

**MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE,  
GWALIOR**

(A Govt. Aided UGC Autonomous & NAAC Accredited Institute Affiliated to RGPV, Bhopal)



**Project Report**

**on**

**Telegram Chat Bot**

A project report submitted in partial fulfillment of the requirement for the degree of

**BACHELOR OF TECHNOLOGY**

**in**

**COMPUTER SCIENCE AND ENGINEERING**

Submitted by:

**Sneha Gupta (0901CS203D11)**

**Vaishnavi Agrawal (0901CS203D12)**

Faculty Mentor:

**Mir Shahnawaz Ahmad**

**Assistant Professor, Computer Science & Engineering**

Submitted to:

**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

**MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE**

**GWALIOR - 474005 (MP) est. 1957**

**MAY-JUNE 2022**

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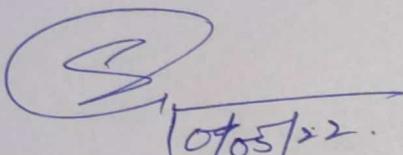
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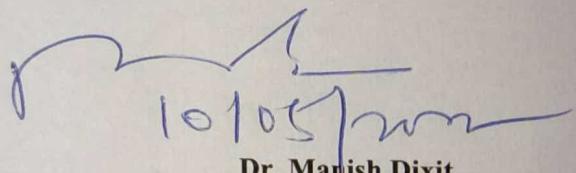
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**CERTIFICATE**

This is certificate that **Sneha Gupta** (0901CS203D11), has submitted the project report titled "**Telegram Chat Bot**" under the mentorship of **Mir Shahnawaz Ahmad**, in partial fulfilment of the requirement for the award of degree of Bachelor of Technology in Computer Science and Engineering from Madhav Institute of Technology and Science, Gwalior.



Mir Shahnawaz Ahmad  
Faculty Mentor  
Assistant Professor  
Computer Science and Engineering



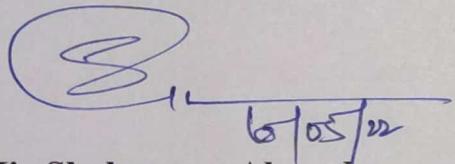
Dr. Manish Dixit  
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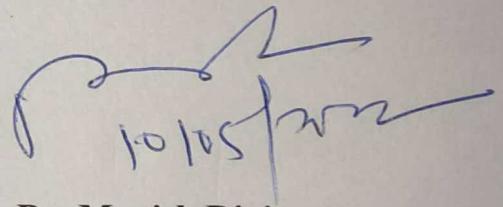
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**CERTIFICATE**

This is certificate that **Vaishnavi Agrawal** (0901CS203D12) has submitted the project report titled "**Telegram Chat Bot**" under the mentorship of **Mir Shahnawaz Ahmad**, in partial fulfilment of the requirement for the award of degree of Bachelor of Technology in Computer Science and Engineering from Madhav Institute of Technology and Science, Gwalior.



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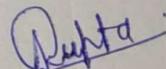
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**DECLARATION**

I hereby declare that the work being presented in this project report, for the partial fulfilment of requirement for the award of the degree of Bachelor of Technology in Computer Science and Engineering at Madhav Institute of Technology & Science, Gwalior is an authenticated and original record of my work under the mentorship of **Mir Shanawaz Ahmad**, Assistant Professor, Computer Science and Engineering

We declare that I have not submitted the matter embodied in this report for the award of any degree or diploma anywhere else.

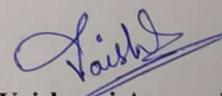


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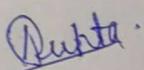
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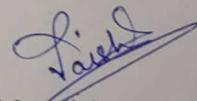
## **ACKNOWLEDGEMENT**

The full semester project has proved to be pivotal to my career. I am thankful to my institute, **Madhav Institute of Technology and Science** to allow me to continue my disciplinary/interdisciplinary project as a curriculum requirement, under the provisions of the Flexible Curriculum Scheme (based on the AICTE Model Curriculum 2018), approved by the Academic Council of the institute. I extend my gratitude to the Director of the institute, **Dr. R. K. Pandit** and Dean Academics, **Dr. Manjaree Pandit** for this.

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## ABSTRACT

A chatbot is AI computer software that can act as a conversation through textual or auditory methods. The core of chatbots analyses a customer's data using the artificial intelligence which integrates the response with them. Different tasks can be replaced with AI-powered bots as they are much more powerful—and are capable of performing multiple tasks at once. Machine Learning techniques are basically used in the process of understanding the input that we get from the user and replying to the user. Natural language processing allows a bot to have a conversation as naturally as possible. The ideal interaction between user and chatbot is a balanced mix of Innovative technology and human Intervention

## सारः

एक चैटबॉट एआई कंप्यूटर सॉफ्टवेयर है जो पाठ्य या श्रवण विधियों के माध्यम से बातचीत के रूप में कार्य कर सकता है। चैटबॉट का मूल आर्टिफिशियल इंटेलिजेंस का उपयोग करके ग्राहक के डेटा का विश्लेषण करता है जो उनके साथ प्रतिक्रिया को एकीकृत करता है। विभिन्न कार्यों को एआई-पार्वर्ड बॉट्स से बदला जा सकता है क्योंकि वे बहुत अधिक शक्तिशाली होते हैं - और एक साथ कई कार्य करने में सक्षम होते हैं। मशीन लर्निंग तकनीकों का उपयोग मूल रूप से उपयोगकर्ता से प्राप्त इनपुट को समझने और उपयोगकर्ता को जवाब देने की प्रक्रिया में किया जाता है। प्राकृतिक भाषा प्रसंस्करण एक बॉट को यथासंभव स्वाभाविक रूप से बातचीत करने की अनुमति देता है। उपयोगकर्ता और चैटबॉट के बीच आदर्श बातचीत अभिनव प्रौद्योगिकी और मानव हस्तक्षेप का संतुलित मिश्रण है।

## Table of content

<b>TITLE</b>	<b>PG.NO</b>
Abstract	V
सार:	VI
<b>CHAPTER 1: Introduction</b>	<b>1-</b>
1.1 Purpose of the project	1
1.2 Why Chatbot?	1
1.3 Project scope	2
1.3.1 Cost Efficiency	2
1.3.2 Increased Customer Satisfaction rating	2
1.3.3 Superior customer experience	2
1.4 Reason to use	2
1.4.1 Its free	3
1.4.2 Its secure	3
1.4.3 Better engagement	3
1.4.4 Availability	3
1.4.5 Customs keyboard	3
1.4.6 Money transaction	4
1.4.7 Business leverage	4
1.4.8 E-commerce	4
1.4.9 Travel and Hospitality	4
1.4.10. Healthcare	4
<b>CHAPTER 2: Project description</b>	<b>6-8</b>
2.1 Reference algorithm	6
2.2 Data/Data structure.	6-7
2.3 SWOT analysis	7
2.4 project feature	7
2.5 user classes and characteristics.	8
2.6 Implementation constraint	8
2.7 Assumption and dependencies	8
<b>CHAPTER-3: System Requirement</b>	<b>9</b>
3.1 User interface	9
3.2 Software Interface	9
3.3 Database Interface	9

<b>CHAPTER 4: Non-functional Requirements</b>	<b>10</b>
4.1 Performance requirements	10
4.2 Security requirements	10
4.3 Software Quality Attributes	10
<b>CHAPTER 5: Language Requirements</b>	<b>11</b>
5.1 Java	11
5.2 NPL	11
<b>CHAPTER 6: Project Output</b>	<b>12</b>
<b>CHAPTER 7: Conclusion</b>	<b>13</b>
<b>References:</b>	<b>15</b>

## LIST OF FIGURES

FIGURE NUMBER	FIGURE NAME	PG.NO.
FIG.1	REASON TO USE	2
FIG.2	SWOT	8
FIG.3	PROJECT OUTPUT	12

# Chapter1: Introduction

## 1.1 Purpose of the project

A chatbot is a software or computer program that simulates human conversation or "chatter" through text or voice interactions. Users in both business-to-consumer (B2C) and business-to-business (B2B) environments increasingly use chatbot virtual assistants to handle simple tasks.

Chat bots typically provide a text-based user interface, allowing the user to type commands and receive text as well as text to speech response. Chat bots are usually a state-full services, remembering previous commands (and perhaps even conversation) in order to provide functionality. When chat bot technology is integrated with popular web services it can be utilized securely by an even larger audience.

Did you know? ChatGen lets you deploy chatbots over WhatsApp, SMS, Live chat, Facebook Messenger, and other platforms. This means that customers can reach your business to get immediate answers to their questions over the chat app they prefer and in an environment, they're comfortable with.

Telegram bot is a third-party application that runs inside Telegram. Bot in Telegram can interact with users by sending messages. A telegram bot is a particular type of user that is not a human but a computer program that can serve companies or brands with many features such as sending out information, reminders, playing tunes, ordering, and more.

Users can interact with the telegram bot by sending messages. Out of all the four peer types, the Telegram bot comes with many useful features for businesses. Telegram provides an API to create bots for social interactions, productivity, gaming, and e-commerce services. Apart from these, Telegram bots can also provide customer support or collect leads by connecting them to a CRM, ticketing system, or a messaging platform.

## 1.2 Why Chatbot is used

- Bots are a lot easier to install than mobile apps.
- Bots are easily distributed.
- Quality mobile apps are expensive to build maintain and deploy.
- Moving complexity to the cloud reduces a user's cognitive load .

### **1.3 Scope of Project:**

#### **1.3.1:Cost efficiencies:**

It costs very little to set up a chatbot and start experimenting. Better still, this minimal upfront investment can be quickly offset by using your chatbot to help optimize the cost of running your contact center.

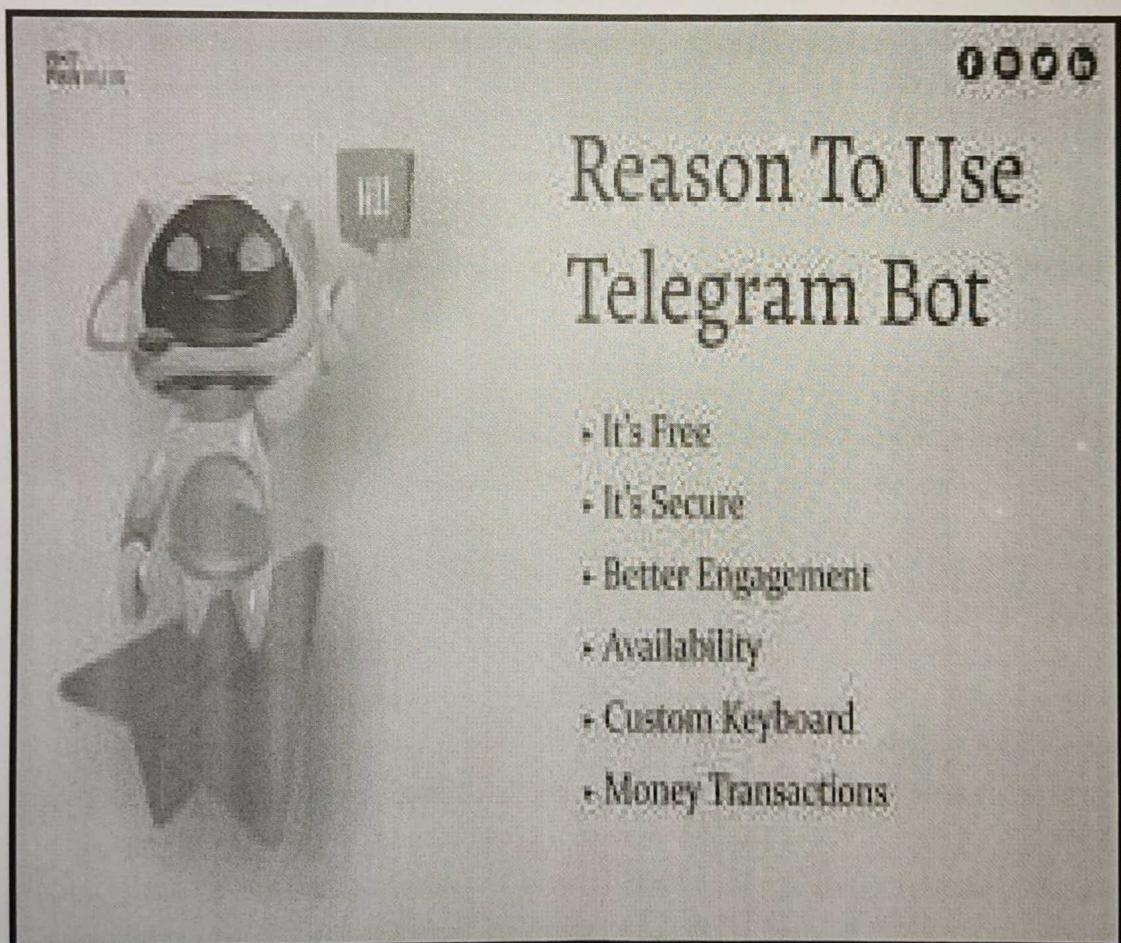
#### **1.3.2 Increased customer satisfaction ratings:**

Improving customer satisfaction is challenging over traditional channels. Customers will typically abandon calls after waiting between 45-95 seconds – and a customer with an unresolved inquiry will not typically be very satisfied.

#### **1.3.3Superior customer experience:**

Chatbots help creates a better customer experience in several ways. First, there's the presence across all popular chat apps and channels.

### **1.4Reason to Use**



#### **1.4.1: It's free**

Telegram is a free and open-source platform which means Telegram allows its API and code to be used by anyone. Thanks to this, creating a chatbot is also free. There are free telegram bot creators that can help you in building and deploying your bot in Telegram. Telegram bots can help you and your company to obtain potential customers by using its features for free.

#### **1.4.2: It is secure**

We all hear data breaches news of almost every social media application from time to time. Telegram bot sometimes takes data from its user to provide the best relevant response possible, and when personal data is involved, many people get cold feet. However, Telegram is a really secure application by the added advantage of data encryption, security, and privacy. The same goes for Telegram bots, which means every exchange of messages between the user and Telegram bot is end-to-end encrypted. By following the pair-to-pair security protocol, only the sender and the receiver can access those messages. In this case of the telegram bot, these two are the user and the telegram bot itself.

#### **1.4.3: Better engagement**

If you are a business or brand, having a Telegram bot can be an excellent asset for engagement if your customer base actively uses the Telegram. The telegram bots can provide very engaging conversations between the user and bots in Telegram. Telegram bots can engage with animated emojis, stickers, and gifs.

Apart from marketing, some businesses need to provide customer support around the clock, so businesses can create a chatbot for Telegram or build a customer support team to respond to customer queries almost instantly. This can help businesses to maintain better engagement with customers.

#### **1.4.5 Availability**

The telegram messenger covers all major platforms such as Android, iOS, Windows phones with desktop apps for Mac, Linux, and Windows. Furthermore, it also has a web version, which will allow you to target your prospects on an extensive scale. Telegram bot is not a real human user, so it doesn't have limitations like can't work 24 x 7, errors, delay in messages, etc. So your business is active all the time. Due to these advantages of telegram bots, it can help you achieve a better conversion rate.

#### **1.4.5 Custom Keyboards**

Telegram bot can allow you to customize the user's keyboard. Telegram bots enable its creator to customize user interaction with the bot in a telegram by replacing the traditional keyboard with options related to the functionality of that Telegram bot.

This feature of the Telegram bot is convenient for people who want to make an FAQ type of bot in Telegram. A person can easily make this kind of Specific command-based telegram bot through a telegram bot creator

#### **1.4.6 Money transactions**

Telegram is one of the early adopters of linking your bank account with chat messengers. This feature of telegram bots will allow users to make financial transactions with other users or businesses on the platform. This feature also allows fundraising to be a flexible process because, with the help of a Telegram bot, a person can assist in the transaction. Currently, this functionality is available in Russia and Brazil. However, we believe it will soon be available in other countries as well. So a telegram bot may let the client transfer money or pay for the services without leaving the platform. Due to this feature Telegram bot can help businesses not just engage with their customer but complete the whole transaction on the same platform.

#### **1.4.7 How can businesses leverage Telegram Bots?**

Telegram bot is a third-party program that works on specific commands. So it can help businesses who have a repetitive engaging process or specific repetitive tasks to execute. For example, a telegram bot can help collect leads, provide customer support, send newsletters to existing customers, show portfolios, run marketing campaigns, or automate some of the interactions

#### **1.4.8 E-commerce**

Over 500 million MAU on Telegram getting active over Telegram can help you build an instant e-store where customers can quickly get the deals and products or services and purchase them in the first place. You can let customers have an impressive purchasing journey from placing an order to delivery by sending regular updates via texts. For instance, Amazon's search & price bot is perfect to consider, which helps customers looking for the best price and product according to their fit

#### **1.4.9 Travel and Hospitality**

What is a better place to have a bot for travel and hospitality than a messaging application where people make plans for traveling. You can use your Telegram bot as a travel agent to act on behalf of your business when you are not available to interact with the queries. It will help customers get the right package and information regarding different places.

You can also help get the proper vacation as per their budget and other preferences. A telegram bot can offer answers to their queries and share information like bookings, cancellation policies, and much more. Several studies have also shown that by decreasing steps for conversion, the conversion rate can increase significantly

#### **1.4.10 Healthcare**

Using a bot in Telegram, you can give quick assistance and medical aid to the patients at their home's comfort. For instance, you can act like a virtual doctor with which taking appointments and follow-ups will be fast and timely. Hence, it will help them organize pathways, getting in touch with respective doctors, and much more. Not just providing medical aid, by deploying telegram bots, you can educate people about myths and wrong practices about medicine, etc., which can make a huge channel.

## Chapter 2: PROJECT DESCRIPTION

### 2.1 Reference algorithm

User interfaces for software applications can come in a variety of formats, ranging from command-line, graphical, web application, and even voice. While the most popular user interfaces include graphical and web-based applications, occasionally the need arises for an alternative interface. Whether due to multi-threaded complexity, concurrent connectivity, or details surrounding execution of the service, a chat bot based interface may suit the need.

Chat bots typically provide a text-based user interface, allowing the user to type commands and receive text as well as text to speech response. Chat bots are usually a state-full services, remembering previous commands (and perhaps even conversation) in order to provide functionality. When chat bot technology is integrated with popular web services it can be utilized securely by an even larger audience.

- Our Ticket Booking Chat Bot project is built using Natural Language Processing that analyzes user's queries and understand user's message.
- It is a mobile application which provides answer to the query of the user very effectively.
- Users just have to ask their query through the bot which is used for chatting.
- The answers are appropriate what the user queries.
- The user does not have to personally go to the ticket booking counter for enquiry.
- The system analyses the question and then answers to the user.
- The system replies using an effective Graphical user interface which implies that as if a real person is talking to the user.
- The user can query about the ticket booking related activities through the help of this application.

### 2.2 Data/Data Structure

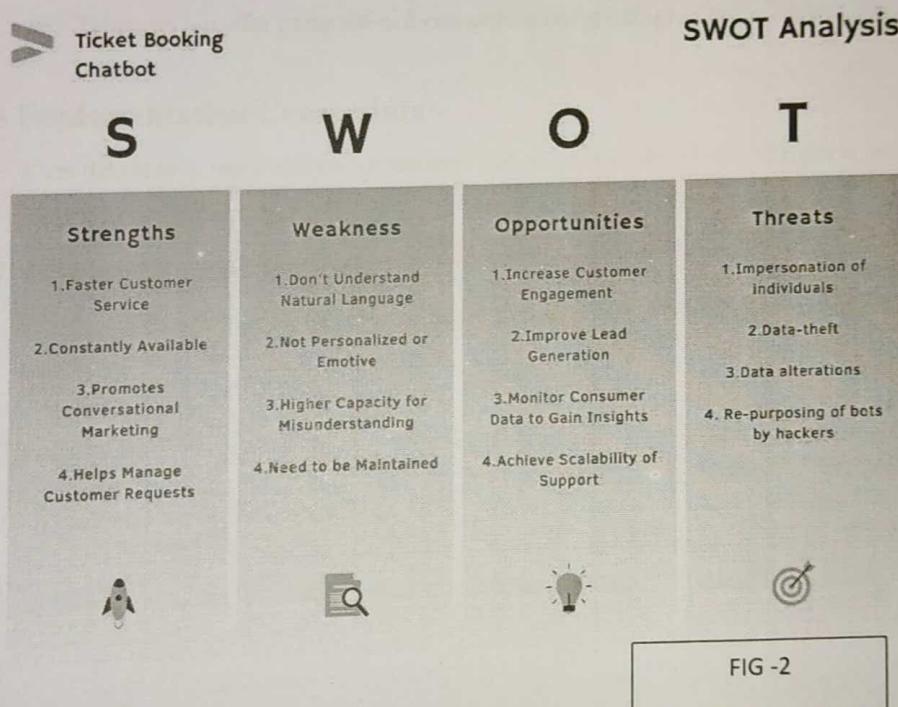
Our data comprises of 3 columns i.e. Sl. No., Questions, Answers and 31 rows which comprise of questions and their respective answers. The file type of our dataset is .csv. The questions are related to frequently asked questions by the users while booking ticket online in any portal.

## Data Structure

Data structure used in project is list and array list. List in Java provides the facility to maintain the ordered collection. It contains the index-based methods to insert, update, delete and search the elements. It can have the duplicate elements also. We can also store the null elements in the list.

The List interface is found in the java.util package and inherits the Collection interface. It is a factory of List Iterator interface. Through the List Iterator, we can iterate the list in forward and backward directions. The implementation classes of List interface are ArrayList, LinkedList, Stack and Vector. The ArrayList and LinkedList are widely used in Java programming.

## 2.3 SWOT Analysis –



## 2.4 Project Features

- It is a mobile application which provides answer to the query of the user very effectively.
- 24/7 Customer Service.
- Simple User Interface Design and User Experience.
- Accessibility

- Security and privacy of user data.

## **2.5 User Classes and Characteristics**

- Load dataset:- class use to load dataset use for chatbot
- Tokenization :- class which use to break sentence into list of words .
- Pre-processing :- class use to pre-processed data , removing stop words , lemmatizationand text cleaning
- Bagofwords :- class use to make vector of words which are more frequent in dataset and also convert text data into numbers vector .
- Tfifd :- class use to check similarity of question and dataset vector .
- Make reply:- to generate reply.
- Telegram bot:- for using api and connecting telegram api to our model.

## **2.6 Implementation Constraints –**

If the data is less, reply will be not accurate and also if the confidence of reply is less than 50% reply will be random.

## **2.7 Assumption and Dependencies –**

The disabled student must have an access to a smartphone or a computer in order to use the application

## **Chapter 3: SYSTEM REQUIREMENTS**

### **3.1 User Interface**

3.1.1 Telegram

### **3.2 Software Interface –**

3.2.1 Windows 7 or higher

3.2.2 Android

3.2.3 Eclipse IDE for Java Developers

### **3.3 Database Interface –**

3.3.1 Microsoft Excel

## **Chapter 4: NON-FUNCTIONAL REQUIREMENTS**

### **4.1 Performance Requirements**

- 4.1.1 Processor – i3 or above
- 4.1.2 Hard Disk – 5 GB or above
- 4.1.3 Memory – 1GB RAM or above

### **4.2 Security Requirements**

Cyber security and other threats of spamming and hacking will be managed by telegram as it'sapi is used

## Chapter 5: Language Requirements:-

### 5.1 Java:

Java is a popular programming language, created in 1995.

It is owned by Oracle, and more than **3 billion** devices run Java.

It is used for:

- Mobile applications (specially Android apps)
- Desktop applications
- Web applications
- Web servers and application servers
- Games
- Database connection
- And much, much more!
- Java works on different platforms (Windows, Mac, Linux, Raspberry Pi, etc.)
- It is one of the most popular programming language in the world
- It is easy to learn and simple to use
- It is open-source and free
- It is secure, fast and powerful
- It has a huge community support (tens of millions of developers)
- Java is an object oriented language which gives a clear structure to programs and allows code to be reused, lowering development costs
- As Java is close to C++ and C#, it makes it easy for programmers to switch to Java or vice versa

### 5.2 Npl:

**Natural language processing (NLP)** is a subfield of linguistics, computer science, and artificial intelligence concerned with the interactions between computers and human language, in particular how to program computers to process and analyze large amounts of natural language data. The goal is a computer capable of "understanding" the contents of documents, including the contextual nuances of the language within them. The technology can then accurately extract information and insights contained in the documents as well as categorize and organize the documents themselves.

## Chapter 6: Project Output

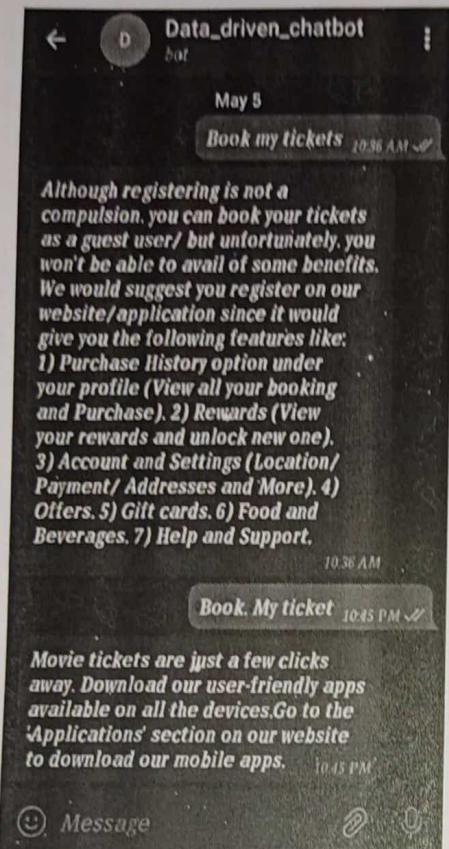


FIG -3

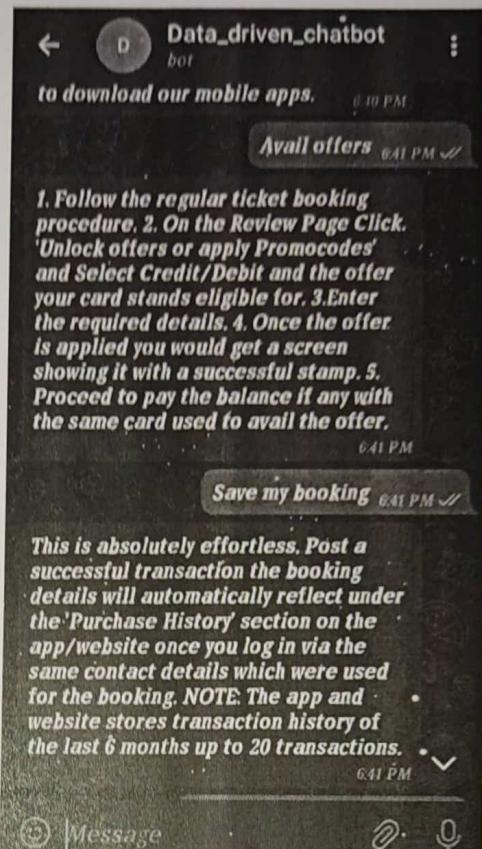


FIG -4

## **Chapter 7: Conclusion**

Telegram bots are small programs that can embed in telegram chats or public channels and perform a specific function . They can offer customized keyboards , produce cat memes on demand or even accept payments and acts as a digital storefront. Telegram isn't only the way to reach, target, and keep in touch with prospects, but also a powerful tool to automate customer support services and optimize multiple processes to minimize the manual work.

**References:-**

Core Java Volume I – Fundamentals      Chatbots for eCommerce:  
Learn how to build a virtual shopping assistant