#import io

import random

import string # to process standard 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')

import nltk

from nltk.stem import WordNetLemmatizer

nltk.download('popular', quiet=True) # for downloading packages

# uncomment the following only the first time

#nltk.download('punkt') # first-time use only

#nltk.download('wordnet') # first-time use only

#Reading in the corpus

with open('chatbot.txt','r', encoding='utf8', errors ='ignore') as fin:

raw = fin.read().lower()

#TOkenisation

sent\_tokens = nltk.sent\_tokenize(raw)# converts to list of sentences

word\_tokens = nltk.word\_tokenize(raw)# converts to list of words

# 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",)

GREETING\_RESPONSES = ["hi", "hey", "\*nods\*", "hi there", "hello", "I am glad! You are talking to me"]

def greeting(sentence):

"""If user's input is a greeting, return a greeting response"""

for word in sentence.split():

if word.lower() in GREETING\_INPUTS:

return random.choice(GREETING\_RESPONSES)

# Generating response

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 Chatbots. 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="")

print(response(user\_response))

sent\_tokens.remove(user\_response)

else:

flag=False

print("ROBO: Bye! take care..")