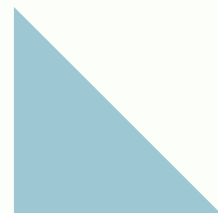
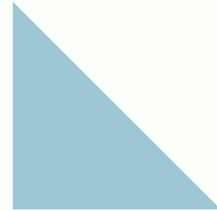
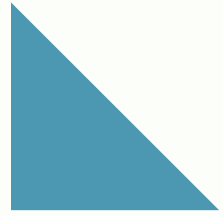


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FAQ CHATBOT using nltk

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About

An Covid19 FAQ (Frequently Asked Questions) ChatBot is a type of internet bot or software application that is beneficial for answering some of the most frequently asked questions related to covid19. This FAQ bots helps the customer's be aware about the pandemic.

Mission and Vision

Never in the history of public health, a pandemic of a disease threatened the humanity as COVID-19, technical name of a newly identified coronavirus, has inflicted. The disease is caused by the SARS-coronavirus-2, a virus primarily zoonotic and was not found in humans. WHO has declared COVID-19 a global pandemic and a public health emergency. The spread of corona epidemic is unprecedented and has reached 199 countries and territories around the world (and the cruise ship Diamond Princess harbored in Yokohama, Japan), and has affected over 556,141 people, testing positive for coronavirus. The death toll has reached 25,237 (Worldometer, March 27, 2020; 14.36 GMT). Pandemic has spread with a high velocity across the globe within a short period of time. Unlike SARS (2003) and MERS (2012), the case fatality rate is higher at 2–3%. In order to educate the public about this serious threat, this chatbot is manufactured to create an awareness amongst the public.

Concept

This is basically made with NLTK in python with Term Frequency-Inverse Document(TF-IDF) and cosine similarity

Implementation

The packages that are used are:

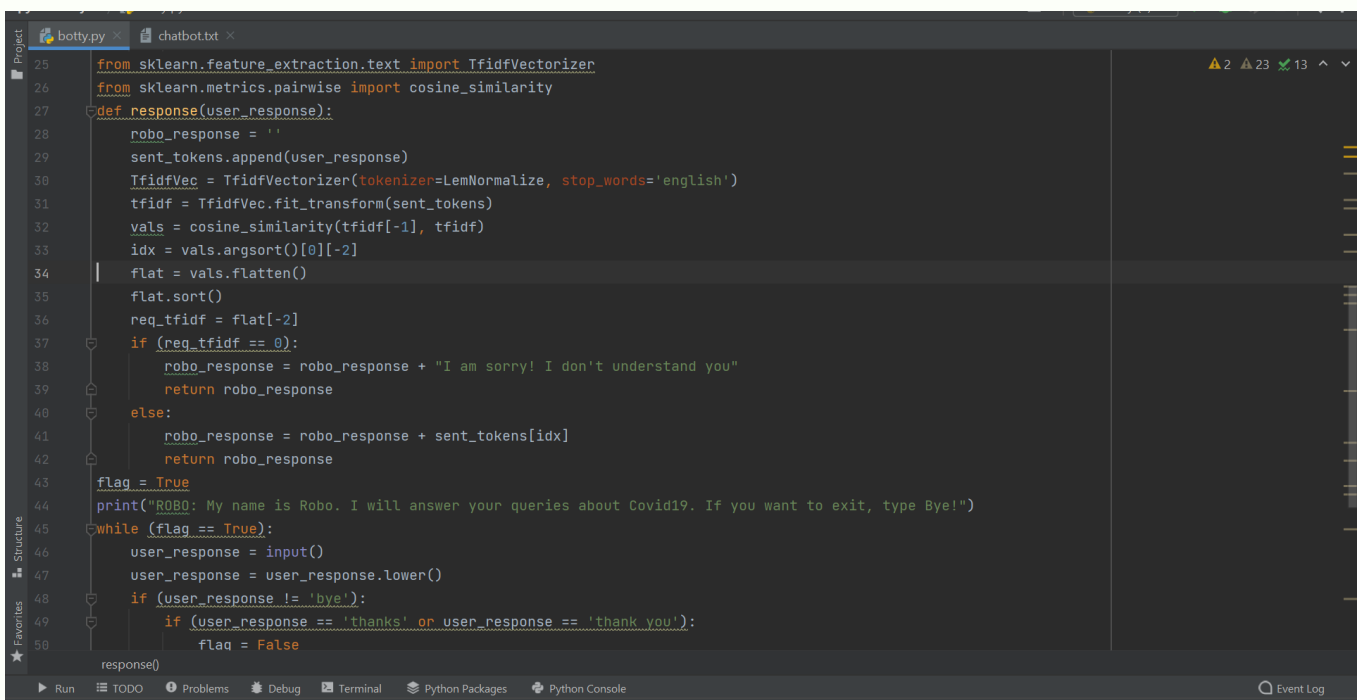
- NLTK
- Scikit-learn

TF-IDF

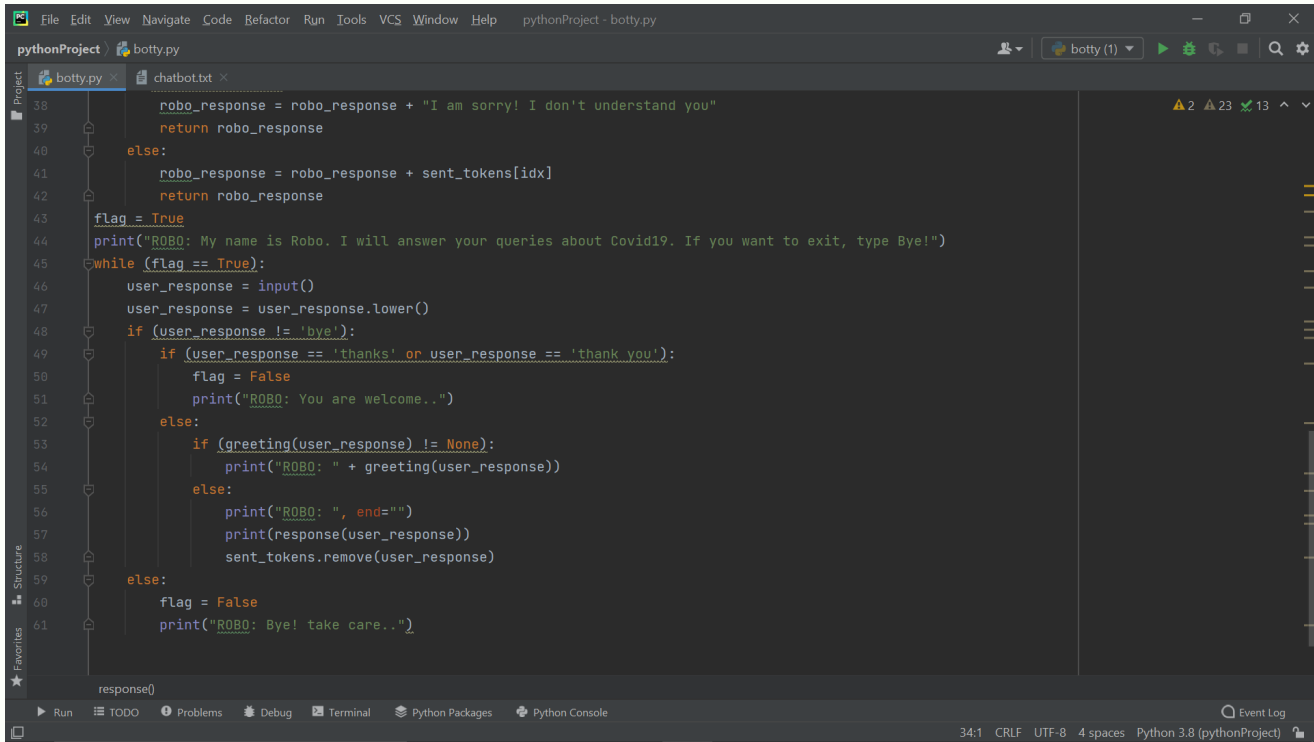
The frequency of the word is rescaled by how often they appear in all the documents. This is called Term-Frequency-Inverse Document Frequency or TF-IDF

Term Frequency is a scoring of the frequency of the word in the current document. TF = Number of times the term 't' appears in a document.

Inverse Document Frequency is a scoring of how rare the word is across the documents.



```
25 from sklearn.feature_extraction.text import TfidfVectorizer
26 from sklearn.metrics.pairwise import cosine_similarity
27 def response(user_response):
28     robo_response = ''
29     sent_tokens.append(user_response)
30     TfidfVec = TfidfVectorizer(tokenizer=LenNormalize, stop_words='english')
31     tfidf = TfidfVec.fit_transform(sent_tokens)
32     vals = cosine_similarity(tfidf[-1], tfidf)
33     idx = vals.argsort()[0][-2]
34     flat = vals.flatten()
35     flat.sort()
36     req_tfidf = flat[-2]
37     if (req_tfidf == 0):
38         robo_response = robo_response + "I am sorry! I don't understand you"
39         return robo_response
40     else:
41         robo_response = robo_response + sent_tokens[idx]
42         return robo_response
43 flag = True
44 print("ROBO: My name is Robo. I will answer your queries about Covid19. If you want to exit, type Bye!")
45 while (flag == True):
46     user_response = input()
47     user_response = user_response.lower()
48     if (user_response != 'bye'):
49         if (user_response == 'thanks' or user_response == 'thank you'):
50             flag = False
51         else:
52             response()
```



The screenshot shows an IDE window titled 'pythonProject - botty.py'. The editor displays a Python script for a chatbot named 'Robo'. The script includes logic for handling user input, maintaining a conversation state with a 'flag' and 'sent_tokens' list, and providing responses for various inputs. The interface includes a menu bar, a toolbar, a sidebar with 'Project', 'Structure', and 'Favorites' views, and a bottom status bar.

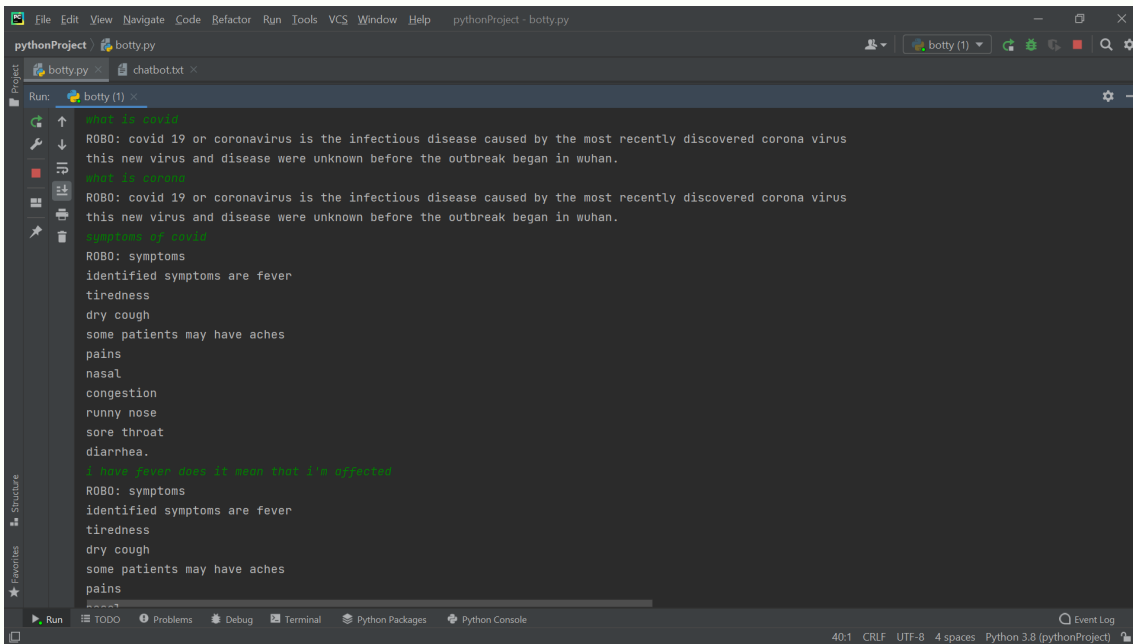
```
38     robo_response = robo_response + "I am sorry! I don't understand you"
39     return robo_response
40 else:
41     robo_response = robo_response + sent_tokens[idx]
42     return robo_response
43 flag = True
44 print("ROBO: My name is Robo. I will answer your queries about Covid19. If you want to exit, type Bye!")
45 while (flag == True):
46     user_response = input()
47     user_response = user_response.lower()
48     if (user_response != 'bye'):
49         if (user_response == 'thanks' or user_response == 'thank you'):
50             flag = False
51             print("ROBO: You are welcome..")
52         else:
53             if (greeting(user_response) != None):
54                 print("ROBO: " + greeting(user_response))
55             else:
56                 print("ROBO: ", end="")
57                 print(response(user_response))
58                 sent_tokens.remove(user_response)
59     else:
60         flag = False
61         print("ROBO: Bye! take care..")
```

response()

Run | TODO | Problems | Debug | Terminal | Python Packages | Python Console | Event Log

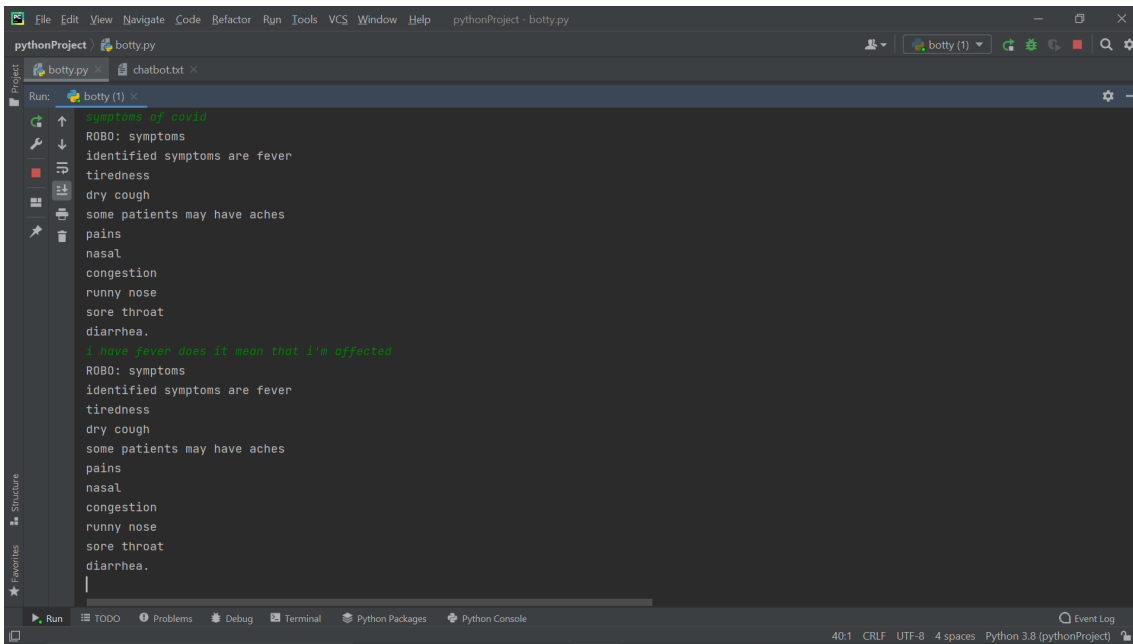
34:1 CRLF UTF-8 4 spaces Python 3.8 (pythonProject)

Output



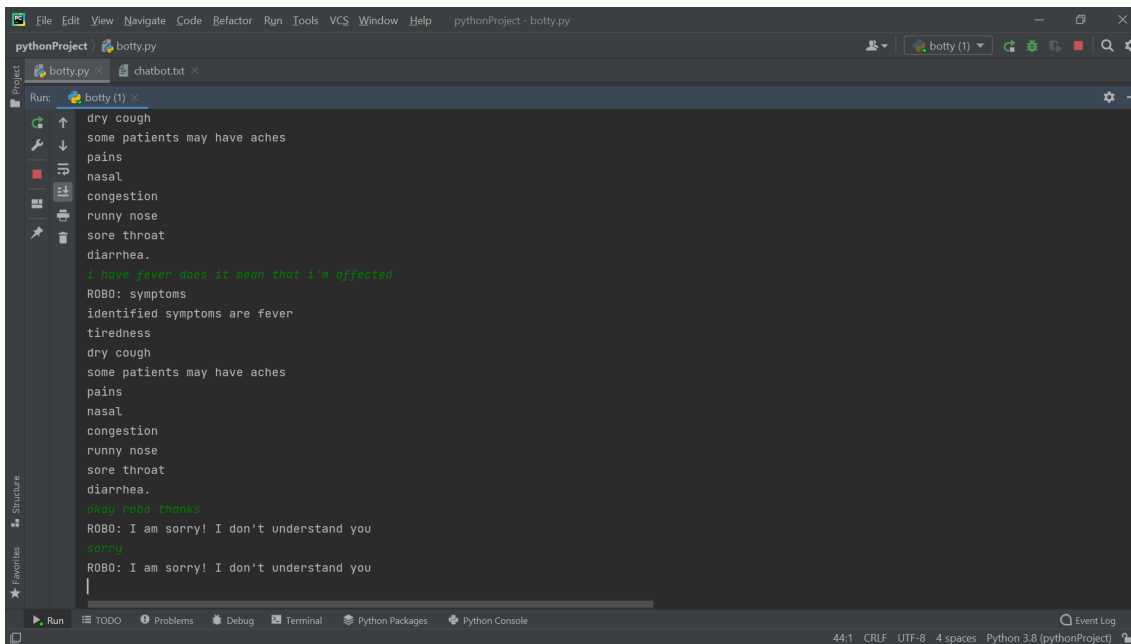
The screenshot shows an IDE window titled 'pythonProject - botty.py'. The 'Run' tab is active, displaying the output of a chatbot named 'botty (1)'. The chatbot's responses are as follows:

```
botty (1) x
↑
what is covid
ROBO: covid 19 or coronavirus is the infectious disease caused by the most recently discovered corona virus
this new virus and disease were unknown before the outbreak began in wuhan.
↓
what is corona
ROBO: covid 19 or coronavirus is the infectious disease caused by the most recently discovered corona virus
this new virus and disease were unknown before the outbreak began in wuhan.
↑
symptoms of covid
ROBO: symptoms
identified symptoms are fever
tiredness
dry cough
some patients may have aches
pains
nasal
congestion
runny nose
sore throat
diarrhea.
↓
I have fever does it mean that I'm affected
ROBO: symptoms
identified symptoms are fever
tiredness
dry cough
some patients may have aches
pains
```



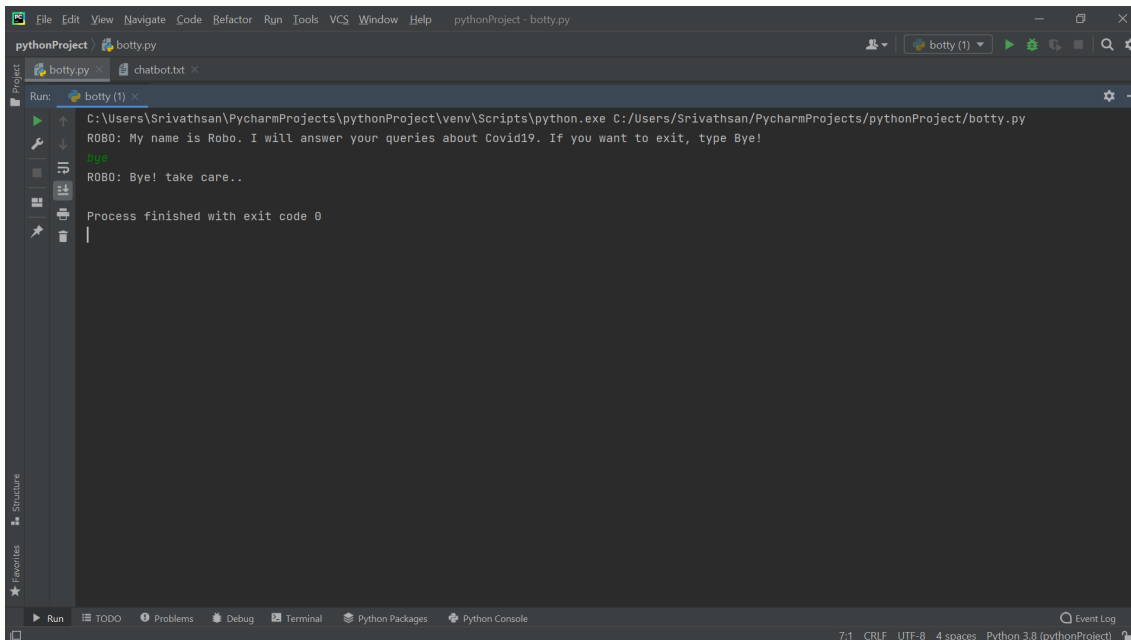
The screenshot shows the same IDE window, but the chatbot's responses are now:

```
botty (1) x
↑
symptoms of covid
ROBO: symptoms
identified symptoms are fever
tiredness
dry cough
some patients may have aches
pains
nasal
congestion
runny nose
sore throat
diarrhea.
↓
I have fever does it mean that I'm affected
ROBO: symptoms
identified symptoms are fever
tiredness
dry cough
some patients may have aches
pains
nasal
congestion
runny nose
sore throat
diarrhea.
|
```



The screenshot shows the PyCharm IDE with the 'Run' console open. The chatbot has received a list of symptoms: dry cough, some patients may have aches, pains, nasal congestion, runny nose, sore throat, and diarrhea. It responds by listing the identified symptoms: symptoms, identified symptoms are fever, tiredness, dry cough, some patients may have aches, pains, nasal congestion, runny nose, sore throat, and diarrhea. The user then says 'yes yes thanks'. The chatbot responds with 'I am sorry! I don't understand you' and 'sorry'.

```
File Edit View Navigate Code Refactor Run Tools VCS Window Help pythonProject - botty.py
pythonProject botty.py chatbot.txt
Run: botty (1)
dry cough
some patients may have aches
pains
nasal
congestion
runny nose
sore throat
diarrhea.
I have fever does it mean that i'm affected
ROBO: symptoms
identified symptoms are fever
tiredness
dry cough
some patients may have aches
pains
nasal
congestion
runny nose
sore throat
diarrhea.
yes yes thanks
ROBO: I am sorry! I don't understand you
sorry
ROBO: I am sorry! I don't understand you
|
```



The screenshot shows the PyCharm IDE with the 'Run' console open. The chatbot has received a greeting: 'My name is Robo. I will answer your queries about Covid19. If you want to exit, type Bye!'. It responds with 'Bye! take care..'. The user then says 'Bye! take care..'. The chatbot responds with 'Bye! take care..'. The process finished with exit code 0.

```
File Edit View Navigate Code Refactor Run Tools VCS Window Help pythonProject - botty.py
pythonProject botty.py chatbot.txt
Run: botty (1)
C:\Users\Srivathsan\PycharmProjects\pythonProject\venv\Scripts\python.exe C:\Users\Srivathsan\PycharmProjects\pythonProject\botty.py
ROBO: My name is Robo. I will answer your queries about Covid19. If you want to exit, type Bye!
Bye
ROBO: Bye! take care..
Bye! take care..
Process finished with exit code 0
|
```

Thus you can see our chatbot working !!