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**Class:- TE Computer**

**ERP :-38**

**Subject :-LP2(AI) (Chatbot)**

**Code:-**

import io  
import random  
import string  
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')  
import nltk  
from nltk.stem import WordNetLemmatizer  
# nltk.download('popular', quiet=True)  
# nltk.download('punkt')  
# nltk.download('wordnet')  
  
with open('chatbot.txt','r', encoding='utf8', errors ='ignore') as fin:  
 raw = fin.read().lower()  
  
#Tokenisation  
sent\_tokens = nltk.sent\_tokenize(raw)  
word\_tokens = nltk.word\_tokenize(raw)  
  
# Preprocessing  
lemmer = WordNetLemmatizer()  
def LemTokens(tokens):  
 return [lemmer.lemmatize(token) for token in tokens]  
remove\_punct\_dict = dict((ord(punct), None) for punct in string.punctuation)  
def LemNormalize(text):  
 return LemTokens(nltk.word\_tokenize(text.lower().translate(remove\_punct\_dict)))  
  
  
# Keyword Matching  
GREETING\_INPUTS = ("hello", "hi", "greetings", "sup", "what's up","hey","Helo")  
GREETING\_RESPONSES = ["hi", "hey", "hi there", "hello", "I am glad! You are talking to me"]  
  
def greeting(sentence):  
 for word in sentence.split():  
 if word.lower() in GREETING\_INPUTS:  
 return random.choice(GREETING\_RESPONSES)  
  
def response(user\_response):  
 robo\_response=''  
 sent\_tokens.append(user\_response)  
 TfidfVec = TfidfVectorizer(tokenizer=LemNormalize, stop\_words='english')  
 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 you"  
 return robo\_response  
 else:  
 robo\_response = robo\_response+sent\_tokens[idx]  
 return robo\_response  
  
flag=True  
print("ROBO: My name is Robo. I will answer your queries about Investments. 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("ROBO: You are welcome..")  
 else:  
 if(greeting(user\_response)!=None):  
 print("ROBO: "+greeting(user\_response))  
 else:  
 print("ROBO: ",end="")  
 res = response(user\_response)  
 nlines = res.count('\n')  
 if nlines > 0:  
 res = res.split("\n",1)[1]  
 print(res)  
 sent\_tokens.remove(user\_response)  
 else:  
 flag=False  
 print("ROBO: Bye! take care..")

**Output:-**

