PROJECT REPORT

(Submitted for the Degree of B.com Honours in Accounting and Finance under the University of Calcutta)

TITLE OF THE PROJECT

FROM SIRI TO ALEXA: HOW AI CHATBOTS ARE REVOLUTIONIZING DAILY LIFE

Submitted By

NAME: OINDRILA DEY

REGISTRATION NO: 034-1211-0649-20

CU ROLL NO: 201034-11-0283

NAME OF THE COLLEGE: SHRI SHIKSHAYATAN COLLEGE

COLLEGE ROLL NO: 333

Supervised By

NAME OF THE SUPERVISOR: TANIA GHOSH

NAME OF THE COLLEGE: SHRI SHIKSHAYATAN COLLEGE

MONTH & YEAR OF SUBMISSION

JUNE 2023

SUPERVISOR'S CERTIFICATE

This is to certify that Ms. **Oindrila Dey** a student of **B.Com. Honours Accounting and Finance of Shri Shikshayatan College** under the University of Calcutta has worked under my supervision and guidance for her Project Work and prepared a Project Report with the title "**FROM SIRI TO ALEXA: HOW AI CHATBOTS ARE REVOLUTIONIZING DAILY LIFE**" which she is submitting, is her genuine and original work to the best of my knowledge.

Signature:

Name: Tania Ghosh

Designation: Professor

Name of the College: Shri Shikshayatan College

Place: Kolkata

Date:

STUDENT'S DECLARATION

I hereby declare that the Project Work with the title "**FROM SIRI TO ALEXA: HOW AI CHATBOTS ARE REVOLUTIONIZING DAILY LIFE**" submitted by me for the partial fulfilment of the degree of B.Com. Honours in Accounting & Finance under the University of Calcutta is my original work and has not been submitted earlier to any other University for the fulfilment of the requirement for any course of study.

I also declare that no chapter of this manuscript in whole or in part has been incorporated in this report from any earlier work done by others or by me. However, extracts of any literature which has been used for this report has been duly acknowledged providing details of such literature in the references.

Signature:

Name: Oindrila Dey

Address: 37, Huzuri Mull Lane

Kolkata – 700014

Registration No: 034-1211-0649-20

CU Roll No: 201034 – 11 - 0283

Place: Kolkata

Date:

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At the completion of my project, I would like to express my sincere gratitude to all the people without whose support this project could not be completed.

At the onset, I would like to express my gratitude towards "**Shri Shikshayatan College**" for having provided me with a wonderful opportunity to pursue my bachelor's degree in this institution.

I would also like to thank our Principal **Dr. Aditi Dey**, The incharge of B.com Morning **Dr. Papiya Chowdhury** and Head of the Department **Dr. Rumpa Chakraborty** for providing me the opportunity to work in this project report.

I would like to acknowledge the constant help of my project supervisor **Tania Ghosh**, who has given necessary suggestion, expert guidance and support for the completion of the project.

Finally, I am grateful for the support of my family and friends during the completion of the project.

PREFACE (SYNOPSIS / EXECUTIVE SUMMARY)

A synopsis is a brief summary which gives readers an overview of the main points. The synopsis of this research project is mentioned in detail below.

The research project discusses how AI chatbots are transforming the ways in which we interact with technology. Chatbots use natural language processing and machine learning algorithms to simulate human conversation and provide helpful responses to our queries. This makes them a more efficient and suitable means of communication for individuals and business firms. The research here highlights some specific tasks that chatbots like Siri and Alexa can help with. For example, they can help manage schedules, set reminders, order groceries, control smart home devices, and provide customer service support. The study also discusses some of the potential downsides of relying on chatbots for daily tasks. For example, there are concerns about privacy and security, as chatbots may collect personal data and share it with third parties. Additionally, there is a risk of job loss for human workers, as chatbots may replace certain roles in customer service and other industries. The analysis and findings section of the research project likely provides an in-depth examination of the data collected and the conclusions drawn from it. This may include a detailed analysis of the research or study conducted, including any methodologies used, data collection methods, and statistical analysis. The findings section of the study likely presents the results and outcomes of the study, highlighting any significant patterns, trends, or correlations discovered. This may include interpretations and explanations of the findings in relation to the research objectives or hypotheses.

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CHAPTER 1

INTRODUCTION

Artificial Intelligence (AI) refers to the field of computer science that focuses on creating intelligent machines that are capable of performing tasks that require human intelligence. It involves the development of computer systems that can recognize, reason, learn and also make decisions by ultimately mimicking human analytical abilities.

AI can be mainly classified into two categories: Narrow AI and General AI. Narrow AI is also named weak AI. It is designed to perform specific tasks or solve specific problems. Examples of Narrow AI can be voice assistants, image identification systems, and solving algorithms. On the other hand, General AI is also named strong AI or artificial general intelligence (AGI). This focuses on developing machines that have the same level of intelligence as human beings. AGI can be capable of understanding and doing any intellectual work that humans too can do.

- ARTIFICIAL INTELLIGENCE CHATBOTS: Artificial Intelligence chatbots or AI chatbots are generally computer programs or virtual assistants that mainly use artificial intelligence strategies to communicate with users through text-based or voice-based conversations. These chatbots are generally designed to understand and respond to the questions or requests of the users.
  Examples of AI chatbots in various domains can include AI chatbots in education, e-commerce, healthcare, banking, customer services, and many more.

→ AI Chatbots in Education: AI chatbots in education can be explained as the implementation of artificial intelligence-powered chatbots in the field of education. These chatbots are made to improve learning experiences, give support to students and also provide personalized support in educational systems.

→ AI Chatbots in E-commerce: AI chatbots in e-commerce can be explained as the use of artificial intelligence-powered chatbots in online retail and electronic commerce platforms. These chatbots are made to improve the experiences of the customers, provide assistance and give smooth interactions between businesses and consumers in the e-commerce domain.

→ AI Chatbots in Healthcare: AI chatbots in healthcare can be defined as the use of artificial intelligence-powered chatbots in the healthcare industry. These chatbots are made to assist patients, healthcare providers, and other stakeholders by providing them with medical information, answering their queries, and proving their support in healthcare-related tasks. These chatbots also help in scheduling medical appointments, checking availability, and sending reminders to patients.

→ AI Chatbots in Banking: AI chatbots in banking can be defined as the use of artificial intelligence-powered chatbots in the banking and financial industry. These chatbots are made to interact with customers, provide personalized assistance to them and offer different types of banking services through conversational interfaces. These chatbots can assist customers in making various banking transactions, opening accounts, and closing accounts.

1.1 BACKGROUND OF THE PROJECT:

AI chatbots have become an integral part of our daily lives, providing assistance, information, and entertainment across different types of domains. By analyzing the development of AI chatbots in everyday scenarios, their technologies, and the perception of the users, this research project will give a broad understanding of the role and importance of AI chatbots in our daily lives.

The background of this project stems from the increasing prevalence and impact of AI technology in our society. AI chatbots have gained significant popularity and adoption in various industries and sectors due to their ability to improve communication, streamline processes, and enhance user experiences. The emergence of AI chatbots can be traced back to the early days of computer programming and the development of natural language processing techniques. Early chatbots, known as rule – based chatbots, operated on predefined sets of rules and responses. However, with advancements in AI and ML, chatbots evolved to become more intelligent and capable of understanding and generating human – like responses.

The applications of AI chatbots in daily life span across various domains. They are widely used in customer support services, in education, in healthcare, , in banking and finance, travel and hospitability, and numerous other sectors to improve efficiency and enhance user experiences. The background of this project highlights the evolution, benefits, and applications of AI chatbots in daily life, driven by advancements in AI and ML technologies. These chatbots have the potential to transform how we interact with technology and enhance various aspects of our daily lives.

Few examples of AI chatbot companies along with their market capitalization (cut off in September 2021):

- Open AI: It is an AI research laboratory known for developing advanced language models, including GPT – 3. Open AI has not been publicly traded so market capitalization is not available yet.
- LivePerson (NASDAQ: LPSN): LivePerson provides AI- powered chatbots and solutions for customer engagement and support. As of September 2021, LivePerson had a market capitalization of approximately $3 billion.
- Nuance Communications (NASDAQ: NUAN): Nuance Communications is a software technology company that develops conversational AI solutions, including chatbots. As of September 2021, Nuance Communications had a market capitalization of around $15 billion.

Therefore, this information helps us to know the background of the topic and the study.

1.2 LITERATURE SURVEY:

A literature survey is a comprehensive review and analysis of existing published sources on a specific topic, which aims at summarizing the current knowledge and identifying research gaps.

Some of the literature reviews are mentioned below:

Kuhail, M.A., Alturki, N., Alramlawi, S. (2023), Interacting with educational chatbots: A systematic review, This study presents a systematic review of interacting with educational artificial intelligence (AI) chatbots. The objective of the research was mainly to examine the present state of educational chatbots, their performance and functions, and their effect on learning outcomes. The researchers conducted a huge literature review and examined a range of studies to understand insights into the use of chatbots in educational settings. The study focused on different aspects, like chatbot design, experiences of the users, effectiveness, and challenges involved with the implementation of the chatbots. This study also shows the challenges faced during the implementation of educational chatbots, including ethical concerns, some technical limitations, and the need for more improvement based on the feedback of the users.

Ruane, E., Farrell, S., Ventresque, A. (2021), User Perception of Text – Based Chatbot Personality, This study presents the effect of the personality of chatbots on the experience of the users and finds out how users understand the personality of the agent when communicating through text. Studying some previous works in the field of human-computer interaction on designing the personality of the chatbots, this study investigated whether users in a low conversation have a liking for a particular personality type in the chatbots when the chatbot does not use voice, is not visually shown, and does not give any identity hints such as gender. This study made two chatbots that communicate with users in a multi-turn conversation and made them have different qualities along two methods of the Five Factor Model (extraversion and agreeableness). This study made study to understand the engagement of the users, user perception of the chatbots, and the effect of user personality.

Nichifor, E., Trifan, A., Nechifor, E.M., (2021), Artificial Intelligence in Electronic Commerce: Basic Chatbots and the Consumer Journey, This study focuses to cover the impact of the use of artificial intelligence (AI) through chatbots on online retail. This research brings a contribution to the specialized literature by analyzing the utility and demonstrating the facility, and important concepts of the Technology Acceptance Model. For this reason, ten online stores in Romania were studied. It was selected according to the number of users. The research was conducted through a non-reactive method which is content analysis. The explanation of the data found through the content allowed a horizontal and vertical approach that led to a series of results that confirmed the low level of performance of market leaders, as well as the high potential of this type of technology is applied. Regarding the impact of the use of chatbots, it has been shown that the poor quality of the content displayed to users affects the consumer's journey, with the point of satisfaction not being reached in these conditions.

Zamora, J., (2017), Rise of the Chatbots: Finding A Place for Artificial Intelligence in India and US, This study explores how chatbots are finding a place in our routine daily lives. Chatbot development has increased in many cases and in some its purpose remains not much defined. Due to its new technology, there is an opportunity to make meaningful experiences with chatbots in one’s life. In this research study, qualitative insights were collected from 54 participants in India and the US over the course of two weeks. This study talks about to identify opportunities for chatbots, we should understand how these programs are perceived and what actually exists for people. The research objectives of this study include, anticipation for chatbots, preferred input modalities and opportunities for chatbots based on user needs.

Stoilova, E., (2021), AI chatbots as a customer service and support tool, This study shows how COVID-19 pandemic has put the focus of businesses on the need for digitalisation and automation of customer service, support, and providing self-service solutions to cope up with the fast-changing business environment and customers' expectations and needs. Chatbots have already started taking places at the top of the list of business solutions during the pandemic and the use of conversational AI made them a must-have to help businesses solve various challenges. This research paper shows three case studies for using chatbots by customers of Umni, a no-code platform for creating,

managing, and training AI chatbots, that reveal how chatbots are helping businesses, employees, and customers through instant assistance and routine automation.

Majumder, S., Mondal, A., (2021), Are chatbots really helpful for human resource management?, Human resources (HR) of any organization plays an important role in the making and growth of the company by providing efficient and competent employees. Artificial Intelligence (AI) has become an emerging technology in technological advancements domain of business practices which helps organizations to develop at a large scale. With the invention of chatbots, which is an important domain in AI and natural language processing, the organizations have become more AI centric. A chatbot is considered to be an important communication system which can be used among the employees as well as customers for performing some communication-oriented works within an organization without any human intervention. The AI performed technology makes the complex problems into simplified solutions. To validate the usefulness of chatbots in a human resource management system, this study summarised the functions of chatbots in real time scenario. In this research paper, an overall view of the chatbots in HRM, often called as a HR-bot, is studied to show the usefulness in real time considering the challenges such as cost factor, complex business domains, limited responsiveness etc.

Trivedi, J., (2019), Examining the Customer Experience of Using Banking Chatbots and Its Impact on Brand Love: The Moderating Role of Perceived Risk, In today's digital world, banks offer chatbots to improve the customer service. This study shows chatbots as a form of an information system. It shows the effect of the three quality dimensions of the information system success model on customer experience, also leading to love for the bank brand. As chatbots are a new platform of technology, consumers may find some risk while using it. So, the moderating role of risk between the three quality dimensions and customer experience is also observed. Data were collected from 258 respondents. The results gave a proper direction for banks to strengthen the consumer–brand relationship by offering chatbots suiting their customers' expectations.

Adam, M., Wessel, M., Benlian, A (2021), AI- based chatbots in customer service and their effects on user compliance, This research paper talks about live chat interfaces are becoming more popular for customer service in online shopping. Instead of human agents, chatbots powered by AI are often used to communicate with customers. While chatbots are cost-effective and save time, they sometimes fail to meet customer expectations, leading to users being less likely to follow the chatbot's requests. In a recent online experiment, we looked at how using design cues that make the chatbot sound more human and applying the foot-in-the-door technique affect customer compliance. The findings showed that both making the chatbot sound human and creating a sense of consistency increased the likelihood of customers following the chatbot's request for feedback. Additionally, the study found that the feeling of social presence played a role in why human-like design cues increased compliance.

Aoki, N., (2020), An experimental study of public trust in AI chatbots in the public sector, This study talks about the public's initial trust in artificial intelligence (AI) chatbots that are to be introduced into use in the public sector. This study builds on theories of operators' trust in machines in industrial settings and proposes that public trust in chatbot responses depends on (a) the area of inquiry, and (b) the purposes through which governments communicate to the public for showing the use of chatbots. Based on an online survey in Japan results show that the government announces the use of AI chatbots based on public trust and queries and only after enquiring about the effect sizes. Communication would directly benefit citizens, like fast response and uniformity and this would help improve public trust in using AI chatbots.

Sidlauskiene, J., Joye, Y., Auruskeviciene, V., (2023), AI - based chatbots in conversational commerce and their effects on product and price perceptions, This research paper explains about the use of AI-powered chatbots is changing how people shop, but many consumers still prefer human interaction and don't like chatbots because they seem impersonal. People want a more personal touch when they shop. In this study, we wanted to see how making chatbots sound more human-like would affect how people feel about products and whether they would be willing to pay more for them. We conducted three experiments with participants. The results showed that when chatbots used human-like language, people felt that the products were more personalized. This effect was stronger for people who were feeling lonely at the time. Additionally, when the chatbots sounded more human-like and people were feeling lonely, they were more willing to pay a higher price for the products. These findings are important for companies using chatbots to recommend personalized products based on data.

Miklosik, A., Evans, N., Qureshi, A., (2021), The use of chatbots in Digital Business Transformation: A systematic Literature Review, This paper conducts a systematic review of 74 papers on Artificial intelligence (AI) chatbots to identify their role in digital business transformation. The authors find that chatbots can be used to improve customer service, automate tasks, and provide personalized recommendations. Topical (focus and applications), methodological (methods used, sample size, sample type, and countries studied) and bibliometric (publication outlet, citations, and Altmetric Attention Score) aspects are found and elaborated. Scholars can use the results of this research to identify topics, areas, that are discussed and need further attention.

1.3 CHAPTER PLANNING:

The chapters for this project report have been planes in the following way:

Chapter 1: In this chapter the introduction, background of the study and literature survey of the Artificial Intelligence is mentioned in a detailed manner.

Chapter 2: This chapter mainly discusses about the conceptual framework of the project report as well as the global & national scenario and benefits and challenges faced by the AI chatbots in India and all over the world.

Chapter 3: In this chapter, the objectives of the study, research methodology and analysis & findings of the project report has been discussed in detailed manner. The analysis & findings has been explained from the data collected through questionnaire of the primary survey.

Chapter 4: In this final chapter, the summary observations, recommendations for improvement, limitation of the study and scope for further research is mentioned in a detailed manner.

CHAPTER 2

CONCEPTUAL OVERVIEW

2.1 CONCEPTUAL FRAMEWORK:

AI chatbots have become an important part of our daily lives, by changing the way users communicate with technology and transforming different outlooks of our routines. These intelligent conversational agents are designed to provide human-like conversations and give assistance, information, and entertainment all over different platforms and applications. To understand the conceptual framework of AI chatbots in daily life, we can explore the following key components:

- Natural Language Processing (NLP): NLP forms the foundation of AI chatbots, enabling them to understand and interpret human language. It includes techniques such as text analysis, sentiment analysis, and language generation, allowing chatbots to understand user inputs, and relevant information, and respond properly.

- User Interface and Experience: An important aspect of AI chatbots is providing a seamless and user-friendly interface for interaction. This includes designing interfaces across different channels like messaging apps, voice assistants, and websites. The goal is to give a smooth conversational experience that mimics human interactions, making it easy for users to communicate with chatbots effectively.

- Context Awareness: Chatbots equipped with context awareness capabilities can understand and remember previous interactions, allowing for more personalized and contextually relevant conversations. By leveraging user history and preferences, chatbots can provide tailored recommendations, suggestions, and assistance, improving the overall user experience.

- Integration with Systems and Services: AI chatbots can be integrated with existing systems and services to extend their capabilities. They can access databases, APIs, and external platforms to retrieve real-time information, perform actions on behalf of users, and automate tasks. This integration enables chatbots to provide services beyond simple information retrieval, such as making reservations, ordering products, or scheduling appointments.

- Continuous Learning and Improvement: Chatbots can understand machine learning algorithms to continuously learn from user interactions. They can analyze conversations, identify patterns, and improve their responses over time. By leveraging user feedback and human supervision, chatbots can become smarter, more accurate, and better provided to handle a wide range of user queries.

- Ethical Considerations: As AI chatbots become more pervasive, ethical considerations arise regarding privacy, data security, and bias. Developers must ensure that chatbots respect user privacy, handle sensitive information appropriately, and avoid perpetuating biases or discriminatory behavior. Transparency and accountability are crucial to building trust and maintaining ethical standards in the deployment and usage of AI chatbots.

In summary, the conceptual framework of AI chatbots in daily life involves natural language processing, user interface and experience, knowledge base and machine learning, context awareness, integration with systems and services, continuous learning, and ethical considerations. These components work together to create intelligent conversational agents that enhance our daily interactions, streamline tasks, and provide valuable assistance across various domains.

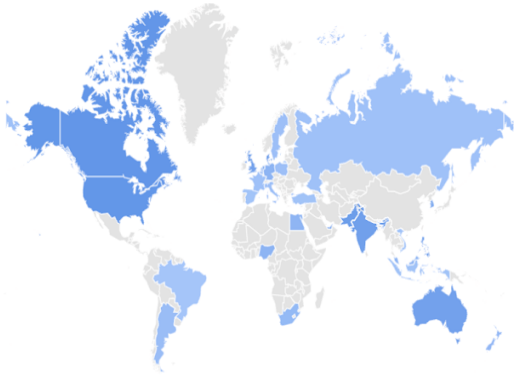
2.2 GLOBAL / NATIONAL SCENARIO:

From bustling metropolises to remote corners of the nation, the rise of AI chatbots has transcended borders, shaping a dynamic global and national landscape of conversational automation.

- The global market for conversational AI is expected to grow from $3.5 billion in 2021 to $15.2 billion by 2027.
- Chatbots are being used in a variety of industries, including customer service, sales, marketing, and education.
- Chatbots can provide 24/7 customer service, answer questions, and complete tasks.
- Chatbots can help businesses save money and improve customer satisfaction.

Some examples of how chatbots are being used in different industries are as follows:-

- **Customer service:** Chatbots can be used to answer customer questions, resolve issues, and provide support. For example, American Express uses a chatbot to answer customer questions about their accounts and transactions.
- **Sales:** Chatbots can be used to qualify leads, generate sales leads, and close deals. For example, IBM Watson Assistant is used by sales teams to qualify leads and generate sales opportunities.
- **Marketing:** Chatbots can be used to promote products and services, collect customer feedback, and generate leads. For example, Sephora uses a chatbot to promote its products and services to customers.
- **Education:** Chatbots can be used to provide personalized learning experiences, answer questions, and provide support. For example, Pearson uses a chatbot to provide personalized learning experiences to students.



1	Singapore	100
2	Canada	44
3	United States	43
4	Hong Kong	42
5	Denmark	40

Source: Google Trends

The above diagram shows the scale of searches of AI chatbots in the world.

- The Indian market for chatbots is expected to grow from $1.5 billion in 2021 to $6.5 billion by 2027.
- Chatbots are being used in a variety of industries, including customer service, sales, marketing, and education.
- Chatbots can provide 24/7 customer service, answer questions, and complete tasks.
- Chatbots can help businesses save money and improve customer satisfaction.

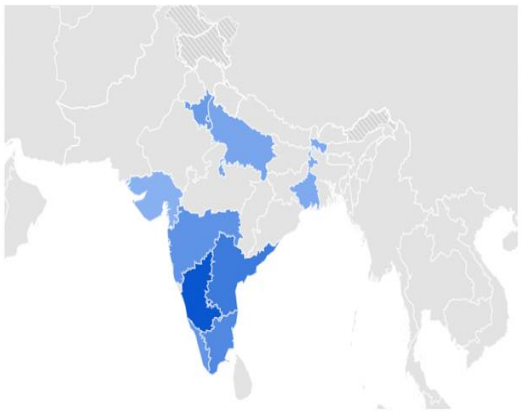
Some examples of how chatbots are being used in different industries in India are as follows:-

- **Customer service:** Chatbots are being used by banks, insurance companies, and other businesses to provide customer service. For example, HDFC Bank uses a chatbot to answer customer questions and resolve issues.
- **Sales:** Chatbots are being used by e-commerce companies, travel agencies, and other businesses to generate leads and close deals. For example, Flipkart uses a chatbot to help customers find products and complete purchases.
- **Marketing:** Chatbots are being used by businesses to promote their products and services, collect customer feedback, and generate leads. For example, Amazon uses a chatbot to promote its products and services to customers.
- **Education:** Chatbots are being used by schools, colleges, and other educational institutions to provide personalized learning experiences, answer questions, and provide support. For example, Byju's uses a chatbot to help students learn math and science.

Overall, chatbots are a powerful tool that can be used to improve customer service, increase sales, and boost marketing efforts. As technology continues to develop, we can expect to see even more innovative and creative ways to use chatbots in the future.

Some of the benefits of using AI chatbots in India are as follows:-

- **Reduced costs:** Chatbots can help businesses reduce costs by automating customer service tasks.
- **Improved customer satisfaction:** Chatbots can help businesses improve customer satisfaction by providing 24/7 customer service and answering questions quickly and accurately.
- **Increased sales:** Chatbots can help businesses increase sales by generating leads, qualifying leads, and closing deals.
- **Improved marketing efforts:** Chatbots can help businesses improve their marketing efforts by promoting products and services, collecting customer feedback, and generating leads.



1	Karnataka	100
2	Telangana	82
3	Andhra Pradesh	68
4	Tamil Nadu	55
5	Maharashtra	46

Source: Google Trends

The above diagram shows the scale of searches of AI chatbots in India.

Source: Google Trends

The above diagram shows the scale of overall interest of AI chatbots overtime.

2.3 BENEFITS & CHALLENGES:

AI chatbots are becoming increasingly popular as a way for businesses to provide customer service, support sales, and generate leads. They offer a number of benefits, including:

- **24/7 availability:** AI chatbots can work 24 hours a day, 7 days a week, providing customer service support to customers anytime, anywhere.
- **Cost-effective:** AI chatbots can handle a large volume of customer queries simultaneously, reducing the need for human customer service agents - thus saving costs.
- **Improved customer satisfaction:** AI chatbots can provide customers with a more personalized and engaging customer experience than traditional customer service channels, such as phone or email.
- **Increased sales:** AI chatbots can help businesses increase sales by providing personalized recommendations and upselling opportunities.
- **Improved data collection:** AI chatbots can collect data about customer interactions, which can be used to improve products and services.

However, there are also some challenges associated with AI chatbots, which includes:

- **Accuracy:** AI chatbots are still under development, and they can sometimes make mistakes. This can lead to customer frustration and dissatisfaction.
- **Personalization:** AI chatbots can be difficult to personalize to the individual customer. This can make it difficult to build relationships with customers and provide them with a truly personalized experience.
- **Security:** AI chatbots can collect a lot of data about customers, including personal information and purchase history. This data needs to be protected to prevent it from being stolen or misused.
- **Acceptance:** Some customers may not be comfortable interacting with a chatbot, and they may prefer to speak to a human customer service representative.

Overall, AI chatbots offer a number of benefits for businesses. However, it is important to be aware of the challenges associated with them and to take steps to mitigate these risks.

Here are some additional tips for using AI chatbots effectively:

- ✓ **Use them for the right tasks:** AI chatbots are best suited for tasks that are repetitive, simple, and can be resolved with a limited amount of information. For more complex tasks, it is often better to have a human customer service agent available.
- ✓ **Train them well:** This will help the chatbot to learn how to communicate with customers in a natural way.
- ✓ **Personalize them:** The more personalized an AI chatbot is, the more likely customers are to engage with it. Use customer data to personalize the chatbot's responses, such as their name, purchase history, and interests.
- ✓ **Secure your chatbot's data.** This will help to protect customer data from unauthorized access.

CHAPTER 3

ANALYSIS AND FINDINGS

3.1 OBJECTIVES OF THE STUDY:

Objectives of a research helps the researchers to collect necessary relevant information.

The main objectives of the study are as follows:

- To provide an overview of the Artificial chatbots revolutionizing our daily life.
- To show a comparative analysis between AI chatbots and traditional human – based systems.
- To examine the level of trust and reliability users place in AI chatbots.
- To investigate user experience of interacting with AI chatbots.
- To explore user perceptions, preferences, and challenges encountered during interactions.
- To assess the performance of AI chatbots in specific task or domains.
- To assess the overall satisfaction levels of users with AI chatbots and how well meet the user expectations.
- To evaluate the effectiveness and efficiency of AI chatbots in performing specific tasks or functions.
- To gather user feedback, suggestions, and recommendations for improving AI chatbot performance and enhancing the user experience.

Thus, this objectives designs the research study to address specific aspects of AI chatbot usage and provide valuable insights for further development, optimization, and user centric improvements.

3.2 METHODOLOGY:

Research methodology refers to the systematic process of gathering, analysing, and interpreting data in order to answer research questions or understand a specific topic, using well defined methods.

3.2.1 SAMPLE SIZE:

A diverse group of **112 people** of different age groups and occupations were surveyed for the sake of the research.

3.2.2 DATA TYPE:

The data type of this project is completely based on **primary source data**. Responses of the users have been taken from the given questionnaire.

3.2.3 DATA SOURCE:

The data was sourced based on the opinions of people belonging to a plethora of fields.

3.2.4 PERIOD OF STUDY:

Research work was carried out for 3 months from March 2023 to May 2023.

3.2.5 TOOLS USED:

The study has been analysed using bar graphs, histograms, line graphs, and pie charts by using the data from the primary source.

3.3 ANALYSIS & FINDINGS:

- **Demographic profile of the respondents:**

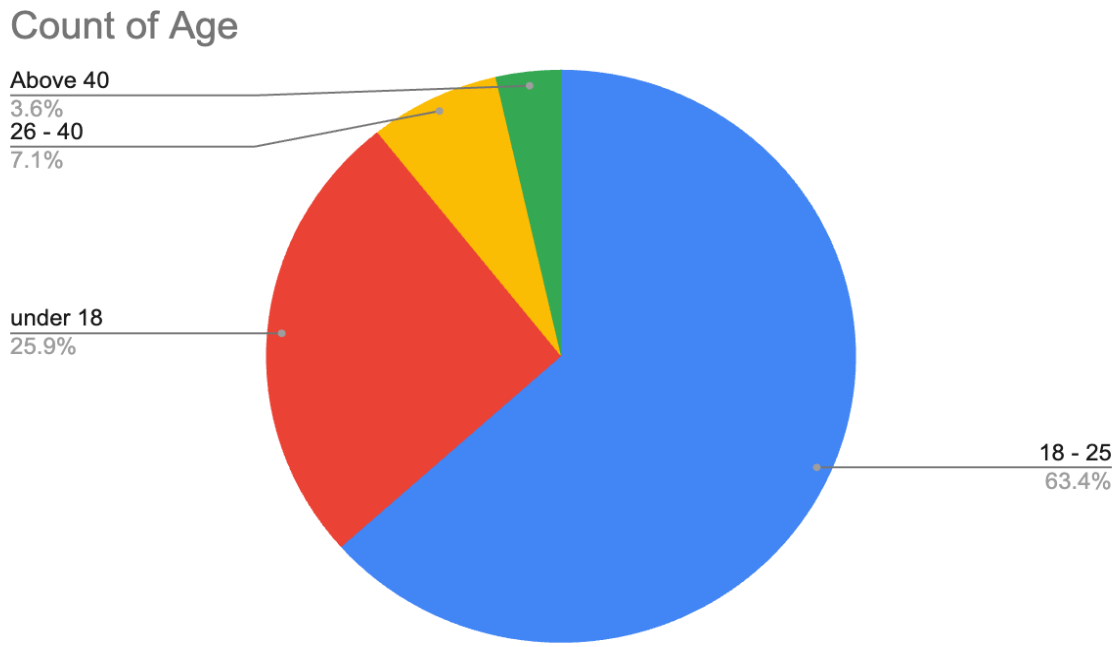
❖ AGE:

TABLE – 1

AGE OF THE RESPONDENTS

AGE	NO. OF RESPONDENTS	PERCENTAGE (%)
Under 18	29	25.9 %
18 – 25	71	63.4 %
26 – 40	8	7.1 %
Above 40	4	3.6 %
TOTAL	112	100 %

Source: Questionnaire



Source: Author's calculation

Interpretation: The pie chart shows that 25.9% respondents are under 18 age, 63.4% respondents are 18 - 25 age, 7.1% respondents are 26 - 40 age, and 3,6% respondents are above 40. Therefore, we can see that under 18 and till 25 years age group people uses more chatbots.

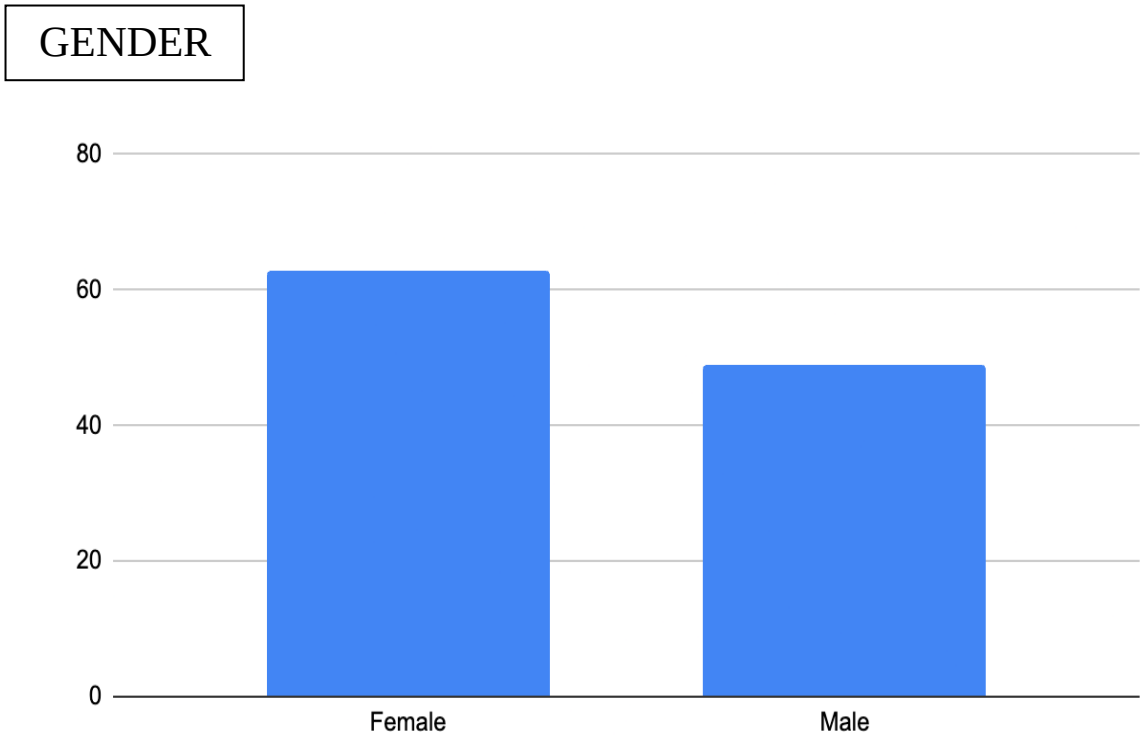
❖ GENDER:

TABLE – 2

GENDER OF THE RESPONDENTS

GENDER	NO. OF RESPONDENTS	PERCENTAGE (%)
Male	49	43.8%
Female	63	56.3%
Other	0	0
TOTAL	112	100%

Source: Questionnaire



Source: Author's calculation

Interpretation: The bar graph shows that 43.8% respondents are male, and 56.3% respondents are female.

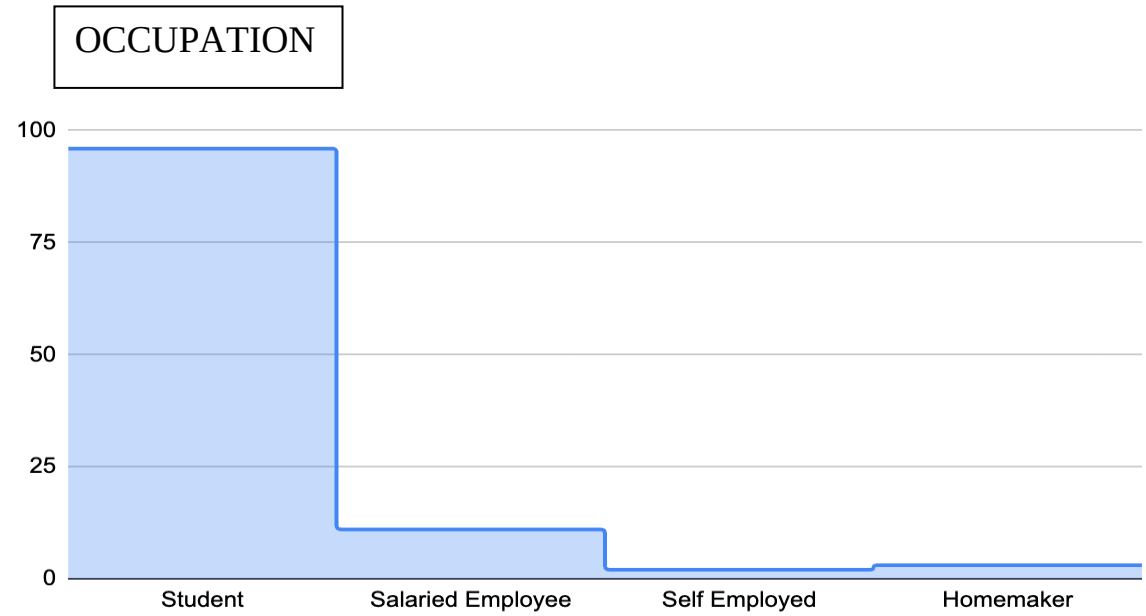
❖ OCCUPATION:

TABLE – 3

OCCUPATION OF THE RESPONDENTS

OCCUPATION	NO. OF RESPONDENTS	PERCENTAGE (%)
Student	96	85.7%
Salaried Employee	11	9.8%
Self Employed	2	1.8%
Homemaker	3	2.7%
Other	0	0
TOTAL	112	100%

Source: Questionnaire



Source: Author's calculation

Interpretation: The graph shows the 85.7% respondents are students, 9.8% respondents are salaried employees, 1.8% respondents are self – employed, and 2.7% respondents are homemakers. So we can conclude that students are preferring the use of chatbots more.

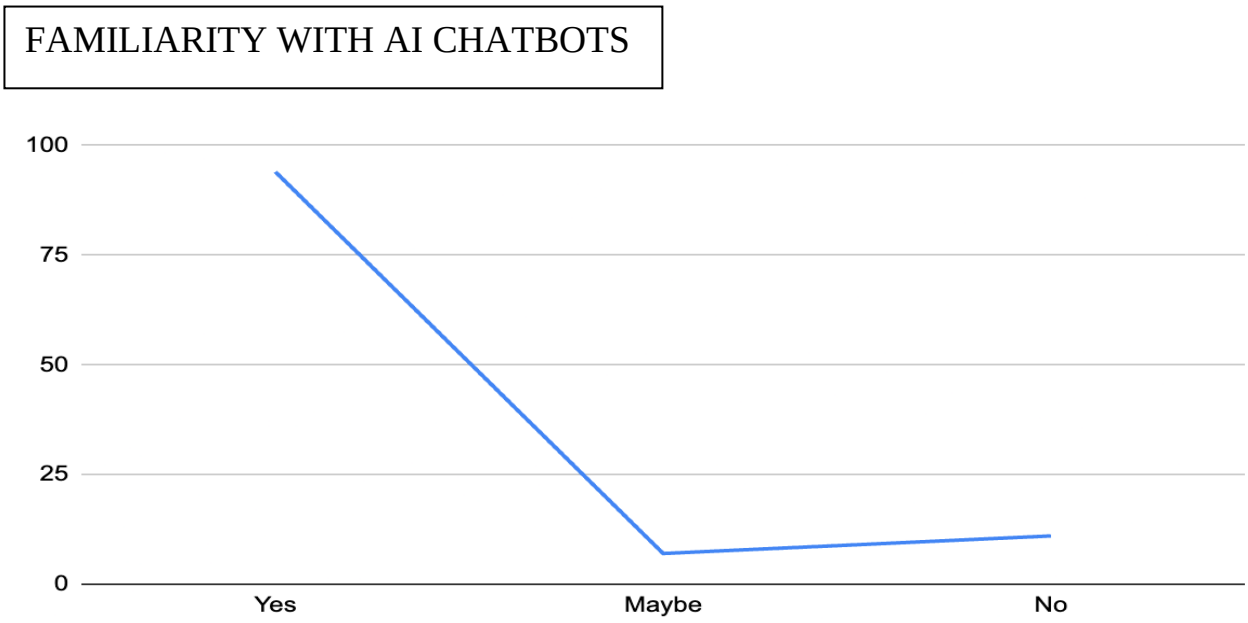
- **Familiarity with Artificial Intelligence Chatbots:**

TABLE – 4

FAMILIARITY WITH AI CHATBOTS

OPTIONS	NO. OF RESPONDENTS	PERCENTAGE (%)
Yes	94	83.9%
No	11	9.8%
Maybe	7	6.3%
TOTAL	112	100%

Source: Questionnaire



Source: Author's calculation

Interpretation: In this graph it can be seen that 83.9% respondents are familiar with AI chatbots, and 9.8% respondents are not familiar with AI chatbots. There are 6.3% respondents who are somewhat familiar with AI chatbots.

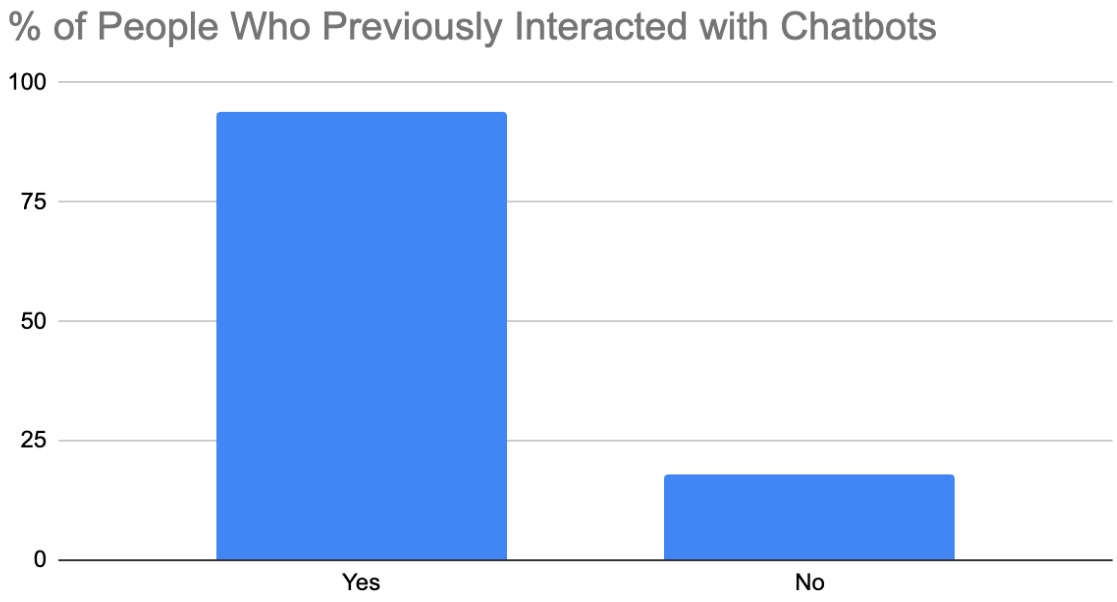
- **Interaction with AI chatbots:**

TABLE – 5

INTERACTION WITH AI CHATBOTS

OPTIONS	NO. OF RESPONDENTS	PERCENTAGE (%)
Yes	94	83.9%
No	18	16.1%
TOTAL	112	100%

Source: Questionnaire



Source: Author's calculation

Interpretation: In this graph it is shown that 83.9% of the respondents have previously interacted with AI chatbots, and 16.1% respondents have not interacted with AI chatbots.

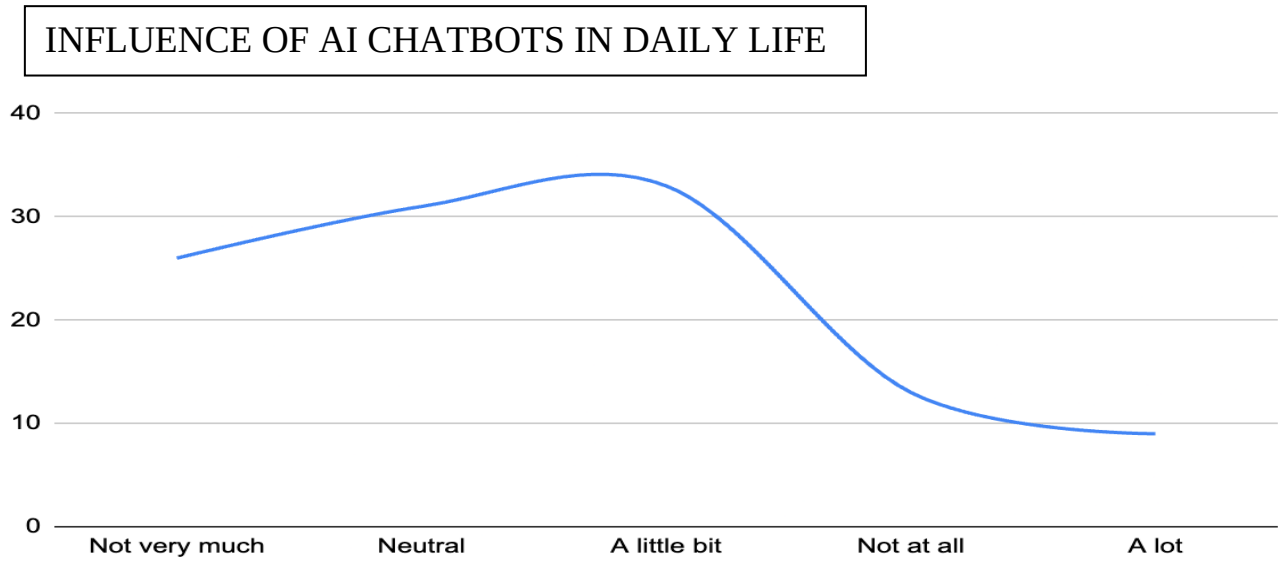
- **Influence of AI chatbots in the life of respondents:**

TABLE – 6

INFLUENCE OF AI CHATBOTS IN THE DAILY LIFE

OPTIONS	NO. OF RESPONDENTS	PERCENTAGE (%)
Not at all	13	11.6%
Not very much	26	23.2%
Neutral	33	27.7%
A little bit	33	29.5%
A lot	9	8%
TOTAL	112	100%

Source: Questionnaire



Source: Author's calculation

Interpretation: Here, the line graph shows how much AI chatbots have influenced the users daily life. 11.6% respondents life has not been influenced by AI chatbots. On the other hand, only 8% respondents daily life has been influenced a lot. 23.2% and 29.5% respondents daily life is either not much influenced or influenced little bit. The rest 27.7% respondents are neutral with this.

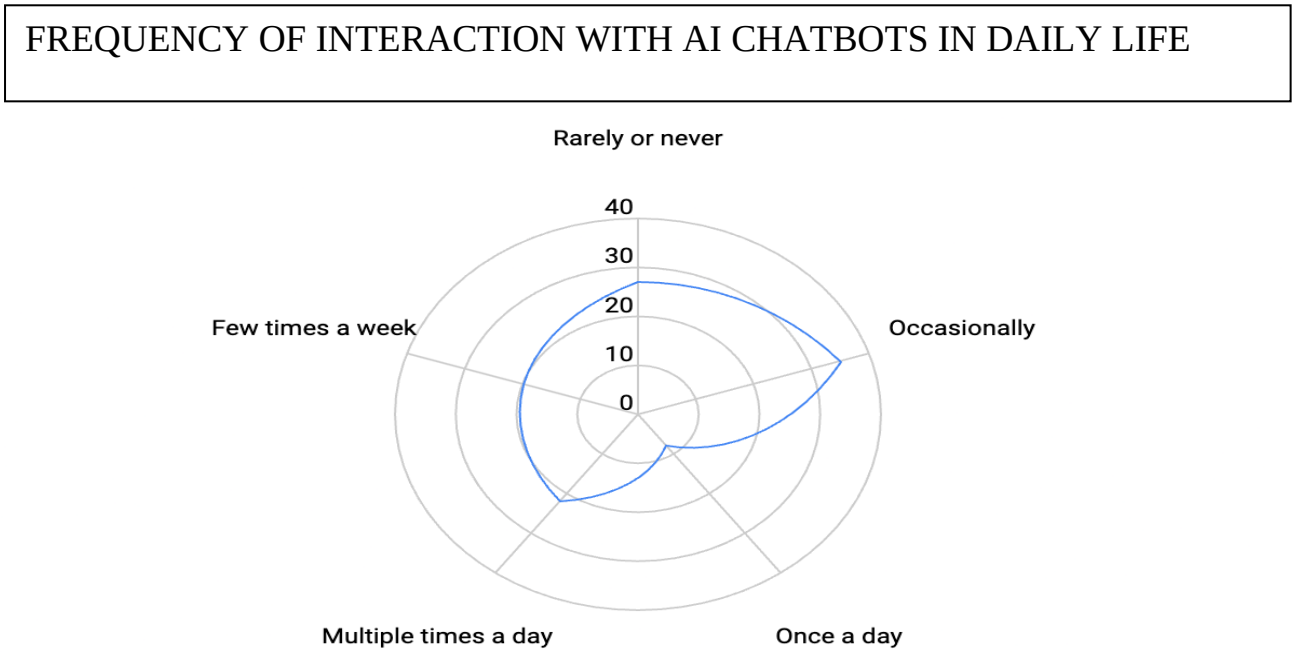
- **Frequency of interaction with AI chatbots in respondents daily life:**

TABLE - 7

FREQUENCY OF INTERACTION WITH AI CHATBOTS IN DAILY LIFE

OPTIONS	NO. OF RESPONDENTS	PERCENTAGE (%)
Multiple times a day	22	19.6%
Once a day	8	7.1%
Few times a week	20	17.9%
Occasionally	35	31.2%
Rarely or never	27	24.1%
TOTAL	112	100%

Source: Questionnaire



Source: Author's calculation

Interpretation: Here it is shown that 19.6% respondents uses chatbots multiple times a day, 7.1% respondents uses once a day, 17.9% respondents uses few times a week, 31.2% respondents uses occasionally and 24.1% respondents uses it rarely or never have used yet.

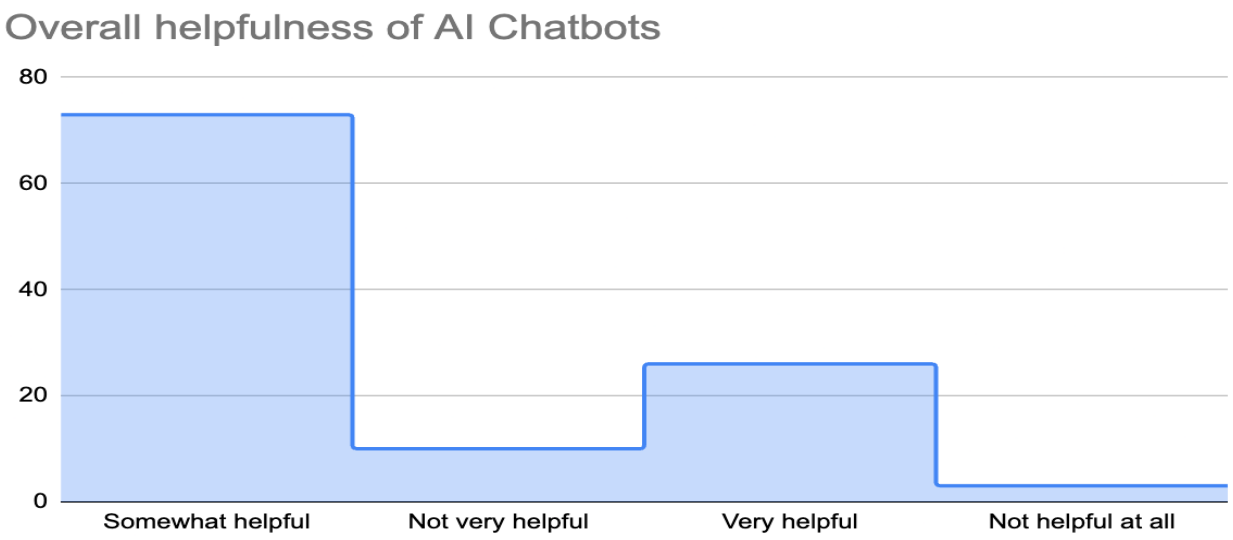
- **Rating the overall helpfulness of AI chatbots in meeting the needs of respondents:**

TABLE - 8

RATING OF OVERALL HELPFULNESS OF AI CHATBOTS IN MEETING NEEDS

OPTIONS	NO. OF RESPONDENTS	PERCENTAGE (%)
Very helpful	26	23.2%
Somewhat helpful	73	65.2%
Not very helpful	10	8.9%
Not helpful at all	3	2.7%
TOTAL	112	100%

Source: Questionnaire



Source: Author's calculation

Interpretation: In this chart it is shown that 23.2% respondents find AI chatbots very helpful, 65.2% respondents find it somewhat helpful, 8.9% respondents find it not very helpful and 2.7% respondents find it not helpful at all.

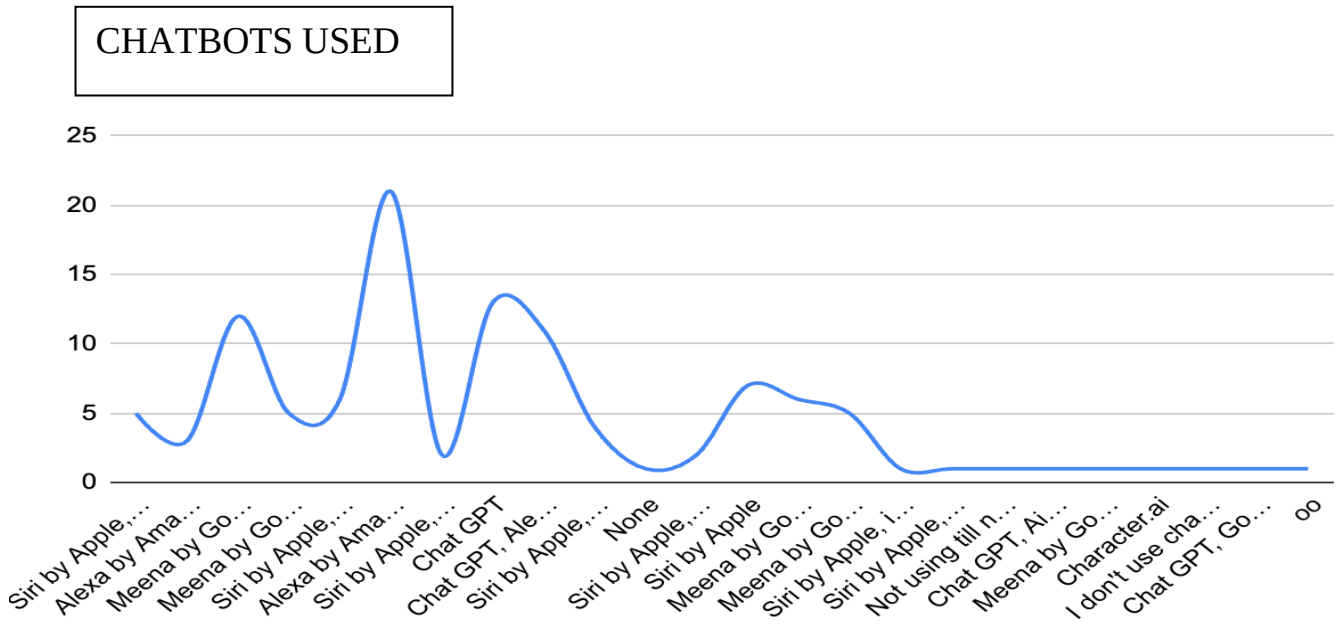
- **Chatbots used by the respondents:**

TABLE – 9

CHATBOTS USED

OPTIONS	NO. OF RESPONDENTS	PERCENTAGE (%)
Siri by Apple	28	25%
Meena by Google	33	29.5%
Chat GPT	51	45.5%
Alexa by Amazon	59	52.7%
Other	3	2.7%

Source: Questionnaire



Source: Author's calculation

Interpretation: This chart shows which chatbots the respondents use in their daily life. 25% of the respondents use Siri by Apple, 29.5% respondents use Meena by Google, 45.5% of them use Chat GPT, 52.7% of them use Alexa by Amazon, and 2.7% of them use some other chatbots.

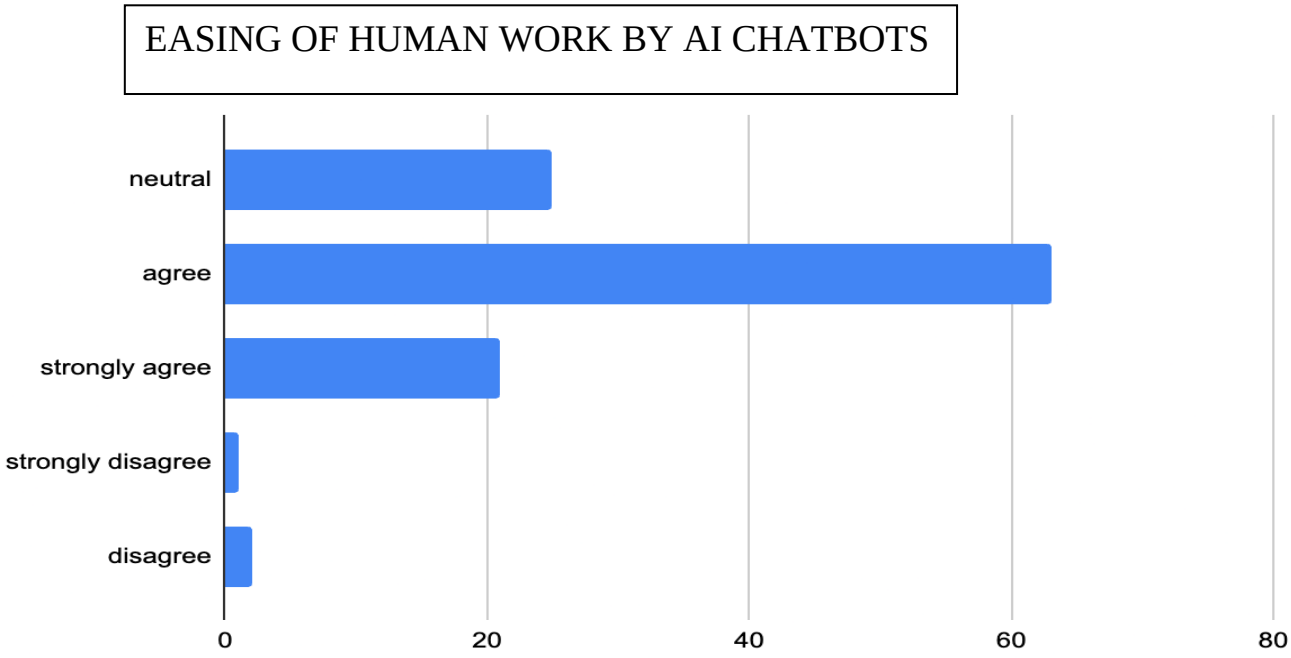
- **Easing of human work by AI chatbots:**

TABLE – 10

EASING OF HUMAN WORK BY AI CHATBOTS

OPTIONS	NO. OF RESPONDENTS	PERCENTAGE (%)
Strongly agree	21	18.8%
Agree	63	56.3%
Neutral	25	22.3%
Disagree	2	1.8%
Strongly disagree	1	0.9%
TOTAL	112	100%

Source: Questionnaire



Source: Author's calculation

Interpretation: This chart shows how much easy human work have become by implementation of AI chatbots. 18.8% of the respondents strongly agree, 56.3% of the respondents agree, 22.3% of them are neutral, 1.8% of them disagree, and 0.9% of them strongly disagree.

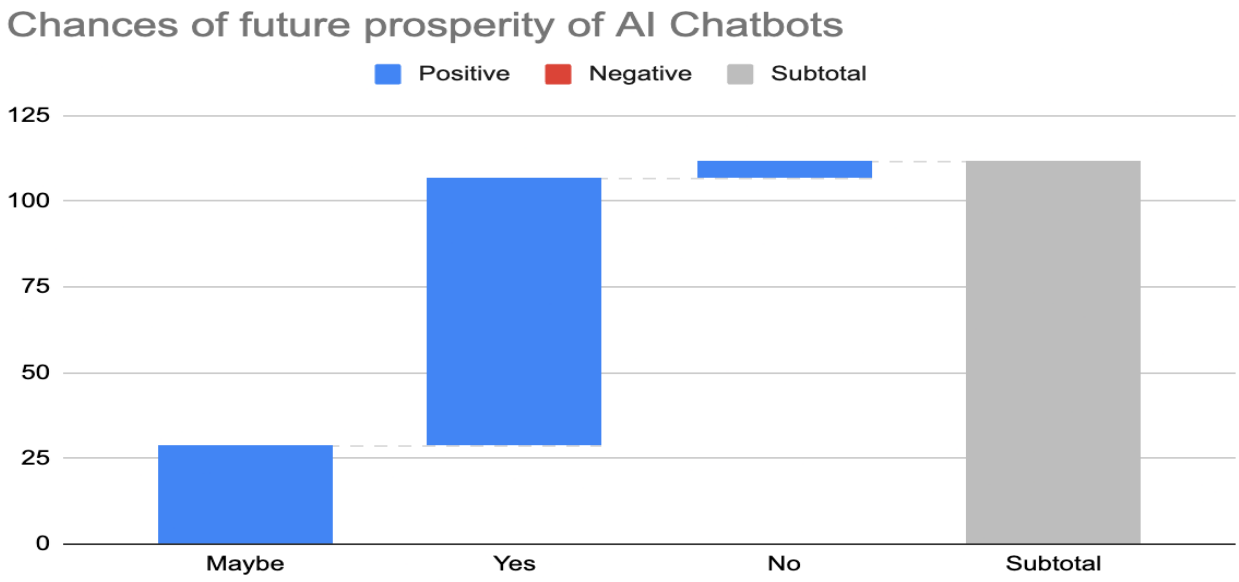
- **Prosperity of AI chatbots in the future:**

TABLE – 11

PROSPERITY OF AI CHATBOTS IN THE FUTURE

OPTIONS	NO. OF RESPONDENTS	PERCENTAGE (%)
Yes	78	69.6%
No	5	4.5%
Maybe	29	25.9%
TOTAL	112	100%

Source: Questionnaire



Source: Author's calculation

Interpretation: This chart shows that 69.6% of the respondents are agreeing that AI chatbots will prosper in future, and 4.5% of them are not agreeing. The other 25.9% respondents says it might prosper or might not.

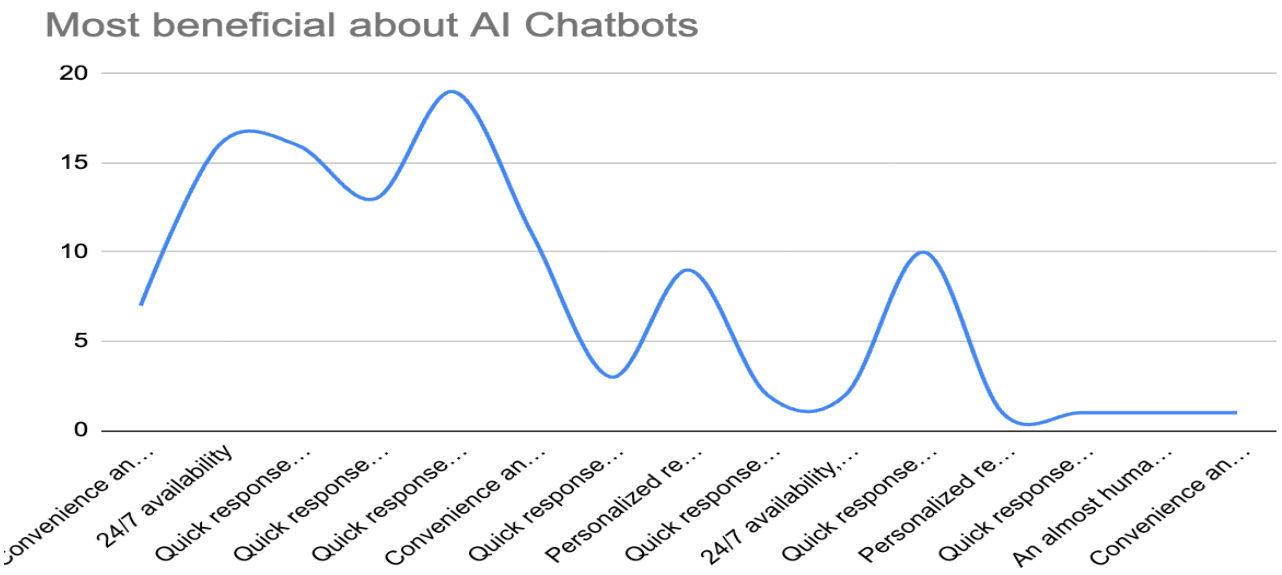
- **Most beneficial thing about using AI chatbots:**

TABLE – 12

MOST BENEFICIAL THING ABOUT USING AI CHATBOTS

OPTIONS	NO. OF RESONDENTS	PERCENTAGE (%)
Quick response times	64	57.1%
Convenience and accessibility	54	48.2%
24/7 availability	68	60.7%
Personalized recommendations or assistance	35	31.3 %
Other	1	0.9%

Source: Questionnaire



Source: Authors calculation

Interpretation: This shows what the users think most beneficial about AI chatbots. As it is shown, 57.1% of them chooses quick responses, 48.2% of them chooses convenience and accessibility, 60.7% of them chooses 24/7 availability, 31.3% of them chooses personalised recommendations or assistance, and the rest responded to other.

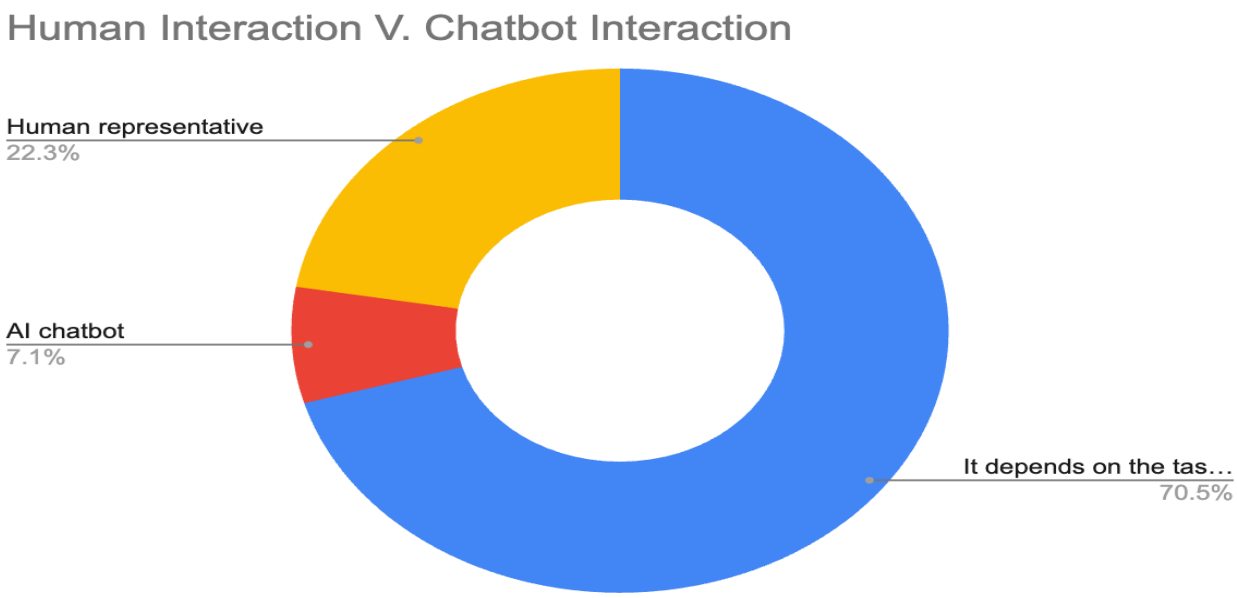
- **Preference for interaction between a human representative or an AI chatbot for certain task/ services:**

TABLE - 13

PREFERENCE BETWEEN HUMAN REPRESENTATIVE OR AI CHATBOTS

OPTIONS	NO. OF RESPONDENTS	PERCENTAGE (%)
Human representative	25	22.3%
AI chatbot	8	7.1%
It depends on the task/ service	79	70.5%
TOTAL	112	100%

Source: Questionnaire



Source: Author's calculation

Interpretation: Here in this pie chart, 22.3% of the respondents prefer human representative over AI chatbots, 7.1% of the respondents refer AI chatbots more for any task, and the rest 70.5% of the respondents prefer human representative or AI chatbots depending on the task or service.

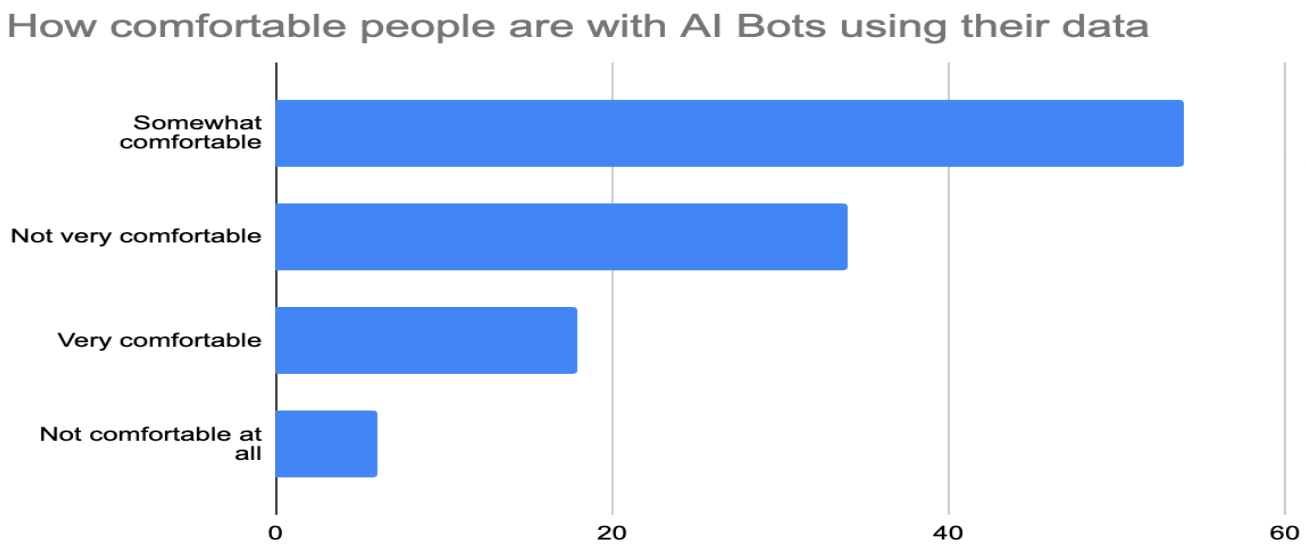
- **Pro efficiency with AI chatbots collecting and using personal data to improve responses:**

TABLE - 14

PRO- EFFICIENCY WITH AI CHATBOTS COLLECTING AND USING PERSONAL DATA TO IMPROVE RESPONSES

OPTIONS	NO. OF RESPONDENTS	PERCENTAGE (%)
Very comfortable	18	16.1%
Somewhat comfortable	54	48.2%
Not very comfortable	34	30.4%
Not comfortable at all	6	5.4%
TOTAL	112	100%

Source: Questionnaire



Source: Author's calculation

Interpretation: Here, the chart explains how comfortable the respondents are with using their personal data for improving responses. Only 16.1% of the respondents are very comfortable, 48.2% are somewhat comfortable, 30.4% are not very comfortable, and 5.4% of them are not comfortable at all.

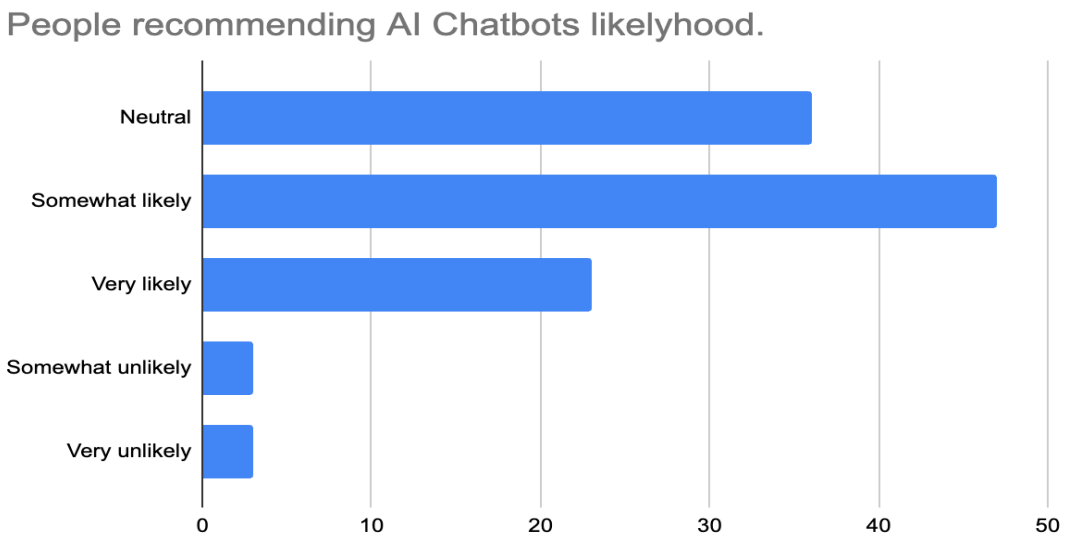
- **Recommendations of AI chatbots to others:**

TABLE - 15

RECOMMENDATIONS OF AI CHATBOTS TO OTHERS

OPTIONS	NO. OF RESPONDENTS	PERCENTAGE (%)
Very likely	23	20.5%
Somewhat likely	47	42%
Neutral	36	32.1%
Somewhat unlikely	3	2.7%
Very unlikely	3	2.7%
TOTAL	112	100%

Source: Questionnaire



Source: Author's calculation

Interpretation: Here the chart shows how much the respondents recommend AI chatbots to others. 20.5% of the respondents says they are very likely, 42% of them says they are somewhat likely, 32.1% of them are neutral, 2.7% of them are somewhat unlikely, and 2.7% of them are very unlikely.

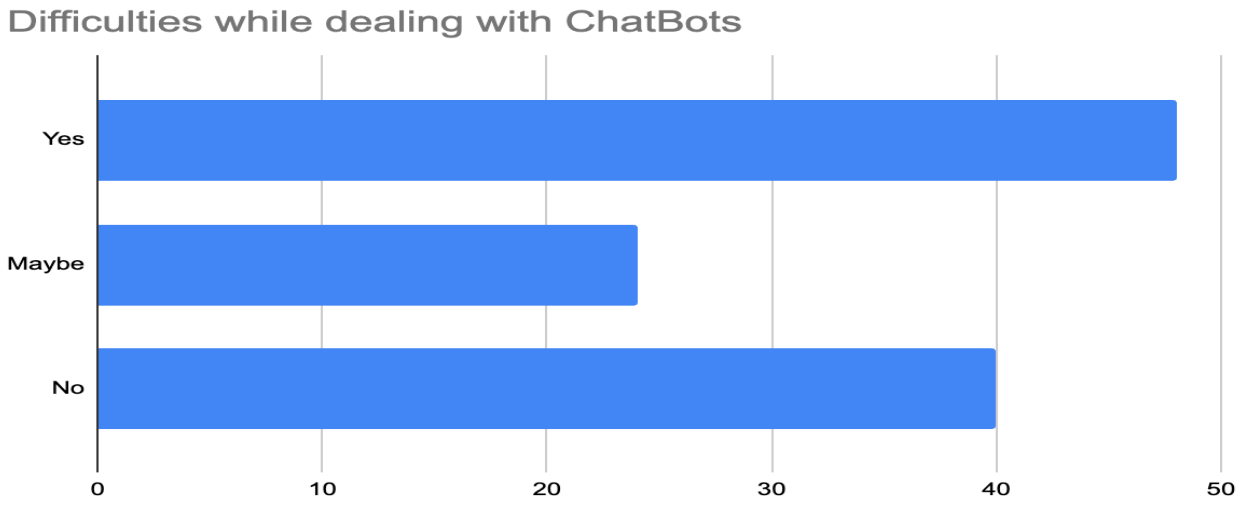
- **Difficulties or frustrations encountered while interacting with AI chatbots:**

TABLE - 16

DIFFICULTIES OR FRUSTRATIONS ENCOUNTERED WHILE INTERACTING WITH AI CHATBOTS

OPTIONS	NO. OF RESPONDENTS	PERCENTAGE (%)
Yes	48	42.9%
No	40	35.7%
Maybe	24	21.4%
TOTAL	112	100%

Source: Questionnaire



Source: Author's calculation

Interpretation: Here the chart shows the difficulties while dealing with the chatbots. 42.9% of the respondents faced difficulties, 35.7% of the respondents did not face any difficulties and, 21.4% respondents might or might not have faced any difficulties.

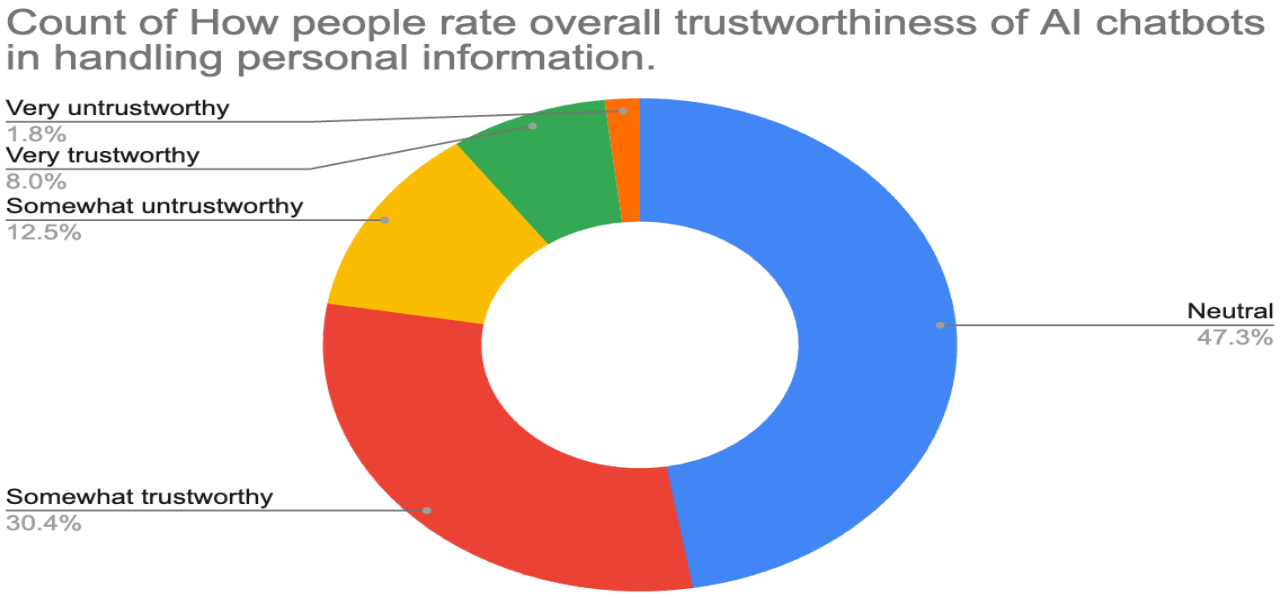
➢ **Trustworthiness of AI chatbots in handling the personal data:**

TABLE - 17

TRUSTWORTHINESS OF AI CHATBOTS IN HANDLING THE PERSONAL DATA

OPTIONS	NO. OF RESPONDENTS	PERCENTAGE (%)
Very trustworthy	9	8%
Somewhat trustworthy	34	30.4%
Neutral	53	47.3%
Somewhat untrustworthy	14	14.5%
Very untrustworthy	2	1.8%
TOTAL	112	100%

Source: Questionnaire



Source: Author's calculation

Interpretation: This chart shows how people rate the overall trustworthiness of AI chatbots in handling personal information. Here 8% of the respondents found chatbots very trustworthy, 30.4% of them found it somewhat trustworthy, 47.3% of the respondents found it neutral, 14.5% of the respondents found it somewhat trustworthy and, 1.8% of the respondents found it very untrustworthy.

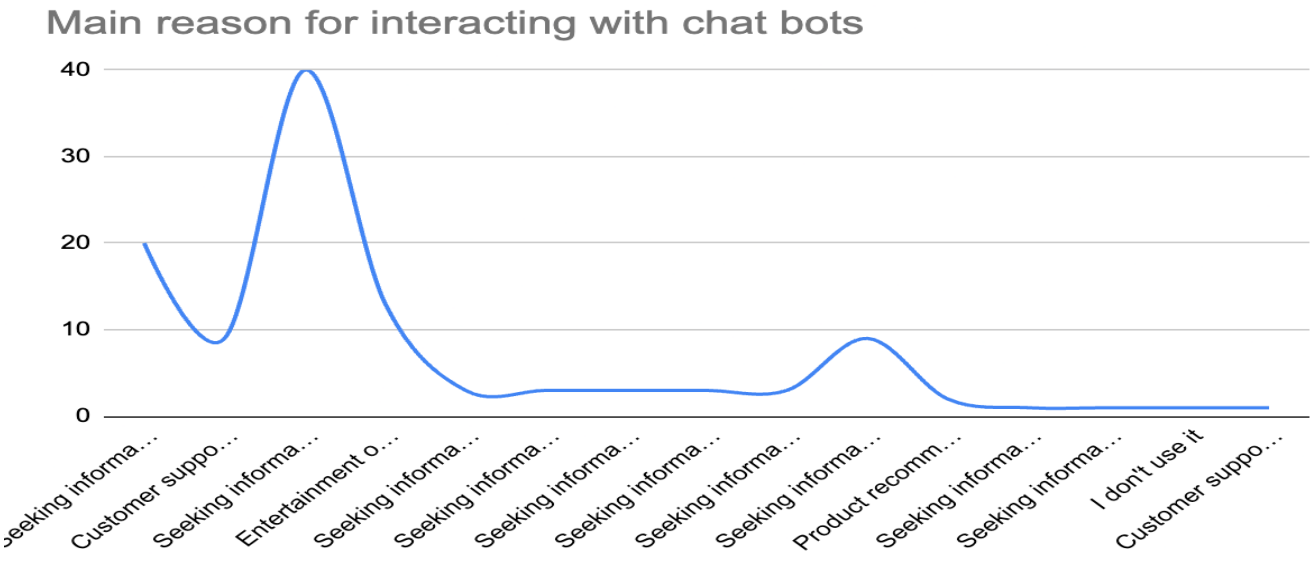
- **Main reason for interacting with AI chatbots:**

TABLE - 18

MAIN REASON FOR INTERACTING WITH AI CHATBOTS:

OPTIONS	NO. OF RESPONDENTS	PERCENTAGE (%)
Seeking information or answers to questions	86	76.8%
Customer support or issue resolution	29	25.9%
Entertainment or fun	45	40.2%
Production recommendation	14	12.5%
Other	3	0.9%

Source: Questionnaire



Source: Author's calculation:

Interpretation: In this chart it is shown the main reasons for interacting with the chatbots. 76.8% interacts for seeking information, 25.9% of them interacts for customer support, 40.2% of them interacts for entertainment, 12.5% of them interacts for product recommendation and, 0.9% interacts for some other reasons.

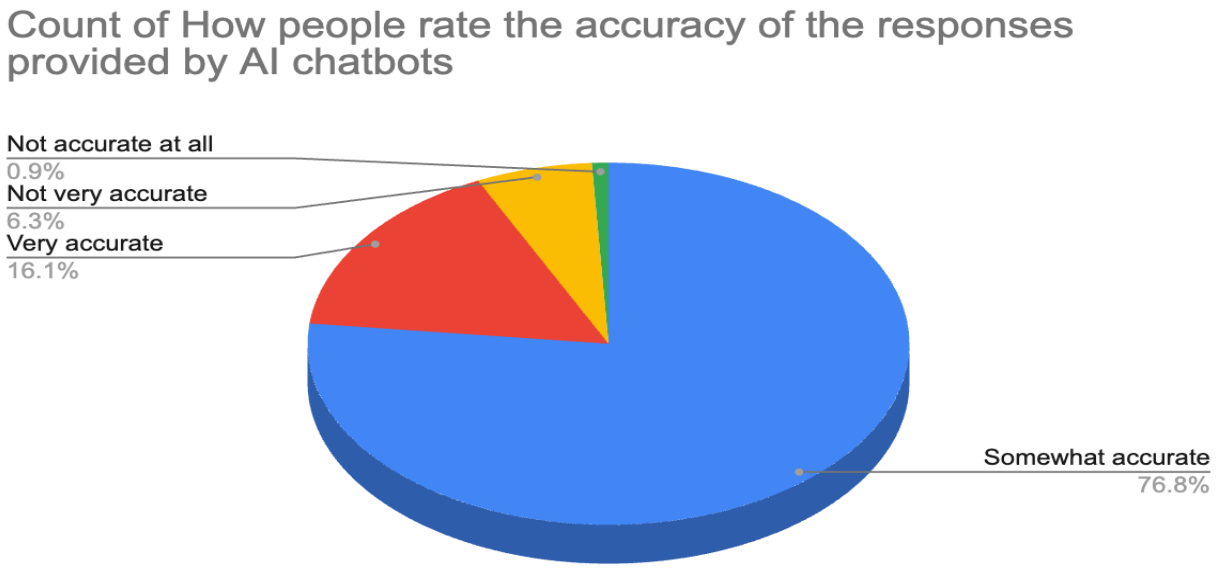
- **Accuracy of the responses of the AI chatbots:**

TABLE - 19

ACCURACY OF THE RESPONSES OF THE AI CHATBOTS

OPTIONS	NO. OF RESPONDENTS	PERCENTAGE (%)
Very accurate	18	16.1%
Somewhat accurate	86	76.8%
Not very accurate	7	6.3%
Not accurate at all	1	0.9%
TOTAL	112	100%

Source: Questionnaire



Source: Author's calculation

Interpretation: Here, it is shown that 16.1% of the respondents rated very accurate of the responses by AI chatbots, 76.8% of them rated somewhat accurate, 6.3% of them rated not very accurate and, 0.9% of them rated not accurate at all.

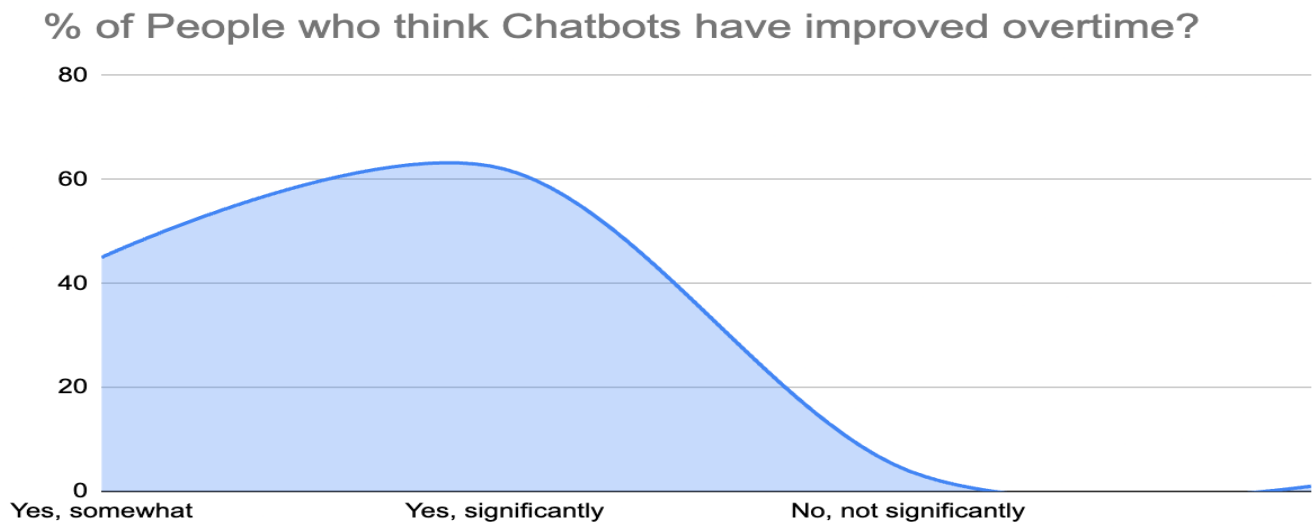
- **Improvement of capabilities and performance over the time:**

TABLE - 20

IMPROVEMENT OF CAPABILITIES AND PERFORMANCE

OPTIONS	NO. OF RESPONDENTS	PERCENTAGE (%)
Yes, significantly	62	55.4%
Yes, somewhat	45	40.2%
No, not significantly	4	3.6%
No, not at all	1	0.9^
TOTAL	112	100%

Source: Questionnaire



Source: Author's calculation

Interpretation: In this chart, it can be seen that 55.4% of the respondents thinks significant improvement in overtime, 40.2% of them thinks somewhat improvement, 3.6% of them thinks not significantly any improvement and 0.9% of them thinks not at all improvement in overtime.

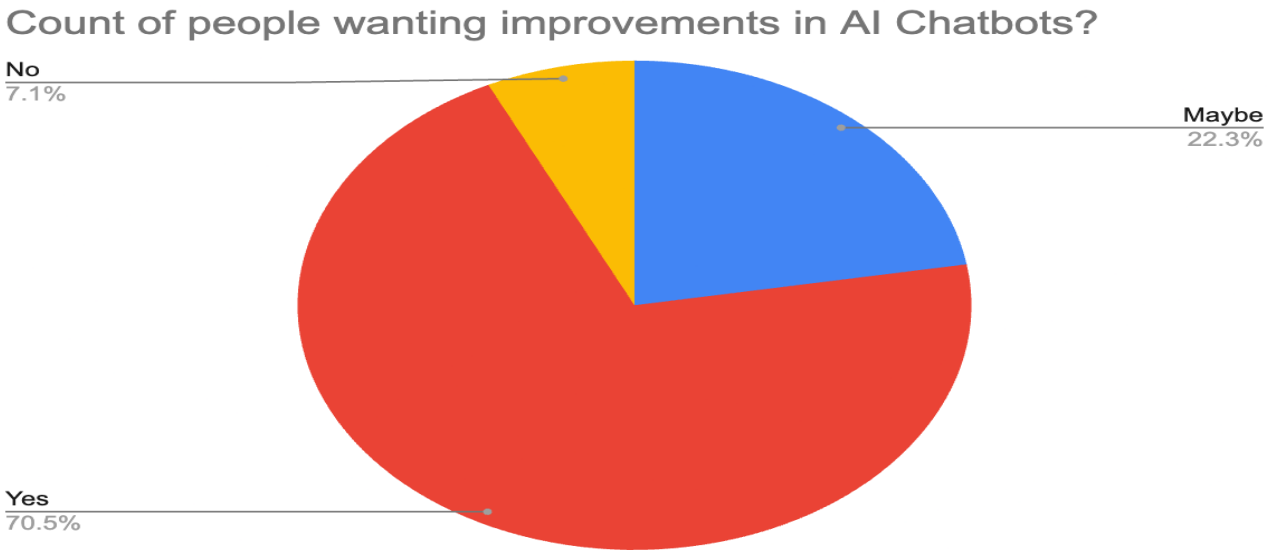
- **Requirement of improvements or enhancements in AI chatbots:**

TABLE - 21

REQUIREMENT OF IMPROVEMNTS OR ENHANCEMENTS IN AI CHATBOTS

OPTIONS	NO. OF RESPONDENTS	PERCENTAGE (%)
Yes	79	70.5%
No	8	7.1%
Maybe	25	22.3%
TOTAL	112	100%

Source: Questionnaire



Source: Author's calculation

Interpretation: In this pie chart it is shown that, 70.5% of the respondents want improvements in AI chatbots, 7.1% of them does not want any improvements and, 22.3% of them may want or may not want any improvements.

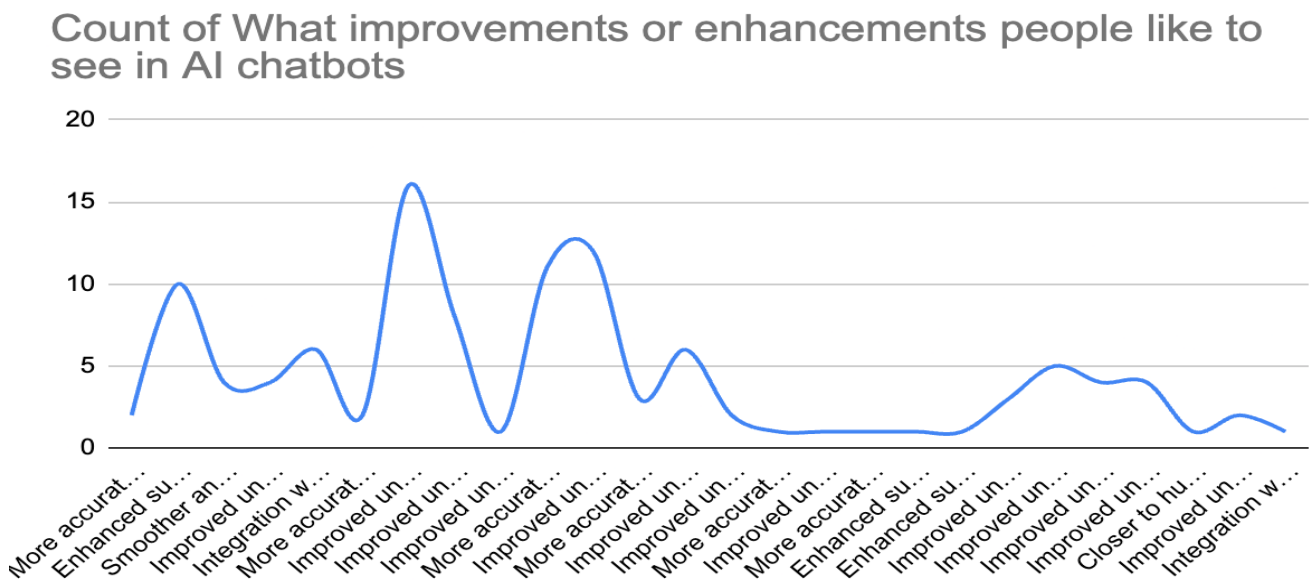
➢ **Improvements or enhancements recommended in AI chatbots:**

TABLE - 22

RECOMMENDATIONS FOR IMPROVEMENT OR ENHANCEMENT IN AI CHATBOT

OPTIONS	NO. OF RESPONDENTS	PERCENTAGE (%)
Improved understanding of user intent and context	68	60.7%
More accurate and precise responses	59	52.7%
Enhanced support for multiple languages	39	34.8%
Smoother and more natural conversation flow	43	38.4%
Integration with voice-based interactions (voice assistants)	39	34.8%
Other	2	1.8%

Source: Questionnaire



Source: Author's calculation

Interpretation: This chart gives us the type of improvements the respondents want. 60.7%, 52.7%, 34.8%, 38.4%, 38.4% and 34.8% of them wants the improvements as listed. 1.8% of them wants some other improvements.

- **Rating of experience with AI chatbots from 1 to 5:**

TABLE - 23

RATING OF EXPERIENCE WITH AI CHATBOTS

OPTIONS	NO. OF RESPONDENTS	PERCENTAGE (%)
1 (poor experience)	3	2.7%
2	9	8%
3	40	35.7%
4	51	45.5%
5 (excellent)	9	8%
TOTAL	112	100%

Source: Questionnaire

Source: Author's calculation

Interpretation: In this chart the overall rating of experience with AI chatbots have been given. 2.7% of the respondents rated poor experience, 8% , 35.7%, 45.5% of them rated 2, 3, 4 respectively. 8% of the respondents rated excellent.

CHAPTER 4

CONCLUSION AND RECOMMENDATION

4.1 SUMMARY OBSERVATIONS:

The summary observations of the research project can be explained as follows:

- **Familiarity -** Within the precinct of the analysis and findings of the questionnaire, 9.8% of the respondents were not familiar with the concept of AI Chatbots whereas 6.3% were not sure whether they were familiar with AI Chatbots or not. This statistic goes on to show that 83.9% of the respondents were familiar with AI Chatbots. This is a positive indication hinting towards the rise of digital awareness among the general masses.

- **Improvements in performance -** Another metric showed that 70.5% of the respondents wanted improvements in AI Chatbots which goes on to show that the use-cases of AI Chatbots even though vast can still not cater to the specific and ever-changing demands of the people. This shows that AI Chatbots are still not fully trusted by users as a potential tool to solve their problems. Making AI Chatbots more human-like in the way they respond has always been the focus of developers, still, this way of programming is clearly not going down well the end-users. This is also apparent from another metric which clearly showed that around 42.9% of the respondents faced problems while interacting with AI Chatbots.

- **Lack of trust -** Privacy of users and Data Security still remains a concern among users and is a matter of ambiguity among users. Around 78.1% of the users reported to not fully trust AI Chatbots with their data. 16.3% of the respondents found AI Chatbots completely untrustworthy. Whereas only 8% of the respondents found AI Chatbots fully trustworthy. This metric hints towards the apprehension diffused amongst the minds of users in light of recent data and private breach scandals in the ever-changing tech world.

- **Preferences -** Respondents seemed to be divided in their opinions when it came to the question of whether AI Chatbots are better than Human Representatives. Around 70.5% of the respondents preferred not to take sides and reported that it depended on the task at hand. This shows that respondents agree that there are certain situations where AI Chatbots are simply better than their human counterparts not foregoing the fact that they also agreed that AI can never come close to the level of understanding humans have for other human problems. This fact is further supported by a metric wherein 70.5% of the respondents agreed that improvements in AI Chatbots are needed to make it more human-like.

- **Benefits -** Respondents seemed to agree on the fact that there are multiple benefits of AI Chatbots over humans. An overwhelming number of 64 respondents agreed that AI Chatbots provide quicker response times compared to their human counterparts. 54 Respondents agreed that AI chatbots are more accessible and convenient to work with.

Therefore, we can get a brief explanation about the users need and preferences from these observations.

4.2 RECOMMENDATIONS FOR IMPROVEMENT:

The recommendations for improvement of this research can be explained as follows:

- **Enhance data collection methods:**

- Diverse and representative samples: Consider expanding the sample size to include a broader range of participants, ensuring that it represents the target population more accurately. This can help improve the generalizability of the findings.

- Data quality and accuracy: Implement rigorous data validation processes to minimize errors and ensure the accuracy of the collected data. This may involve double-checking data entries, conducting data audits, or using automated data validation techniques.

- Multiple data collection methods: Employ a combination of data collection methods, such as surveys, interviews, and observations, to gather a more comprehensive understanding of the research topic. This can provide richer insights and triangulate the findings.

- **Refine research methodologies:**

- Research design: Evaluate the appropriateness of the chosen research design for addressing the research questions or hypotheses. Consider alternative designs, such as experimental or longitudinal designs, if they better align with the research objectives.

- Statistical techniques: Assess the suitability of the statistical techniques used for data analysis. Consider consulting with a statistician or employing advanced statistical methods to ensure accurate and robust analysis.

- **Address limitations:**

- Bias and generalizability: Discuss any potential sources of bias in the study, such as selection bias or response bias. Consider strategies to minimize bias, such as random sampling or using validated measurement instruments. Additionally, acknowledge the limitations in generalizing the findings beyond the study sample and suggest ways to address this limitation in future research.

- Sample size limitations: If the sample size is small, acknowledge the potential limitations in statistical power and the ability to detect small effects. Consider conducting power analyses to determine the appropriate sample size for future studies.

- Other factors: Identify any other limitations specific to the research project, such as time constraints, resource limitations, or data availability. Discuss how these limitations may have influenced the results and suggest ways to mitigate them in future research.

- **Expand analysis and interpretation:**

- Additional variables: Explore the inclusion of additional variables that may contribute to a more comprehensive understanding of the research topic. This could involve examining potential mediators or moderators of the relationships under investigation, or considering contextual factors that may influence the findings.

- Subgroup analyses: Conduct subgroup analyses to examine whether the relationships or patterns observed in the overall sample hold true for different sub.

4.3 LIMITATIONS OF THE STUDY:

The limitations of the study are discussed as follows:

- **Small sample size:** If the sample size is small, the statistical power of the analysis may be limited, making it difficult to detect small effects or generalize the findings to the larger population.

- **Missing data:** If there is missing data, the analysis may be limited by the amount of data available. This can lead to biased results or reduced statistical power.

- **Non - representative sample:** If the sample is not representative of the target population, the findings may not be generalizable to the larger population. This can limit the external validity of the study.

- **Inappropriate statistical techniques:** If the statistical techniques used are not appropriate for the research question or data type, the results may be inaccurate or misleading.

- **Confounding variables:** If there are confounding variables that are not accounted for in the analysis, the results may be biased or misleading. This can limit the internal validity of the study.

- **Overreliance on statistical significance:** If the analysis focuses solely on statistical significance, it may overlook important trends or patterns in the data that are not statistically significant but still meaningful.

- **Human error:** If there are errors in data entry, coding, or analysis, the results may be inaccurate or biased.

4.4 SCOPE FOR FURTHER RESEARCH:

One way to further improve research in this domain is to involve Machine Learning Models to predict the perception of different age groups on the benefits of AI Chatbots. The best way to implement it is to use a Linear Regression Model.

What is a Linear Regression Model?

A linear regression model is a statistical approach used to model the relationship between a dependent variable and one or more independent variables. It assumes a linear relationship between the variables, meaning that the relationship can be represented by a straight line. It is a widely used Machine Learning approach to predict behaviour of variables with respect to each other.

Below is an example of a possible Linear Regression Model to predict the perception of a person of a particular age towards AI Chatbots.

Working of the Model:-

The Model takes in the age of a person as an input feature and outputs a value which represents how likely the person is to find AI Chatbots beneficial on a scale of 1 to 6.

Dataset Used:-

The data set that can be used is the already available information of different people expressing their satisfaction with AI Chatbots. We have a pool of 113 participants of varying age groups and diverse opinions.

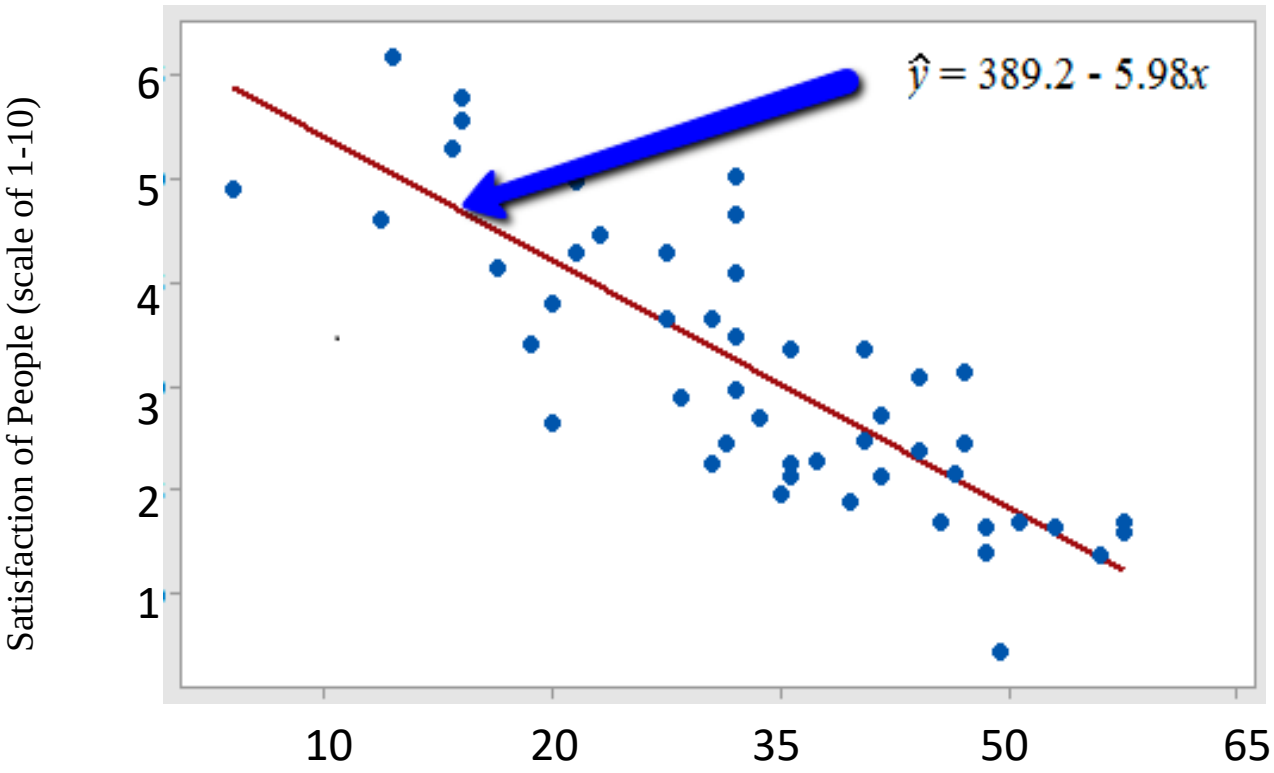
The model could easily be trained over this data set to be able to make accurate predictions on the likely hood of a person of a particular age to find AI Chatbots beneficial.

We can use the Gradient Descent Algorithm find parameters to minimize the cost function in the Model. After we get the required the parameters we can simply plot the straight line through our training data set.

Resultant Model:-

Below is a graph that shows the plot of Satisfaction of people on a scale of 1-6 (Y-Axis) Vs Age Group (X – Axis).

The straight line shows how when given a new age number the satisfaction corresponding to that would look like. Blue dots represent the satisfaction of the people of a particular age. For example the people aged 18 are more likely to give a high satisfaction rating of 5.5 - 6.0 to AI Chatbots , whereas people of older age-groups like 60 would give a 1.0 - 1.7 rating to the AI Chatbots pertaining to the fact that they barely use or understand the AI Chatbots compared to the younger generation.



Linear Regression Prediction Model

Source: Author's calculation

This Linear Regression Model was trained using the Gradient Descent Algorithm which could be further refined based on a bigger sample size and better Machine Learning Algorithms like Decision Trees and Deep Learning using Convolutional Neural Networks (CNN) etc. To facilitate such models predicting other labels accurately, there is a need to curate a bigger sample size of data from people of a more diversified group.

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ANNEXURE

❖ QUESTIONNAIRE:

Hello everyone, I am Oindrila Dey, a final year student pursuing B.Com Hons from Shri Shikshayatan College, Kolkata.
As a part of my curriculum, I am conducting a research study on the topic, " **From Siri to Alexa: How AI Chatbots are Revolutionizing Daily Life**". I would like to request you to spare a few minutes to fill up this questionnaire. Your responses would be really helpful for my study. All your responses received will be kept confidential and will be used for research purposes only.
Thank you for your precious time and help.

1. Name:

2. Age:

    - Under 18
    - 18 – 25
    - 26 – 40
    - Above 40

3. Gender:

    - Male
    - Female
    - Other

4. Occupation:

    - Student
    - Salaried Employee
    - Self Employed
    - Homemaker
    - Other

5. Are you familiar with Artificial Intelligence Chatbots?

    - Yes
    - No
    - Maybe

6. Have you interacted with an AI chatbot before?

    - Yes
    - No

7. How much AI chatbots have influenced your life?

    - Not at all
    - Not very much
    - Neutral
    - A little bit
    - A lot

8. How frequently do you interact with AI chatbots in your daily life?

    - Multiple times a day
    - Once a day
    - Few times a week
    - Occasionally
    - Rarely or never

9. How would you rate the overall helpfulness of AI chatbots in meeting your needs?

    - Very helpful
    - Somewhat helpful
    - Not very helpful
    - Not helpful at all

10. What are the chatbots you use?

    - Siri by Apple
    - Meena by Google
    - Chat GPT
    - Alexa by Amazon
    - Other

11. Do you think AI chatbots are easing human work?

    - Strongly agree
    - Agree
    - Neutral
    - Disagree
    - Strongly disagree

12. Do you think AI chatbots will prosper in the future?

    - Yes
    - No
    - Maybe

13. What do you find most beneficial about using AI chatbots?

    - Quick response times
    - Convenience and accessibility
    - 24/7 availability
    - Personalized recommendations or assistance
    - Other

14. Would you prefer interacting with a human representative or an AI chatbot for certain tasks/ services?
    - Human representative
    - AI chatbot
    - It depends on the task/ service

15. How comfortable are you with AI chatbots collecting and using your personal data to improve their responses?

    - Very comfortable
    - Somewhat comfortable
    - Not very comfortable
    - Not comfortable at all

16. How likely are you to recommend AI chatbots to other?

    - Very likely
    - Somewhat likely
    - Neutral
    - Somewhat unlikely
    - Very unlikely

17. Have you ever encountered any difficulties or frustrations when interacting with AI chatbots?

    - Yes
    - No
    - Maybe

18. How would you rate the overall trustworthiness of AI chatbots in handling your personal information?

    - Very trustworthy
    - Somewhat trustworthy
    - Neutral
    - Somewhat untrustworthy
    - Very untrustworthy

19. What are the main reasons you interact with AI chatbots?

    - Seeking information or answers to questions
    - Customer support or issue resolution
    - Entertainment or fun
    - Product recommendations
    - Other

20. How would you rate the accuracy of the responses provided by AI chatbots?

    - Very accurate
    - Somewhat accurate
    - Not very accurate
    - Not accurate at all

21. Do you feel that AI chatbots have improved over time in terms of their capabilities and performance?

- Yes, significantly
- Yes, somewhat
- No, not significantly
- No, not at all

22. Do you want any improvements or enhancements in AI chatbots?

- Yes
- No
- Maybe

23. What improvements or enhancements would you like to see in AI chatbots?

- Improved understanding of user intent and context
- More accurate and precise responses
- Enhanced support for multiple languages
- Smoother and more natural conversation flow
- Integration with voice – based interactions (voice assistants)
- Other

24. What scale of 1 to 5 will you rate your experience with AI chatbots?

- 1(poor experience)
- 2
- 3
- 4
- 5(excellent)