krishcy25 / **ChatBot-Interactive**

krishcy25 Update ChatBot.ipynb History

1 contributor

Raw Blame

327 lines (326 sloc) 9.48 KB

In [5]:
```
#Importing all the required libraries
import io
import random
import string # to process the python strings
import warnings
import numpy as np
from sklearn.feature_extraction.text import TfidfVectorizer
from sklearn.metrics.pairwise import cosine_similarity
import warnings
warnings.filterwarnings('ignore')
```

In [ ]:
```
#Natural Language Tool kit is needed to process the Textual data
#Below are some of the functions that NLTK does with textual data
```

In [11]:
```
#Installing the NLTK
!pip install nltk
```

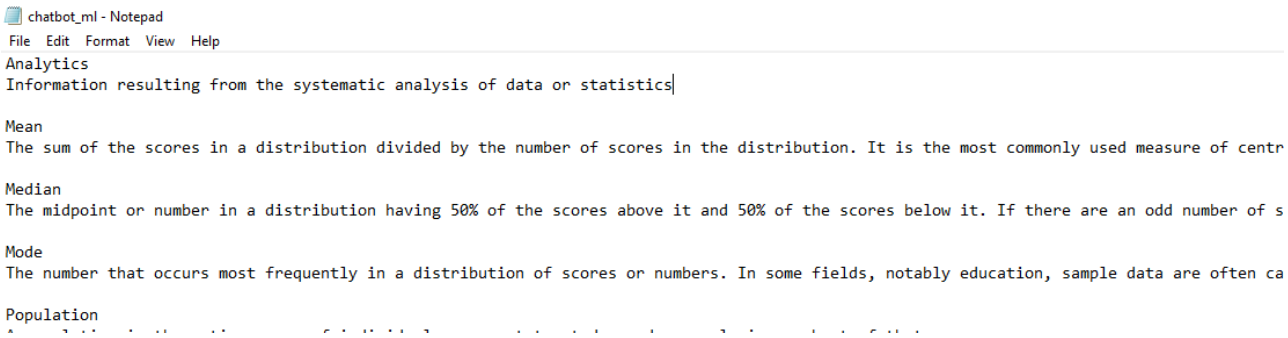
```
Requirement already satisfied: nltk in c:\users\yvkch\anaconda4\lib\sit
e-packages (3.4.5)
Requirement already satisfied: six in c:\users\yvkch\anaconda4\lib\site
-packages (from nltk) (1.14.0)
```

In [6]:
```
#Downloading the required packages with in NLTK
#If the packages were already downloaded, you can see the below message
that "Package is already up-to-date"
import nltk
from nltk.stem import WordNetLemmatizer
nltk.download('popular', quiet=True)
nltk.download('punkt')
nltk.download('wordnet')
```

```
[nltk_data] Downloading package punkt to
[nltk_data]     C:\Users\YVKCH\AppData\Roaming\nltk_data...
[nltk_data]   Package punkt is already up-to-date!
[nltk_data] Downloading package wordnet to
[nltk_data]     C:\Users\YVKCH\AppData\Roaming\nltk_data...
[nltk_data]   Package wordnet is already up-to-date!
```

Out[6]: True

In [ ]:
```
#Image of our original text file
#This text file contains some of the ML and Statistics terms and defini
tions
#For simplicity, I have entered only 15-20 terms to test the bot
```



In [7]:
```
#Reading the complete text file
file=open('chatbot_ml.txt','r',errors = 'ignore')
raw=file.read()
raw = raw.lower()# converts to lowercase
```

In [8]:
```
#Reading the complete text file into list of words and sentences
sent_tokens = nltk.sent_tokenize(raw)# converts to list of sentences
word_tokens = nltk.word_tokenize(raw)# converts to list of words
```

In [9]:
```
#LemTokens is used to convert all the input tokens and return normalize
d tokens
#WordNet is basically an English dictionary that is embedded into NLTK
 package
lemmer = nltk.stem.WordNetLemmatizer()

def LemTokens(tokens):
    return [lemmer.lemmatize(token) for token in tokens]
remove_punct_dict = dict((ord(punct), None) for punct in string.punctua
```

```
remove_punct_dict = dict((ord(punct), None) for punct in string.punctua
tion)

def LemNormalize(text):
    return LemTokens(nltk.word_tokenize(text.lower().translate(remove_p
unct_dict)))
```

In [10]:
```
#This step include the code that creates interactive chatbot
#Step 1: Defining Introduction welcome messages and the reaction of the
BOT for the intro message from the user

INTRO_WELCOME = ("howdy","Whazzup","hola","hello", "hi", "greetings",
"what's up","hey",)
INTRO_OUTPUT = ["hola","hi", "hey", "hi there", "hello", "I am glad! Yo
u are talking to me"]

def greeting(sentence):

    for word in sentence.split():
        if word.lower() in INTRO_WELCOME:
            return random.choice(INTRO_OUTPUT)

#Function- If the user response is not a greeting message, BOT will fin
d the definition of the term
#If if cannot find the term, a message was included "Could you please r
epeat?"
def response(user_response):
    robo_response=''
    sent_tokens.append(user_response)
    TfidfVec = TfidfVectorizer(tokenizer=LemNormalize, stop_words='engl
ish')
    tfidf = TfidfVec.fit_transform(sent_tokens)
    vals = cosine_similarity(tfidf[-1], tfidf)
    idx=vals.argsort()[0][-2]
    flat = vals.flatten()
    flat.sort()
    req_tfidf = flat[-2]
    if(req_tfidf==0):
        robo_response=robo_response+"I am sorry! I don't understand yo
u.Could you please repeat?"
        return robo_response
    else:
        robo_response = robo_response+sent_tokens[idx]
        return robo_response

#Step 2: Code which takes input from user and performs the following
#a)If the user input is intro message, BOT will use Step 1 to welcome t
he user
#b)If the user input is any of question related to statistics terms, BO
T will use function above to retrieve definition
#c)If the user input is Thank you or Bye, BOT will use the below code t
o sned a message to the user

flag=True
print("BOT: My name is ChatBot. I will answer your queries about Machin
e learning and Statistics terms. If you want to exit, type Bye!")
while(flag==True):
    user_response = input()
```

```
    user_response=user_response.lower()
    if(user_response!='bye'):
        if(user_response=='thanks' or user_response=='thank you'):
            flag=False
            print("BOT: You are welcome..")
        else:
            if(greeting(user_response)!=None):
                print("BOT: "+greeting(user_response))
            else:
                print("BOT: ",end="")
                print(response(user_response))
                sent_tokens.remove(user_response)
    else:
        flag=False
        print("BOT: Bye! take care..")
```

```
BOT: My name is ChatBot. I will answer your queries about Machine learn
ing and Statistics terms. If you want to exit, type Bye!
hi
BOT: hello
hola
BOT: hi
hey
BOT: hi there
what is median
BOT: if there are an odd number of scores, the median is the middle sco
re.
analytics
BOT: analytics
the usage of the chatbot can be monitored in order to spot potential fl
aws or problems.
what is mode
BOT: mode
the number that occurs most frequently in a distribution of scores or n
umbers.
thanks
BOT: You are welcome..
```

In [ ]:
```
#BOT Working
#Step 1: Interface at the start of execution
```

```
BOT: My name is ChatBot. I will answer your queries about Machine learning and Statistics terms. If you want to exit, type B
ye!
```

In [ ]:
```
#Step 2: List of BOT interaction messages with the user
```

```
BOT: My name is ChatBot. I will answer your queries about Machine learning and Statistics terms. If you want to exit, type B
ye!
hi
BOT: hello
hola
BOT: hi
hey
BOT: hi there
what is median
BOT: if there are an odd number of scores, the median is the middle score.
analytics
BOT: analytics
the usage of the chatbot can be monitored in order to spot potential flaws or problems.
```

```
what is mode
BOT: mode
the number that occurs most frequently in a distribution of scores or numbers.
```

In [ ]:
```
#Step 3: BOT will end when user inputs Thank you message or Bye! where
 you won't find an option to enter the next input
```

```
BOT: My name is ChatBot. I will answer your queries about Machine learning and Statistics terms. If you want to exit, type B
ye!
hi
BOT: hello
hola
BOT: hi
hey
BOT: hi there
what is median
BOT: if there are an odd number of scores, the median is the middle score.
analytics
BOT: analytics
the usage of the chatbot can be monitored in order to spot potential flaws or problems.
what is mode
BOT: mode
the number that occurs most frequently in a distribution of scores or numbers.
thanks
BOT: You are welcome..
```

In [ ]: