Mini Project Report on

AI Chatbot

Submitted in partial fulfillment of the requirement for the award of the degree of

BACHELOR OF TECHNOLOGY

IN

COMPUTER SCIENCE & ENGINEERING

Submitted by:

Student Name:	University Roll No:
Shubham Gupta	2017050

Under the Mentorship of

Dr. Vishan Kumar Gupta

Department of Computer Science and Engineering
Graphic Era (Deemed to be University)
Dehradun, Uttarakhand

January 2023

CANDIDATE'S DECLARATION

I hereby certify that the work which is being presented in the project report entitled **"AI Chatbot"** in partial fulfillment of the requirements for the award of the Degree of Bachelor of Technology in Computer Science and Engineering of the Graphic Era (Deemed to be University), Dehradun shall be carried out under the mentorship of **Dr. Vishan Kumar Gupta**, Department of Computer Science and Engineering, Graphic Era (Deemed to be University), Dehradun.

Name: Shubham Gupta **University Roll no: 2017050**

Table of Contents

Chapter 1:

Introduction

1.1. What are Chatbots?

A chatbot is a computer program that uses artificial intelligence to conduct a conversation with human users through a messaging or chat platform. Chatbots are designed to mimic human conversation, and can be programmed to respond to a variety of user inputs. Some chatbots are designed to handle customer service inquiries, while others may be used for more general purposes, such as providing information or helping users make reservations. Chatbots are often integrated into messaging apps, websites, or mobile apps, and can be accessed through a variety of platforms, including text, voice, or messaging.

A chatbot is a computer program that is designed to simulate conversation with human users, especially over the Internet. Chatbots are often used to answer customer questions, help customers find information, or perform other simple tasks. They can be integrated into a variety of platforms, such as websites, messaging apps, and mobile apps, and they can be trained to understand and respond to a wide range of user inputs. Some chatbots are powered by artificial intelligence and are able to hold more complex conversations with users, while others are more limited in their capabilities.

Chatbots are often used to answer frequently asked questions or to provide customer service. They can be integrated into messaging apps, mobile apps, or websites. Chatbots use natural language processing (NLP) to understand and respond to user input, and they can be trained to handle a wide range of tasks. Some chatbots are designed to be general-purpose assistants, while others are specialized for a particular task, such as booking a hotel room or ordering food.

1.2. Types of Chatbots

AI chatbots are chatbots that are powered by artificial intelligence (AI) algorithms and are able to understand and respond to more complex inputs. Some common types of AI chatbots include:

1. Rule-based AI chatbots: These chatbots use pre-determined rules to determine their responses to user inputs.

2. Decision tree chatbots: These chatbots use a tree-like structure to determine their responses to user inputs. The chatbot asks a series of questions, and based on the user's responses, it determines the appropriate response.

3. Machine learning chatbots: These chatbots use machine learning algorithms to "learn" from past conversations and improve their responses over time.

4. Deep learning chatbots: These chatbots use deep learning algorithms, which are a type of machine learning that uses artificial neural networks to process data. Deep learning chatbots are able to understand and respond to more complex inputs and may be able to better mimic human conversation.

5. Natural language processing (NLP) chatbots: These chatbots use natural language processing (NLP) techniques to understand and respond to user input. They are able to interpret the meaning of words and phrases and use this information to generate appropriate responses.

Here are some examples of chatbots that are currently in use:

- H&M's chatbot, which can assist customers with finding products, placing orders, and tracking deliveries.

- Sephora's chatbot, which can provide personalized product recommendations, help customers find stores, and answer questions about products and services.

- The Skyscanner chatbot, which can help users find and compare flights, hotels, and rental cars.

- The eBay chatbot, which can assist users with finding products, making purchases, and tracking orders.

- The Goldman Sachs chatbot, which can provide information about investment products and services, and help users track their portfolio.

- The Huffington Post chatbot, which can provide news updates and recommendations for articles to read.

Chapter 2:

Literature Survey

The concept of chatbots dates back to the 1960s, with the creation of ELIZA, one of the first chatbots ever developed. ELIZA, created by Joseph Weizenbaum at MIT, was a program that simulated conversation with a therapist using a set of rules and patterns.

Since then, chatbots have evolved significantly. Early chatbots were based on rule-based systems, which used predetermined responses to specific inputs. These chatbots were limited in their capabilities and could only handle a narrow range of topics.

With the rise of artificial intelligence and machine learning, chatbots have become more sophisticated and able to handle a wider range of tasks and topics. Modern chatbots use natural language processing (NLP) and machine learning algorithms to understand and respond to user inputs in a more human-like way.

Today, chatbots are used in a variety of industries, including customer service, e-commerce, healthcare, and education, to name a few. They are also being integrated into messaging and social media platforms, allowing users to interact with them in a more natural and convenient way.

Chapter 3:

Methodology Used

3.1. Tools Used

In the making of this project I've used python, tkinter, nltk, sklearn, random and string

1) Tkinter is used in making the GUI.
2) NLTK is used to process the input language. Sentence separation, words separation, lemmatization of words etc.
3) Sklearn is used to perform feature extraction for dimensionality reduction.
4) Random package is used for randomly choosing the responses.
5) String package is used to perform manipulation of strings.

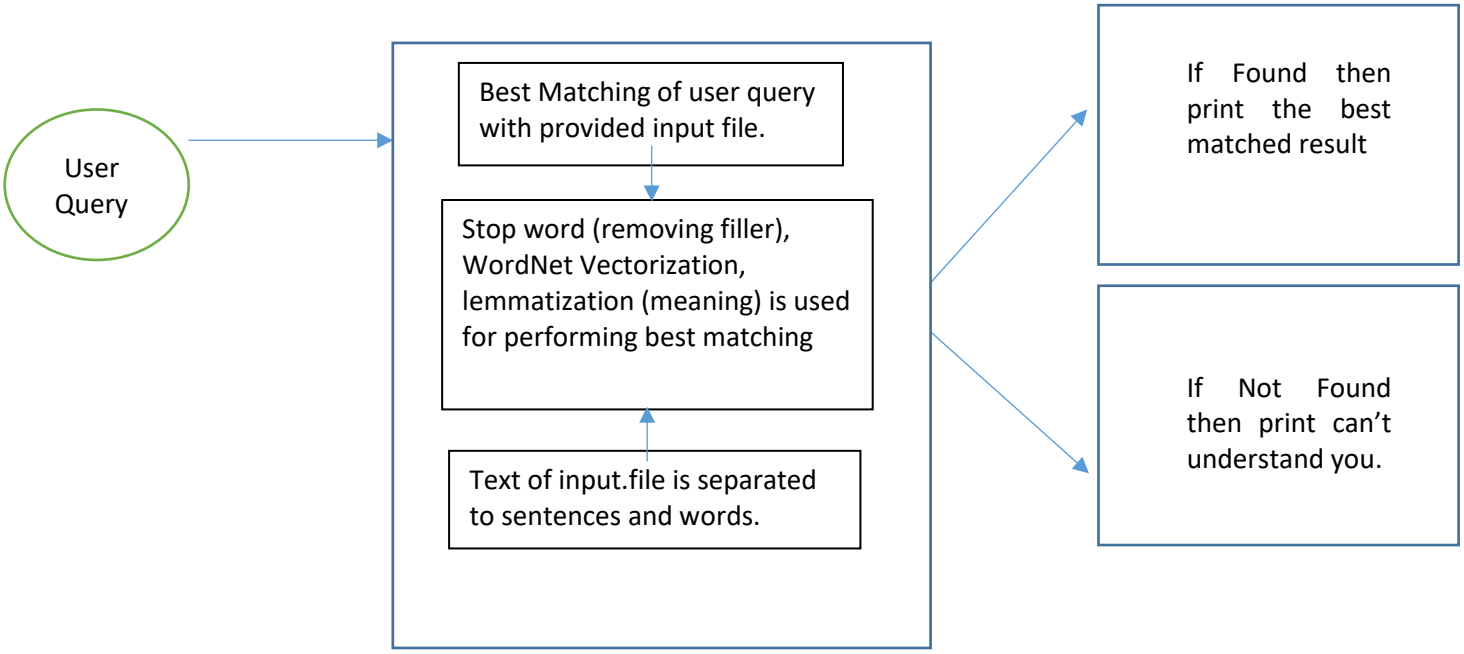
3.2. Working of a Chatbot

Working of a chatbot can be explained using the following points.

1) The user initiates a conversation with the chatbot by entering a message or selecting an option from a list of choices.
2) The chatbot receives the user's input and processes it using natural language processing (NLP) algorithms.
3) The chatbot analyzes the meaning and intent of the user's message and selects an appropriate response from a predetermined list of responses or a database of information.
4) The chatbot generates a response and sends it back to the user.
5) The process repeats until the conversation is terminated by the user or the chatbot.
6) Here is a visual representation of this process:

User ---> Input ---> NLP processing ---> Response Selection ---> Response ---> Output

3.3. Flowchart:

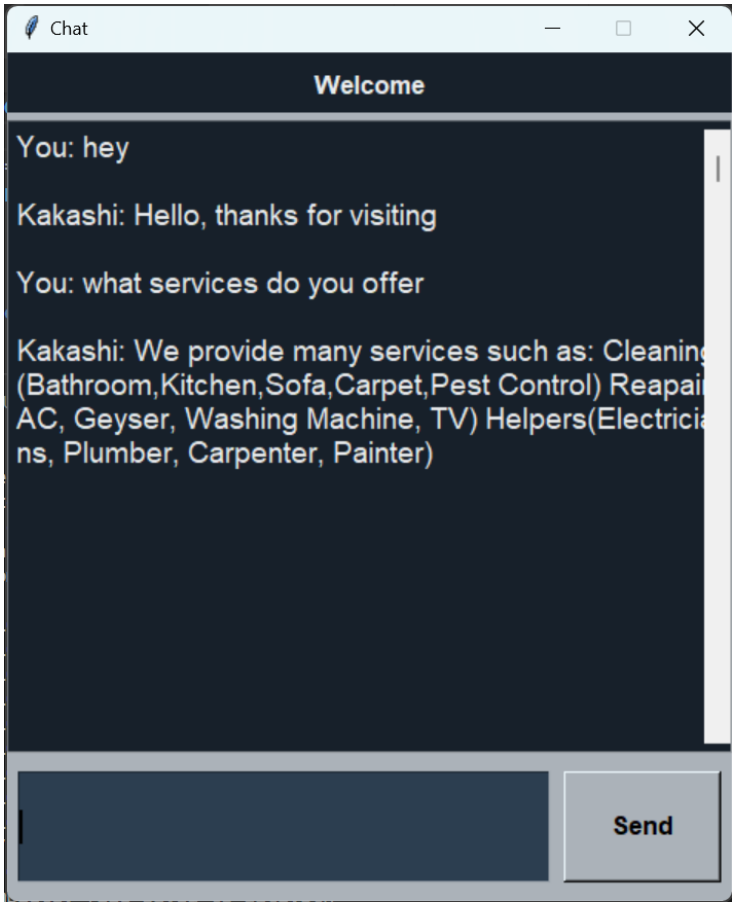


Chapter 4:

Result and Discussion

Hence using the above mentioned tools and libraries a chatbot named Kakashi is created which can be used for booking online services for household chores.

Here is a snapshot of how the chatbot looks:



Chapter 5:

Conclusion and Future Work

The chatbot was able to successfully allow users to browse and book a variety of home services online, saving them time and effort compared to traditional methods.

In order to improve the chatbot, it could be helpful to gather feedback from users about their experiences with the chatbot. This could include gathering data on how often users are able to successfully book services through the chatbot, and any difficulties or issues they encounter during the process. Based on this feedback, the chatbot could be further improved and optimized to better meet the needs of users.

Another potential area of focus for future work on the chatbot could be expanding the range of services that it offers. By partnering with more service providers, the chatbot could become a one-stop shop for all kinds of home services, further increasing its convenience and usefulness to users.

Finally, it could be valuable to consider integrating the chatbot with other platforms and systems, such as home automation systems or virtual assistants like Alexa or Google Home. This could allow users to easily access the chatbot and book services using voice commands, further improving the user experience.

References:

- https://www.geeksforgeeks.org/
- https://www.javatpoint.com/
- https://en.wikipedia.org/wiki/Chatbot
- https://www.drift.com/learn/chatbot/
- https://realpython.com/nltk-nlp-python
- https://www.nltk.org/
- https://realpython.com/python-gui-tkinter/
- https://towardsdatascience.com/introduction-to-py-torch-13189fb30cb3?gi=29feb4bdefff
- https://realpython.com/lessons/string-module/
- https://www.w3schools.com/python/module_random.asp
- https://scikit-learn.org/stable/