CHATBOT (CHATGPT)

A Report submitted in partial fulfillment of the requirements to complete Term Work & Practical work of Project Based Learning (PBL) in the department of

ENGINEERING SCIENCES

As prescribed by

SAVITRIBAI PHULE PUNE UNIVERSITY

By

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Under the supervision of

S.S MALI

,

Department Of Engineering Sciences

SINHGAD INSTITUTE OF TECHNOLOGY

Kusgaon (Bk), Off Mumbai-Pune Expressway,
Lonavala-410 401

Sinhgad Technical Education Society's

SINHGAD INSTITUTE OF TECHNOLOGY,LONAVALA

Department OF Engineering Sciences

PROJECT BASED LEARNING (PBL)

WORK BOOK

ACADEMIC YEAR: 2021/2022 SEMESTER: II

Division: D **Batch:** D1 **Group:** 31

Project Title: CHATBOT (CHATGPT)

-

Area of Project:

Department OF Engineering Sciences

SINHGAD INSTITUTE OF TECHNOLOGY

Kusgaon (Bk), Off Mumbai-Pune Expressway

Lonavala – 410 401

Sinhgad Institutes

SINHGAD INSTITUTE OF TECHNOLOGY

Kusgaon (Bk), Off Mumbai-Pune Expressway, Lonavala – 410 401.

Department of Engineering Sciences

Certificate

This is to certify that, following students,

1.CHINTAMANI ADAK_____Roll No:D01

2.ADITI LATANE_____Roll No:D02

3.MAYURESH BABHALE_____Roll No:D03

4.ROHIT BELHEKAR_____Roll No:D04

5.TEJAS BHAGAT_____Roll No:D05

has completed all the Term Work & Practical Work in the subject **Project Based Learning (PBL)** satisfactorily in the department of Engineering Sciences as prescribed by Savitribai Phule Pune University, in the academic year 20_-20_.

S.S MALI

Faculty-in-charge **Head of Department** **Principal**

Date:___/___/_____.

Rules & Regulations:

1. Handle the workbook very carefully.
2. All students must enter the correct information in the work book.
3. All entries in the PBL work book must be verified by the concerned Supervisor/Mentor.
4. Activities planned should be completed as per the instructions and schedule given by Supervisor/Mentor.
5. Assessment of TW for Project Based Learning (PBL) is out of 25 Marks which are based on attendance, regularity of completion of activities on given time and students involvement.
6. Assessment of PR for PBL is out of 50 Marks which are based on idea inception, outcomes of PBL, problem solving skills, solution provided, final product, documentation, demonstration, contest participation, and awareness.
7. Students need to submit final report of 5 to 10 pages in the prescribed format given at the end of this workbook.

Course Objectives:

1. To emphasizes learning activities that are long-term, interdisciplinary and student-centric.
2. To inculcate independent learning by problem solving with social context.
3. To engages students in rich and authentic learning experiences.
4. To provide every student the opportunity to get involved either individually or as a group so as to develop team skills and learn professionalism.

Course Outcomes:

CO1: Project based learning will increase their capacity and learning through shared cognition.

CO2: Students able to draw on lessons from several disciplines and apply them in practical way.

CO3: Learning by doing approach in PBL will promote long-term retention of material and replicable skill, as well as improve teachers' and students' attitudes towards learning.

Group Structure:

Working in supervisor/mentor monitored groups; the students plan, manage, and complete a task/project/activity which addresses the stated problem.

1. There should be team/group of 5 -6 students
2. A supervisor/mentor teacher assigned to individual groups

Selection of Project/Problem:

The problem-based project oriented model for learning is recommended. The model begins with the identifying of a problem, often growing out of a question or "wondering". This formulated problem then stands as the starting point for learning. Students design and analyze the problem within an articulated interdisciplinary or subject frame.

A problem can be theoretical, practical, social, technical, symbolic, cultural, and/or scientific and grows out of students' wondering within different disciplines and professional environments. A chosen problem has to be exemplary. The problem may involve an interdisciplinary approach in both the analysis and solving phases.

By exemplarity, a problem needs to refer back to a particular practical, scientific, social and/or technical domain. The problem should stand as one specific example or manifestation of more general learning outcomes related to knowledge and/or modes of inquiry.

There are no commonly shared criteria for what constitutes an acceptable project. Projects vary greatly in the depth of the questions explored, the clarity of the learning goals, the content, and structure of the activity.

1. A few hands-on activities that may or may not be multidisciplinary.
2. Use of technology in meaningful ways to help them investigate, collaborate, analyze, synthesize, and present their learning.
3. Activities may include- Solving real life problem, investigation, /study and Writing reports of in depth study, field work.

Group Information:

Division: D **Batch:** D1 **Group:** 1

Roll No.	PRN No.	Name of Student	Mobile No.
D01	72240687J	CHINTAMANI ADAK	9075939212
D02	72240689E	ADITI LATANE	7709840577
D03	72240709C	MAYURESH BHABHALE	8766933983
D04	72240715H	ROHIT BELHEKAR	7776800689
D05	72240720D	TEJAS BHAGAT	9420950018

Name of Faculty/Mentor: S.S MALI

E-mail:

Mobile No.: 7972036016

TABLE OF CONTENTS

Project Title :-

CHATBOTS / CHATGPT

Initial Survey for Finalization of Title

We can choose this topic to introduce the future technology and update and spread awareness among people about the upcoming technological upgradation

☙ **Regarding to current situation:**

At present, GPT-4 is only accessible to those who have access to ChatGPT Plus, a premium service from OpenAI for which users have to pay $20. Like all the good things in life, to access the impressive features of GPT-4, one needs to pay the price.

☙ **The major need of chatgpt.**

Adding chatbot assistants reduces overhead costs, uses support staff time better and enables organizations to provide customer service during hours when live agents aren't available.

☙ **Industrilisation.**

Chatbots can automate tasks performed frequently and at specific times. This gives employees time to focus on more important tasks and prevents customers from waiting to receive responses. Proactive customer interaction.

☙ **Basic need for day to day life :-**

1) Make captions for social media posts.
2) Check your homework.
3) Make long articles easier to read.
4) Think of business ideas.
5) Write a great CV or resume.
6) Ask ChatGPT to read a contract and detect areas of concern.
7) Chat with ChatGPT.

INTRODUCTION

- This thesis contains the history of the chatbot.
- How a chatbot comes into this world, and how they are being used in different institutes and businesses
- Discuss the transformation of the chatbot from the beginning till now and how they are being used in today's world.
- It also introduces the merits and demerits of the Chatbot/ChatGPT.

ABSTRACT

- In this project we will be giving a information of chatbot, problem related to chatbot and solution based on the from our point if view which can be useful for the outside world too.

- The major use of chatbots is that chatbots can automate tasks performed frequently and at specific times. This gives employees time to focus on more important tasks and prevents customers from waiting to receive responses. Proactive customer interaction.

- A Chabot is artificial intelligence (AI) computer software that can simulate a conversation using textual or audio techniques. The basis of chat bots is artificial intelligence, which analyses a customer's data and blends the response with them.

- Chatbots are mainly used to provide customer support. Chatbots are very intelligent. We train them once and they will communicate with target audience in their language. Multilingual chatbots have saved us from investing much on hiring different languages resources.

WHAT IS CHATBOT ?

The thought behind this technological advancement was to provide users with quick and instantaneous responses to questions that they would as when conversing through email or by phone

Chatbots has boost productivity among users and lessen the time being spent on tasks.

Chatbots can make it easy for users to find the information they need by responding to their questions and requests—through text input, audio input, or both—without the need for human intervention.

Chatbot technology is almost everywhere these days, from the smart speakers at home to messaging applications in the workplace. The latest AI chatbots are often referred to as "virtual assistants" or "virtual agents." They can use audio input, such as Apple's Siri, Google Assistant and Amazon Alexa, or interact with you via SMS text messaging. Either way, you're able to ask questions about what you need in a conversational way, and the chatbot can help refine your search through responses and follow-up questions.

WORKING OF CHATBOT

Bots are made for a specific reason. A store would most likely want chatbot services that assists you in placing an order, while a telecom company will want to create a bot that can address customer service questions.

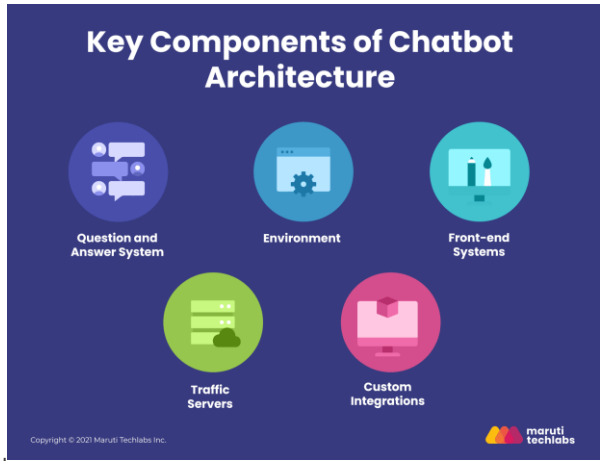
There are two categories of chatbots: one that works by following a series of rules, and another that uses artificial intelligence.

1. Rule-based chatbots

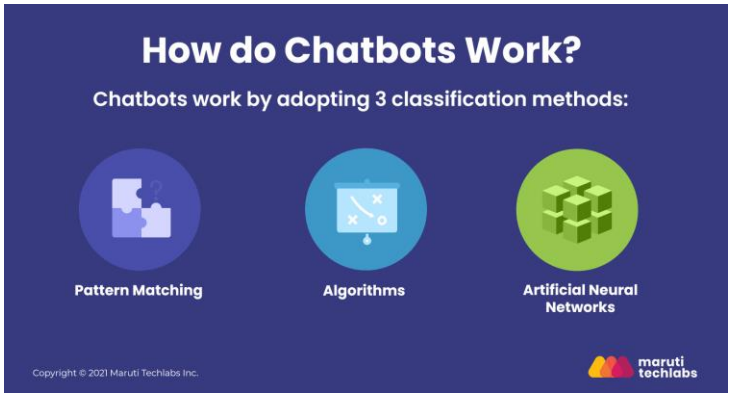
A rule-based bot can only comprehend a limited range of choices that it has been programmed with. Predefined rules define the course of the bot's conversation. Rule-based chatbots are easier to build as they use a simple true-false algorithm to understand user queries and provide relevant answers.

2. AI-based chatbots

This bot is equipped with an artificial brain, also known as artificial intelligence. It is trained using machine-learning algorithms and can understand open-ended queries. Not only does it comprehend orders, but it also understands the language. As the bot learns from the interactions it has with users, it continues to improve. The AI chatbot identifies the language, context, and intent, which then reacts accordingly



There are three classification models that chatbots adopt to work:



Pattern Matchers

Bots use pattern matching to classify the text and produce a suitable response for the customers. A standard structure of these patterns is "Artificial Intelligence Markup Language" (AIML).

A simple pattern matching example:

```
<aiml version = "1.0.1" encoding = "UTF-8"?>
  <category>
    <pattern> WHO IS ABRAHAM LINCOLN </pattern>
    <template>Abraham Lincoln was the US President during American civil war.</template>
  </category>

  <category>
    <pattern>DO YOU KNOW WHO * IS</pattern>
    <template>
      <srai>WHO IS <star/></srai>
    </template>
  </category>
</aiml>
```

The machine then gives and output:

Human: Do you know who Abraham Lincoln is?

Robot: Abraham Lincoln was the US President during the American civil war.

Chatbot knows the answer only because his or her name is in the associated pattern. Similarly, chatbots respond to anything relating it to the associated patterns. But it can not go beyond the related pattern. Algorithms can help for an advanced level of working.

Algorithms

A unique pattern must be available in the database to provide a suitable response for each kind of question. A hierarchy is created with lots of combinations of patterns. Algorithms are used to reduce the number of classifiers and create a more manageable structure.

Computer scientists call it a "Reductionist" approach- to give a simplified solution; it reduces the problem.

Multinational Naive Bayes is the best example of the algorithm for NLP and text classification. For instance, let's look at the set of sentences that belong to a particular class. With new input sentences, each word is counted for its occurrence and is accounted for its commonality. Then, each class is assigned a score. The highest scored class is the most likely to be associated with the input sentence.

Example of Sample Training Set:

Class: Greetings

"How are you doing?"

"Good morning"

"Hi, there!"

Sample Input Sentence Classification:

Input: “Hello, good morning.”

Term: “Hello” (no matches)

Term: “Good” (class: Greetings)

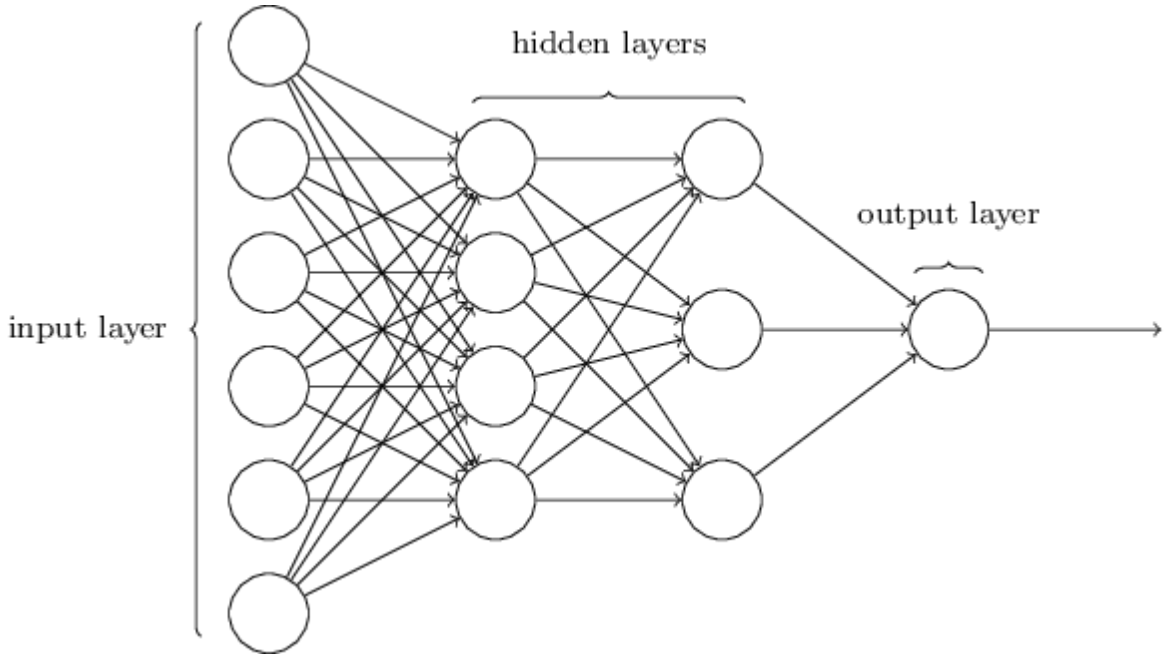
Term: “morning” (class: Greetings)

Classification: Greetings (score=2)

With the help of an equation, word matches are found for the given sample sentences for each class. The classification score identifies the class with the highest term matches, but it also has some limitations. The score signifies which intent is most likely to the sentence but does not guarantee it is the perfect match. The highest score only provides the relativity base.

Artificial Neural Networks

Neural Networks are a way of calculating the output from the input using weighted connections, which are computed from repeated iterations while training the data. Each step through the training data amends the weights resulting in the output with accuracy.



As discussed earlier here, each sentence is broken down into individual words, and each word is then used as input for the neural networks. The weighted connections are then calculated by different iterations through the training data thousands of times, each time improving the weights to make it accurate.

The trained data of a neural network is a comparable algorithm with more and less code. When there is a comparably small sample, where the training sentences have 200 different words and 20 classes, that would be a matrix of 200×20. But this matrix size increases by n times more gradually and can cause a massive number of errors. In this kind of scenario, processing speed should be considerably high.

There are multiple variations in neural networks, algorithms as well as patterns matching code. Complexity may also increase in some of the variations. But the fundamental remains the same, and the critical work is that of classification.

HISTORY OF CHATBOTS

Story of ELIZA

(the first chatbot developed in 1966)

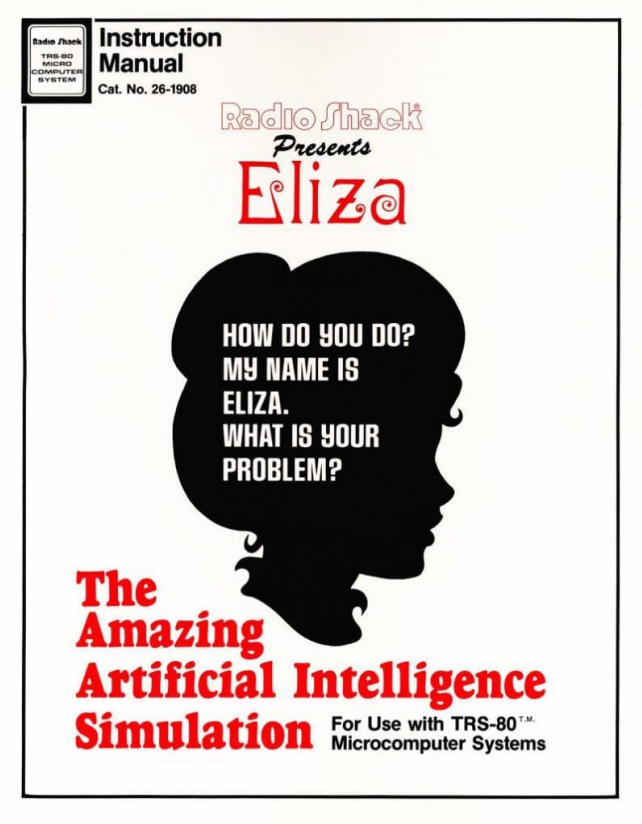
The intriguing history of bots started way back in 1950's. Alan Turing, the pioneering British computer scientist, who was much ahead of his time, started toiling on the thought whether machines can think. And in 1950, he published his well-acknowledged article '*Computing Machinery and Intelligence'* followed by the Turing Test as we know it today. The entire thought behind his papers and research was that machines too can think and are intelligent. He pioneered a parameter of intelligence for machines.

According to him, if a machine can impersonate a human and his behaviour convincing the other person involved in a real-time conversation that he is interacting with a human (not a machine), then the machine is intelligent.

The work of Alan Turing was taken with great interest from Joseph Weizenbaum, the German computer scientist and Professor at Massachusetts Institute of Technology. In 1966, he developed the program ELIZA, which aimed at tricking it users by making them believe that they were having a conversation with a real human being. ELIZA was designed to imitate a therapist who would ask open-ended questions and even respond with follow-ups.

ELIZA is considered to be the first chatterbot in the history of computer science. Though the term chatterbot was not even coined then. It was only in 1994 that the term ‘ChatterBot’ was coined by Michael Mauldin (creator of the first Verbot, Julia) to describe these conversational programs.

ELIZA operates by recognizing key words or phrases from the input to reproduce a response using those keywords from pre – programmed responses. For instance, if a human says that ‘My mother cooks good food’. ELIZA would pick up the word ‘mother’, and respond by asking an open-ended question ‘Tell me more about your family’. This created an illusion of understanding and having an interaction with a real human being though the process was a mechanized one.



After ELIZA there were other successful Bots that were made – PARRY in 1972, RACTER in 1983 and then JABBERWACKY in 2005.

A long way to go :-

Though the invention of bots took long back in 1966, it has only got recognition now by the world of technology. Bots are still in their early stages but the momentum is picking up and advancements in the field of artificial intelligence will definitely keep refining the bot experience for its users. Also one major reason for rise in bots is because it is easier and cheaper to make when compared to apps.

Most bots in India are still on their way to achieve full automation. They are yet dependent on humans when it comes to handling complex or detailed queries. But with the progressions taking place in the fields of Natural Language Processing and artificial intelligence, it is not too far when bots will be fully automated.

MERITS OF CHATBOTS

- Chatbots are cheap, easy and efficient way to communicate with customers.

- Chatbots are intelligent. Advanced software learns from past interactions/responses and hence improves responses over time.

- Chatbots are effective. It allows users to perform tasks efficiently and accurately.

- Chatbots are engaging. It enables human like interaction delivered through a channel that is easily scalable.

- It does not require human being for its operation and hence saves cost of hiring human beings. It can be employed as per business model.

- As chatbot technology is based on AI, I recommend reader to understand advantages of Artificial Intelligence .

DEMERITS OF CHATBOTS

- Chatbots can't answer all the queries and hence it can be seen as lacking personal touch.Certain chatbots are poor in processing and takes time to filter results. This annoys the users.

- Different chatbots require different installation procedures and hence increases initial installation cost unlike human beings.Certain chatbots have limited availability of data and require some time for their self update. This process leads to slower response times and expensive solutions.

- Chatbots are poor in making decisions unlike human beings.

- Certain chatbots are poor in memory and do not store past conversations. This annoys users as they need to re-type same things. This requires more efforts from user point of view.

OUR OWN BOT

We have made our own chatbot by using python programming which can answer the following questions :-

1) how are you
2) who was the first president of india?
3) who was the first prime minister of india?
4) who is the father of our nation ?
5) who was chatrapati shivaji maharaj ?
6) who invented computer?
7) who is the founder of microsoft?
8) which is the largest ocean in world?
9) which is hardest substance on earth?
10) who is father of indian constitution ?
11) giddha is the folk dance of?
12) how to make tea ?
13) which shape has 10 sides?

SOURCE CODE :-

```
from tkinter import *
root = Tk()
root.title("Chatbot")
def send():
    send = "You -> "+e.get()
    txt.insert(END, "\n"+send)
    user = e.get().lower()

    if(user == "hello"):
```

```
    txt.insert(END, "\n" + "Bot -> Hi" + "\n")
elif(user == "hi" or user == "hii" or user == "hiiii"):
    txt.insert(END, "\n" + "Bot -> Hello" + "\n")
elif(e.get() == "how are you"):
    txt.insert(END, "\n" + "Bot -> fine! and you" + "\n")
elif(user == "fine" or user == "i am good" or user == "i am doing good" or
                    user == "good"):
    txt.insert(END, "\n" + "Bot -> Great! how can I help you." + "\n")
elif(user == "who invented computer?"):
    txt.insert(END, "\n" + "Bot -> Charles Babbage invented computer" +
                    "\n")
elif(user == "who was the first president of india?"):
    txt.insert(END, "\n" + "Bot -> Dr. Rajendra Prasad was an Indian
                    independence activist, lawyer, scholar and
                    subsequently, the first President of India, in office
                    from 1950 to 1962." + "\n")
elif(user == "giddha is the folk dance of?" ):
    txt.insert(END, "\n" + "Bot -> Giddha, also spelled Giḍḍa, traditional
                    pastoral dance performed by women of the Punjab at
                    festival times" + "\n")
elif(user == "who was the first prime minister of india?" ):
    txt.insert(END, "\n" + "Bot -> Jawaharlal Nehru was India's first Prime
                    Minister." + "\n")
elif(user == "who is the father of our nation ?"):
    txt.insert(END, "\n" + "Bot -> Mahatma Gandhi better known as the
                    father of Nation because it was he who got freedom
                    for us. He was the maker of Modern India." + "\n")
elif(user == "how to make tea ?"):
    txt.insert(END, "\n" + 'Bot -> 1. Boil water in a kettle or pot.\n      2. Put
                    a tea bag or loose tea leaves in a cup or teapot.\n
                    3. Pour hot water over the tea and let it steep for 2-5
                    minutes.\n          4. Remove tea bag or strain tea
```

```
                leaves,  add milk and sugar if desired,  and
                enjoy!' + "\n")
elif(user == "who was chatrapati shivaji maharaj ?"):
    txt.insert(END, "\n" + "Bot -> Shivaji, also spelled Śivaji, (born February
                19, 1630, or April 1627, Shivner, Poona [now Pune],
                India—died April 3, 1680, Rajgarh), founder of the
                Maratha kingdom of India. The kingdom's security
                was based on religious toleration and on the
                functional integration of the Brahmans, Marathas,
                and Prabhus" + "\n")
elif(user == "who is father of indian constitution ?"):
    txt.insert(END, "\n" + "Bot -> Bhimrao Ramji Ambedkar was an Indian
                jurist, economist, social reformer and political leader
                who headed the committee drafting the Constitution
                of India from the Constituent Assembly" + "\n")
elif(user == "Name the hardest substance available on Earth? " or
                user=="which is hardest substance on earth?"):
    txt.insert(END, "\n" + "Bot -> Diamond is the hardest naturally occurring
                substance found on earth. " + "\n" )
elif(user == "Name a shape that has ten sides? " or user=="which shape has
                10 sides?"):
    txt.insert(END, "\n" + "Bot -> In geometry, a decagon  is a ten-sided
                polygon or 10-gon. The total sum of the interior
                angles of a simple decagon is 1440°." + "\n")
elif(user == "Name the largest ocean in the World? " or user =="which is
                the largest ocean in world?"):
    txt.insert(END, "\n" + "Bot -> The Pacific Ocean is the largest and
                deepest of the world ocean basins. Covering
                approximately 63 million square miles and
                containing more than half of the free water on Earth,
                the Pacific is by far the largest of the world's ocean
                basins." + "\n")
```

```
    elif(user == "who is the founder of microsoft?"):
        txt.insert(END, "\n" + "Bot -> Bill Gates and Paul Allen are the real
                                founders of Microsoft" + "\n")
    else :
        txt.insert(END, "\n" + "Bot -> Sorry, i did't get it, rephrase your question"
                                + "\n")


    e.delete(0, END)
txt = Text(root)
txt.grid(row=0, column=0, columnspan=2)
e = Entry(root, width=50)
e.grid(row=1, column=0)
send = Button(root, text="Send", command=send).grid(row=1, column=1)
root.mainloop()
```

CONCLUSION

In this way we conclude our project

Here we discuss about what is chatbots , how it works , its birth and upgradation till now , its advantages and disadvantages and our own mini chatbot

Most companies today have an online presence in the form of a website or social media channels. They must capitalize on this by utilizing custom chatbots to communicate with their target audience easily.

Chatbots can now communicate with consumers in the same way humans do, thanks to advances in natural language processing.

Businesses can save resources, cost, and time by using a chatbot to get more work done in less time.

References: (Website/Books/Papers):

For collection of materials we visited college library and collected books on the respective topic of fuel.

We also searched online for more information regarding our project We also visited Google and Youtube for the materials research.

- https://analyticsindiamag.com/story-eliza-first-chatbot-developed-1966/
- https://marutitech.com/chatbots-work-guide-chatbot-architecture/#How_do_Chatbots_Work?
- https://www.google.com/search?q=chatbot&rlz=1C1CHZN_enIN966IN966&source=lnms&tbm=isch&sa=X&ved=2ahUKEwiaz_fp9rj_AhV3-TgGHYkfBNMQ_AUoAXoECAEQAw&biw=1163&bih=517&dpr=1.65
- https://onlim.com/en/the-history-of-chatbots/
- https://www.google.com/search?q=chatbot&rlz=1C1CHZN_enIN966IN966&source=lnms&tbm=isch&sa=X&ved=2ahUKEwiaz_fp9rj_AhV3-TgGHYkfBNMQ_AUoAXoECAEQAw&biw=1163&bih=517&dpr=1.65#imgrc=6lvqFqbsDIWrJM

Weekly Planning Sheet

Week No.	Activity Planned	Activities Completed	Signature of Students	Signature of Faculty/Mentor
1	Desciding the topic	Decided to work problems related to fuel		
2	Deciding how to work	Discussion over working plan done		
3	Deciding the things to be done	Made a list		
4	Planning to collect information	Collected information		

Signature of PBL Coordinator/ HOD,FE

Weekly Planning Sheet

Week No.	Activity Planned	Activities Completed	Signature of Students	Signature of Faculty/ Mentor
5	Deciding the assembling plan	Reverified the collected information		
6	To submit the work assigned to each member and to share their view on the topic	Shared this assigned work in the work in the group and helped other to understand the background knowledge of their sub topic.		
7	Preparation to make ppt for the presentation	Submitted the differed slides on the sub topics given to each member		

Weekly Planning Sheet

Week No.	Activity Planned	Activities Completed	Signature of Students	Signature of Faculty/Mentor
8.	To prepare the final ppt	Completed the ppt by merging the different slides given by the members.		
9.	To prepare the final report for the topic “problems related to fuel management and there solution”	Final report is completed with the things that are coverd in the ppt		
10.	To submit the final report and the ppt			

Signature of PBL Coordinator/ HOD,FE