ARTIFICIAL INTELLIGENCE

(CA 3)

PROJECT

HEALTHCARE

CHATBOT

SUBMITTED TO:

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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.

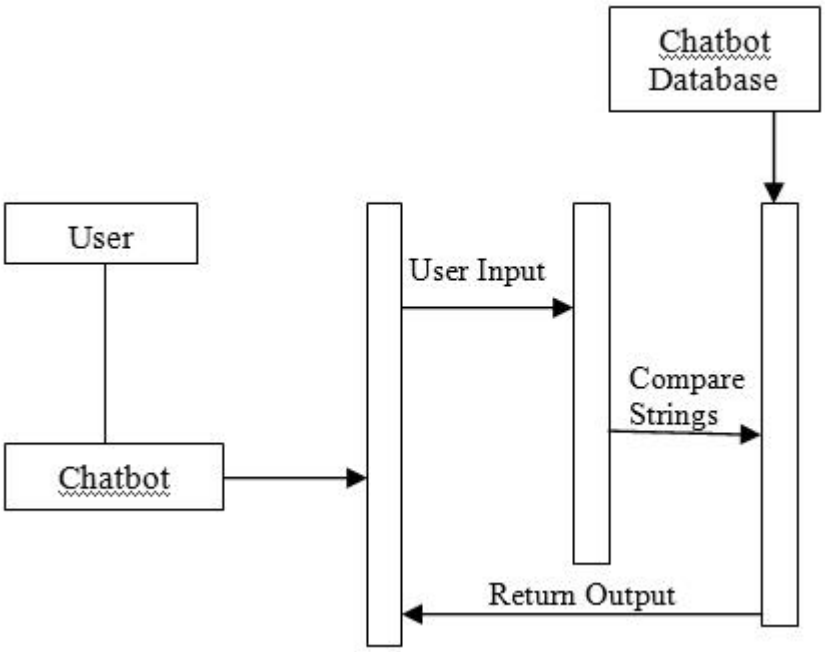
MODULES:

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?**

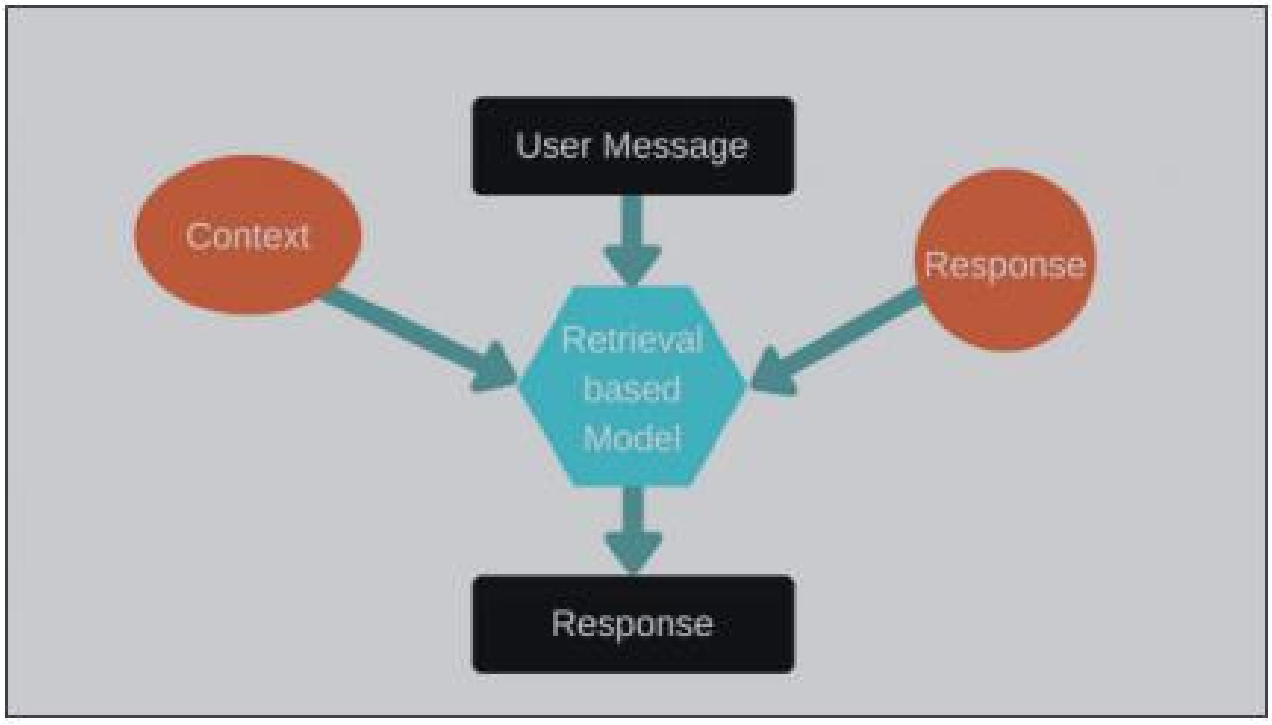
They all are some or the other variation of a *greeting message*.
How do you respond when someone asks you one of the above questions?
You respond, typically like - *I am good, how about you?*
Some other day you might respond as - *I am fifine, thanks for asking.*
This is exactly how healthcare ChatBots 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 artifificial 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 specifific set
of questions while the smarter machine learning Chatbots harness the full potential of
Artifificial Intelligence.
For being an effifffifficient bot and ability to offer relevant answers, the Chatbot basically

employs four major parameters as Text Classifiifiers, Suitable Algorithms, Artifificial 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 fifinds 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 'confifidence
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 confifidence
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 confifigured 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 Classifiifiers: How they come as help?

The best way to understand what text classifiifiers 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 Classifiifiers 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



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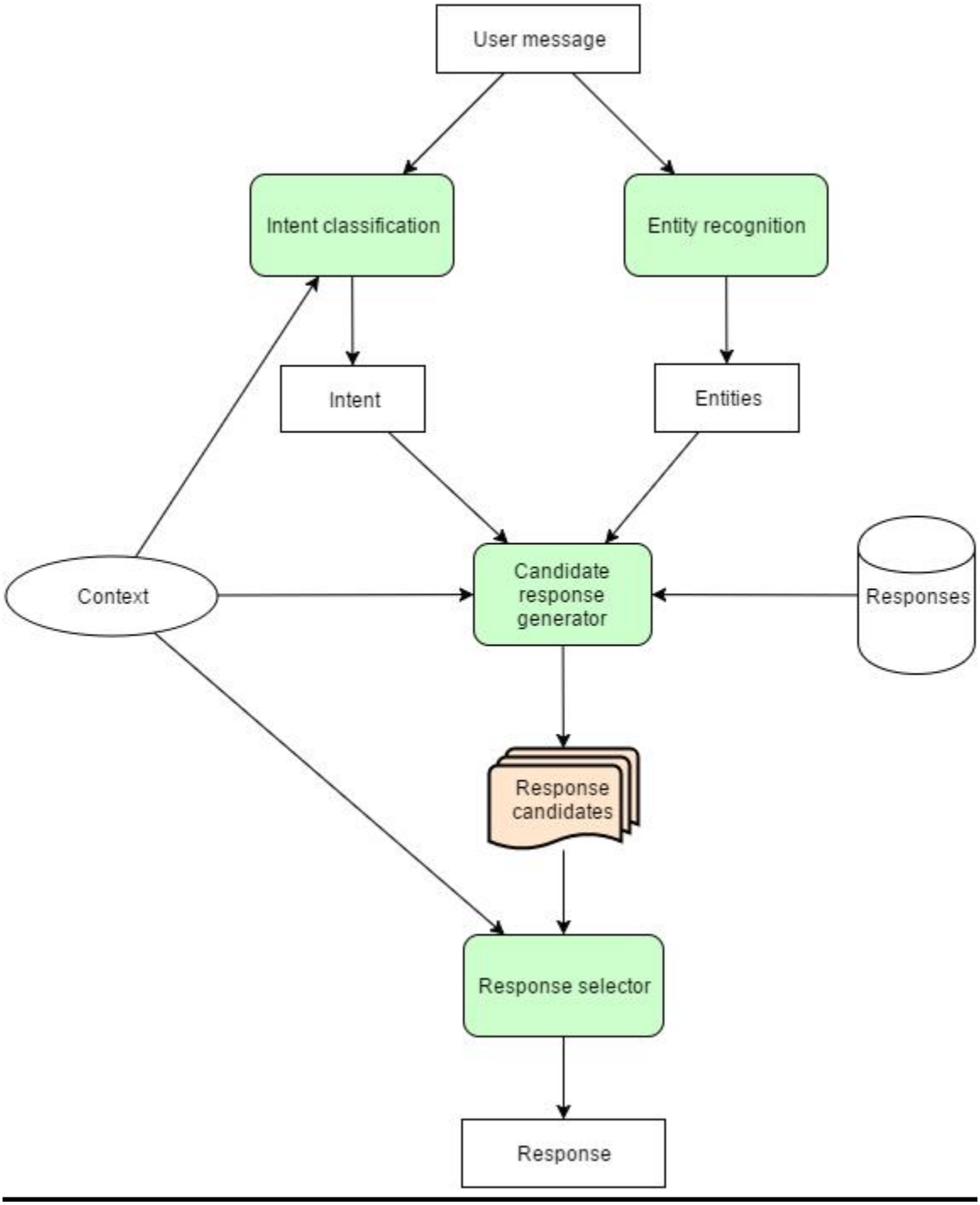
ALGORITHM:


User message
Intent classification
Entity recognition
Intent
Entities
Context
Candidate response generator
Responses
Response candidates
Response selector
Response

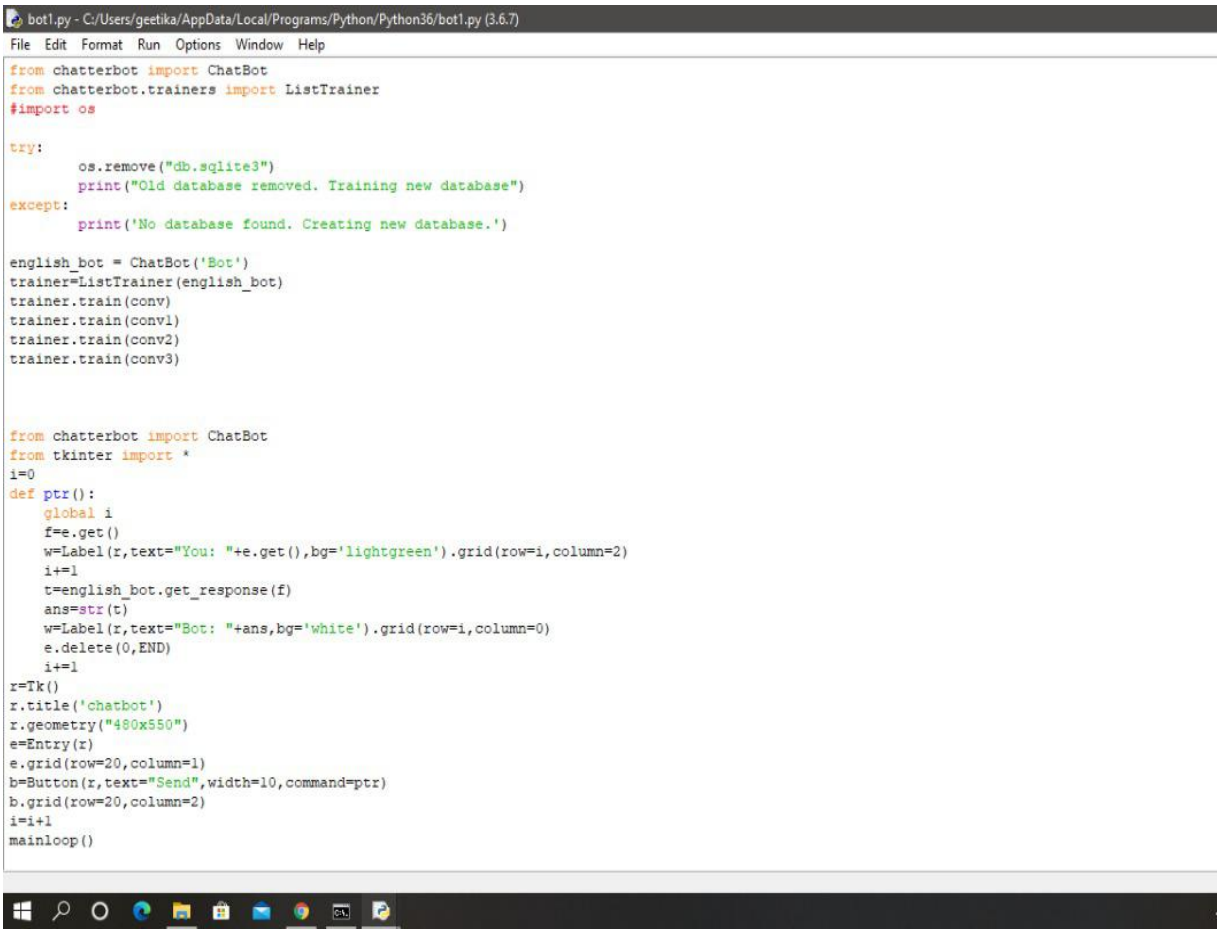
❖ Hardware Requirement:

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

❖ Software Requirement:

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

CODE EXECUTION IN PYTHON 3.6.7



HEALTHCARE CHATBOT CODE

```
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()
```

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 suddern aching.","my joint is aching.",

"okay, did you get hurt, or it is a suddern 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",

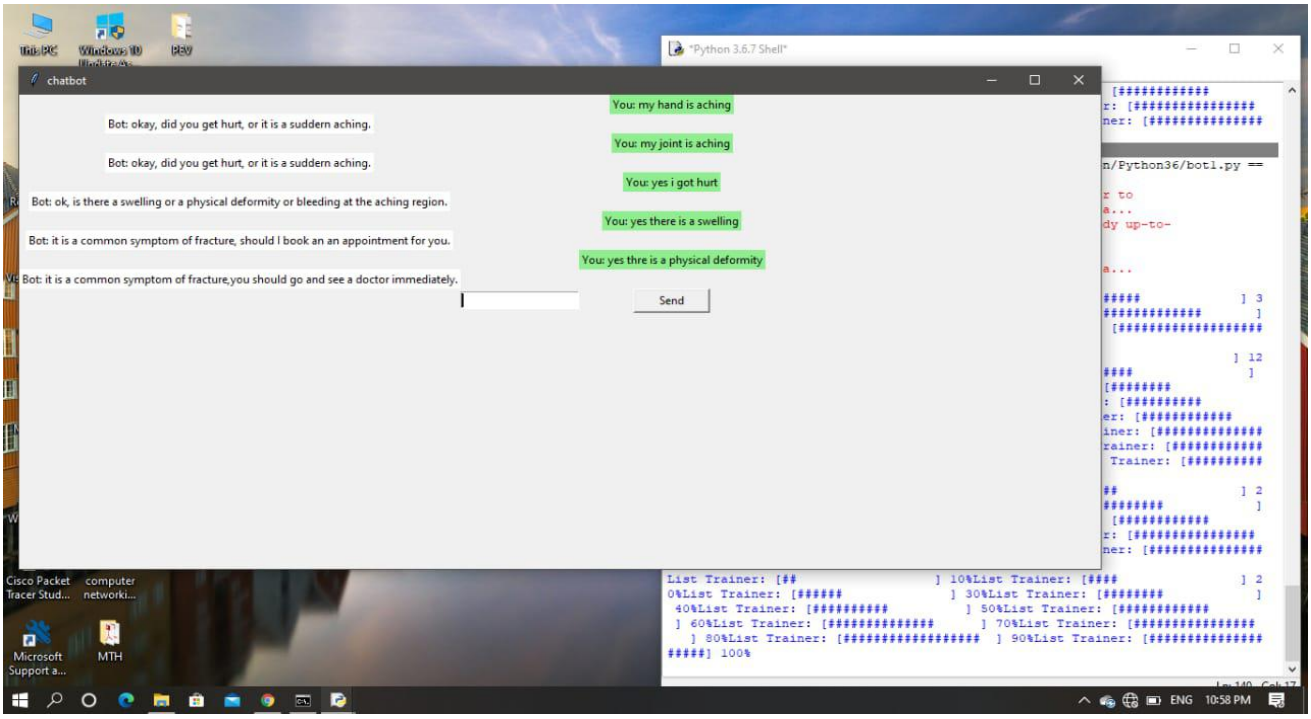
"it is a common symptom of fracture, should I book an an appointment for you.","yes there is a physical deformity.",

"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"]

OUTPUT:


chatbot
Bot: okay, did you get hurt, or it is a suddern aching.
You: my hand is aching
You: my joint is aching
Bot: okay, did you get hurt, or it is a suddern aching.
You: yes i got hurt
Bot: ok, is there a swelling or a physical deformity or bleeding at the aching region.
You: yes there is a swelling
Bot: it is a common symptom of fracture, should I book an an appointment for you.
You: yes thre is a physical deformity
Bot: it is a common symptom of fracture,you should go and see a doctor immediately.
Send
"Python 3.6.7 Shell"
List Trainer: [##] 10%List Trainer: [####
0%List Trainer: [######] 30%List Trainer: [########
40%List Trainer: [##########] 50%List Trainer: [############
] 60%List Trainer: [###############] 70%List Trainer: [################
] 80%List Trainer: [##################] 90%List Trainer: [################
#####] 100%
Cisco Packet Tracer Stud...
computer networki...
Microsoft Support a...
MTH
ENG
10:58 PM

❖ Advantages

- Save time and money
- Generate new leads
- Guide users
- It provides support 24 x 7

❖ Limitation

- It requires active internet connection.

❖Objective

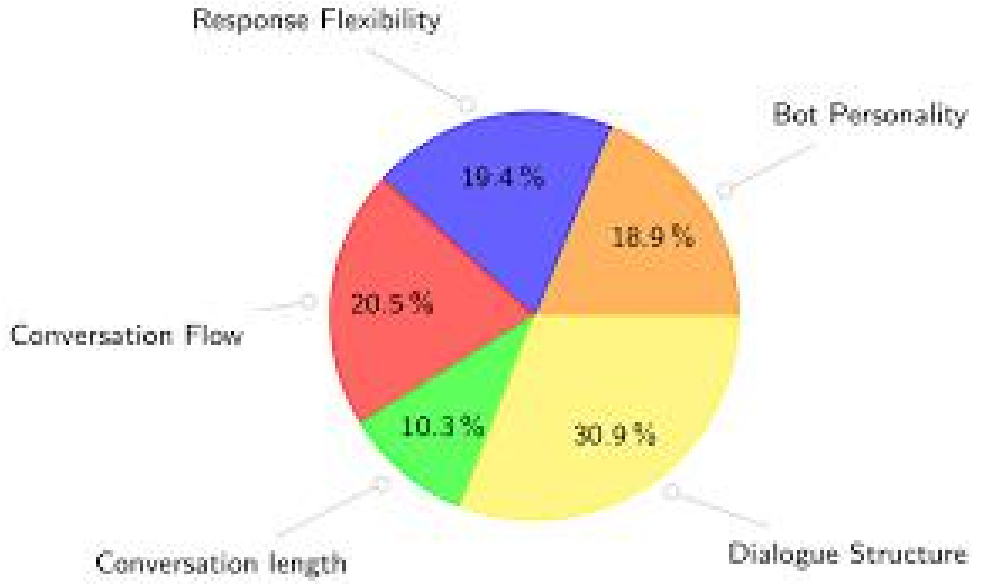
- Gaining the trust of the patients by providing them with the needed information 24*7.

❖ Application

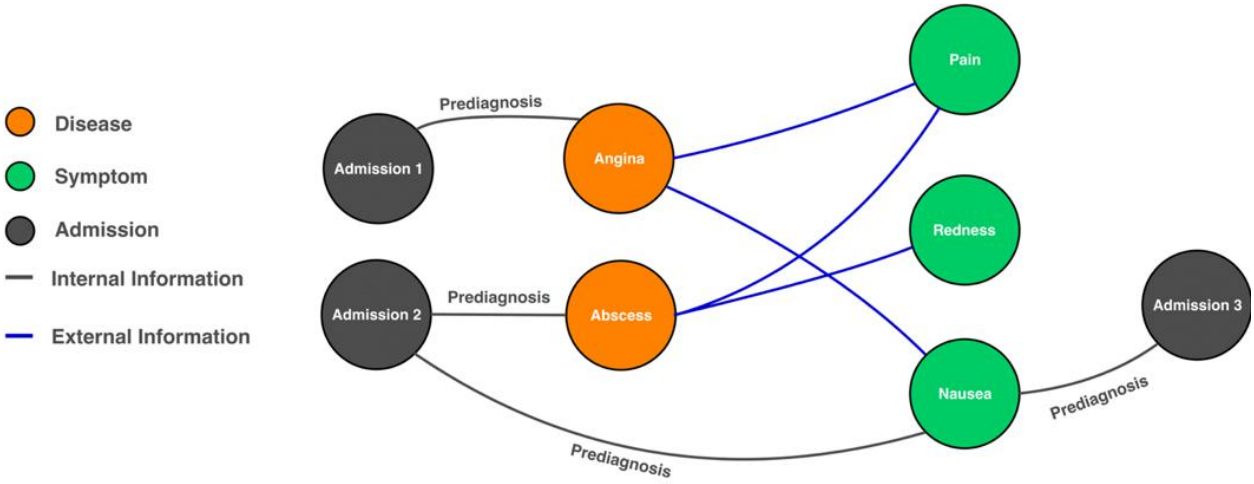
- This system can be used by the multiple peoples to get the counselling sessions online.
- Providing information fast when there is not a moment to lose.

GRAPHICAL REPRESENTATION:

Pie Chart



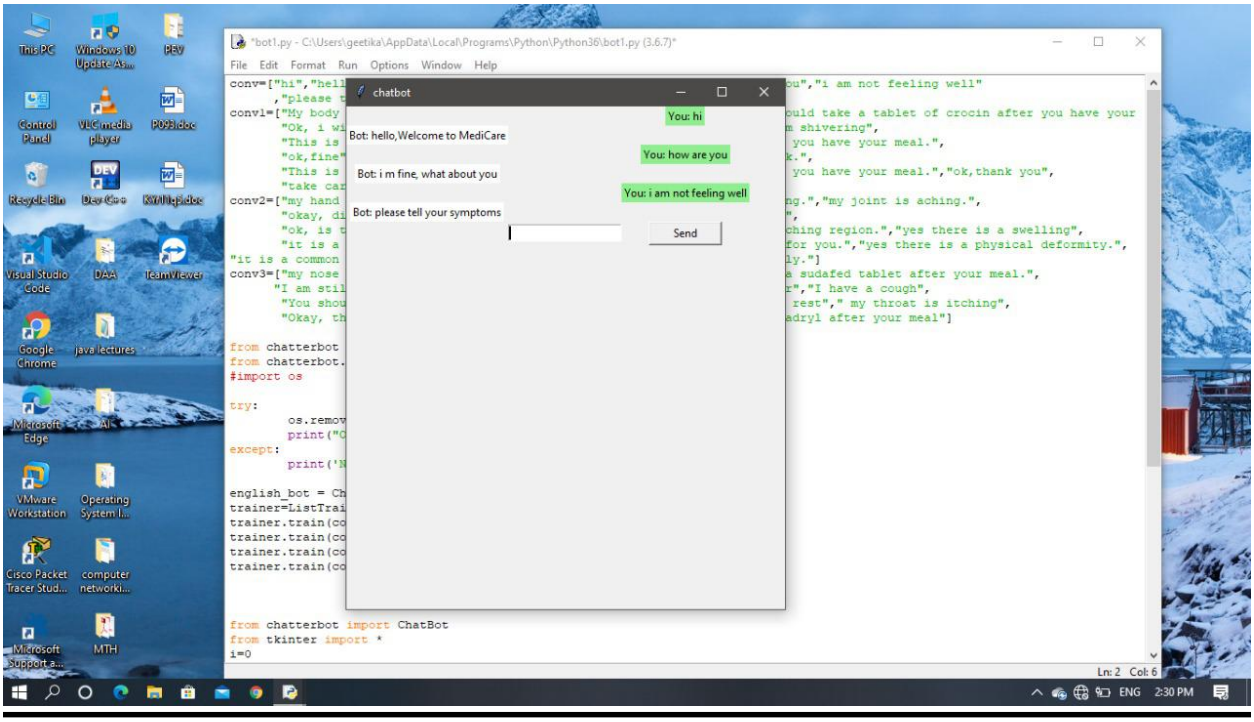
Knowledge Graph



TEST CASES:

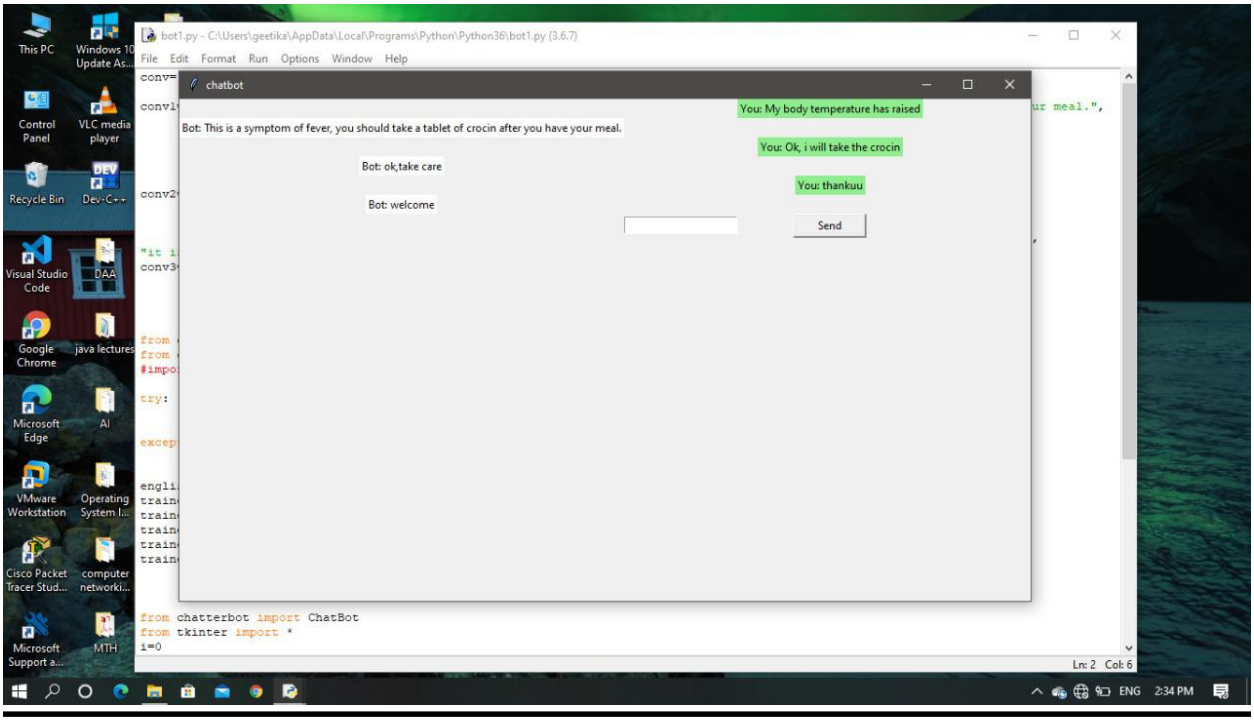
Testcase 1:

Introductory conversation with chatbot



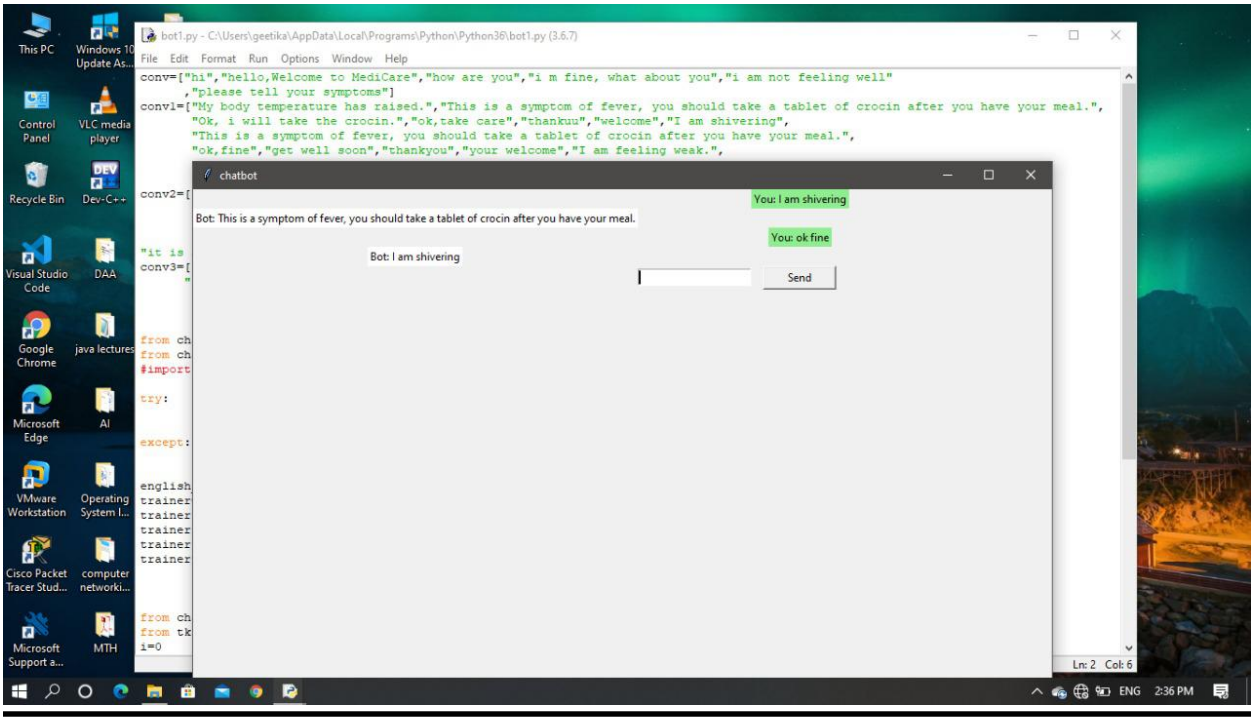
Testcase 2:

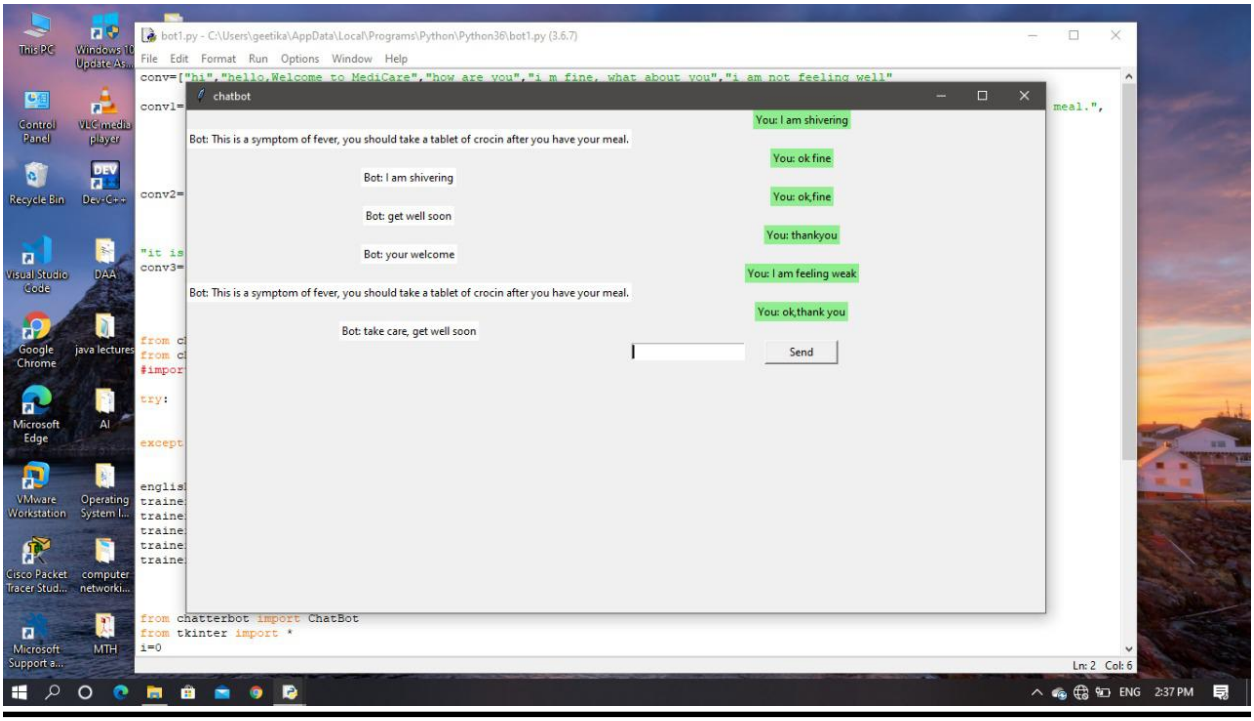
Telling the chatbot about fever symptoms



Testcase 3:

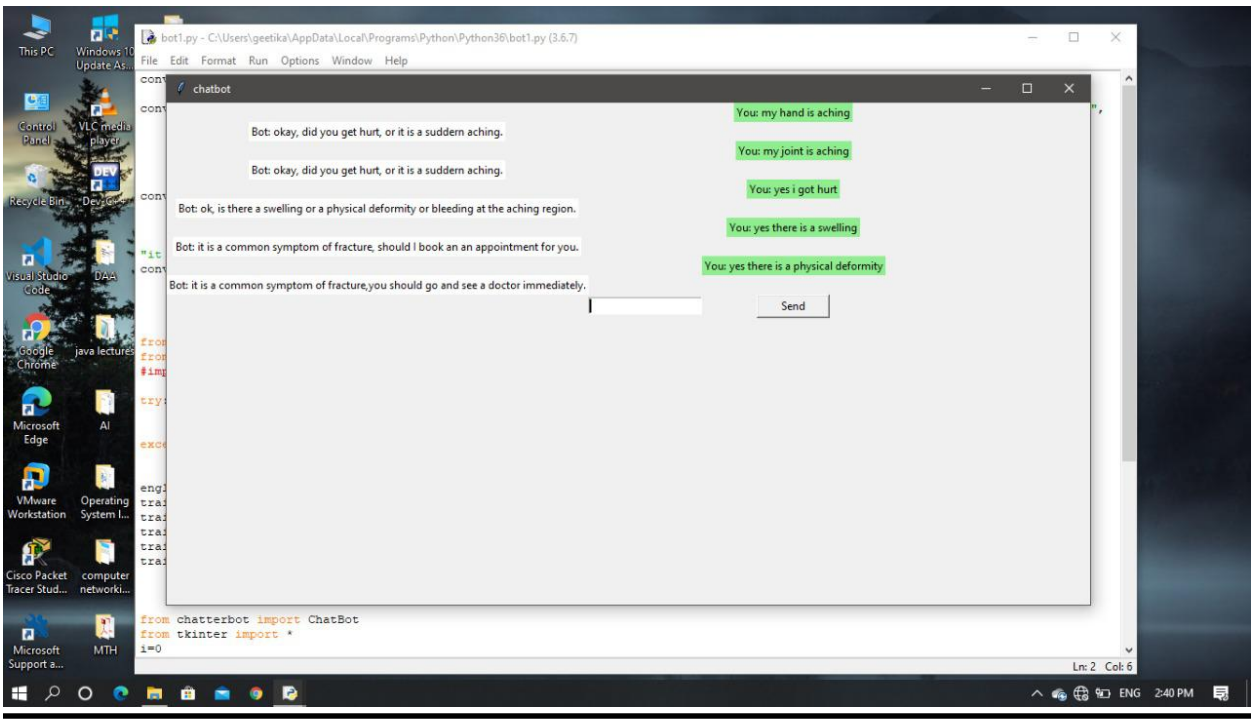
Explanation of the symptoms





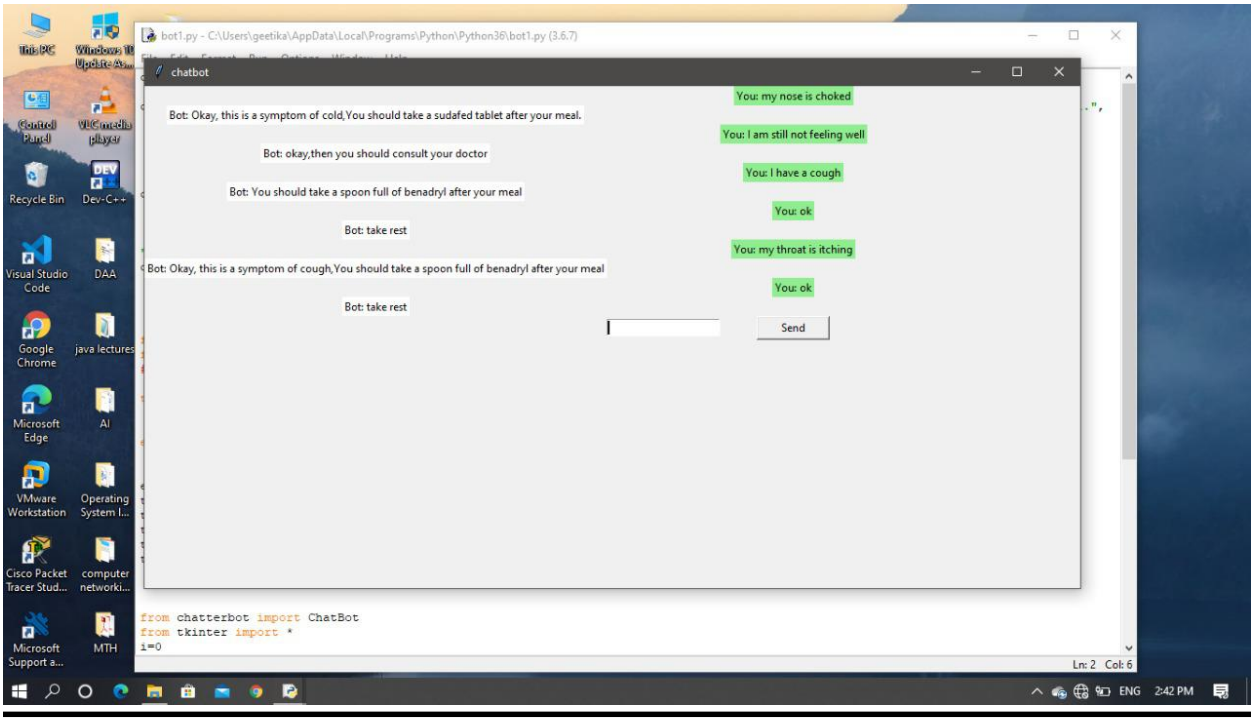
Testcase 4:

Explaining the symptoms of the fracture



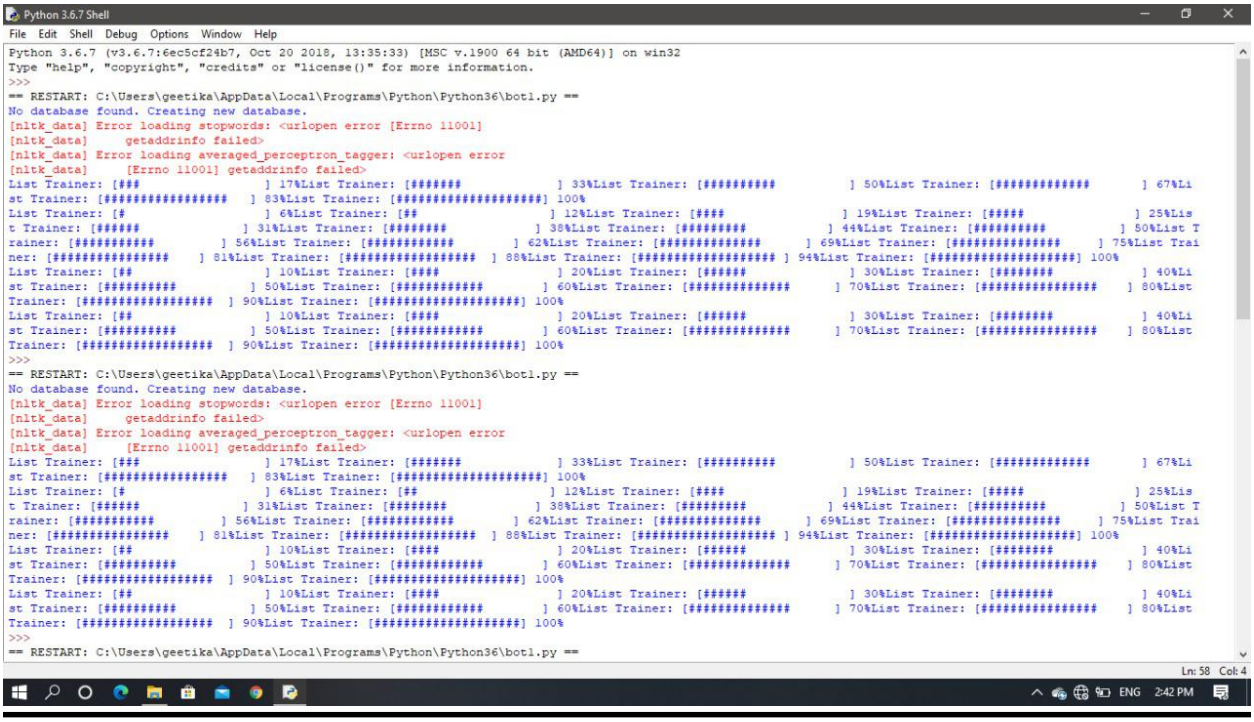
Testcase 5:

Explaining the symptom of Cold



Testcase 6:

Training of the chatbot



WORK DIVISION:

Roll No. 11

Gave the concept of coding and used the chatterbot trainer to train.

Roll No. 12

Did Test Cases and Coding

Roll No. 23

Did working part in report and made necessary changes in Coding.

Roll No. 29

Prepared report and co-operated in coding as well

REFERENCE:

www.google.com

www.githhub.com

Project Link:- https://github.com/GeetikaSejwal/Healthcare-chatbot

THANK YOU