financial anxiety, though they are typically related to existing money troubles or a history of uncertainty around finances. This can include:

- Growing up in poverty, or in a household where money was often scarce.
- Sudden job loss, or sudden unexpected payments that cause significant disruption.
- Financial abuse, including having somebody control your finances or ridicule your ability to manage finances.
- Low or unstable income, such as living pay cheque to pay cheque or "zero-hours contracts".
- Economic financial instability, such as inflation, recession and the cost-of-living crisis.
- Negative financial experiences such as bankruptcy, redundancy, divorce (which can have a significant financial impact), failed business, etc.
- Increased financial responsibility such as paying for care, becoming a single parent, retiring etc.

Managing your Money
Addressing money matters and taking control of your finances or debt will hopefully ease some of the concerns you are facing and help you to cope with the challenges you face. Here are some suggestions on how to take control, plan ahead, and reach out for support.

1) **Budget Planning:** can help reduce financial anxiety by creating certainty and confidence about money. Money Helpers budget planner is an excellent tool for helping you manage your finances and take control. You can also read our tips for managing mental health and money in 2023.
2) **Managing Spending:** can be very challenging, so read our top tips on how to identify triggers that make you prone to overspending, how to manage day to day spending and a tool you can use to limit your online spending.
3) **Managing Debt:** debt can cause a lot of stress and worry but there are options for dealing with debt ranging from negotiating reduced payments, applying for a mental health breathing space to establishing a debt management plan and drawing up individual voluntary arrangements.
4) **Welfare Benefits:** if you are living with a mental health condition you may be entitled to financial support. You can find out more information about a wide range of benefits on our website.

Increased financial literacy: understanding money matters may help reduce your concerns as some of your financial worries might be inaccurate or unfounded. Knowledge will help empower you to make informed decisions about your finances and increase your feeling of control and self-worth.

REVIEW OF LITERATURE -

1) **The Relationship Between Financial Worries and Psychological Distress Among U.S. Adults - Soomin Ryu and Lu Fan (2023)**

This study investigates the relationship between financial concerns and psychological distress in US people and tests its moderating effects by gender, marital status, employment status, education level, and income level. The data came from the cross-sectional 2018 National Health Interview Survey (NHIS) of the adult population. The hierarchical regression analysis found a strong relationship between higher financial anxiety and higher psychological anguish. Furthermore, the relationship between financial concerns and psychological discomfort was stronger among the unmarried, unemployed, low-income households, and renters than among their counterparts. The findings imply that accessible financial counseling and public health intervention programs are required to alleviate financial concerns and their harmful effects on general psychological health, with a focus on vulnerable groups.

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2) An Experimental Investigation Of The Role Of Support Services In Ameliorating Distress And Ensuring Well-Being Among Students With Sensory, Financial And Psychological Difficulties - Ms. Sangeeta Kamath (2015)

This study aimed to examine how financial support can improve student well-being and reduce suffering. Due to their difficulties, all three groups of students encountered a variety of psychological and academic issues. Technical and counseling help resulted in a significant rise in all of the factors studied. Financial aid improved academic achievement, self-esteem, and self-efficacy but had no significant effect on resilience or emotional intelligence. The regularly used help had a positive impact on lowering distress and promoting wellbeing among teenagers facing difficulties. A qualitative analysis found that providing technical, counseling, and financial assistance to adolescents with difficulties can be more effective if it focuses on their overall well-being and growth, rather than just addressing distress. To improve the effectiveness of help, it's important to consider all three factors: beneficiary, institution, and implementation while planning.

3) Effect Of Self Compassion Intervention On Psychological Distress Among Young Adults - Sherin Lee Thomas (2020)

Young adulthood is an important developmental bridge between adolescence and adulthood, spanning the ages of 18 to 25 years, during which individuals who have been dependent their entire lives begin to take concrete steps towards independence and strive to take on more adult roles as citizen, spouse, parent, and worker. Young adults confront a variety of pressures as they navigate this key transition period, which is marked by vulnerability to psychological discomfort. Recently, 'stress', 'anxiety', and 'depression' were identified as frequent mental health concerns in India, and the number of young adults having psychological distress symptoms is increasing. There is a great need to help young adults cope with distress. This study suggests that a structured and creative Self-compassion Intervention programme was beneficial and useful for psychologically troubled young people.

OBJECTIVES OF THE STUDY

1) To Find out the Connection between Money and Mental Stress.
2) To study the specific reasons through which financial worries contribute to psychological distress.
3) To explore the aspects of contributors to financial worries of Adults.

HYPOTHESIS OF THE STUDY

H0 - There is a correlation between Financial worries and Psychological distress among adults.

H1 - There is no correlation between Financial worries and Psychological distress among adults.

RESEARCH METHODOLOGY

1. **Type of Research:** The study is analytical and descriptive in nature.
2. **Source of Data Collection:** Both primary and secondary data has been used for the study. Primary data has been collected through and analyzed through google form. The behavioral patterns and questionnaire have been formed after studying different Research papers and articles published on websites and online journals.
3. **Sampling Technique:** Convenience sampling technique from Mumbai Region has been used to collect the data.
4. **Sample Size:** The data was collected from 50 users from all over the Mumbai region.
5. **Tools of Analysis:** Pie diagram and bar charts have been used to analyze the data.
6. **Reference Period:** The study has been conducted for the month of March 2024.

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ANALYSIS & INTERPRETATION OF RESULTS-

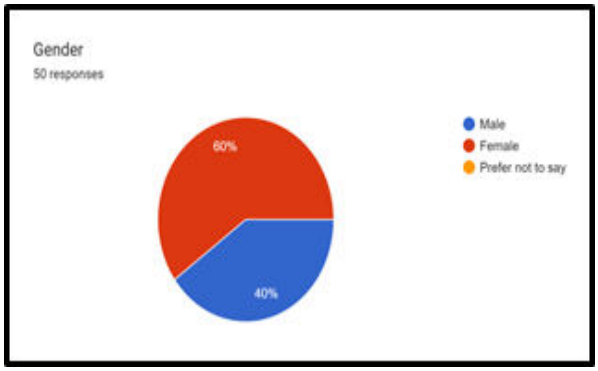

Fig 1.1(a)

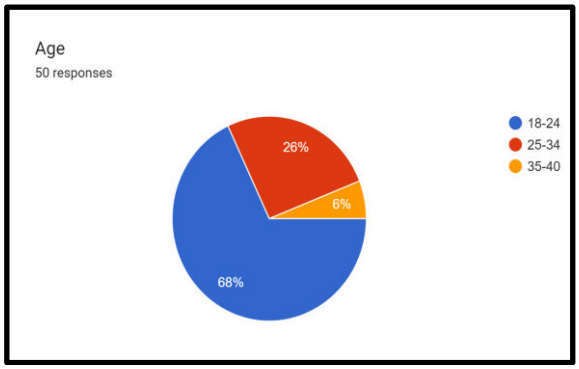

Fig 1.1(b)

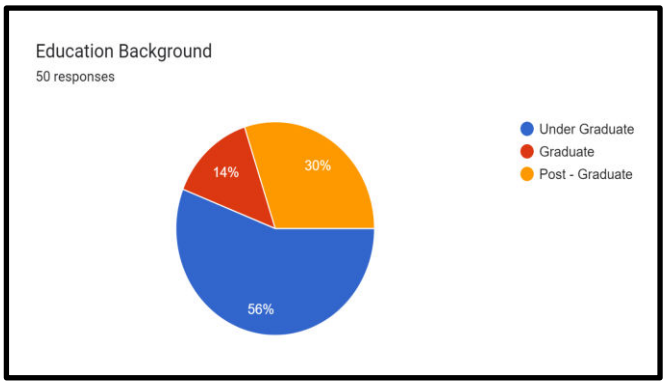

Fig. 1.1(c)

Interpretation - To study the demographic details of the respondents, Respondents were asked the questions related to the Gender, Age group they belong and the Education they have chosen for livelihood. Total number of respondents considered for the study were 50 all residing in the area of Mumbai Suburban. The data collected suggest that, the majority of the respondents belongs to the age group of 18 to 24 years. The percentage of females respondents is comparatively more than males. The data also gives clarity about the education background of the respondents which suggests, higher numbers of respondents were from under-graduate background.

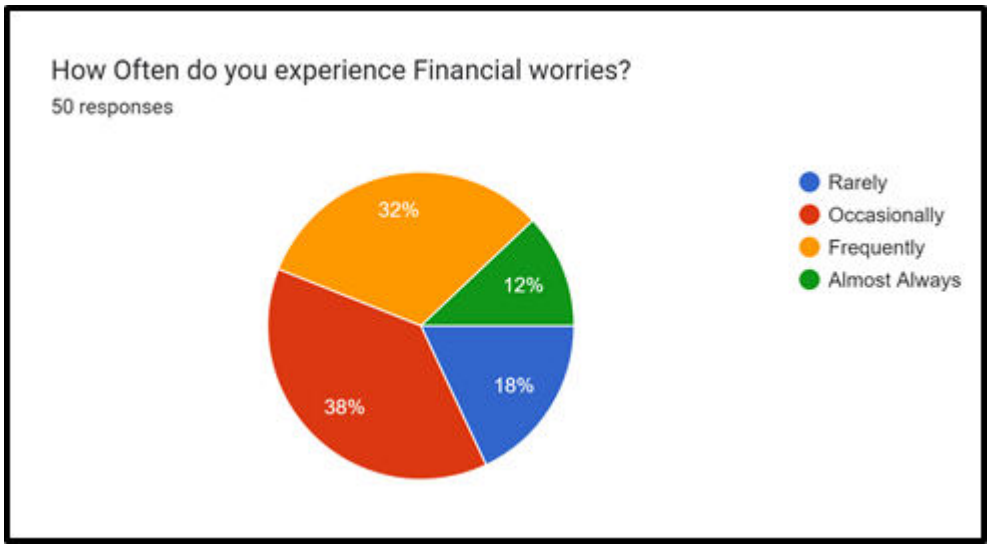

Fig. 1.2

Interpretation- The respondents were asked about their experience with financial worries. They have asked to express in numbers, how many times they had experienced financial worries. The data collected suggests, occasionally every respondent has faced the financial worries in their life. A very few respondents have confirmed that they suffer from financial worries almost always.

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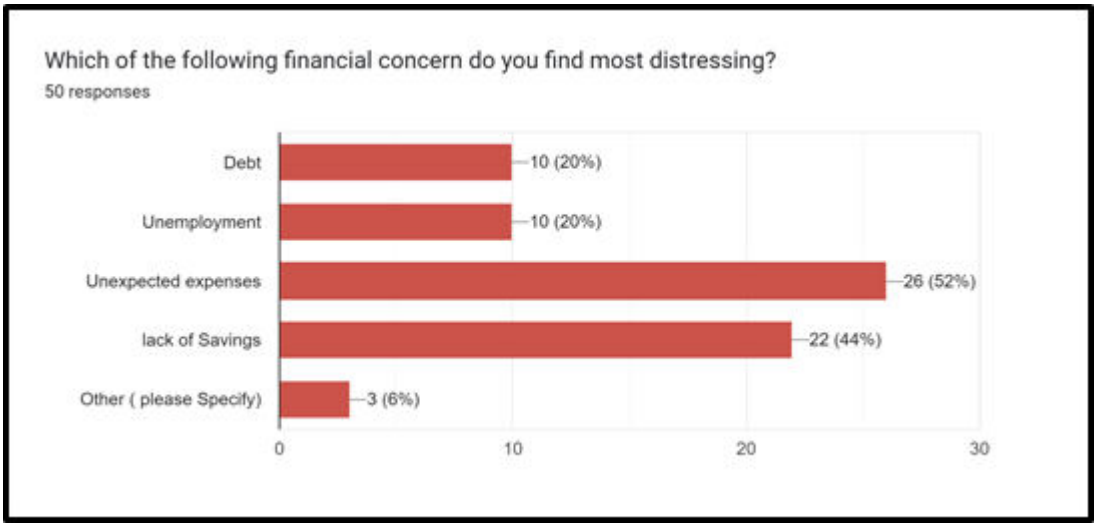

Fig. 1.3

Interpretation- To study the physiological distress, we asked respondents to choose from the given financial concerns which particular concern is more distressing. Data collection suggests that, majority population finds Unexpected expenses as a major concern with distress, followed by lack of savings. The least bothering concern was unspecified by the respondents.

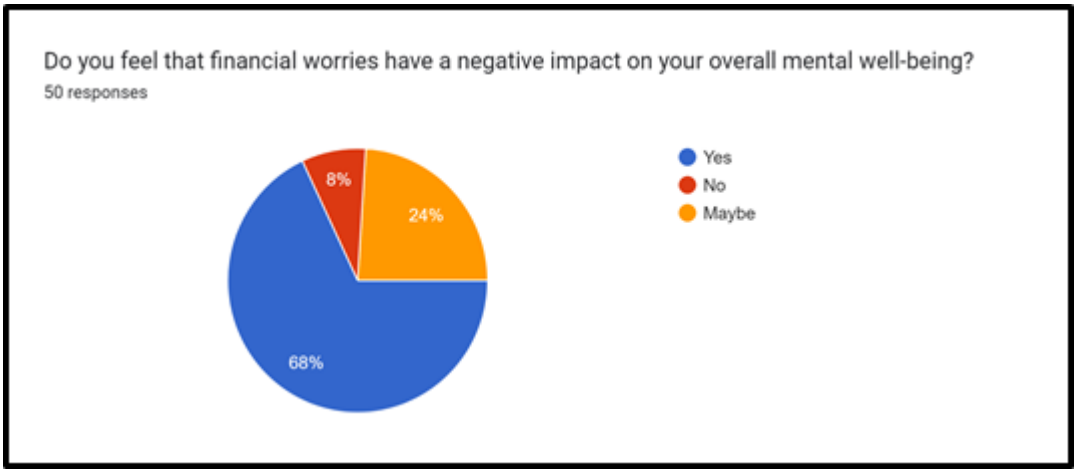

Fig. 1.4(a)

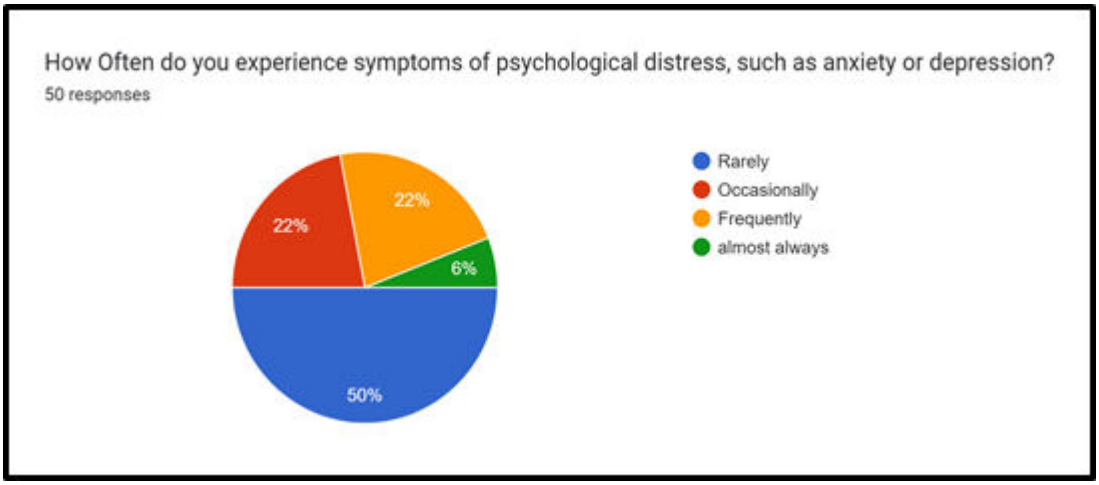

Fig 1.4(b)

Interpretation- To study the negative impact on overall mental health due to financial worries, the respondents were asked dichotomous question about it. As the figure 1.4(a) suggests that, More than half of the respondents suggested they have faced negative impact on their mental health due to financial worries. Very few respondents were not sure about, whether they have experienced any negative impact due to financial worries or not.

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Later the respondent was asked what kind of symptoms they have experienced due to financial worries. The options were given were falling in the criteria of psychological distress effects, i.e. Anxiety or depression. As per the Fig 1.4(b), half of the respondents suggested that they have rarely faced such symptoms. An equal number of respondents suggested that, they rarely or occasionally face such symptoms.

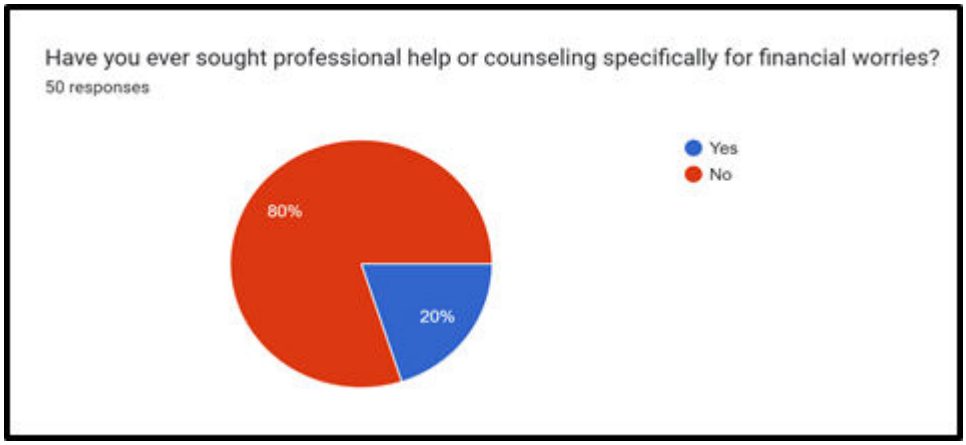

Fig. 1.5(a)

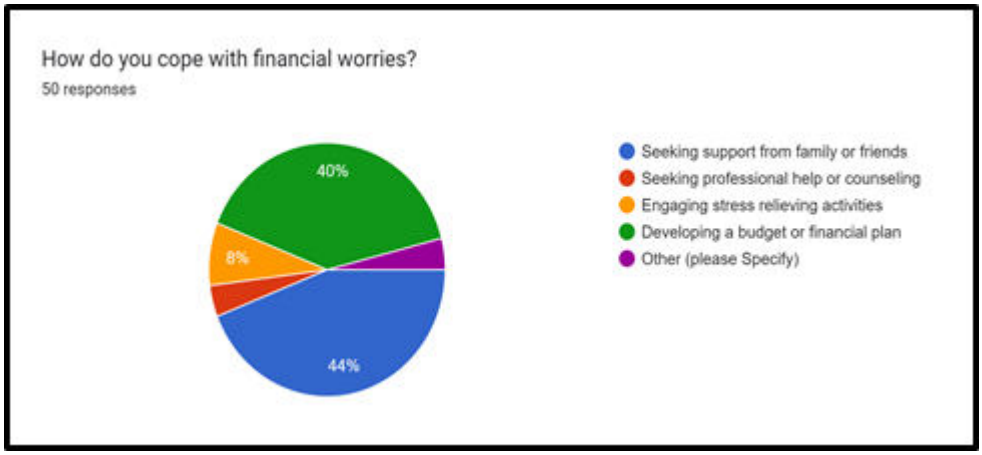

Fig. 1.5(b)

Interpretation- To understand whether respondents were aware about the professional help that is available in the market and how much they are comfortable in taking the help that is available for them. Figure 1.5(a) suggests that, a large proportion of the respondents have never seen any professional help to get rid of their mental stress or psychological distress. When asked about, how they cope with their financial worries, respondent chose to take help from family and friends as well as given a chance they will opt to develop a budget to have a better financial plan. We can clearly see through Figure 1.5(b) least number of respondents plans to seek professional help or engage themselves in stress relieving activities (either indoor or outdoor).

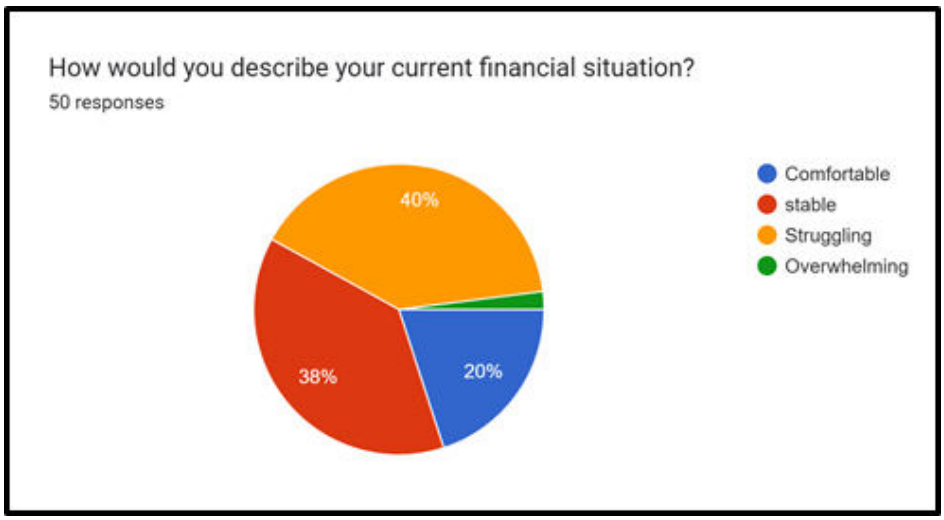

Fig 1.6

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Interpretation- The respondents were asked to describe their current financial situation through the category of Comfortable, Stable, Struggling or Overwhelming. The highest proportion of the respondent suggested that they are still struggling with their financial situation, whereas a slight less proportion of respondent confirmed that they are in stable financial situation. An extremely less i.e. only 2% population confirmed that they are enjoying overwhelming financial situation.

CONCLUSION –

This Research study concludes that Financial worries have a big impact on our mental health. When we are stressed about money, it can affect our overall well-being and lead to psychological distress. It's crucial to address these concerns and seek help if needed to find ways to manage our finances and take care of our mental health. The Relationship between financial worries and psychological distress among adults is undeniable. Psychological distress leading to increased anxiety, stress and even depression. Factors such as economic liability, debt burden, unemployment, insufficient financial resources contribute to the feeling of insecurity, hopelessness and exacerbating psychological distress. In conclusion, understanding and addressing the relationship between financial worries and psychological distress among adults demand a comprehensive approach that acknowledges the interconnected nature of these challenges. By implementing strategies that recognize the intricate interplay between financial and psychological factors, policymakers, healthcare professionals, and communities can effectively support individuals in achieving both financial resilience and mental well-being.

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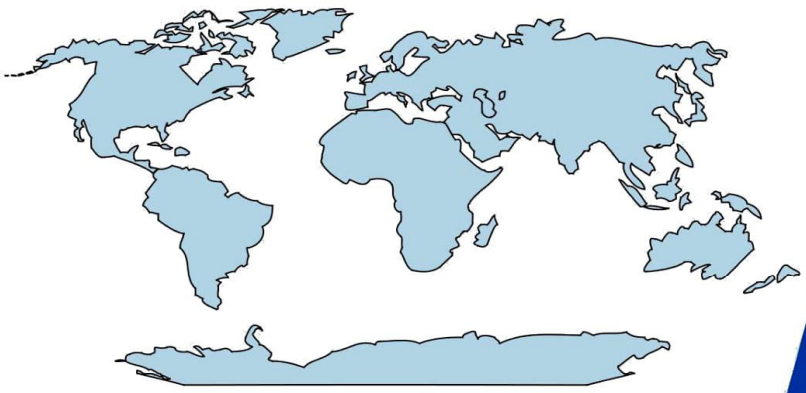

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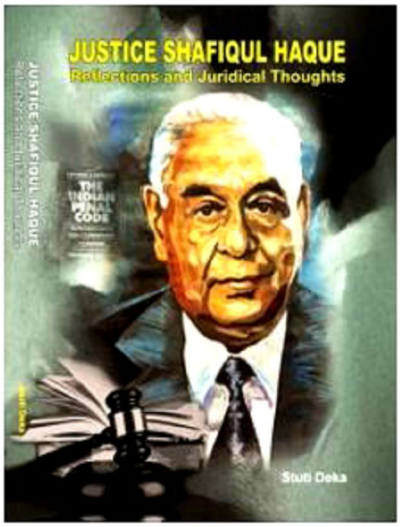

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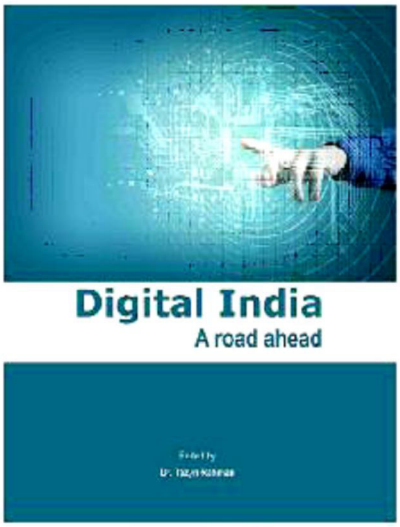

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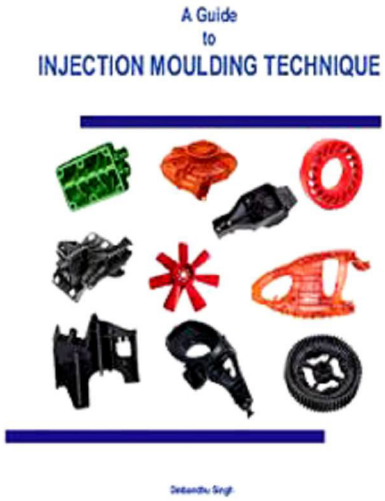

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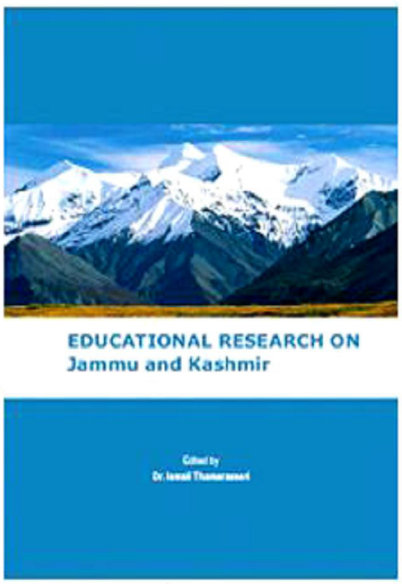

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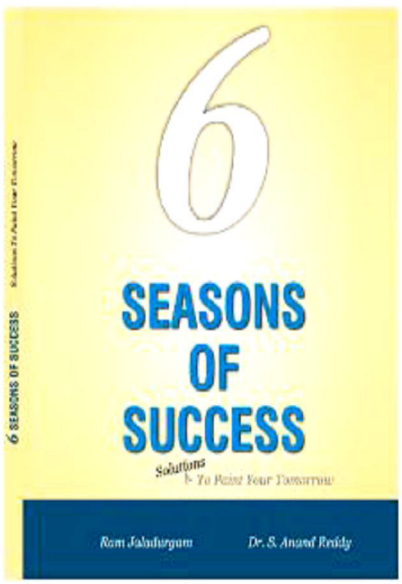

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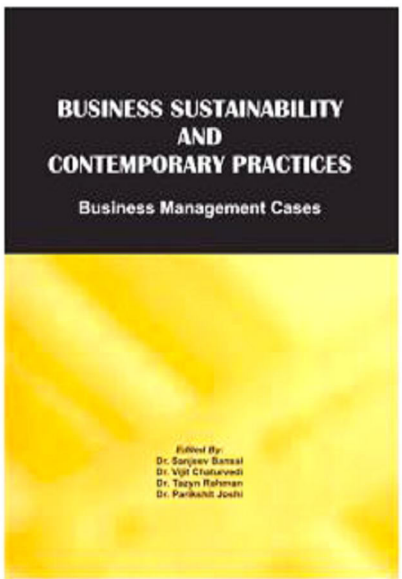

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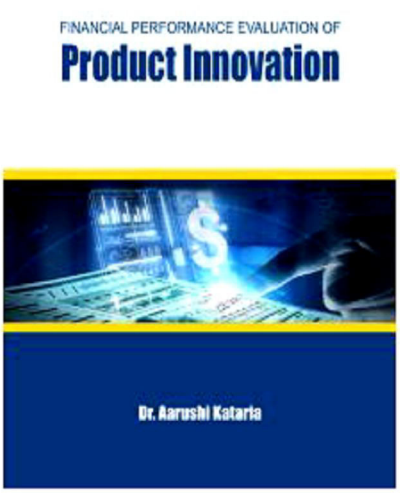

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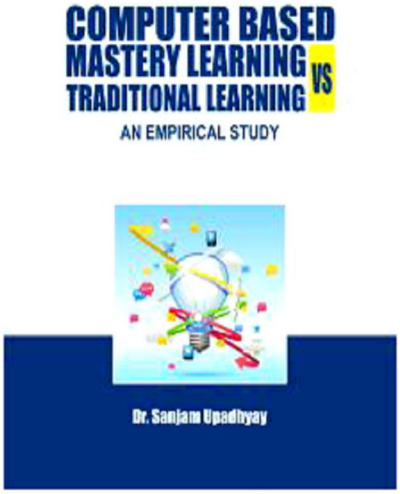

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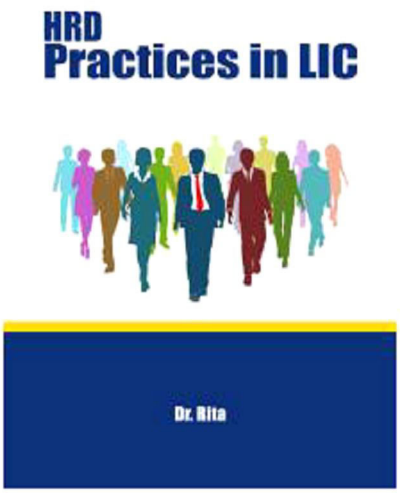

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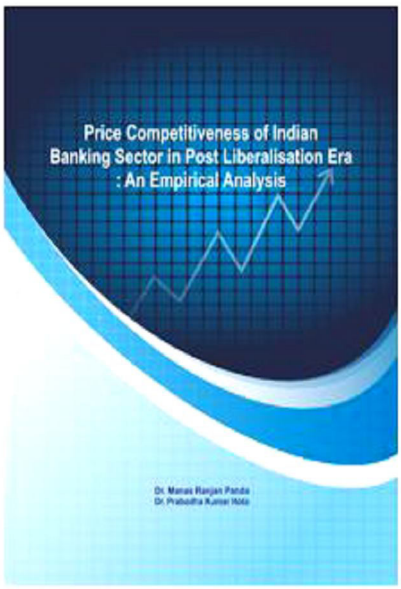

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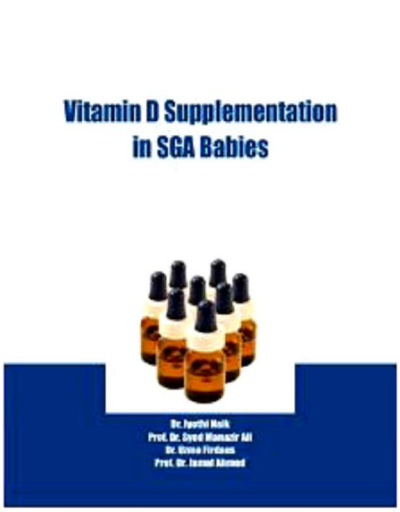

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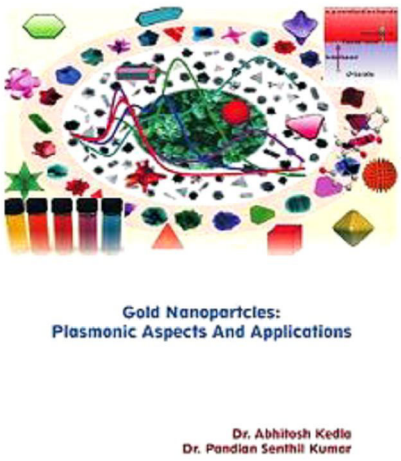

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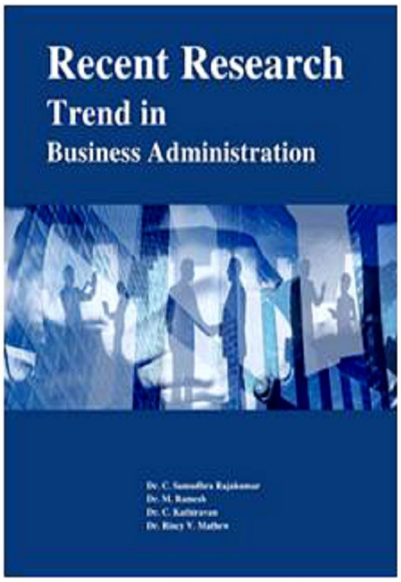

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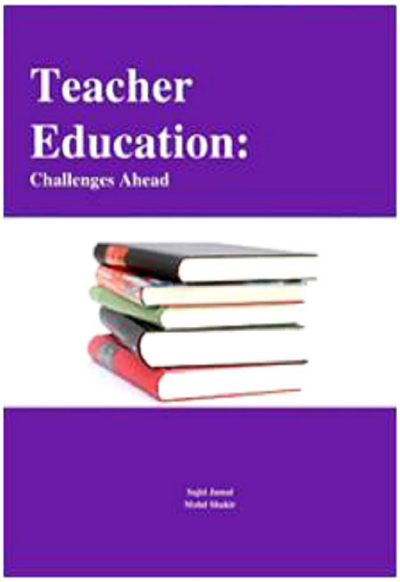

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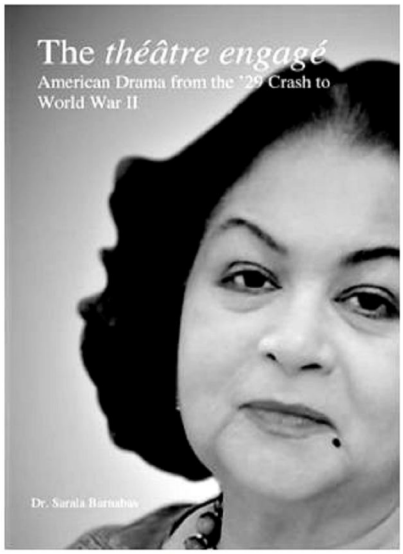

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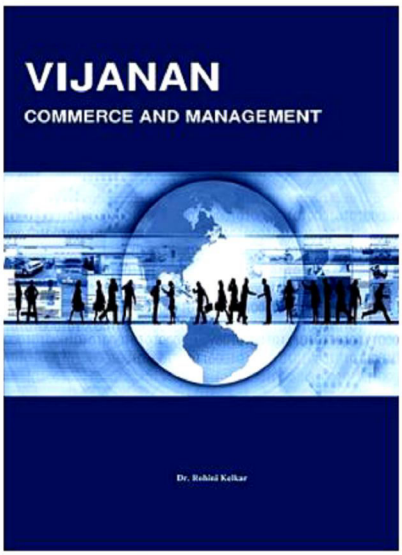

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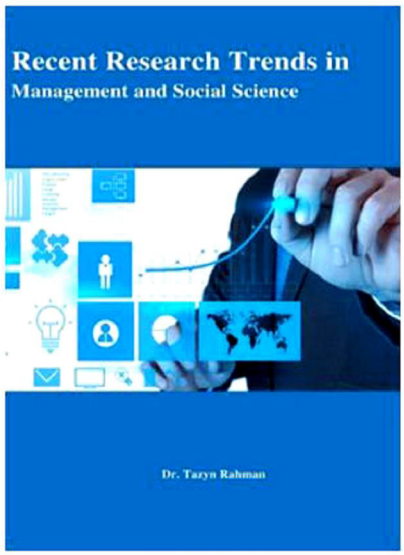

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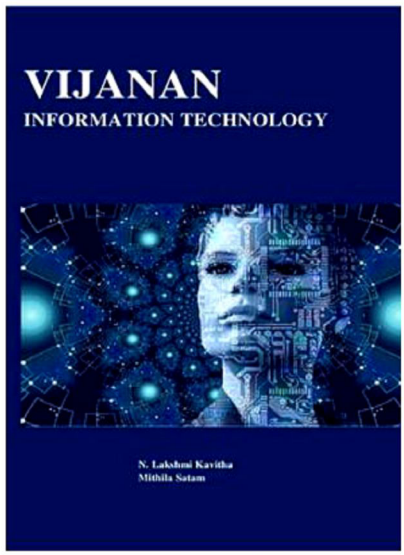

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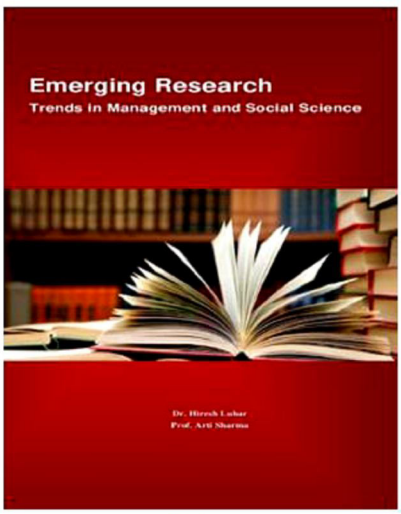

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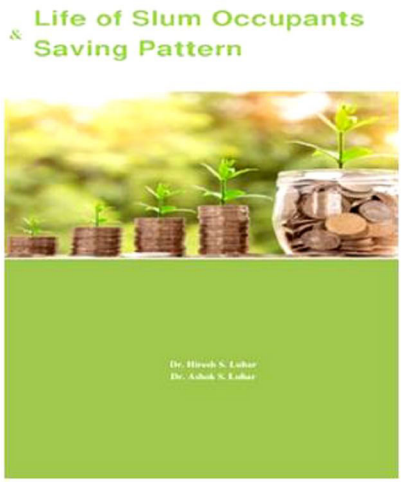

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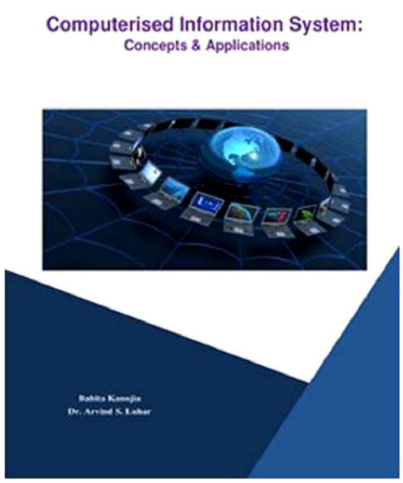

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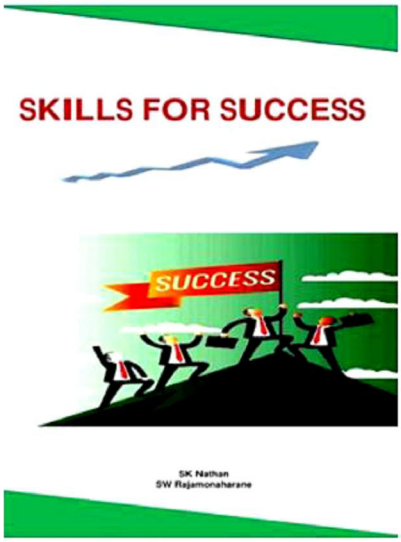

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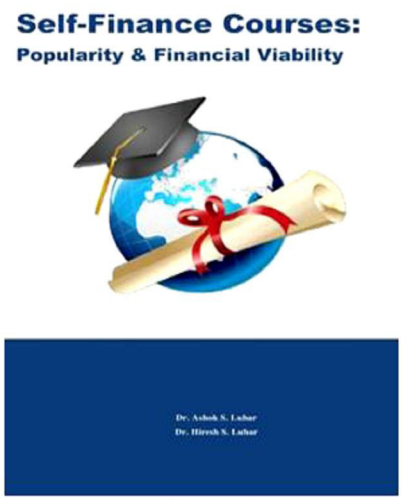

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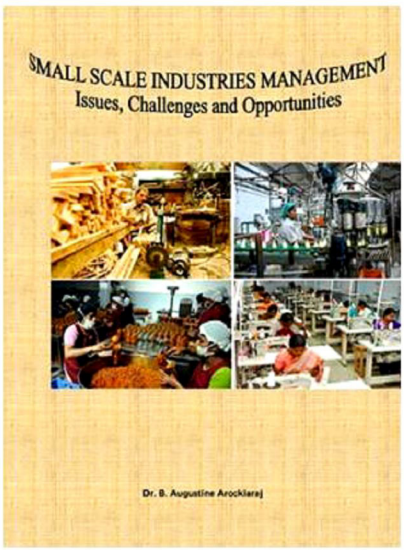

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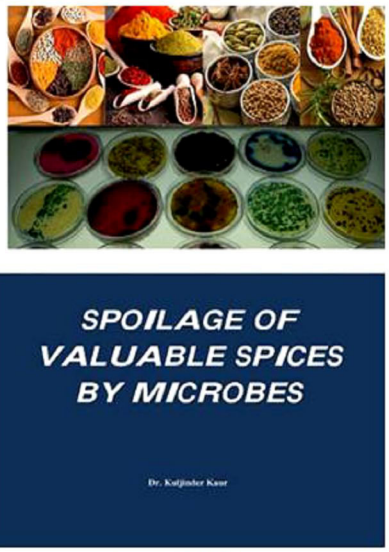

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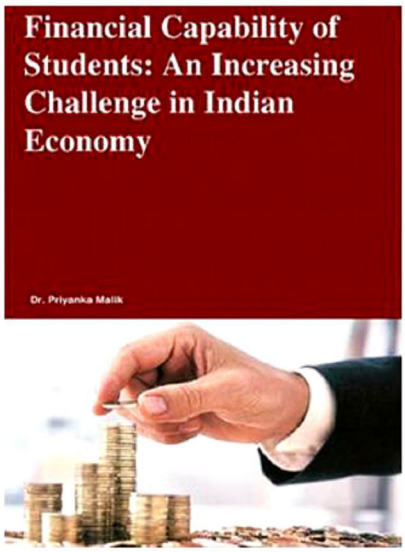

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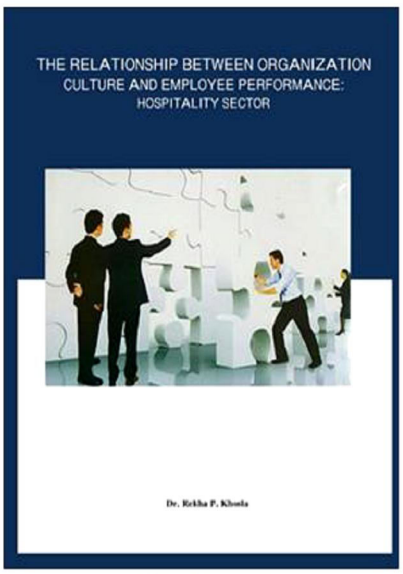

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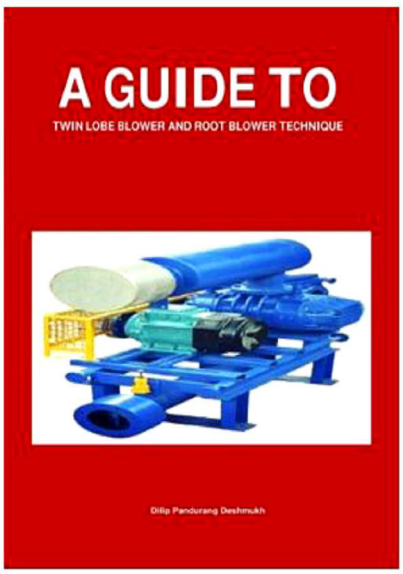

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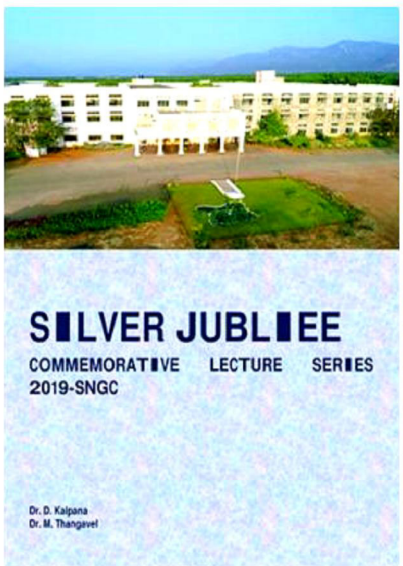

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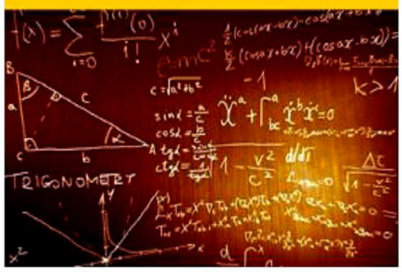

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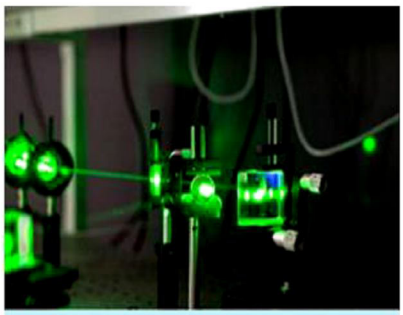

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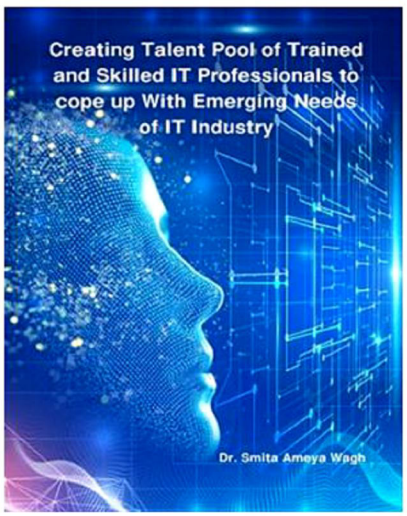

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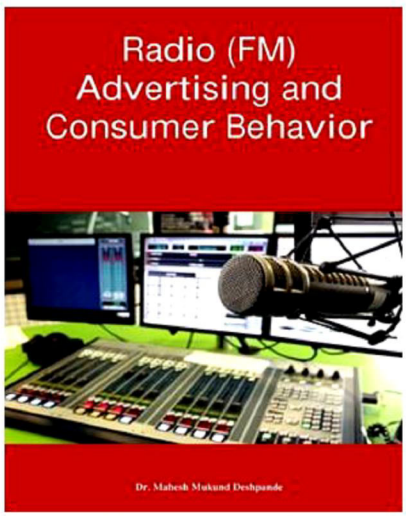

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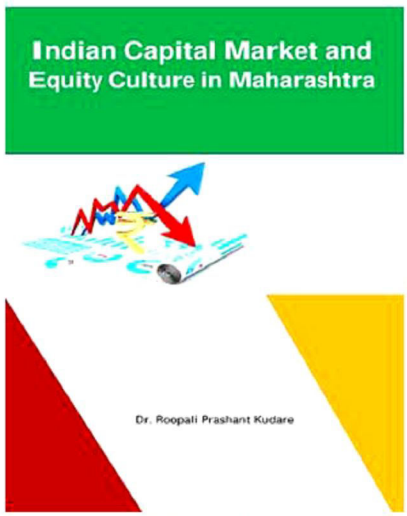

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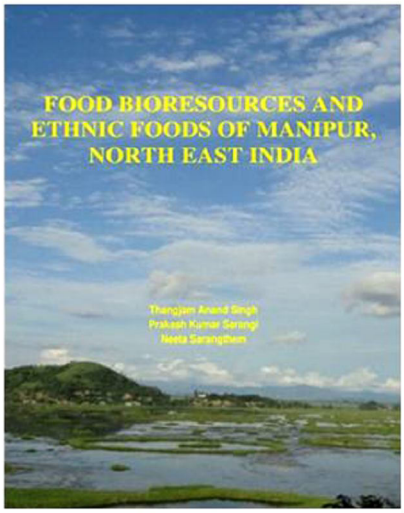

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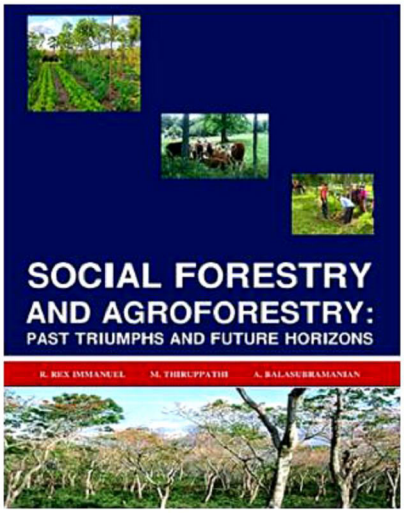

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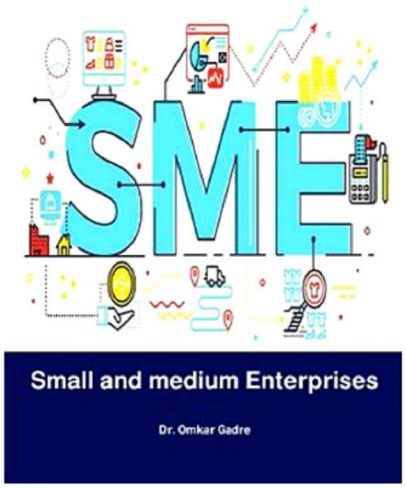

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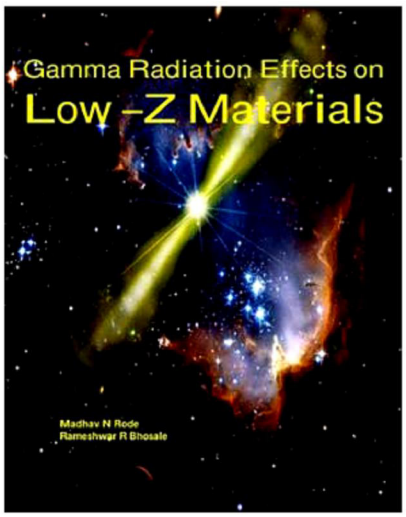

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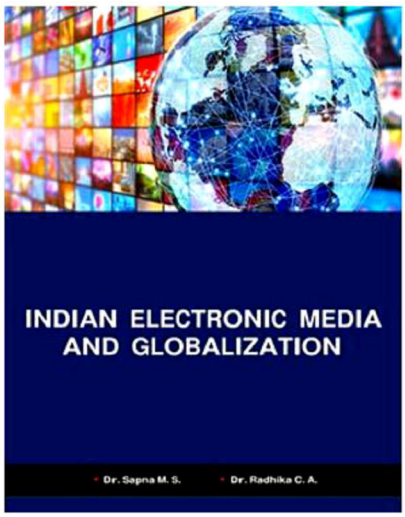

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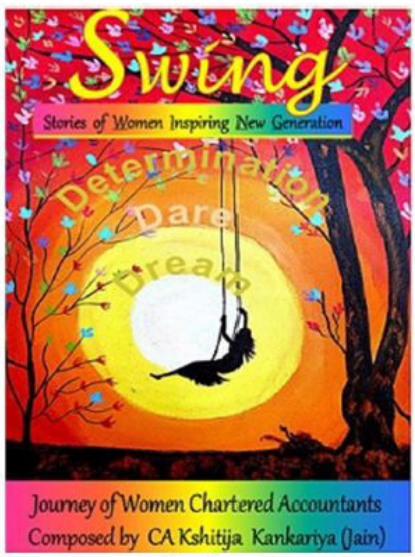

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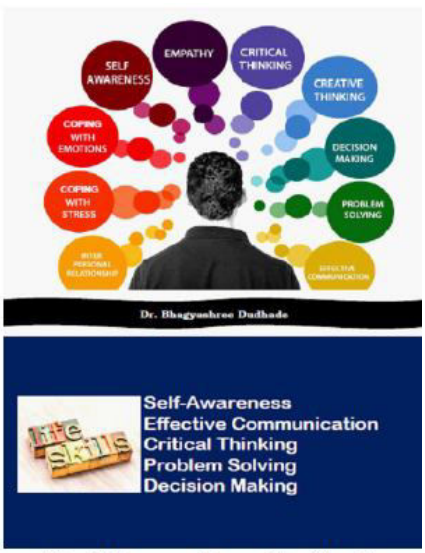

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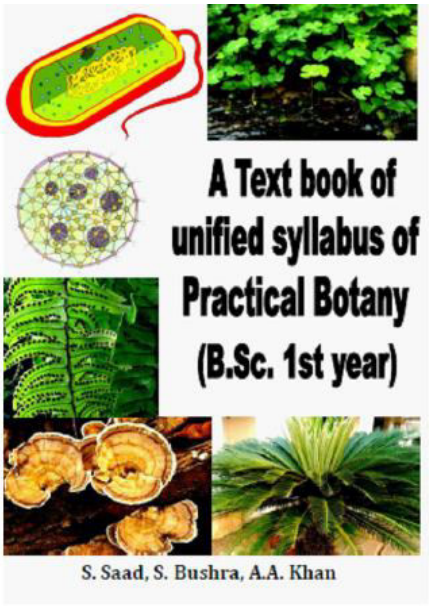

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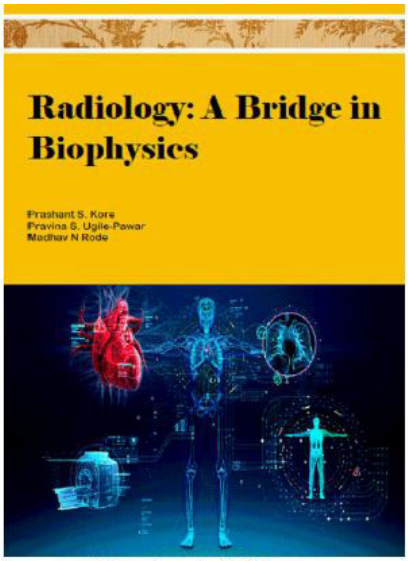

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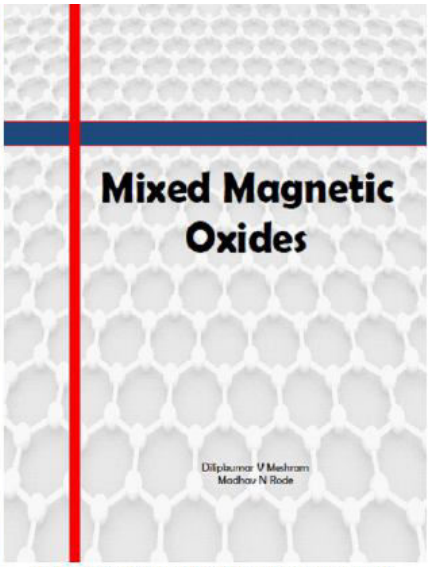

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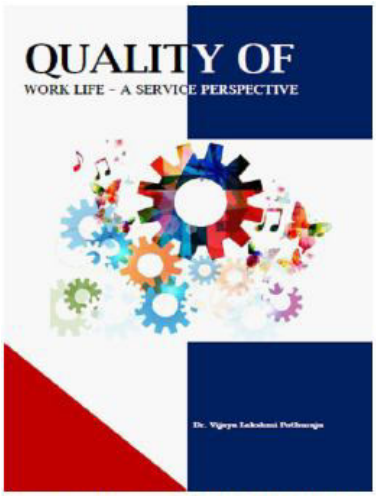

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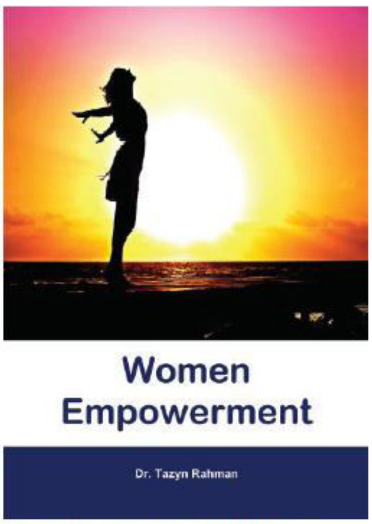

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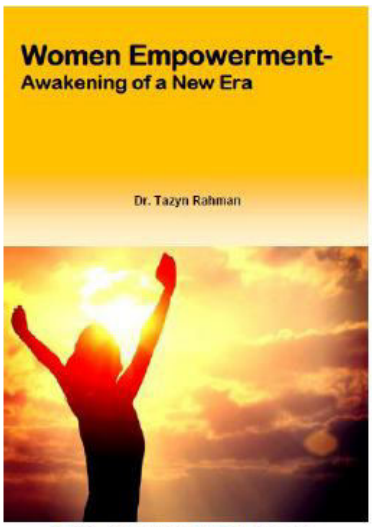

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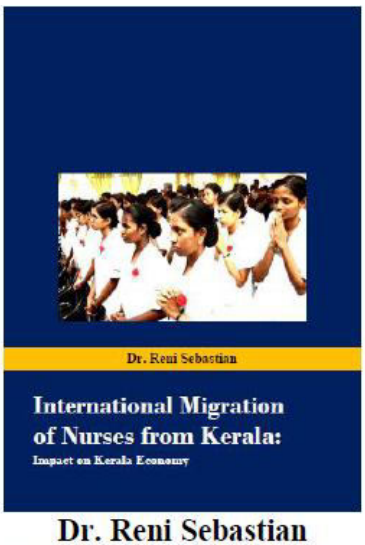

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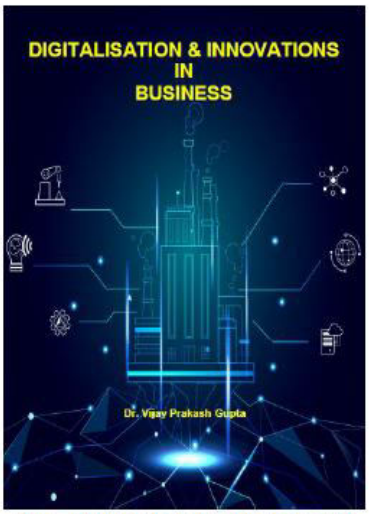

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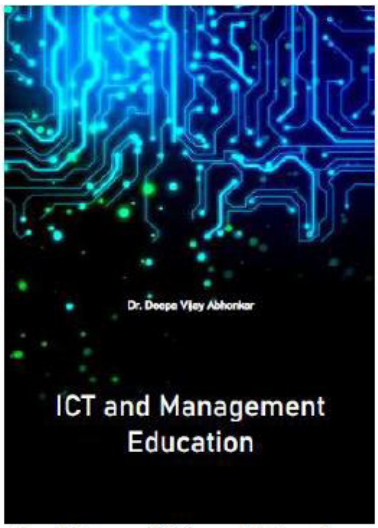

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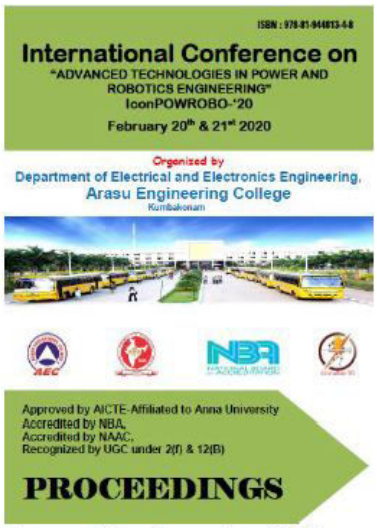

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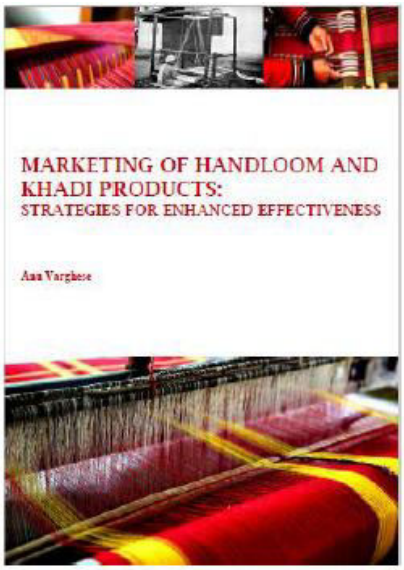

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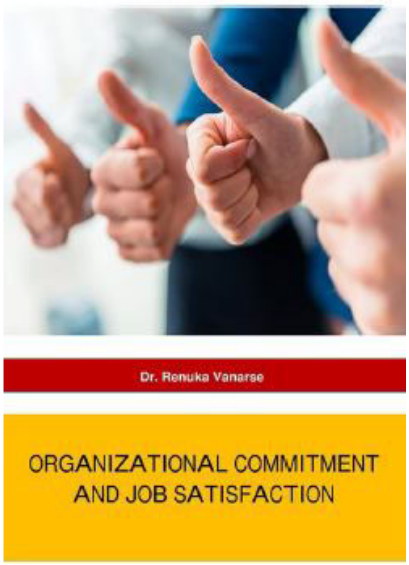

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