**CODE FOR SPEECH RECOGNITION**

import speech\_recognition as sr

def main():

r = sr.Recognizer()

with sr.Microphone() as source:

r.adjust\_for\_ambient\_noise(source)

print("Please say something ")

audio = r.listen(source)

print("Reconizing Now ... ")

try:

dest = r.recognize\_google(audio)

print("You have said : " + dest)

except Exception as e:

print("Error : " + str(e))

if \_name\_ == "\_main\_":

main()

**CODE FOR ANALYSIS**

import logging

import nltk

import os

import re

import time

import json

TESTING\_REVIEW\_COUNT = 2500

SYNONYM\_UPPER\_LIMIT = 2

POSITIVE\_REVIEW = 'POS'

NEGATIVE\_REVIEW = 'NEG'

lemmatizer = nltk.stem.WordNetLemmatizer()

stemmer = nltk.stem.PorterStemmer()

regex = re.compile('[^a-zA-Z0-9]+')

# stopword = nltk.corpus.stopwords.words('english')

stopword = set([ "a", "about", "above", "after", "again", "against", "all", "am", "an", "and", "any", "are", "as", "at", "be", "because", "been", "before", "being", "below", "between", "both", "but", "by", "could", "did", "do", "does", "doing", "down", "during", "each", "few", "film", "for", "from", "further", "had", "has", "have", "having", "he", "he'd", "he'll", "he's", "her", "here", "here's", "hers", "herself", "him", "himself", "his", "how", "how's", "i", "i'd", "i'll", "i'm", "i've", "if", "in", "into", "is", "it", "it's", "its", "itself", "let's", "me", "movie", "more", "most", "my", "myself", "nor", "of", "on", "once", "only", "or", "other", "ought", "our", "ours", "ourselves", "out", "over", "own", "same", "she", "she'd", "she'll", "she's", "should", "so", "some", "such", "than", "that", "that's", "the", "their", "theirs", "them", "themselves", "then", "there", "there's", "these", "they", "they'd", "they'll", "they're", "they've", "this", "those", "through", "to", "too", "under", "until", "up", "very", "was", "we", "we'd", "we'll", "we're", "we've", "were", "what", "what's", "when", "when's", "where", "where's", "which", "while", "who", "who's", "whom", "why", "why's", "with", "would", "you", "you'd", "you'll", "you're", "you've", "your", "yours", "yourself", "yourselves" ])

def training(base\_path, train\_path, json\_filename):

\_token = {}

counter = 0

for filename in os.listdir(train\_path):

try:

counter+=1

fd = open(train\_path+filename,mode = 'rt', encoding = 'utf8')

for line in fd:

word\_token = nltk.tokenize.word\_tokenize(line)

for wt in word\_token:

wt = wt.lower()

if wt not in stopword and regex.match(wt) is None:

wt = lemmatizer.lemmatize(wt)

wt\_list = []

for syn in nltk.corpus.wordnet.synsets(wt):

lemma\_count = 0

for lemma in syn.lemmas():

# wt\_list.append(lemma.name())

wt = lemma.name()

\_token[wt]=\_token.get(wt,0)+1

if lemma\_count>SYNONYM\_UPPER\_LIMIT:

break

lemma\_count += 1

# for wt in wt\_list:

# \_token[wt]=\_token.get(wt,0)+1

if counter%1000 ==0:

print(str(counter) + " files processed.")

except Exception as e:

print(e)

with open(base\_path+json\_filename, 'w') as fd:

json.dump(\_token, fd)

return \_token

def testing(test\_path, threshold, review\_test):

total\_count = 0

\_count = 0

for filename in os.listdir(test\_path):

review\_count = 0

try:

fd = open(test\_path+filename,mode = 'rt', encoding = 'utf8')

for review\_line in fd:

review\_token = nltk.tokenize.word\_tokenize(review\_line)

for rt in review\_token:

if rt not in stopword and regex.match(rt) is None:

rt = lemmatizer.lemmatize(rt)

total\_rt = pos\_token.get(rt,0)+neg\_token.get(rt,0)

try:

review\_count += (pos\_token.get(rt,0)/total\_rt-neg\_token.get(rt,0)/total\_rt)

except:

pass

except Exception as e:

print(e)

if review\_test == POSITIVE\_REVIEW:

if review\_count>threshold:

\_count+=1

elif review\_test == NEGATIVE\_REVIEW:

if review\_count<threshold:

\_count+=1

total\_count+=1

if total\_count %500 ==0:

print(str(total\_count)+ ' '+review\_test.lower()+' test sample checked.')

if total\_count>TESTING\_REVIEW\_COUNT:

break

return \_count, total\_count

def testing\_using\_userInput():

while True:

review\_count = 0

review = input('Enter review: ')

review\_token = nltk.tokenize.word\_tokenize(review)

for rt in review\_token:

rt = rt.lower()

# print(rt)

rt = lemmatizer.lemmatize(rt)

# print(rt)

total\_rt = pos\_token.get(rt,0)+neg\_token.get(rt,0)

try:

review\_count += (float(1.0\*pos\_token.get(rt,0)/total\_rt\*1.0)-float(1.0\*neg\_token.get(rt,0)/total\_rt\*1.0))

except:

pass

logging.debug(review\_count)

if review\_count>0:

print('Positive review ;)')

else:

print('Negative review :/')

ch = input('Continue?(y/n) ')

if ch == 'n':

break

if \_\_name\_\_ == '\_\_main\_\_':

start\_time = time.time()

base\_path = 'C:/Users/apoov/coursera-test/new\_dataset/'

pos\_train\_path = base\_path+'train/pos/'

neg\_train\_path = base\_path+'train/neg/'

pos\_test\_path = base\_path+'test/pos/'

neg\_test\_path = base\_path+'test/neg/'

pos\_token = {}

neg\_token = {}

if os.path.isfile(base\_path+'training\_pos\_result.json'):

print('Using preprocessed training data.')

with open(base\_path+'training\_pos\_result.json','r') as fd:

pos\_token = json.load(fd)

else:

json\_filename ='training\_pos\_result.json'

pos\_token = training(base\_path, pos\_train\_path, json\_filename)

if os.path.isfile(base\_path+'training\_neg\_result.json'):

with open(base\_path+'training\_neg\_result.json','r') as fd:

neg\_token = json.load(fd)

else:

json\_filename = 'training\_neg\_result.json'

neg\_token = training(base\_path, neg\_train\_path, json\_filename)

print('Training Phase Complete.')

total\_pos\_count = 0

pos\_count = 0

pos\_count, total\_pos\_count = testing(pos\_test\_path, 0.001, POSITIVE\_REVIEW)

print("Accuracy with positive test samples is "+str(round(float(1.0\*pos\_count/total\_pos\_count\*1.0\*100),5))+" %")

total\_neg\_count = 0

neg\_count = 0

neg\_count, total\_neg\_count = testing(neg\_test\_path, -0.001, NEGATIVE\_REVIEW)

print("Accuracy with negative test samples is "+str(round(float(1.0\*neg\_count/total\_neg\_count\*1.0\*100),5))+" %")

print("Average accuracy for test samples is "+str(round(float(1.0\*(pos\_count+neg\_count)/(total\_pos\_count+total\_neg\_count)\*1.0\*100),5))+" %")

print("Total Time: " + str(round(time.time()-start\_time,3))+" s")

print('Automatic Testing complete.')

ch = input('Do you want to check using custom inputs??(y/n) ')

if ch == 'y':

testing\_using\_userInput()

sample\_neg\_review = '''There's always a slot for a movie every calendar year for the one film that everyone praises but hardly anyone understands, likes, or comes close to fathom why it receives such accolades. "Birdman" and its entire cast and crew (with the exception of Keaton) have taken that spot, dislodging "Boyhood" out of this position. Still, "Boyhood" had Ethan and Arquette, which made it passable. "Birdman" feels like an inside joke, and it never escapes that categorization for it constantly repeats its wink wink attitude. It keeps calling attention to how much it knows about the world of theater and its actors, so full of insecurity, mental trauma, every possible mental instability you can think of, and most importantly inmeasurable amounts of egocentric devotion. It is always, not so subtly calling attention to how hard it is to be a real actor, how much drama there is, and how special those beings are. Keaton plays an actor who wants to be taken seriously by giving Broadway a try, and it's not an easy task because for starters, he doesn't trust himself as being anything else but a long-gone matinée idol, and this is in spite of his fans who keep jumping out of nowhere. You'd think that'd keep his ego satisfied, but where would the film go if there was no drama? So the four writers behind this mess keep piling up the tragedies... an addicted daughter, a possibly cheating girlfriend, who might or not be pregnant, a loving ex-wife who can't stay away in spite of the "attack", a manager who seems to offer too much support, a hateful critic, the local bar... I kept wondering when the Thelma Ritter character was going to make an appearance to liven things a little, but we did have an Eve Carrington type in there, somehow modified to make it look fresh and more psychotic. I never thought I would dislike anything Norton did, but this film managed to make him and Watts totally useless, and these two have been formidable, especially Watts in her last films. She's wonderful in "St. Vincent", showing she's capable of delivering great performances, and to make us feel even worse, there's that lesbian kiss, making me yearn for her sublime turn in "Mulholland Drive". So much is wrong with this film that it would take pages to express the disatisfaction. The dialogue is borderline unbearable, making us wish the fictitious "Birdman" strike them dead. These people can't stop talking about their "problems" because if they didn't have them, their lives would be even more boring. It's just plain unbelievable that all actors carry that psychological weight. Are there any happy Broadway types? Even Watts is not happy she finally made it? Then there is the gratuitous nudity. There was something strange about that preview, and it did hint at both something special and something really wrong with the film. To be fair, had the film concentrated on the Keaton character, it would have soared. This happens way too late in the movie, and it's an incredible flight of the imagination, but the road there is just mined with too many pretentious and incompetent attempts at being "original". I haven't heard that many yawns and sighs in one theater as I did this time. It's just an utter mess. The subject of the theater and acting has been explored and shown with fantastic results, classic performances, and most importantly with superb examples of insight and drama. "All About Eve" and "All That Jazz might be the best of those films, and I can recall O'Toole, Finney, Weist, and a few other very talented actors and directors showing that type of life can indeed be full of drama, wit, insecurity and human comedy. "Birdman" only shows everything that can go wrong with trying to pretend that you do know what is going on. Finally, don't get me going on those long hand-held shots... There was once a film about some criminals that was praised to heaven for something similar, and that certainly didn't make it a better film. In this case, it's supposed to be intimate; instead it's annoying, intrusive, disturbing and just another example that along with the interminable number of close ups, it only makes us feel extremely nauseous.'''

sample\_pos\_review = '''I have been a cinema lover for years, read a lot of reviews on IMDb and everywhere, and never found the right movie to write my first review. I always thought I would wait for THE movie. And this is IT! When I first heard that Nolan was preparing a sci-fi movie, I felt like a kid again, waiting for his Christmas gift under the tree. I knew it would become a classic. And I'm sure it will. First of all, it is incredibly beautiful to watch. Honestly, it was so beautiful that I felt like I was sucked into the movie. The way Nolan decided to show some scenes really remind me of 2001 A Space Odyssey (actually many things will probably remind you of this movie). We can feel the talent of Christopher Nolan, just by looking at the way it is filmed. The techniques he used contribute to create that visual environment in a believable way. The sound environment is just mesmerizing. It is a very important part of the movie, because some scenes take place in space, and Noland just found the right way to use sound. The soundtrack (made by the great Hans Zimmer) is breathtaking, epic, amazing, unreal. I could find a lot more adjectives to qualify it, but you have to hear it to understand how epic they are. These two important parts (image and sound) create a stunning atmosphere. You will forget you are in a movie theater, and you will be lost in space, sucked into the adventures of this new Space Odyssey, begging for more. It is a truly unique experience. I can say that I have never felt something like that in a movie theater (at least not for the past ten years). Then, of course, the cast. First of all, Matthew McConaughey. I discovered this actor in Tropic Thunder, but he didn't really convince me, though he was quite funny. Then I saw Dallas Buyers Club. Since that movie, I love him. In this movie... Well, he is the movie. I exaggerate a bit, since there are other great actors (some even unexpected with a special guest) who play extremely well. But he is just what was needed to feel the human part of the story (which is very important in Interstellar). He is capable of making us feel so many different emotions all along the story, as a father, as a human. Anne Hathaway was very convincing, all together the actors managed to create some harmony, which makes the human interactions credible. Caine, Chastaing and Affleck are a perfect choice. And then there is... The special guest, I will call him "X". His role, which could be seen as a minor role, is actually much more important than that. He proves, once again, that he is a great actor. Watch and see. And finally, the scenario/story. I won't spoil anything here; I'll just try to convince you how great it is. Nolan is known to revolutionize everything when he tries a new genre in cinema. Well, once again he did it. With The Dark Knight he revolutionized the superhero genre. With Interstellar he's revolutionizing the sci-fi genre in cinema. From what I heard, he worked with a physicist (in gravitational physics and astrophysics) to help him with that movie. And we can feel and see it. During the fifties, Asimov laid the foundations of modern science fiction. Lucas and Kubrick did the same in cinema. Today, Nolan is laying the new foundations of the genre in cinema, proving that cinema is still at the beginning of what can be done (brace yourselves my friends, we have not seen anything yet). Why? Well, simply because we only know a few things about space, some things can't be proved for the moment, so we can use theory, and make the best of it. That is exactly what Nolan did. He used theories that exist today, and made a movie about mankind, about pioneers, about humanity, about us. Because, in spite of all the sci-fi aspect, it is a story about humanity. McConaughey, Hathaway, and mainly "X", will managed to convince you about that. My rating for this movie can only be a 10, because in itself, it is a beginning for a new kind of cinema. It IS a classic. Those who say "we can't compare this movie to 2001 Space Odyssey, nor can we compare Nolan to Kubrick" are wrong. We can, and we should. Talented people don't live only in the past, some genius live today, among us. And Nolan is one of them. Many say that he is overrated. I truly don't think so. Only time will answer that. This is the sci-fi movie of the decade, and probably the best movie Nolan ever made. Just go for it, without a second thought.'''