ARTIFICIAL INTELLIGENCE

(CA 3)

PROJECT

HEALTHCARE

CHATBOT

SUBMITTED TO:

SHABNAM MAM

SUBMITTED BY:

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GITHUB LINK:- https://github.com/GeetikaSejwal/Healthcare-chatbot

ABOUT PROJECT:

Through chatbots one can communicate with text or voice interface and get reply through artificial intelligence. Typically, a chat bot will communicate with a real person. Chat bots are used in applications such as ecommerce customer service, call centres and Internet gaming. Chatbots are programs built to automatically engage with received messages. Chatbots can be programmed to respond the same way each time, to respond differently to messages containing certain keywords and even to use machine learning to adapt their responses to fit the situation. A developing number of hospitals, nursing homes, and even private centres, presently utilize online Chatbots for human services on their sites. These bots connect with potential patients visiting the site, helping them discover specialists, booking their appointments, and getting them access to the correct treatment. In any case, the utilization of artificial intelligence in an industry where individuals' lives could be in question, still starts misgivings in individuals. It brings up issues about whether the task mentioned above ought to be assigned to human staff.

This healthcare chatbot system will help hospitals to provide healthcare support online 24 x 7, it answers deep as well as general questions. It also helps to generate leads and automatically delivers the information of leads to

sales. By asking the questions in series it helps patients by guiding what exactly he/she is looking for.

MODULES:

The system comprises of 3 major modules with their sub-modules as follows:

1. User:

- **Registration:** user need to register to get credentials.

- **Login:** user can login using credentials

- **Homepage:** user can view the webpage

- **Hospital Details:** user can see the hospital details

- **Doctor Details:** user can view the available doctors.

- **Chat with Bot:** user can chat with the bot regarding the query

2. Admin:

- **Login:** Admin can login by using credentials.

- **Manage Question & Answer:** Admin can arrange questions and answers.

- **View Users:** Admin can also view the users.

- **Manage Hospital Details:** Admin can update hospital details.

- **Manage Doctor Details:** Admin can update details of available doctors.

3. Diagram:
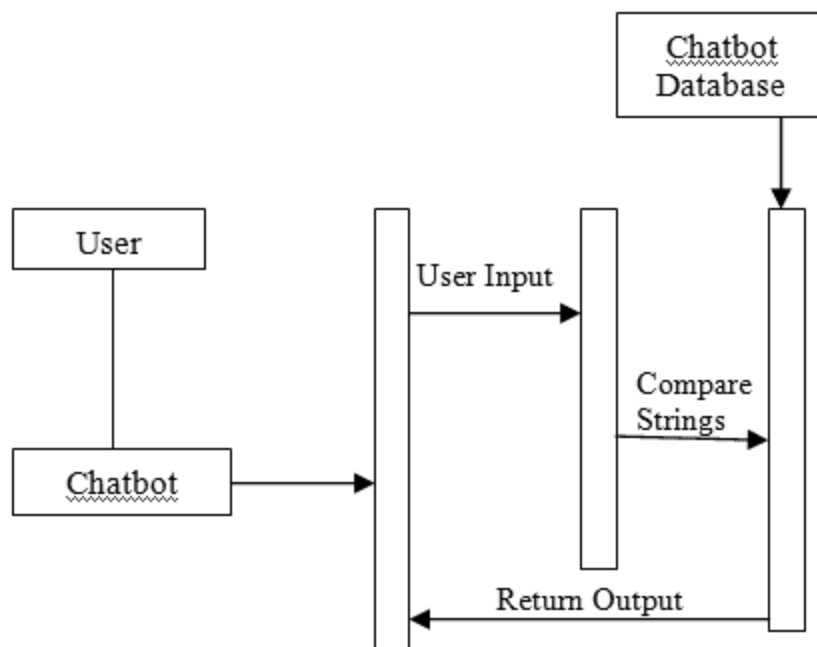
The working scenario of our project is as shown above.

WORKING:

- **Hey, what's up?**
- **How're you doing?**
- **How do you do?**

- **Hello!**
-
- **Anything familiar in these sentences?**

They all are some or the other variation of a *greeting message.*

How do you respond when someone asks you one of the above questions?

You respond, typically like - *I am good, how about you?*

Some other day you might respond as - *I am fine, thanks for asking.*

This is exactly how healthcare ChatBots work. A typical ChatBot maps a sentence into a so-called *intent* which in this case is the *greeting* intent. With every intent are associated a set of *responses*. The bot picks up one of these responses and sends it back to the user. This is done so as to give a more natural feel to the bot by avoiding sending the exact same response again and again.

If we put up in a layman language, a Chatbot offers assistance similar to a human serving as a help desk. So when the end consumer opens up a dialogue box for conversation, the Chatbot becomes the medium that responds.

As we did mention already that Chatbots are the best application of artificial intelligence, they can be easily bifurcated into two categories. The simpler Q/A bot requires a smaller skills and knowledge base and is limited to answer only a specific set of questions while the smarter machine learning Chatbots harness the full potential of Artificial Intelligence.

For being an efficient bot and ability to offer relevant answers, the Chatbot basically employs four major parameters as Text Classifiers, Suitable Algorithms, Artificial Neural

Networks and Natural Language Processing (NLP). All these factors contribute to the overall bot functionality and intelligence of the Chatbot.

Chatbot works by mapping out all the possible replies to visitor's chat messages. When a new message comes in, it finds a list of possible replies and estimates how likely each of them is to answer to the visitor's message. If the likelihood (so called 'confidence level') is above a predetermined threshold (e.g. 90%), the chatbot replies automatically to the visitor.

The chatbot repeats this cycle and keeps the conversation going until the confidence level drops below the threshold. At that point, it apologises and either invites a customer service agent into the conversation or, if no agent is available, performs another action it's configured to do.Once the customer service agent has joined the conversation, the chatbot can act as an intelligent assistant providing recommended answers for the agent. A common alternative to inviting a service agent into a conversation is to ask for contact details and promise that someone will get back to the issue.

Text Classifiers: How they come as help?

The best way to understand what text classifiers mean to a bot is a way of segregating a piece of data (word or sentence) into multiple categories (intent) understood by the Chatbot. It can also be mentioned as a method of extracting generic tags from an unstructured text. For instance the text input "How are you doing?" is associated with a clear response of "I am good". The Text Classifiers enable the Chatbot to classify information and thereby produce responses based on the same. It is crucial that the Chatbot is able to distinguish the input cases and generate effective responses.

The best instance is the Spock Bot where it allows users to chat with the second in command of Star Trek's USS Enterprise including the exchange of instant messages and photographs. The bot uses pattern matching to classify text and produces suitable responses for the end consumer.
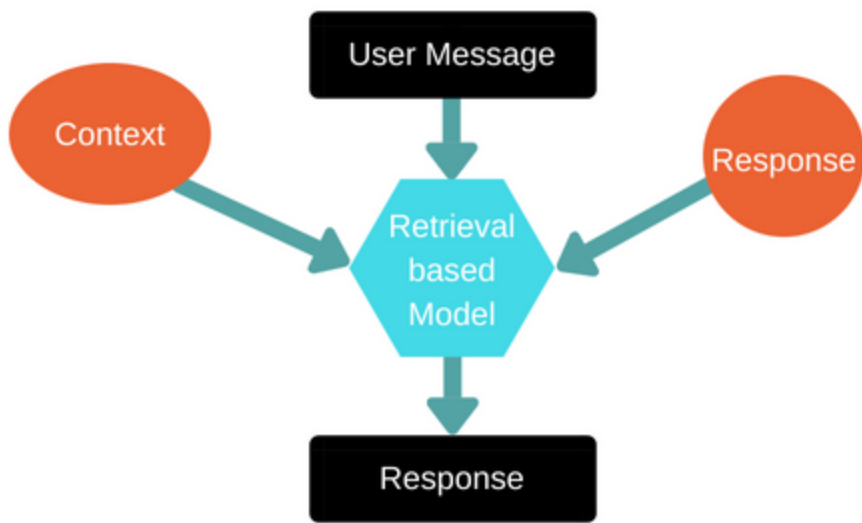
ALGORITHM:
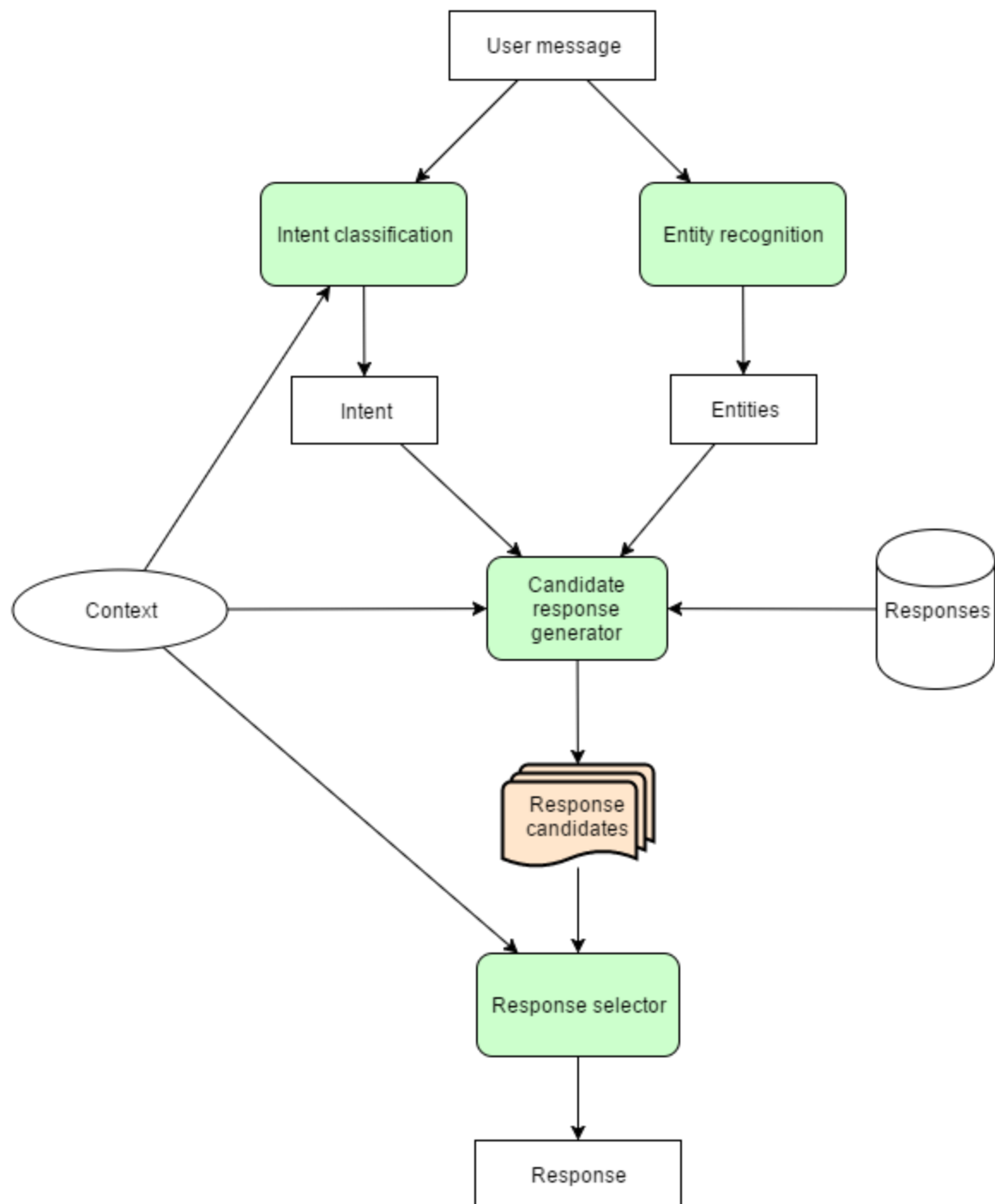
❖ Hardware Requirement:

- ☐ i3 Processor Based Computer or higher
- ☐ Memory: 4 GB
- ☐ Hard Drive: 64 GB
- ☐ Monitor
- ☐ Internet Connection

❖ Software Requirement:

- ☐ Windows 7 or higher
- ☐ Chatterbot module
- ☐ Python 3.6 shell
- ☐ Google Chrome Browser

CODE EXECUTION IN PYTHON 3.6.7

File Edit Format Run Options Window Help

```python
from chatterbot import ChatBot
from chatterbot.trainers import ListTrainer
#import os

try:
        os.remove("db.sqlite3")
        print("Old database removed. Training new database")
except:
        print('No database found. Creating new database.')

english_bot = ChatBot('Bot')
trainer=ListTrainer(english_bot)
trainer.train(conv)
trainer.train(conv1)
trainer.train(conv2)
trainer.train(conv3)



from chatterbot import ChatBot
from tkinter import *
i=0
def ptr():
    global i
    f=e.get()
    w=Label(r,text="You: "+e.get(),bg='lightgreen').grid(row=i,column=2)
    i+=1
    t=english_bot.get_response(f)
    ans=str(t)
    w=Label(r,text="Bot: "+ans,bg='white').grid(row=i,column=0)
    e.delete(0,END)
    i+=1
r=Tk()
r.title('chatbot')
r.geometry("480x550")
e=Entry(r)
e.grid(row=20,column=1)
b=Button(r,text="Send",width=10,command=ptr)
b.grid(row=20,column=2)
i=i+1
mainloop()
```

HEALTHCARE CHATBOT CODE

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from chatterbot import ChatBot

from tkinter import *
```

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i=i+1
mainloop()
```

conv=["hi","hello,Welcome to MediCare","how are you","i m fine, what about you","i am not feeling well","please tell your symptoms"]

conv1=["My body temperature has raised.","This is a symptom of fever, you should take a tablet of crocin after you have your meal.","Ok, i will take the crocin.","ok,take care","thankuu","welcome","I am shivering","This is a symptom of fever, you should take a tablet of crocin after you have your meal.",

    "ok,fine","get well soon","thankyou","your welcome","I am feeling weak.","This is a symptom of fever, you should take a tablet of crocin after you have your meal.","ok,thank you","take care, get well soon"]

conv2=["my hand is aching.","okay, did you get hurt, or it is a sudden aching.","my joint is aching.",

    "okay, did you get hurt, or it is a sudden aching.","yes i got hurt.",

    "ok, is there a swelling or a physical deformity or bleeding at the aching region.","yes there is a swelling",

    "it is a common symptom of fracture, should I book an an appointment for you.","yes there is a physical deformity.",

"it is a common symptom of fracture,you should go and see a doctor immediately."]

conv3=["my nose is choked","Okay, this is a symptom of cold,You should take a sudafed tablet after your meal.",

    "I am still not feeling well","okay,then you should consult your doctor","I have a cough","You should take a spoon full of benadryl after your meal","ok","take rest"," my throat is itching","Okay, this is a symptom of cough,You should take a spoon full of benadryl after your meal"]
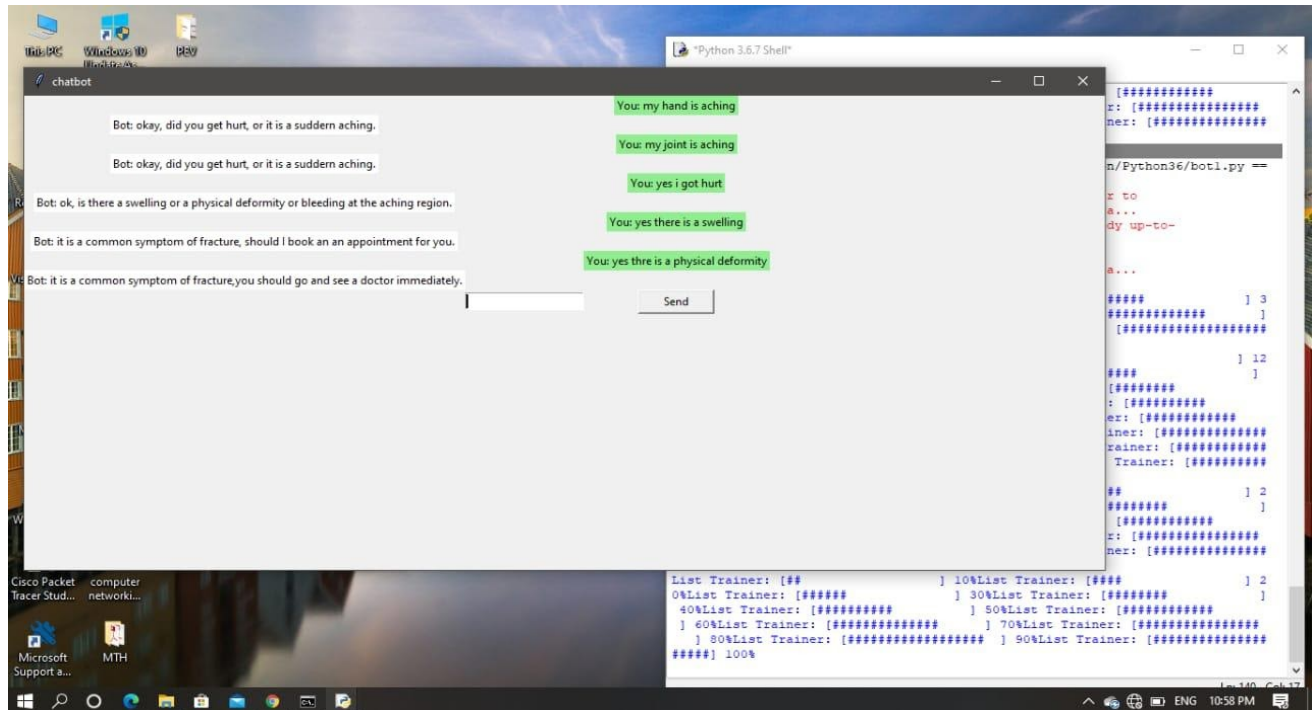
❖ **Advantages**

     □   Save time and money

     □   Generate new leads

     □   Guide users

     □   It provides support 24 x 7

❖ **Limitation**

     □   It requires active internet connection.
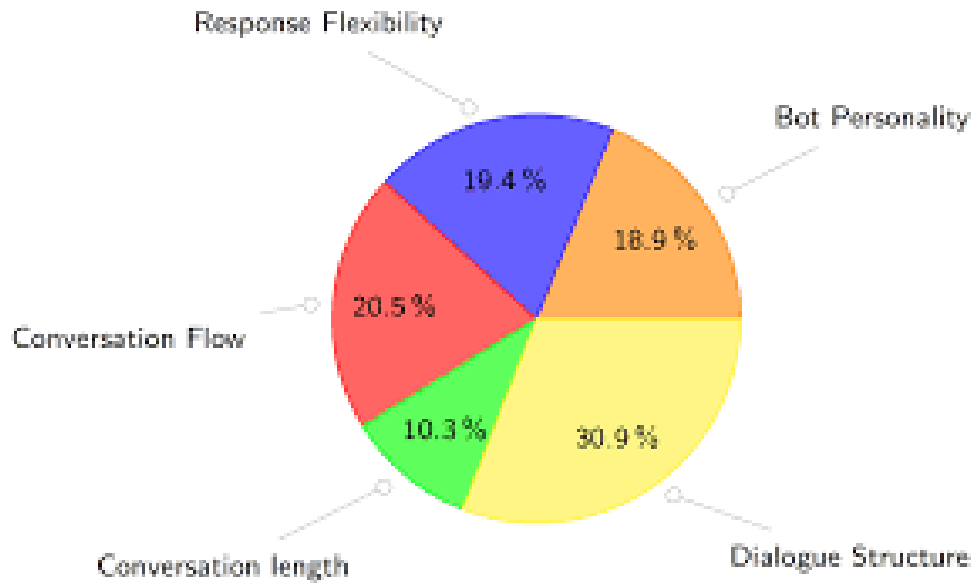
❖**Objective**

     □   Gaining the trust of the patients by providing them with the needed information 24*7.

❖ **Application**

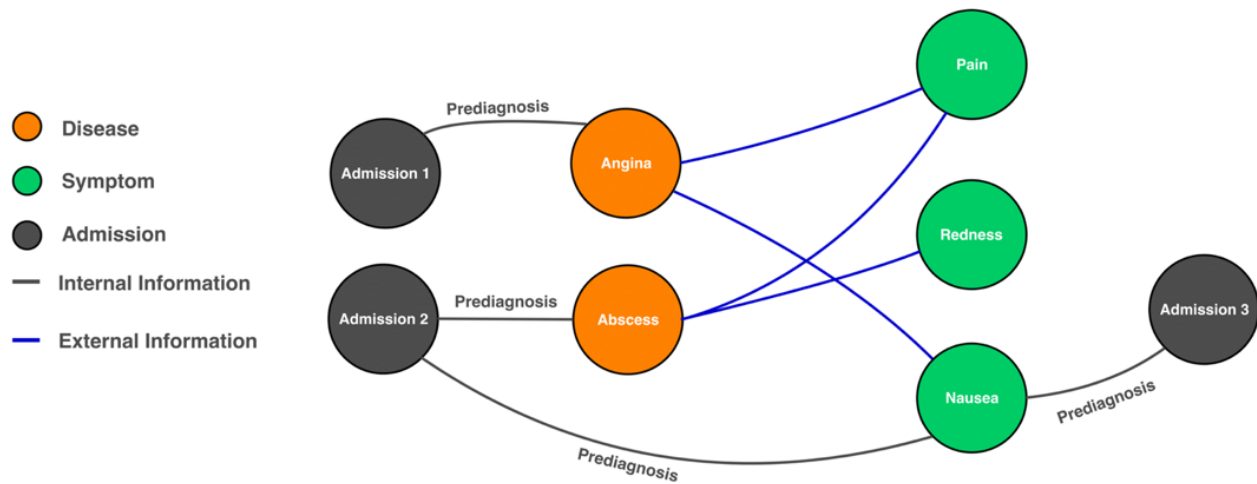   □   This system can be used by the multiple peoples to get the counselling sessions online.

     □   Providing information fast when there is not a moment to lose.
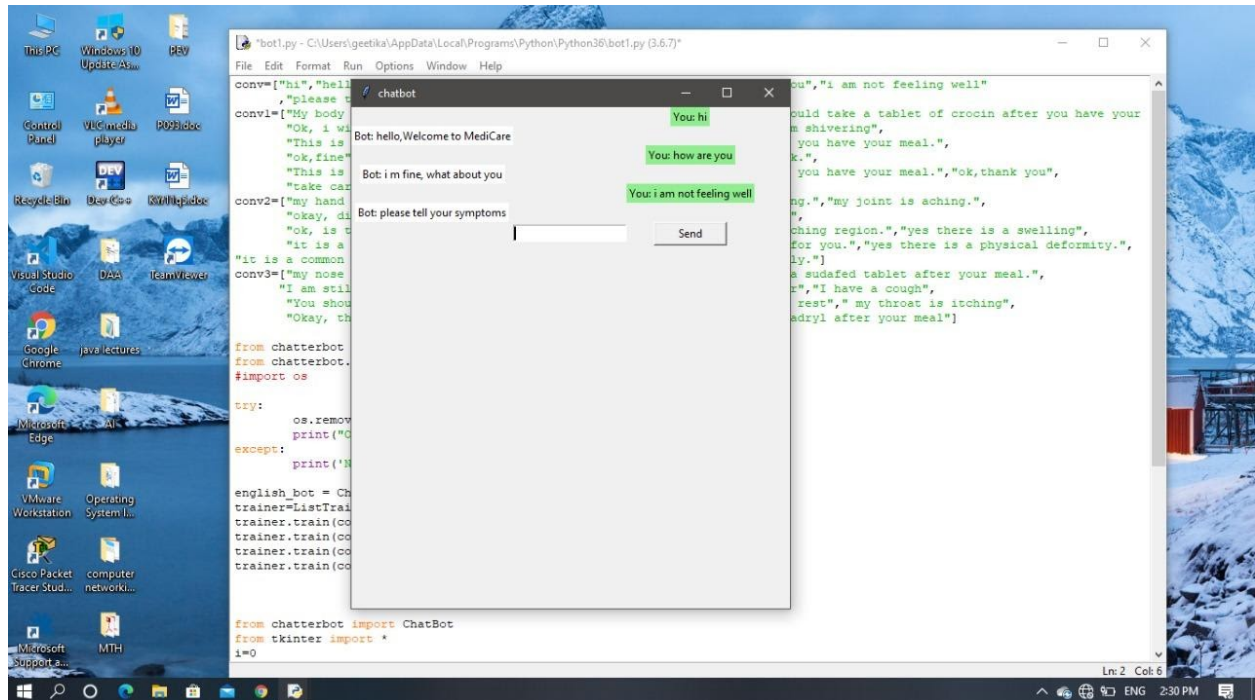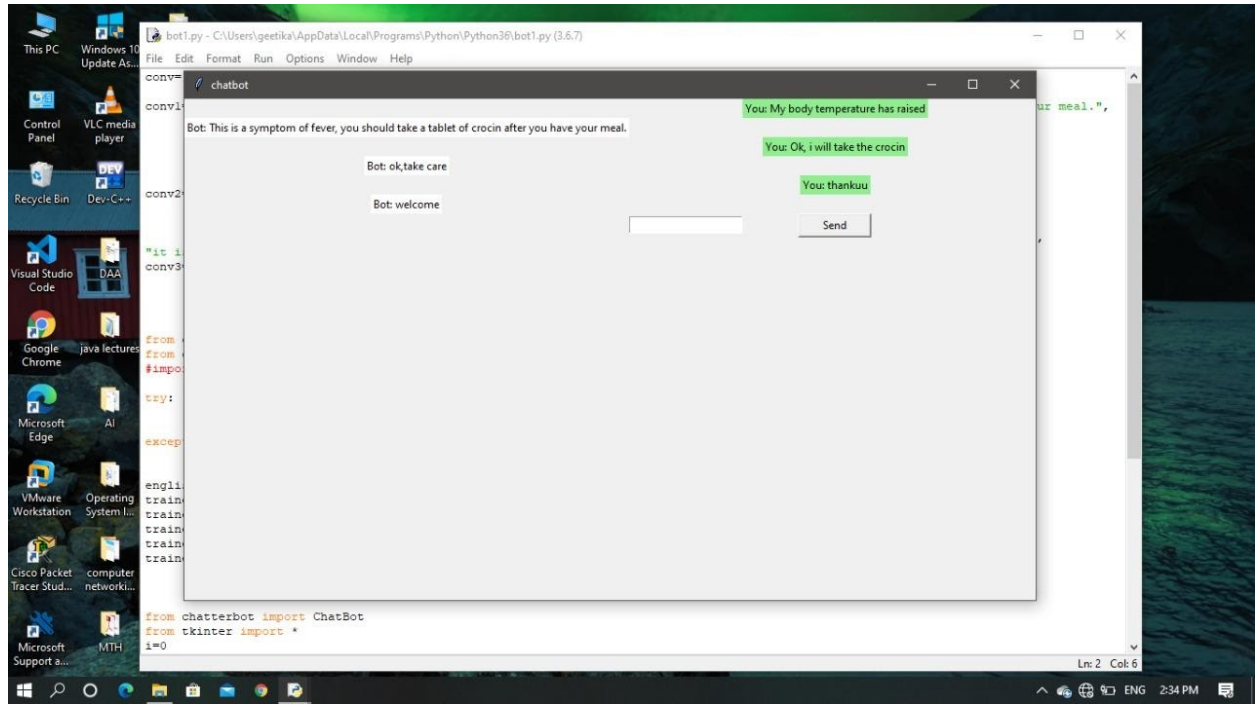
GRAPHICAL REPRESENTATION:

Pie Chart

Knowledge Graph

TEST CASE:

Testcase 1:introductory conversation with chatbot
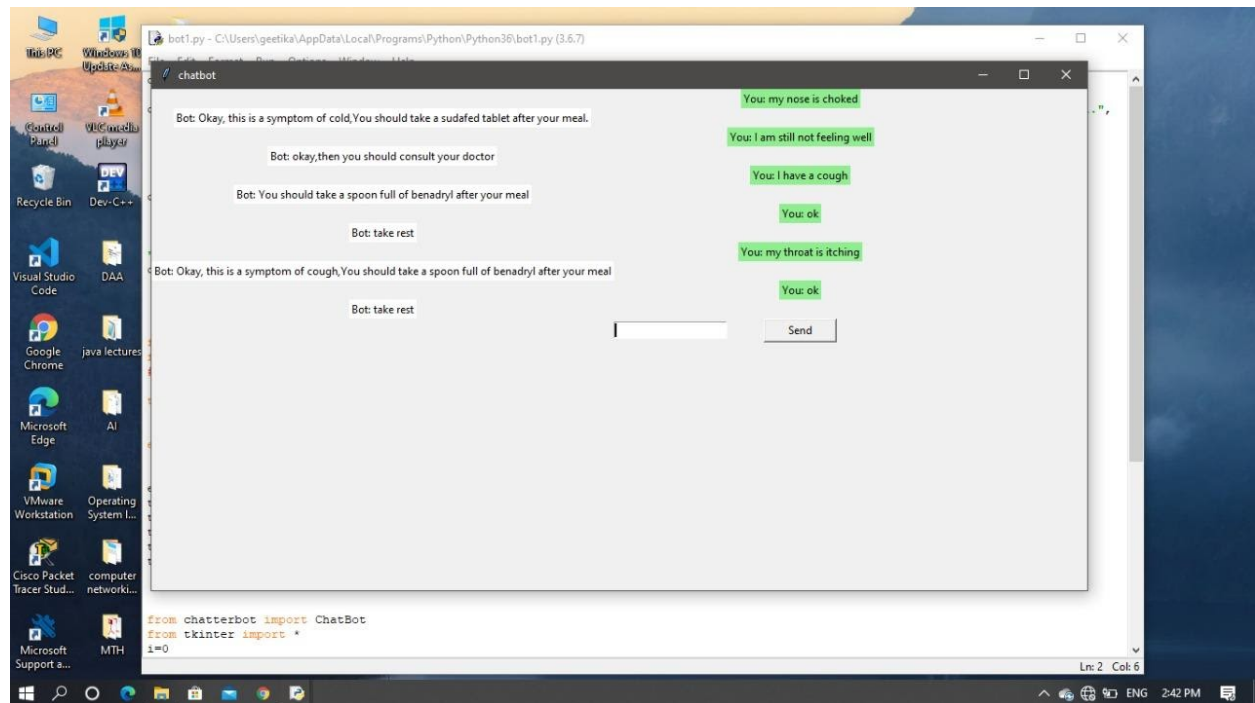
Testcase2:telling the chatbot about fever symptoms

Testcase3:explanation of the symptoms

Screenshot 1 — IDLE editor (bot1.py) with chatbot GUI window:

```
conv=["hi","hello,Welcome to MediCare","how are you","i m fine, what about you","i am not feeling well"
    ,"please tell your symptoms"]
conv1=["My body temperature has raised.","This is a symptom of fever, you should take a tablet of crocin after you have your meal.",
    "Ok, i will take the crocin.","ok,take care","thankuu","welcome","I am shivering",
    "This is a symptom of fever, you should take a tablet of crocin after you have your meal.",
    "ok,fine","get well soon","thankyou","your welcome","I am feeling weak",
```

chatbot window:

You: I am shivering
Bot: This is a symptom of fever, you should take a tablet of crocin after you have your meal.
You: ok fine
Bot: I am shivering
Send

Screenshot 2 — IDLE editor (bot1.py) with chatbot GUI window:

chatbot window:

You: I am shivering
Bot: This is a symptom of fever, you should take a tablet of crocin after you have your meal.
You: ok fine
Bot: I am shivering
You: ok,fine
Bot: get well soon
You: thankyou
Bot: your welcome
You: I am feeling weak
Bot: This is a symptom of fever, you should take a tablet of crocin after you have your meal.
You: ok,thank you
Bot: take care, get well soon
Send

```
from chatterbot import ChatBot
from tkinter import *
i=0
```
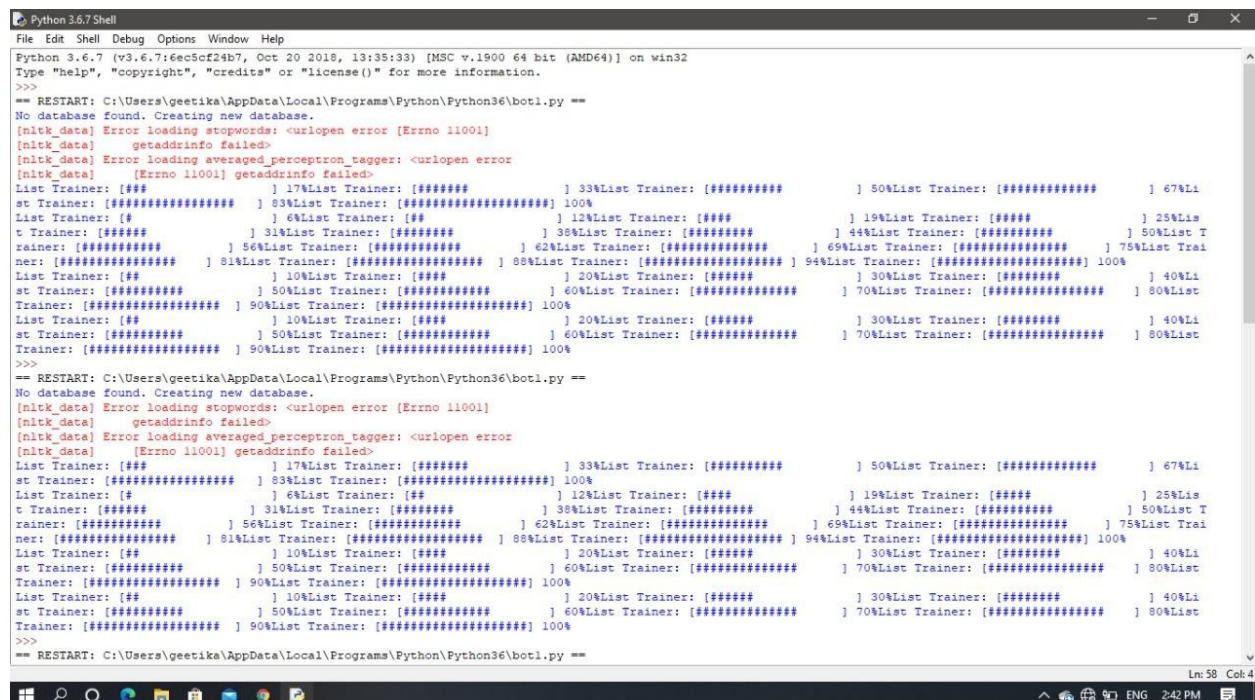
Testcase4: explaining the symptoms of the fracture
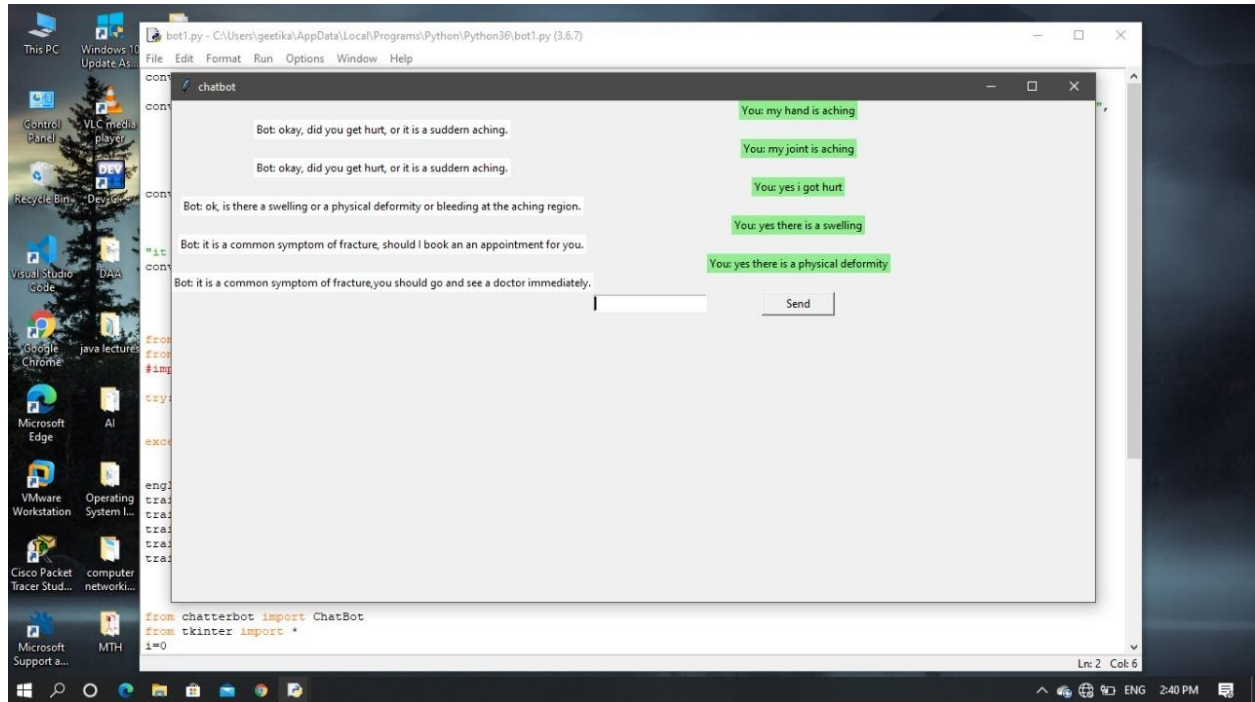
Testcase5:explaining the symptoms of cold

Testcase6:training of the chatbot

WORK DIVISION:

Roll No. 11

gave concept of coding and used the chatterbot.trainer to train bot

Roll No. 12

did the coding and did test cases

Roll No. 23

 did necessary improvement in coding and did working part in report

Roll No. 29

did report and used GUI in coding

REFERENCE:

www.google.com

www.githhub.com

THANK YOU