In [3]:
```
import os
import tweepy as tw
import pandas as pd
from textblob import TextBlob

#Twitter developer account tokens
consumer_key = '2GLBzqZTzm2xOMwzEEmKkKJSd'
consumer_secret = 'DlyUcXznzHELk5Epqps0HaWEH23dqDxTTw7dsabchxaST5SSTv'
access_token = '2603391376-YBWE0yIT3X2Td8PMdT6AeCjCpbJzXk2Bieon37G'
access_token_secret = 'hvwSJwzwEwH3CKsxFRhckMxXNPzk5sG0Cvxx53M3u07JT'

#Twitter developer account authentification via tokens
auth = tw.OAuthHandler(consumer_key, consumer_secret)
auth.set_access_token(access_token, access_token_secret)
api = tw.API(auth, wait_on_rate_limit=True)

since = "2020-03-30" #start date for query
until = "2020-04-06" #end date for query

#Tweepy tw.cursor: check documentation @http://docs.tweepy.org/en/lates
t/cursor_tutorial.html
tweets = tw.Cursor(api.search,
              q="$SPX -filter:retweets -filter:user_mentions",
              lang="en",
              since=since,
              until=until,
              tweet_mode="extended").items()

#retrieve date and text for each tweet
date_tweet = [[tweet.created_at, tweet.full_text.encode('utf-8'), tweet.
user.followers_count] for tweet in tweets]

#convert tweets into 2-col PD data frame
df = pd.DataFrame(data=date_tweet, columns=['date','text'])

df['text'] = df['text'].apply(str)

df['polarity'] = df['text'].apply(lambda text: TextBlob(text).polarity)
df['subjectivity'] = df['text'].apply(lambda text: TextBlob(text).subjec
tivity)

df.to_excel (r'C:\Users\timod\Desktop\SPX.xlsx', index = None, header=Tr
ue)
```

In [6]:
```
df.to_excel (r'C:\Users\timod\Desktop\S&P500_MarW4.xlsx', index = None,
header=True)
```