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In [21]:

```
import nltk
import warnings
import numpy as np
import random
import string
warnings.filterwarnings('ignore')
```

In [22]:

```
f = open('chat.txt','r',errors = 'ignore')
raw = f.read()
raw = raw.lower()
```

In [23]:

```
from nltk import word_tokenize,sent_tokenize
sent_tokenize = nltk.sent_tokenize(raw)
```

In [24]:

```
word_tokens = nltk.word_tokenize(raw)
#sent_tokens[:2]
#word_tokens[:5]
```

In [25]:

```
#sent_tokens[0]
```

In [26]:

```
#word_tokens[:5]
```

In [27]:

```
lemmer = nltk.stem.WordNetLemmatizer()
def LemTokens(tokens):
    return [lemmer.lemmatize(token) for token in tokens]
remove_punch_dict = dict((ord(punct),None)for punct in string.punctuation)
def LemNormalize(text):
    return LemTokens(nltk.word_tokenize(text.lower().translate(remove_punch_dict)))
words = LemNormalize(raw)
```

In [28]:

```
greeting_inputs = ("hello","hi","greetings","sup","what's up","hey",)
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)
```

In [29]:

```
from sklearn.feature_extraction.text import TfidfVectorizer
from sklearn.metrics.pairwise import cosine_similarity

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
```

In [ ]:

```
flag = True
print("ROBO: My name is Chatty. I will answer Your query 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'):
            flaf = 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...")
```

```
ROBO: My name is Chatty. I will answer Your query about Chatbots. If you w
ant to exit, type Bye!
hi
ROBO: hello
hi
ROBO: hi there
```