Twitter Sentiment Analysis

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In [2]:
import re
import tweepy
from tweepy import OAuthHandler
from textblob import TextBlob

class TwitterClient(object):

    def __init__(self):
        '''
        Class constructor or initialization method.
        '''
        # keys and tokens from the Twitter Dev Console
        consumer_key = 'mzbRXy06YWQ5VRs5IT6RYN9Q1'
        consumer_secret = 'oa5b3GmGo474HBSKHIbsRnKa3xYyIH3L7yb4J4DDRbXZAiqJ0o'
        access_token = '115772812318784716B-VmGiqMRL1rIvtcP8lEkDROFqAT81iW'
        access_token_secret = 'hUSOAdkj7VRQygbTTwqF99Be2ShBxAgqwdM2rYRISYbUN'

        # attempt authentication
        try:
            # create OAuthHandler object
            self.auth = OAuthHandler(consumer_key, consumer_secret)
            # set access token and secret
            self.auth.set_access_token(access_token, access_token_secret)
            # create tweepy API object to fetch tweets
            self.api = tweepy.API(self.auth)
        except:
            print("Error: Authentication Failed")

    def clean_tweet(self, tweet):
        '''
        Utility function to clean tweet text by removing links, special characters
        using simple regex statements.
        '''
        return ' '.join(re.sub("(@[A-Za-z0-9]+)|([^0-9A-Za-z \t])|(\w+:\/\/\S+)", " ", tweet).split())

    def get_tweet_sentiment(self, tweet):
        '''
        Utility function to classify sentiment of passed tweet
        using textblob's sentiment method
        '''
        # create TextBlob object of passed tweet text
        analysis = TextBlob(self.clean_tweet(tweet))
        # set sentiment
        if analysis.sentiment.polarity > 0:
            return 'positive'
        elif analysis.sentiment.polarity == 0:
            return 'neutral'
        else:
            return 'negative'

    def get_tweets(self, query, count = 100):
        '''
        Main function to fetch tweets and parse them.
        '''
        # empty list to store parsed tweets
        tweets = []

        try:
            # call twitter api to fetch tweets
            fetched_tweets = self.api.search(q = query, count = count)

            # parsing tweets one by one
            for tweet in fetched_tweets:
                # empty dictionary to store required params of a tweet
                parsed_tweet = {}

                # saving text of tweet
                parsed_tweet['text'] = tweet.text
                # saving sentiment of tweet
                parsed_tweet['sentiment'] = self.get_tweet_sentiment(tweet.text)

                # appending parsed tweet to tweets list
                if tweet.retweet_count > 0:
                    # if tweet has retweets, ensure that it is appended only once
                    if parsed_tweet not in tweets:
                        tweets.append(parsed_tweet)
                else:
                    tweets.append(parsed_tweet)

            # return parsed tweets
            return tweets

        except tweepy.TweepError as e:
            # print error (if any)
            print("Error : " + str(e))

def main():
    # creating object of TwitterClient Class
    api = TwitterClient()
    # calling function to get tweets
    tweets = api.get_tweets(query = 'TRUMP', count = 100)

    # picking positive tweets from tweets
    ptweets = [tweet for tweet in tweets if tweet['sentiment'] == 'positive']
    # percentage of positive tweets
    print("Positive tweets percentage: {} %".format(100*len(ptweets)/len(tweets)))
    # picking negative tweets from tweets
    ntweets = [tweet for tweet in tweets if tweet['sentiment'] == 'negative']
    # percentage of negative tweets
    print("Negative tweets percentage: {} %".format(100*len(ntweets)/len(tweets)))
    # percentage of neutral tweets
    print("Neutral tweets percentage: {} %  ".format(100*(len(tweets) -(len( ntweets )+len( ptweets)))/len(tweets)))
    print(" Positive Tweets : ",len( ptweets),"\n","Negative Tweets : ",len( ntweets) )
    # printing first 50 positive tweets
    print("\n\nPositive tweets:")
    for tweet in ptweets[:50]:
        print(tweet['text'])

    # printing first 50 negative tweets
    print("\n\nNegative tweets:")
    for tweet in ntweets[:50]:
        print(tweet['text'])

if __name__ == "__main__":
    # calling main function
    main()
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Positive tweets percentage: 27.848101265822784 %
Negative tweets percentage: 20.253164556962027 %
Neutral tweets percentage: 51.89873417721519 %
 Positive Tweets :  22
 Negative Tweets :  16


Positive tweets:
RT @ThePlumLineGS: Good news:

Senate Dems will introduce a sweeping pro-democracy bill today as the first bill under their new majority. I…
RT @itsJeffTiedrich: pretty much the only thing I got wrong about the Trump presidency is that I really thought he would have blurted the n…
@MikeKellyPA Seriously?  Just a principled constitutionalist?  You tried to disenfranchise the entire state.  Full… https://t.co/IYW5xhECNy
RT @BillKristol: It would have been good if John Kelly had said he had no other commitments, but that he chose not to attend. It would, aft…
RT @chuckietoyou: Trump's last day is tomorrow y'all....we really survived https://t.co/COI3Ns98hN
RT @osullivanauthor: I learned many things during the Trump Presidency.
None were good.

For example, I learned a black man quietly kneelin…
RT @WSJopinion: Donald Trump's profound character flaws need to be separated from what so many people in his Administration accomplished fo…
@Kokomothegreat Trump was a lazy president who played more golf and watched more tv then any other president!
RT @w_terrence: We love you President Trump
RT @GuardianAus: Trump social media ban sparks calls for action against other populist leaders https://t.co/4oXnkAcln6
RT @JamesAALongman: Trump's legacy. Really quite something when you see it laid out like this. Take a moment to watch. @jonkarl https://t.c…
RT @TheRileyWilson: Today is the last full day of Trump's presidency.
@SecPompeo Oh, looks who's going on a "reform my image" your. GFY, Mike. We WILL hold you responsible the the fucke… https://t.co/WAhte2bnid
RT @CNN: Here's what's on President-elect Joe Biden's health care checklist:
• Saving and strengthening the Affordable Care Act
• Bolster…
RT @MarkoSilberhand: @mkraju Trump may not have started a new war, but he brought it home himself . . .

#Trump is the #WorstPresidentInUSH…
@DrOakley1689 Hi James I love this tweet. I'm in a debate with a guy who believes God has removed Trump and anointe… https://t.co/cF4wcWab17
RT @steve_vladeck: 13. If nothing else, that underscores the importance of being able to impeach/convict a President after he's left office…
@MMFlint Eh. Those other guys were just more effective at evil. Trump definitely eviler. Imagine if he were competent!
RT @AP: President Trump wants to lift coronavirus travel restrictions for Europe, the U.K., Ireland and Brazil, effective Jan. 26. But the…
RT @JerasIkehorn: Who else can proudly say that they never followed Trump when he was on Twitter?

Raise your proud hand...🖐
Just watching the crime ministers presser on ctv at noon.  I thought trump was a liar. Wow i cant believe the bulls… https://t.co/6uIxq7VYyj
RT @SpeakerPelosi: The attempt to install an unqualified Trump loyalist as NSA General Counsel just 72 hours prior to the start of a new Ad…


Negative tweets:
RT @Leslieoo7: The Trump party is filled with Christians who worship a false idol and patriots who want to sell government laptops to the R…
Haines, to her credit, was among the former Obama officials who expressed regret for providing American military su… https://t.co/Ss8yCbVYAO
RT @RepsForBiden: @jaketapper Trump is literally begging people to come to his "funeral". SAD!
RT @glennkirschner2: And it constitutes a criminal homicide. Different jurisdictions label it differently: negligent homicide, involuntary…
RT @kylegriffin1: Melania Trump has not reached out to Jill Biden about a White House tour and other protocols, Ashley Biden, daughter of J…
RT @DanRather: As bad as the Trump Administration looks today, I firmly believe history will judge it much more harshly.
RT @kofibaah2020: Trump Jr., Kimberly Guilfoyle's Paris trip cost taxpayers $64,000. Secret Service records show $31,104 taxpayer money wen…
RT @clockoutwars: @Scaramucci Trump, Don Jr, Eric, Ivanka and Jared will be drowning in criminal charges, lawsuits and debt. #TrumpCrimeFam…
RT @WalshFreedom: Donald Trump NEVER reaches out to Joe Biden. Melania Trump NEVER reaches out to Jill Biden.

They are such bad people. We…
RT @brycetache: Seeing DC turned into a military zone fills me with sadness. Republicans did this. Not just Trump.
RT @MMFlint: We are now entering the final 24 hrs of this madness. We have all dreamed and prayed and worked for this day. Reagan killed th…
People be proud about voting from trump. That shit crazy to me id keep that shit to my self. 😂😂
RT @KarenAttiah: Bending over backwards for Trump supporters really is a nasty addiction.

Y'all really can't help yourselves, can you?
@kaitlancollins Smelling desperation sweat from tRump begging people to show up. It's the little things I always say 😀
RT @CAPAction: Let's be crystal clear: Trump's rhetoric and actions incited a violent insurrection against the United States at the Capitol…
@NBCNews Trump ruins everything he touches.  We will be there in spirit.
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