In [1]:
```
## Import the essential library

import os
import requests
import pandas as pd
import numpy as np
from dotenv import load_dotenv
from pathlib import Path
from vaderSentiment.vaderSentiment import SentimentIntensityAnalyzer
from datetime import datetime, timedelta
```

In [2]:
```
# Load the enviornment
load_dotenv()
```

Out[2]:
```
True
```

In [16]:
```
#Get the Twitter bearer token from the .env file

twitter_bearer_token = os.getenv("TWITTER_BEARER_TOKEN")

#Check if retrieved
type(twitter_bearer_token)
```

Out[16]:
```
str
```

In [4]:
```
## Read the ticker symbols from CSV and put it in the dataframe
csvpath = Path("Data/StockPriceData.csv")
df_stock_price_data = pd.read_csv(csvpath, infer_datetime_format=True, parse_dates=True)

#Delete the unnecessary index column from CSV
df_stock_price_data = df_stock_price_data.drop(columns=df_stock_price_data.columns[0])
df_stock_price_data.dtypes
```

Out[4]:
```
Date       object
Close     float64
Ticker     object
dtype: object
```

In [5]:
```
#List of unique tickers
tickers_list = list(set(df_stock_price_data['Ticker']))
tickers_list
```

Out[5]:
```
['ARBG',
 'GNE',
 'NVSA',
 'TKNO',
 'BRX',
 'HUSN',
 'XOMAO',
 'MGRC',
 'IAS',
 'SCD',
 'CFSB',
 'GGGVR',
 'ENO',
 'MMX',
 'TETCU',
 'PYN',
```

```
'FRLA',
'PRTC',
'TBLA',
'COWN',
'GBX',
'NPCT',
'DECAU',
'DCRDW',
'JACK',
'PVL',
'KOP',
'IGACW',
'GRTS',
'ENERR',
'AGRI']
```

In [6]:

```
# Set the Bearer Token for Authorisation for Twitter API call.
auth_token = "Bearer " + twitter_bearer_token
headers = {"Authorization": auth_token}

## Function to read 100 recent tweets related to ticker and from the date time specified.
def read_100_Tweets(ticker, tweet_date_time):
    ## Function to read 100 recent tweets from the specific dates
    ##  Input : ticker - Stock Ticker
    ##          tweet_date_time - UTC Date/Time Format YYYY-MM-DDTHH:mm:ssZ (ISO 8601/RFC
    ##
    ##  Output: List of 100 tweets
    twitter_api_url  = f"https://api.twitter.com/2/tweets/search/recent?max_results=100&qu
    response = requests.get(twitter_api_url, headers=headers)
    ## Check for 200 status code which means it was successful
    tweets_list = [];
    if(response.status_code == 200):
        json_response = response.json()
        #Check if there are any tweets at all
        if('data' in json_response.keys()):
            all_tweets = response.json()["data"]
            for tweet in all_tweets:
                tweets_list.append(tweet["text"])

    else:
        print(f"Response code: {response.status_code}.  Error in getting the tweet");
    return tweets_list
```

In [7]:

```
## Perform Vader Sentiment Analysis

## Define Sentiment Object for Sentiment Analysis

sentiment_obj = SentimentIntensityAnalyzer()
def perform_sentiment_analysis(tweets_list):
    ## Function to read 100 recent tweets from the specific dates
    ##  Input : tweets_list - List of 100 tweets
    ##
    ##
    ##  Output: sentiment score average

    ##Check if there are tweets to analyse
    if (len(tweets_list) > 0):
        sentiment_scores_all = []
        for tweet in tweets_list:
            sentiment_dict = sentiment_obj.polarity_scores(tweet)
            sentiment_scores_all.append(sentiment_dict["compound"])

        #Average the sentiment of all tweets
```

```
        average_sentiment = np.average(sentiment_scores_all)
        return average_sentiment
    else:
        return 0;
```

In [8]:

```
def execute_tweet_sentiment_analysis(start_date, end_date):

    tweet_sentiments = []

    while start_date <= end_date:
        delta = timedelta(hours=4)
        for ticker in tickers_list:
            if(start_date.hour == 0 or start_date.hour == 4 ):
                continue
            print(f"Executing Tweet Analysis for {ticker} on {start_date.isoformat()}")
            tweets_list = []
            tweets_list = read_100_Tweets(ticker, start_date.isoformat() + "Z")
            sentiment_score = perform_sentiment_analysis(tweets_list)
            tweet_sentiment = {}
            tweet_sentiment["Ticker"] = ticker
            tweet_sentiment["Date"] = start_date
            tweet_sentiment["Sentiment_Score"] = sentiment_score
            tweet_sentiments.append(tweet_sentiment)
            #print("Ticker: " + tweet_sentiment["ticker"] + ", Date : " + str(tweet_sentir
        start_date += delta
    return tweet_sentiments
```

In [9]:

```
start_date = datetime(2022,5,11, 12,0,0)
end_date = datetime(2022,5,13, 0,0,0)
tweet_sentiments = []
tweet_sentiments = execute_tweet_sentiment_analysis(start_date, end_date)
```

```
Executing Tweet Analysis for ARBG on 2022-05-11T12:00:00
Response code: 400.  Error in getting the tweet
Executing Tweet Analysis for GNE on 2022-05-11T12:00:00
Response code: 400.  Error in getting the tweet
Executing Tweet Analysis for NVSA on 2022-05-11T12:00:00
Response code: 400.  Error in getting the tweet
Executing Tweet Analysis for TKNO on 2022-05-11T12:00:00
Response code: 400.  Error in getting the tweet
Executing Tweet Analysis for BRX on 2022-05-11T12:00:00
Response code: 400.  Error in getting the tweet
Executing Tweet Analysis for HUSN on 2022-05-11T12:00:00
Response code: 400.  Error in getting the tweet
Executing Tweet Analysis for XOMAO on 2022-05-11T12:00:00
Response code: 400.  Error in getting the tweet
Executing Tweet Analysis for MGRC on 2022-05-11T12:00:00
Response code: 400.  Error in getting the tweet
Executing Tweet Analysis for IAS on 2022-05-11T12:00:00
Response code: 400.  Error in getting the tweet
Executing Tweet Analysis for SCD on 2022-05-11T12:00:00
Response code: 400.  Error in getting the tweet
Executing Tweet Analysis for CFSB on 2022-05-11T12:00:00
Response code: 400.  Error in getting the tweet
Executing Tweet Analysis for GGGVR on 2022-05-11T12:00:00
Response code: 400.  Error in getting the tweet
Executing Tweet Analysis for ENO on 2022-05-11T12:00:00
Response code: 400.  Error in getting the tweet
Executing Tweet Analysis for MMX on 2022-05-11T12:00:00
Response code: 400.  Error in getting the tweet
```

```
Executing Tweet Analysis for TETCU on 2022-05-11T12:00:00
Response code: 400.  Error in getting the tweet
Executing Tweet Analysis for PYN on 2022-05-11T12:00:00
Response code: 400.  Error in getting the tweet
Executing Tweet Analysis for FRLA on 2022-05-11T12:00:00
Response code: 400.  Error in getting the tweet
Executing Tweet Analysis for PRTC on 2022-05-11T12:00:00
Response code: 400.  Error in getting the tweet
Executing Tweet Analysis for TBLA on 2022-05-11T12:00:00
Response code: 400.  Error in getting the tweet
Executing Tweet Analysis for COWN on 2022-05-11T12:00:00
Response code: 400.  Error in getting the tweet
Executing Tweet Analysis for GBX on 2022-05-11T12:00:00
Response code: 400.  Error in getting the tweet
Executing Tweet Analysis for NPCT on 2022-05-11T12:00:00
Response code: 400.  Error in getting the tweet
Executing Tweet Analysis for DECAU on 2022-05-11T12:00:00
Response code: 400.  Error in getting the tweet
Executing Tweet Analysis for DCRDW on 2022-05-11T12:00:00
Response code: 400.  Error in getting the tweet
Executing Tweet Analysis for JACK on 2022-05-11T12:00:00
Response code: 400.  Error in getting the tweet
Executing Tweet Analysis for PVL on 2022-05-11T12:00:00
Response code: 400.  Error in getting the tweet
Executing Tweet Analysis for KOP on 2022-05-11T12:00:00
Response code: 400.  Error in getting the tweet
Executing Tweet Analysis for IGACW on 2022-05-11T12:00:00
Response code: 400.  Error in getting the tweet
Executing Tweet Analysis for GRTS on 2022-05-11T12:00:00
Response code: 400.  Error in getting the tweet
Executing Tweet Analysis for ENERR on 2022-05-11T12:00:00
Response code: 400.  Error in getting the tweet
Executing Tweet Analysis for AGRI on 2022-05-11T12:00:00
Response code: 400.  Error in getting the tweet
Executing Tweet Analysis for ARBG on 2022-05-11T16:00:00
Executing Tweet Analysis for GNE on 2022-05-11T16:00:00
Executing Tweet Analysis for NVSA on 2022-05-11T16:00:00
Executing Tweet Analysis for TKNO on 2022-05-11T16:00:00
Executing Tweet Analysis for BRX on 2022-05-11T16:00:00
Executing Tweet Analysis for HUSN on 2022-05-11T16:00:00
Executing Tweet Analysis for XOMAO on 2022-05-11T16:00:00
Executing Tweet Analysis for MGRC on 2022-05-11T16:00:00
Executing Tweet Analysis for IAS on 2022-05-11T16:00:00
Executing Tweet Analysis for SCD on 2022-05-11T16:00:00
Executing Tweet Analysis for CFSB on 2022-05-11T16:00:00
Executing Tweet Analysis for GGGVR on 2022-05-11T16:00:00
Executing Tweet Analysis for ENO on 2022-05-11T16:00:00
Executing Tweet Analysis for MMX on 2022-05-11T16:00:00
Executing Tweet Analysis for TETCU on 2022-05-11T16:00:00
Executing Tweet Analysis for PYN on 2022-05-11T16:00:00
Executing Tweet Analysis for FRLA on 2022-05-11T16:00:00
Executing Tweet Analysis for PRTC on 2022-05-11T16:00:00
Executing Tweet Analysis for TBLA on 2022-05-11T16:00:00
Executing Tweet Analysis for COWN on 2022-05-11T16:00:00
Executing Tweet Analysis for GBX on 2022-05-11T16:00:00
Executing Tweet Analysis for NPCT on 2022-05-11T16:00:00
Executing Tweet Analysis for DECAU on 2022-05-11T16:00:00
Executing Tweet Analysis for DCRDW on 2022-05-11T16:00:00
Executing Tweet Analysis for JACK on 2022-05-11T16:00:00
Executing Tweet Analysis for PVL on 2022-05-11T16:00:00
Executing Tweet Analysis for KOP on 2022-05-11T16:00:00
Executing Tweet Analysis for IGACW on 2022-05-11T16:00:00
Executing Tweet Analysis for GRTS on 2022-05-11T16:00:00
Executing Tweet Analysis for ENERR on 2022-05-11T16:00:00
Executing Tweet Analysis for AGRI on 2022-05-11T16:00:00
Executing Tweet Analysis for ARBG on 2022-05-11T20:00:00
```

```
Executing Tweet Analysis for GNE on 2022-05-11T20:00:00
Executing Tweet Analysis for NVSA on 2022-05-11T20:00:00
Executing Tweet Analysis for TKNO on 2022-05-11T20:00:00
Executing Tweet Analysis for BRX on 2022-05-11T20:00:00
Executing Tweet Analysis for HUSN on 2022-05-11T20:00:00
Executing Tweet Analysis for XOMAO on 2022-05-11T20:00:00
Executing Tweet Analysis for MGRC on 2022-05-11T20:00:00
Executing Tweet Analysis for IAS on 2022-05-11T20:00:00
Executing Tweet Analysis for SCD on 2022-05-11T20:00:00
Executing Tweet Analysis for CFSB on 2022-05-11T20:00:00
Executing Tweet Analysis for GGGVR on 2022-05-11T20:00:00
Executing Tweet Analysis for ENO on 2022-05-11T20:00:00
Executing Tweet Analysis for MMX on 2022-05-11T20:00:00
Executing Tweet Analysis for TETCU on 2022-05-11T20:00:00
Executing Tweet Analysis for PYN on 2022-05-11T20:00:00
Executing Tweet Analysis for FRLA on 2022-05-11T20:00:00
Executing Tweet Analysis for PRTC on 2022-05-11T20:00:00
Executing Tweet Analysis for TBLA on 2022-05-11T20:00:00
Executing Tweet Analysis for COWN on 2022-05-11T20:00:00
Executing Tweet Analysis for GBX on 2022-05-11T20:00:00
Executing Tweet Analysis for NPCT on 2022-05-11T20:00:00
Executing Tweet Analysis for DECAU on 2022-05-11T20:00:00
Executing Tweet Analysis for DCRDW on 2022-05-11T20:00:00
Executing Tweet Analysis for JACK on 2022-05-11T20:00:00
Executing Tweet Analysis for PVL on 2022-05-11T20:00:00
Executing Tweet Analysis for KOP on 2022-05-11T20:00:00
Executing Tweet Analysis for IGACW on 2022-05-11T20:00:00
Executing Tweet Analysis for GRTS on 2022-05-11T20:00:00
Executing Tweet Analysis for ENERR on 2022-05-11T20:00:00
Executing Tweet Analysis for AGRI on 2022-05-11T20:00:00
Executing Tweet Analysis for ARBG on 2022-05-12T08:00:00
Executing Tweet Analysis for GNE on 2022-05-12T08:00:00
Executing Tweet Analysis for NVSA on 2022-05-12T08:00:00
Executing Tweet Analysis for TKNO on 2022-05-12T08:00:00
Executing Tweet Analysis for BRX on 2022-05-12T08:00:00
Executing Tweet Analysis for HUSN on 2022-05-12T08:00:00
Executing Tweet Analysis for XOMAO on 2022-05-12T08:00:00
Executing Tweet Analysis for MGRC on 2022-05-12T08:00:00
Executing Tweet Analysis for IAS on 2022-05-12T08:00:00
Executing Tweet Analysis for SCD on 2022-05-12T08:00:00
Executing Tweet Analysis for CFSB on 2022-05-12T08:00:00
Executing Tweet Analysis for GGGVR on 2022-05-12T08:00:00
Executing Tweet Analysis for ENO on 2022-05-12T08:00:00
Executing Tweet Analysis for MMX on 2022-05-12T08:00:00
Executing Tweet Analysis for TETCU on 2022-05-12T08:00:00
Executing Tweet Analysis for PYN on 2022-05-12T08:00:00
Executing Tweet Analysis for FRLA on 2022-05-12T08:00:00
Executing Tweet Analysis for PRTC on 2022-05-12T08:00:00
Executing Tweet Analysis for TBLA on 2022-05-12T08:00:00
Executing Tweet Analysis for COWN on 2022-05-12T08:00:00
Executing Tweet Analysis for GBX on 2022-05-12T08:00:00
Executing Tweet Analysis for NPCT on 2022-05-12T08:00:00
Executing Tweet Analysis for DECAU on 2022-05-12T08:00:00
Executing Tweet Analysis for DCRDW on 2022-05-12T08:00:00
Executing Tweet Analysis for JACK on 2022-05-12T08:00:00
Executing Tweet Analysis for PVL on 2022-05-12T08:00:00
Executing Tweet Analysis for KOP on 2022-05-12T08:00:00
Executing Tweet Analysis for IGACW on 2022-05-12T08:00:00
Executing Tweet Analysis for GRTS on 2022-05-12T08:00:00
Executing Tweet Analysis for ENERR on 2022-05-12T08:00:00
Executing Tweet Analysis for AGRI on 2022-05-12T08:00:00
Executing Tweet Analysis for ARBG on 2022-05-12T12:00:00
Executing Tweet Analysis for GNE on 2022-05-12T12:00:00
Executing Tweet Analysis for NVSA on 2022-05-12T12:00:00
Executing Tweet Analysis for TKNO on 2022-05-12T12:00:00
Executing Tweet Analysis for BRX on 2022-05-12T12:00:00
```

```
Executing Tweet Analysis for HUSN on 2022-05-12T12:00:00
Executing Tweet Analysis for XOMAO on 2022-05-12T12:00:00
Executing Tweet Analysis for MGRC on 2022-05-12T12:00:00
Executing Tweet Analysis for IAS on 2022-05-12T12:00:00
Executing Tweet Analysis for SCD on 2022-05-12T12:00:00
Executing Tweet Analysis for CFSB on 2022-05-12T12:00:00
Executing Tweet Analysis for GGGVR on 2022-05-12T12:00:00
Executing Tweet Analysis for ENO on 2022-05-12T12:00:00
Executing Tweet Analysis for MMX on 2022-05-12T12:00:00
Executing Tweet Analysis for TETCU on 2022-05-12T12:00:00
Executing Tweet Analysis for PYN on 2022-05-12T12:00:00
Executing Tweet Analysis for FRLA on 2022-05-12T12:00:00
Executing Tweet Analysis for PRTC on 2022-05-12T12:00:00
Executing Tweet Analysis for TBLA on 2022-05-12T12:00:00
Executing Tweet Analysis for COWN on 2022-05-12T12:00:00
Executing Tweet Analysis for GBX on 2022-05-12T12:00:00
Executing Tweet Analysis for NPCT on 2022-05-12T12:00:00
Executing Tweet Analysis for DECAU on 2022-05-12T12:00:00
Executing Tweet Analysis for DCRDW on 2022-05-12T12:00:00
Executing Tweet Analysis for JACK on 2022-05-12T12:00:00
Executing Tweet Analysis for PVL on 2022-05-12T12:00:00
Executing Tweet Analysis for KOP on 2022-05-12T12:00:00
Executing Tweet Analysis for IGACW on 2022-05-12T12:00:00
Executing Tweet Analysis for GRTS on 2022-05-12T12:00:00
Executing Tweet Analysis for ENERR on 2022-05-12T12:00:00
Executing Tweet Analysis for AGRI on 2022-05-12T12:00:00
Executing Tweet Analysis for ARBG on 2022-05-12T16:00:00
Executing Tweet Analysis for GNE on 2022-05-12T16:00:00
Executing Tweet Analysis for NVSA on 2022-05-12T16:00:00
Executing Tweet Analysis for TKNO on 2022-05-12T16:00:00
Executing Tweet Analysis for BRX on 2022-05-12T16:00:00
Executing Tweet Analysis for HUSN on 2022-05-12T16:00:00
Executing Tweet Analysis for XOMAO on 2022-05-12T16:00:00
Executing Tweet Analysis for MGRC on 2022-05-12T16:00:00
Executing Tweet Analysis for IAS on 2022-05-12T16:00:00
Executing Tweet Analysis for SCD on 2022-05-12T16:00:00
Executing Tweet Analysis for CFSB on 2022-05-12T16:00:00
Executing Tweet Analysis for GGGVR on 2022-05-12T16:00:00
Executing Tweet Analysis for ENO on 2022-05-12T16:00:00
Executing Tweet Analysis for MMX on 2022-05-12T16:00:00
Executing Tweet Analysis for TETCU on 2022-05-12T16:00:00
Executing Tweet Analysis for PYN on 2022-05-12T16:00:00
Executing Tweet Analysis for FRLA on 2022-05-12T16:00:00
Executing Tweet Analysis for PRTC on 2022-05-12T16:00:00
Executing Tweet Analysis for TBLA on 2022-05-12T16:00:00
Executing Tweet Analysis for COWN on 2022-05-12T16:00:00
Executing Tweet Analysis for GBX on 2022-05-12T16:00:00
Executing Tweet Analysis for NPCT on 2022-05-12T16:00:00
Executing Tweet Analysis for DECAU on 2022-05-12T16:00:00
Executing Tweet Analysis for DCRDW on 2022-05-12T16:00:00
Executing Tweet Analysis for JACK on 2022-05-12T16:00:00
Executing Tweet Analysis for PVL on 2022-05-12T16:00:00
Executing Tweet Analysis for KOP on 2022-05-12T16:00:00
Executing Tweet Analysis for IGACW on 2022-05-12T16:00:00
Executing Tweet Analysis for GRTS on 2022-05-12T16:00:00
Executing Tweet Analysis for ENERR on 2022-05-12T16:00:00
Executing Tweet Analysis for AGRI on 2022-05-12T16:00:00
Executing Tweet Analysis for ARBG on 2022-05-12T20:00:00
Executing Tweet Analysis for GNE on 2022-05-12T20:00:00
Executing Tweet Analysis for NVSA on 2022-05-12T20:00:00
Executing Tweet Analysis for TKNO on 2022-05-12T20:00:00
Executing Tweet Analysis for BRX on 2022-05-12T20:00:00
Executing Tweet Analysis for HUSN on 2022-05-12T20:00:00
Executing Tweet Analysis for XOMAO on 2022-05-12T20:00:00
Executing Tweet Analysis for MGRC on 2022-05-12T20:00:00
Executing Tweet Analysis for IAS on 2022-05-12T20:00:00
```

```
Executing Tweet Analysis for SCD on 2022-05-12T20:00:00
Executing Tweet Analysis for CFSB on 2022-05-12T20:00:00
Executing Tweet Analysis for GGGVR on 2022-05-12T20:00:00
Executing Tweet Analysis for ENO on 2022-05-12T20:00:00
Executing Tweet Analysis for MMX on 2022-05-12T20:00:00
Executing Tweet Analysis for TETCU on 2022-05-12T20:00:00
Executing Tweet Analysis for PYN on 2022-05-12T20:00:00
Executing Tweet Analysis for FRLA on 2022-05-12T20:00:00
Executing Tweet Analysis for PRTC on 2022-05-12T20:00:00
Executing Tweet Analysis for TBLA on 2022-05-12T20:00:00
Executing Tweet Analysis for COWN on 2022-05-12T20:00:00
Executing Tweet Analysis for GBX on 2022-05-12T20:00:00
Executing Tweet Analysis for NPCT on 2022-05-12T20:00:00
Executing Tweet Analysis for DECAU on 2022-05-12T20:00:00
Executing Tweet Analysis for DCRDW on 2022-05-12T20:00:00
Executing Tweet Analysis for JACK on 2022-05-12T20:00:00
Executing Tweet Analysis for PVL on 2022-05-12T20:00:00
Executing Tweet Analysis for KOP on 2022-05-12T20:00:00
Executing Tweet Analysis for IGACW on 2022-05-12T20:00:00
Executing Tweet Analysis for GRTS on 2022-05-12T20:00:00
Executing Tweet Analysis for ENERR on 2022-05-12T20:00:00
Executing Tweet Analysis for AGRI on 2022-05-12T20:00:00
```

In [11]:

```
 #Second Call due to Twitter Rate Limits
tweet_sentiments_2 = []
start_date = datetime(2022,5,13, 0,0,0)
end_date = datetime(2022,5,15, 0,0,0)

tweet_sentiments_2 = execute_tweet_sentiment_analysis(start_date, end_date)
```

```
Executing Tweet Analysis for ARBG on 2022-05-13T08:00:00
Executing Tweet Analysis for GNE on 2022-05-13T08:00:00
Executing Tweet Analysis for NVSA on 2022-05-13T08:00:00
Executing Tweet Analysis for TKNO on 2022-05-13T08:00:00
Executing Tweet Analysis for BRX on 2022-05-13T08:00:00
Executing Tweet Analysis for HUSN on 2022-05-13T08:00:00
Executing Tweet Analysis for XOMAO on 2022-05-13T08:00:00
Executing Tweet Analysis for MGRC on 2022-05-13T08:00:00
Executing Tweet Analysis for IAS on 2022-05-13T08:00:00
Executing Tweet Analysis for SCD on 2022-05-13T08:00:00
Executing Tweet Analysis for CFSB on 2022-05-13T08:00:00
Executing Tweet Analysis for GGGVR on 2022-05-13T08:00:00
Executing Tweet Analysis for ENO on 2022-05-13T08:00:00
Executing Tweet Analysis for MMX on 2022-05-13T08:00:00
Executing Tweet Analysis for TETCU on 2022-05-13T08:00:00
Executing Tweet Analysis for PYN on 2022-05-13T08:00:00
Executing Tweet Analysis for FRLA on 2022-05-13T08:00:00
Executing Tweet Analysis for PRTC on 2022-05-13T08:00:00
Executing Tweet Analysis for TBLA on 2022-05-13T08:00:00
Executing Tweet Analysis for COWN on 2022-05-13T08:00:00
Executing Tweet Analysis for GBX on 2022-05-13T08:00:00
Executing Tweet Analysis for NPCT on 2022-05-13T08:00:00
Executing Tweet Analysis for DECAU on 2022-05-13T08:00:00
Executing Tweet Analysis for DCRDW on 2022-05-13T08:00:00
Executing Tweet Analysis for JACK on 2022-05-13T08:00:00
Executing Tweet Analysis for PVL on 2022-05-13T08:00:00
Executing Tweet Analysis for KOP on 2022-05-13T08:00:00
Executing Tweet Analysis for IGACW on 2022-05-13T08:00:00
Executing Tweet Analysis for GRTS on 2022-05-13T08:00:00
Executing Tweet Analysis for ENERR on 2022-05-13T08:00:00
Executing Tweet Analysis for AGRI on 2022-05-13T08:00:00
Executing Tweet Analysis for ARBG on 2022-05-13T12:00:00
Executing Tweet Analysis for GNE on 2022-05-13T12:00:00
Executing Tweet Analysis for NVSA on 2022-05-13T12:00:00
Executing Tweet Analysis for TKNO on 2022-05-13T12:00:00
```

```
Executing Tweet Analysis for BRX on 2022-05-13T12:00:00
Executing Tweet Analysis for HUSN on 2022-05-13T12:00:00
Executing Tweet Analysis for XOMAO on 2022-05-13T12:00:00
Executing Tweet Analysis for MGRC on 2022-05-13T12:00:00
Executing Tweet Analysis for IAS on 2022-05-13T12:00:00
Executing Tweet Analysis for SCD on 2022-05-13T12:00:00
Executing Tweet Analysis for CFSB on 2022-05-13T12:00:00
Executing Tweet Analysis for GGGVR on 2022-05-13T12:00:00
Executing Tweet Analysis for ENO on 2022-05-13T12:00:00
Executing Tweet Analysis for MMX on 2022-05-13T12:00:00
Executing Tweet Analysis for TETCU on 2022-05-13T12:00:00
Executing Tweet Analysis for PYN on 2022-05-13T12:00:00
Executing Tweet Analysis for FRLA on 2022-05-13T12:00:00
Executing Tweet Analysis for PRTC on 2022-05-13T12:00:00
Executing Tweet Analysis for TBLA on 2022-05-13T12:00:00
Executing Tweet Analysis for COWN on 2022-05-13T12:00:00
Executing Tweet Analysis for GBX on 2022-05-13T12:00:00
Executing Tweet Analysis for NPCT on 2022-05-13T12:00:00
Executing Tweet Analysis for DECAU on 2022-05-13T12:00:00
Executing Tweet Analysis for DCRDW on 2022-05-13T12:00:00
Executing Tweet Analysis for JACK on 2022-05-13T12:00:00
Executing Tweet Analysis for PVL on 2022-05-13T12:00:00
Executing Tweet Analysis for KOP on 2022-05-13T12:00:00
Executing Tweet Analysis for IGACW on 2022-05-13T12:00:00
Executing Tweet Analysis for GRTS on 2022-05-13T12:00:00
Executing Tweet Analysis for ENERR on 2022-05-13T12:00:00
Executing Tweet Analysis for AGRI on 2022-05-13T12:00:00
Executing Tweet Analysis for ARBG on 2022-05-13T16:00:00
Executing Tweet Analysis for GNE on 2022-05-13T16:00:00
Executing Tweet Analysis for NVSA on 2022-05-13T16:00:00
Executing Tweet Analysis for TKNO on 2022-05-13T16:00:00
Executing Tweet Analysis for BRX on 2022-05-13T16:00:00
Executing Tweet Analysis for HUSN on 2022-05-13T16:00:00
Executing Tweet Analysis for XOMAO on 2022-05-13T16:00:00
Executing Tweet Analysis for MGRC on 2022-05-13T16:00:00
Executing Tweet Analysis for IAS on 2022-05-13T16:00:00
Executing Tweet Analysis for SCD on 2022-05-13T16:00:00
Executing Tweet Analysis for CFSB on 2022-05-13T16:00:00
Executing Tweet Analysis for GGGVR on 2022-05-13T16:00:00
Executing Tweet Analysis for ENO on 2022-05-13T16:00:00
Executing Tweet Analysis for MMX on 2022-05-13T16:00:00
Executing Tweet Analysis for TETCU on 2022-05-13T16:00:00
Executing Tweet Analysis for PYN on 2022-05-13T16:00:00
Executing Tweet Analysis for FRLA on 2022-05-13T16:00:00
Executing Tweet Analysis for PRTC on 2022-05-13T16:00:00
Executing Tweet Analysis for TBLA on 2022-05-13T16:00:00
Executing Tweet Analysis for COWN on 2022-05-13T16:00:00
Executing Tweet Analysis for GBX on 2022-05-13T16:00:00
Executing Tweet Analysis for NPCT on 2022-05-13T16:00:00
Executing Tweet Analysis for DECAU on 2022-05-13T16:00:00
Executing Tweet Analysis for DCRDW on 2022-05-13T16:00:00
Executing Tweet Analysis for JACK on 2022-05-13T16:00:00
Executing Tweet Analysis for PVL on 2022-05-13T16:00:00
Executing Tweet Analysis for KOP on 2022-05-13T16:00:00
Executing Tweet Analysis for IGACW on 2022-05-13T16:00:00
Executing Tweet Analysis for GRTS on 2022-05-13T16:00:00
Executing Tweet Analysis for ENERR on 2022-05-13T16:00:00
Executing Tweet Analysis for AGRI on 2022-05-13T16:00:00
Executing Tweet Analysis for ARBG on 2022-05-13T20:00:00
Executing Tweet Analysis for GNE on 2022-05-13T20:00:00
Executing Tweet Analysis for NVSA on 2022-05-13T20:00:00
Executing Tweet Analysis for TKNO on 2022-05-13T20:00:00
Executing Tweet Analysis for BRX on 2022-05-13T20:00:00
Executing Tweet Analysis for HUSN on 2022-05-13T20:00:00
Executing Tweet Analysis for XOMAO on 2022-05-13T20:00:00
Executing Tweet Analysis for MGRC on 2022-05-13T20:00:00
```

```
Executing Tweet Analysis for IAS on 2022-05-13T20:00:00
Executing Tweet Analysis for SCD on 2022-05-13T20:00:00
Executing Tweet Analysis for CFSB on 2022-05-13T20:00:00
Executing Tweet Analysis for GGGVR on 2022-05-13T20:00:00
Executing Tweet Analysis for ENO on 2022-05-13T20:00:00
Executing Tweet Analysis for MMX on 2022-05-13T20:00:00
Executing Tweet Analysis for TETCU on 2022-05-13T20:00:00
Executing Tweet Analysis for PYN on 2022-05-13T20:00:00
Executing Tweet Analysis for FRLA on 2022-05-13T20:00:00
Executing Tweet Analysis for PRTC on 2022-05-13T20:00:00
Executing Tweet Analysis for TBLA on 2022-05-13T20:00:00
Executing Tweet Analysis for COWN on 2022-05-13T20:00:00
Executing Tweet Analysis for GBX on 2022-05-13T20:00:00
Executing Tweet Analysis for NPCT on 2022-05-13T20:00:00
Executing Tweet Analysis for DECAU on 2022-05-13T20:00:00
Executing Tweet Analysis for DCRDW on 2022-05-13T20:00:00
Executing Tweet Analysis for JACK on 2022-05-13T20:00:00
Executing Tweet Analysis for PVL on 2022-05-13T20:00:00
Executing Tweet Analysis for KOP on 2022-05-13T20:00:00
Executing Tweet Analysis for IGACW on 2022-05-13T20:00:00
Executing Tweet Analysis for GRTS on 2022-05-13T20:00:00
Executing Tweet Analysis for ENERR on 2022-05-13T20:00:00
Executing Tweet Analysis for AGRI on 2022-05-13T20:00:00
Executing Tweet Analysis for ARBG on 2022-05-14T08:00:00
Executing Tweet Analysis for GNE on 2022-05-14T08:00:00
Executing Tweet Analysis for NVSA on 2022-05-14T08:00:00
Executing Tweet Analysis for TKNO on 2022-05-14T08:00:00
Executing Tweet Analysis for BRX on 2022-05-14T08:00:00
Executing Tweet Analysis for HUSN on 2022-05-14T08:00:00
Executing Tweet Analysis for XOMAO on 2022-05-14T08:00:00
Executing Tweet Analysis for MGRC on 2022-05-14T08:00:00
Executing Tweet Analysis for IAS on 2022-05-14T08:00:00
Executing Tweet Analysis for SCD on 2022-05-14T08:00:00
Executing Tweet Analysis for CFSB on 2022-05-14T08:00:00
Executing Tweet Analysis for GGGVR on 2022-05-14T08:00:00
Executing Tweet Analysis for ENO on 2022-05-14T08:00:00
Executing Tweet Analysis for MMX on 2022-05-14T08:00:00
Executing Tweet Analysis for TETCU on 2022-05-14T08:00:00
Executing Tweet Analysis for PYN on 2022-05-14T08:00:00
Executing Tweet Analysis for FRLA on 2022-05-14T08:00:00
Executing Tweet Analysis for PRTC on 2022-05-14T08:00:00
Executing Tweet Analysis for TBLA on 2022-05-14T08:00:00
Executing Tweet Analysis for COWN on 2022-05-14T08:00:00
Executing Tweet Analysis for GBX on 2022-05-14T08:00:00
Executing Tweet Analysis for NPCT on 2022-05-14T08:00:00
Executing Tweet Analysis for DECAU on 2022-05-14T08:00:00
Executing Tweet Analysis for DCRDW on 2022-05-14T08:00:00
Executing Tweet Analysis for JACK on 2022-05-14T08:00:00
Executing Tweet Analysis for PVL on 2022-05-14T08:00:00
Executing Tweet Analysis for KOP on 2022-05-14T08:00:00
Executing Tweet Analysis for IGACW on 2022-05-14T08:00:00
Executing Tweet Analysis for GRTS on 2022-05-14T08:00:00
Executing Tweet Analysis for ENERR on 2022-05-14T08:00:00
Executing Tweet Analysis for AGRI on 2022-05-14T08:00:00
Executing Tweet Analysis for ARBG on 2022-05-14T12:00:00
Executing Tweet Analysis for GNE on 2022-05-14T12:00:00
Executing Tweet Analysis for NVSA on 2022-05-14T12:00:00
Executing Tweet Analysis for TKNO on 2022-05-14T12:00:00
Executing Tweet Analysis for BRX on 2022-05-14T12:00:00
Executing Tweet Analysis for HUSN on 2022-05-14T12:00:00
Executing Tweet Analysis for XOMAO on 2022-05-14T12:00:00
Executing Tweet Analysis for MGRC on 2022-05-14T12:00:00
Executing Tweet Analysis for IAS on 2022-05-14T12:00:00
Executing Tweet Analysis for SCD on 2022-05-14T12:00:00
Executing Tweet Analysis for CFSB on 2022-05-14T12:00:00
Executing Tweet Analysis for GGGVR on 2022-05-14T12:00:00
```

```
Executing Tweet Analysis for ENO on 2022-05-14T12:00:00
Executing Tweet Analysis for MMX on 2022-05-14T12:00:00
Executing Tweet Analysis for TETCU on 2022-05-14T12:00:00
Executing Tweet Analysis for PYN on 2022-05-14T12:00:00
Executing Tweet Analysis for FRLA on 2022-05-14T12:00:00
Executing Tweet Analysis for PRTC on 2022-05-14T12:00:00
Executing Tweet Analysis for TBLA on 2022-05-14T12:00:00
Executing Tweet Analysis for COWN on 2022-05-14T12:00:00
Executing Tweet Analysis for GBX on 2022-05-14T12:00:00
Executing Tweet Analysis for NPCT on 2022-05-14T12:00:00
Executing Tweet Analysis for DECAU on 2022-05-14T12:00:00
Executing Tweet Analysis for DCRDW on 2022-05-14T12:00:00
Executing Tweet Analysis for JACK on 2022-05-14T12:00:00
Executing Tweet Analysis for PVL on 2022-05-14T12:00:00
Executing Tweet Analysis for KOP on 2022-05-14T12:00:00
Executing Tweet Analysis for IGACW on 2022-05-14T12:00:00
Executing Tweet Analysis for GRTS on 2022-05-14T12:00:00
Executing Tweet Analysis for ENERR on 2022-05-14T12:00:00
Executing Tweet Analysis for AGRI on 2022-05-14T12:00:00
Executing Tweet Analysis for ARBG on 2022-05-14T16:00:00
Executing Tweet Analysis for GNE on 2022-05-14T16:00:00
Executing Tweet Analysis for NVSA on 2022-05-14T16:00:00
Executing Tweet Analysis for TKNO on 2022-05-14T16:00:00
Executing Tweet Analysis for BRX on 2022-05-14T16:00:00
Executing Tweet Analysis for HUSN on 2022-05-14T16:00:00
Executing Tweet Analysis for XOMAO on 2022-05-14T16:00:00
Executing Tweet Analysis for MGRC on 2022-05-14T16:00:00
Executing Tweet Analysis for IAS on 2022-05-14T16:00:00
Executing Tweet Analysis for SCD on 2022-05-14T16:00:00
Executing Tweet Analysis for CFSB on 2022-05-14T16:00:00
Executing Tweet Analysis for GGGVR on 2022-05-14T16:00:00
Executing Tweet Analysis for ENO on 2022-05-14T16:00:00
Executing Tweet Analysis for MMX on 2022-05-14T16:00:00
Executing Tweet Analysis for TETCU on 2022-05-14T16:00:00
Executing Tweet Analysis for PYN on 2022-05-14T16:00:00
Executing Tweet Analysis for FRLA on 2022-05-14T16:00:00
Executing Tweet Analysis for PRTC on 2022-05-14T16:00:00
Executing Tweet Analysis for TBLA on 2022-05-14T16:00:00
Executing Tweet Analysis for COWN on 2022-05-14T16:00:00
Executing Tweet Analysis for GBX on 2022-05-14T16:00:00
Executing Tweet Analysis for NPCT on 2022-05-14T16:00:00
Executing Tweet Analysis for DECAU on 2022-05-14T16:00:00
Executing Tweet Analysis for DCRDW on 2022-05-14T16:00:00
Executing Tweet Analysis for JACK on 2022-05-14T16:00:00
Executing Tweet Analysis for PVL on 2022-05-14T16:00:00
Executing Tweet Analysis for KOP on 2022-05-14T16:00:00
Executing Tweet Analysis for IGACW on 2022-05-14T16:00:00
Executing Tweet Analysis for GRTS on 2022-05-14T16:00:00
Executing Tweet Analysis for ENERR on 2022-05-14T16:00:00
Executing Tweet Analysis for AGRI on 2022-05-14T16:00:00
Executing Tweet Analysis for ARBG on 2022-05-14T20:00:00
Executing Tweet Analysis for GNE on 2022-05-14T20:00:00
Executing Tweet Analysis for NVSA on 2022-05-14T20:00:00
Executing Tweet Analysis for TKNO on 2022-05-14T20:00:00
Executing Tweet Analysis for BRX on 2022-05-14T20:00:00
Executing Tweet Analysis for HUSN on 2022-05-14T20:00:00
Executing Tweet Analysis for XOMAO on 2022-05-14T20:00:00
Executing Tweet Analysis for MGRC on 2022-05-14T20:00:00
Executing Tweet Analysis for IAS on 2022-05-14T20:00:00
Executing Tweet Analysis for SCD on 2022-05-14T20:00:00
Executing Tweet Analysis for CFSB on 2022-05-14T20:00:00
Executing Tweet Analysis for GGGVR on 2022-05-14T20:00:00
Executing Tweet Analysis for ENO on 2022-05-14T20:00:00
Executing Tweet Analysis for MMX on 2022-05-14T20:00:00
Executing Tweet Analysis for TETCU on 2022-05-14T20:00:00
Executing Tweet Analysis for PYN on 2022-05-14T20:00:00
```

```
Executing Tweet Analysis for FRLA on 2022-05-14T20:00:00
Executing Tweet Analysis for PRTC on 2022-05-14T20:00:00
Executing Tweet Analysis for TBLA on 2022-05-14T20:00:00
Executing Tweet Analysis for COWN on 2022-05-14T20:00:00
Executing Tweet Analysis for GBX on 2022-05-14T20:00:00
Executing Tweet Analysis for NPCT on 2022-05-14T20:00:00
Executing Tweet Analysis for DECAU on 2022-05-14T20:00:00
Executing Tweet Analysis for DCRDW on 2022-05-14T20:00:00
Executing Tweet Analysis for JACK on 2022-05-14T20:00:00
Executing Tweet Analysis for PVL on 2022-05-14T20:00:00
Executing Tweet Analysis for KOP on 2022-05-14T20:00:00
Executing Tweet Analysis for IGACW on 2022-05-14T20:00:00
Executing Tweet Analysis for GRTS on 2022-05-14T20:00:00
Executing Tweet Analysis for ENERR on 2022-05-14T20:00:00
Executing Tweet Analysis for AGRI on 2022-05-14T20:00:00
```

In [13]:

```
 #Third Call due to Twitter Rate Limits
tweet_sentiments_3 = []
start_date = datetime(2022,5,15, 0,0,0)
end_date = datetime(2022,5,16, 0,0,0)

tweet_sentiments_3 = execute_tweet_sentiment_analysis(start_date, end_date)
```

```
Executing Tweet Analysis for ARBG on 2022-05-15T08:00:00
Executing Tweet Analysis for GNE on 2022-05-15T08:00:00
Executing Tweet Analysis for NVSA on 2022-05-15T08:00:00
Executing Tweet Analysis for TKNO on 2022-05-15T08:00:00
Executing Tweet Analysis for BRX on 2022-05-15T08:00:00
Executing Tweet Analysis for HUSN on 2022-05-15T08:00:00
Executing Tweet Analysis for XOMAO on 2022-05-15T08:00:00
Executing Tweet Analysis for MGRC on 2022-05-15T08:00:00
Executing Tweet Analysis for IAS on 2022-05-15T08:00:00
Executing Tweet Analysis for SCD on 2022-05-15T08:00:00
Executing Tweet Analysis for CFSB on 2022-05-15T08:00:00
Executing Tweet Analysis for GGGVR on 2022-05-15T08:00:00
Executing Tweet Analysis for ENO on 2022-05-15T08:00:00
Executing Tweet Analysis for MMX on 2022-05-15T08:00:00
Executing Tweet Analysis for TETCU on 2022-05-15T08:00:00
Executing Tweet Analysis for PYN on 2022-05-15T08:00:00
Executing Tweet Analysis for FRLA on 2022-05-15T08:00:00
Executing Tweet Analysis for PRTC on 2022-05-15T08:00:00
Executing Tweet Analysis for TBLA on 2022-05-15T08:00:00
Executing Tweet Analysis for COWN on 2022-05-15T08:00:00
Executing Tweet Analysis for GBX on 2022-05-15T08:00:00
Executing Tweet Analysis for NPCT on 2022-05-15T08:00:00
Executing Tweet Analysis for DECAU on 2022-05-15T08:00:00
Executing Tweet Analysis for DCRDW on 2022-05-15T08:00:00
Executing Tweet Analysis for JACK on 2022-05-15T08:00:00
Executing Tweet Analysis for PVL on 2022-05-15T08:00:00
Executing Tweet Analysis for KOP on 2022-05-15T08:00:00
Executing Tweet Analysis for IGACW on 2022-05-15T08:00:00
Executing Tweet Analysis for GRTS on 2022-05-15T08:00:00
Executing Tweet Analysis for ENERR on 2022-05-15T08:00:00
Executing Tweet Analysis for AGRI on 2022-05-15T08:00:00
Executing Tweet Analysis for ARBG on 2022-05-15T12:00:00
Executing Tweet Analysis for GNE on 2022-05-15T12:00:00
Executing Tweet Analysis for NVSA on 2022-05-15T12:00:00
Executing Tweet Analysis for TKNO on 2022-05-15T12:00:00
Executing Tweet Analysis for BRX on 2022-05-15T12:00:00
Executing Tweet Analysis for HUSN on 2022-05-15T12:00:00
Executing Tweet Analysis for XOMAO on 2022-05-15T12:00:00
Executing Tweet Analysis for MGRC on 2022-05-15T12:00:00
Executing Tweet Analysis for IAS on 2022-05-15T12:00:00
Executing Tweet Analysis for SCD on 2022-05-15T12:00:00
Executing Tweet Analysis for CFSB on 2022-05-15T12:00:00
```

```
Executing Tweet Analysis for GGGVR on 2022-05-15T12:00:00
Executing Tweet Analysis for ENO on 2022-05-15T12:00:00
Executing Tweet Analysis for MMX on 2022-05-15T12:00:00
Executing Tweet Analysis for TETCU on 2022-05-15T12:00:00
Executing Tweet Analysis for PYN on 2022-05-15T12:00:00
Executing Tweet Analysis for FRLA on 2022-05-15T12:00:00
Executing Tweet Analysis for PRTC on 2022-05-15T12:00:00
Executing Tweet Analysis for TBLA on 2022-05-15T12:00:00
Executing Tweet Analysis for COWN on 2022-05-15T12:00:00
Executing Tweet Analysis for GBX on 2022-05-15T12:00:00
Executing Tweet Analysis for NPCT on 2022-05-15T12:00:00
Executing Tweet Analysis for DECAU on 2022-05-15T12:00:00
Executing Tweet Analysis for DCRDW on 2022-05-15T12:00:00
Executing Tweet Analysis for JACK on 2022-05-15T12:00:00
Executing Tweet Analysis for PVL on 2022-05-15T12:00:00
Executing Tweet Analysis for KOP on 2022-05-15T12:00:00
Executing Tweet Analysis for IGACW on 2022-05-15T12:00:00
Executing Tweet Analysis for GRTS on 2022-05-15T12:00:00
Executing Tweet Analysis for ENERR on 2022-05-15T12:00:00
Executing Tweet Analysis for AGRI on 2022-05-15T12:00:00
Executing Tweet Analysis for ARBG on 2022-05-15T16:00:00
Executing Tweet Analysis for GNE on 2022-05-15T16:00:00
Executing Tweet Analysis for NVSA on 2022-05-15T16:00:00
Executing Tweet Analysis for TKNO on 2022-05-15T16:00:00
Executing Tweet Analysis for BRX on 2022-05-15T16:00:00
Executing Tweet Analysis for HUSN on 2022-05-15T16:00:00
Executing Tweet Analysis for XOMAO on 2022-05-15T16:00:00
Executing Tweet Analysis for MGRC on 2022-05-15T16:00:00
Executing Tweet Analysis for IAS on 2022-05-15T16:00:00
Executing Tweet Analysis for SCD on 2022-05-15T16:00:00
Executing Tweet Analysis for CFSB on 2022-05-15T16:00:00
Executing Tweet Analysis for GGGVR on 2022-05-15T16:00:00
Executing Tweet Analysis for ENO on 2022-05-15T16:00:00
Executing Tweet Analysis for MMX on 2022-05-15T16:00:00
Executing Tweet Analysis for TETCU on 2022-05-15T16:00:00
Executing Tweet Analysis for PYN on 2022-05-15T16:00:00
Executing Tweet Analysis for FRLA on 2022-05-15T16:00:00
Executing Tweet Analysis for PRTC on 2022-05-15T16:00:00
Executing Tweet Analysis for TBLA on 2022-05-15T16:00:00
Executing Tweet Analysis for COWN on 2022-05-15T16:00:00
Executing Tweet Analysis for GBX on 2022-05-15T16:00:00
Executing Tweet Analysis for NPCT on 2022-05-15T16:00:00
Executing Tweet Analysis for DECAU on 2022-05-15T16:00:00
Executing Tweet Analysis for DCRDW on 2022-05-15T16:00:00
Executing Tweet Analysis for JACK on 2022-05-15T16:00:00
Executing Tweet Analysis for PVL on 2022-05-15T16:00:00
Executing Tweet Analysis for KOP on 2022-05-15T16:00:00
Executing Tweet Analysis for IGACW on 2022-05-15T16:00:00
Executing Tweet Analysis for GRTS on 2022-05-15T16:00:00
Executing Tweet Analysis for ENERR on 2022-05-15T16:00:00
Executing Tweet Analysis for AGRI on 2022-05-15T16:00:00
Executing Tweet Analysis for ARBG on 2022-05-15T20:00:00
Executing Tweet Analysis for GNE on 2022-05-15T20:00:00
Executing Tweet Analysis for NVSA on 2022-05-15T20:00:00
Executing Tweet Analysis for TKNO on 2022-05-15T20:00:00
Executing Tweet Analysis for BRX on 2022-05-15T20:00:00
Executing Tweet Analysis for HUSN on 2022-05-15T20:00:00
Executing Tweet Analysis for XOMAO on 2022-05-15T20:00:00
Executing Tweet Analysis for MGRC on 2022-05-15T20:00:00
Executing Tweet Analysis for IAS on 2022-05-15T20:00:00
Executing Tweet Analysis for SCD on 2022-05-15T20:00:00
Executing Tweet Analysis for CFSB on 2022-05-15T20:00:00
Executing Tweet Analysis for GGGVR on 2022-05-15T20:00:00
Executing Tweet Analysis for ENO on 2022-05-15T20:00:00
Executing Tweet Analysis for MMX on 2022-05-15T20:00:00
Executing Tweet Analysis for TETCU on 2022-05-15T20:00:00
```

```
Executing Tweet Analysis for PYN on 2022-05-15T20:00:00
Executing Tweet Analysis for FRLA on 2022-05-15T20:00:00
Executing Tweet Analysis for PRTC on 2022-05-15T20:00:00
Executing Tweet Analysis for TBLA on 2022-05-15T20:00:00
Executing Tweet Analysis for COWN on 2022-05-15T20:00:00
Executing Tweet Analysis for GBX on 2022-05-15T20:00:00
Executing Tweet Analysis for NPCT on 2022-05-15T20:00:00
Executing Tweet Analysis for DECAU on 2022-05-15T20:00:00
Executing Tweet Analysis for DCRDW on 2022-05-15T20:00:00
Executing Tweet Analysis for JACK on 2022-05-15T20:00:00
Executing Tweet Analysis for PVL on 2022-05-15T20:00:00
Executing Tweet Analysis for KOP on 2022-05-15T20:00:00
Executing Tweet Analysis for IGACW on 2022-05-15T20:00:00
Executing Tweet Analysis for GRTS on 2022-05-15T20:00:00
Executing Tweet Analysis for ENERR on 2022-05-15T20:00:00
Executing Tweet Analysis for AGRI on 2022-05-15T20:00:00
```

In [15]:

```
 #Fourth Call due to Twitter Rate Limits
tweet_sentiments_4 = []
start_date = datetime(2022,5,16, 0,0,0)
end_date = datetime(2022,5,17, 0,0,0)

tweet_sentiments_4 = execute_tweet_sentiment_analysis(start_date, end_date)
```

```
Executing Tweet Analysis for ARBG on 2022-05-16T08:00:00
Executing Tweet Analysis for GNE on 2022-05-16T08:00:00
Executing Tweet Analysis for NVSA on 2022-05-16T08:00:00
Executing Tweet Analysis for TKNO on 2022-05-16T08:00:00
Executing Tweet Analysis for BRX on 2022-05-16T08:00:00
Executing Tweet Analysis for HUSN on 2022-05-16T08:00:00
Executing Tweet Analysis for XOMAO on 2022-05-16T08:00:00
Executing Tweet Analysis for MGRC on 2022-05-16T08:00:00
Executing Tweet Analysis for IAS on 2022-05-16T08:00:00
Executing Tweet Analysis for SCD on 2022-05-16T08:00:00
Executing Tweet Analysis for CFSB on 2022-05-16T08:00:00
Executing Tweet Analysis for GGGVR on 2022-05-16T08:00:00
Executing Tweet Analysis for ENO on 2022-05-16T08:00:00
Executing Tweet Analysis for MMX on 2022-05-16T08:00:00
Executing Tweet Analysis for TETCU on 2022-05-16T08:00:00
Executing Tweet Analysis for PYN on 2022-05-16T08:00:00
Executing Tweet Analysis for FRLA on 2022-05-16T08:00:00
Executing Tweet Analysis for PRTC on 2022-05-16T08:00:00
Executing Tweet Analysis for TBLA on 2022-05-16T08:00:00
Executing Tweet Analysis for COWN on 2022-05-16T08:00:00
Executing Tweet Analysis for GBX on 2022-05-16T08:00:00
Executing Tweet Analysis for NPCT on 2022-05-16T08:00:00
Executing Tweet Analysis for DECAU on 2022-05-16T08:00:00
Executing Tweet Analysis for DCRDW on 2022-05-16T08:00:00
Executing Tweet Analysis for JACK on 2022-05-16T08:00:00
Executing Tweet Analysis for PVL on 2022-05-16T08:00:00
Executing Tweet Analysis for KOP on 2022-05-16T08:00:00
Executing Tweet Analysis for IGACW on 2022-05-16T08:00:00
Executing Tweet Analysis for GRTS on 2022-05-16T08:00:00
Executing Tweet Analysis for ENERR on 2022-05-16T08:00:00
Executing Tweet Analysis for AGRI on 2022-05-16T08:00:00
Executing Tweet Analysis for ARBG on 2022-05-16T12:00:00
Executing Tweet Analysis for GNE on 2022-05-16T12:00:00
Executing Tweet Analysis for NVSA on 2022-05-16T12:00:00
Executing Tweet Analysis for TKNO on 2022-05-16T12:00:00
Executing Tweet Analysis for BRX on 2022-05-16T12:00:00
Executing Tweet Analysis for HUSN on 2022-05-16T12:00:00
Executing Tweet Analysis for XOMAO on 2022-05-16T12:00:00
Executing Tweet Analysis for MGRC on 2022-05-16T12:00:00
Executing Tweet Analysis for IAS on 2022-05-16T12:00:00
Executing Tweet Analysis for SCD on 2022-05-16T12:00:00
```

```
Executing Tweet Analysis for CFSB on 2022-05-16T12:00:00
Executing Tweet Analysis for GGGVR on 2022-05-16T12:00:00
Executing Tweet Analysis for ENO on 2022-05-16T12:00:00
Executing Tweet Analysis for MMX on 2022-05-16T12:00:00
Executing Tweet Analysis for TETCU on 2022-05-16T12:00:00
Executing Tweet Analysis for PYN on 2022-05-16T12:00:00
Executing Tweet Analysis for FRLA on 2022-05-16T12:00:00
Executing Tweet Analysis for PRTC on 2022-05-16T12:00:00
Executing Tweet Analysis for TBLA on 2022-05-16T12:00:00
Executing Tweet Analysis for COWN on 2022-05-16T12:00:00
Executing Tweet Analysis for GBX on 2022-05-16T12:00:00
Executing Tweet Analysis for NPCT on 2022-05-16T12:00:00
Executing Tweet Analysis for DECAU on 2022-05-16T12:00:00
Executing Tweet Analysis for DCRDW on 2022-05-16T12:00:00
Executing Tweet Analysis for JACK on 2022-05-16T12:00:00
Executing Tweet Analysis for PVL on 2022-05-16T12:00:00
Executing Tweet Analysis for KOP on 2022-05-16T12:00:00
Executing Tweet Analysis for IGACW on 2022-05-16T12:00:00
Executing Tweet Analysis for GRTS on 2022-05-16T12:00:00
Executing Tweet Analysis for ENERR on 2022-05-16T12:00:00
Executing Tweet Analysis for AGRI on 2022-05-16T12:00:00
Executing Tweet Analysis for ARBG on 2022-05-16T16:00:00
Executing Tweet Analysis for GNE on 2022-05-16T16:00:00
Executing Tweet Analysis for NVSA on 2022-05-16T16:00:00
Executing Tweet Analysis for TKNO on 2022-05-16T16:00:00
Executing Tweet Analysis for BRX on 2022-05-16T16:00:00
Executing Tweet Analysis for HUSN on 2022-05-16T16:00:00
Executing Tweet Analysis for XOMAO on 2022-05-16T16:00:00
Executing Tweet Analysis for MGRC on 2022-05-16T16:00:00
Executing Tweet Analysis for IAS on 2022-05-16T16:00:00
Executing Tweet Analysis for SCD on 2022-05-16T16:00:00
Executing Tweet Analysis for CFSB on 2022-05-16T16:00:00
Executing Tweet Analysis for GGGVR on 2022-05-16T16:00:00
Executing Tweet Analysis for ENO on 2022-05-16T16:00:00
Executing Tweet Analysis for MMX on 2022-05-16T16:00:00
Executing Tweet Analysis for TETCU on 2022-05-16T16:00:00
Executing Tweet Analysis for PYN on 2022-05-16T16:00:00
Executing Tweet Analysis for FRLA on 2022-05-16T16:00:00
Executing Tweet Analysis for PRTC on 2022-05-16T16:00:00
Executing Tweet Analysis for TBLA on 2022-05-16T16:00:00
Executing Tweet Analysis for COWN on 2022-05-16T16:00:00
Executing Tweet Analysis for GBX on 2022-05-16T16:00:00
Executing Tweet Analysis for NPCT on 2022-05-16T16:00:00
Executing Tweet Analysis for DECAU on 2022-05-16T16:00:00
Executing Tweet Analysis for DCRDW on 2022-05-16T16:00:00
Executing Tweet Analysis for JACK on 2022-05-16T16:00:00
Executing Tweet Analysis for PVL on 2022-05-16T16:00:00
Executing Tweet Analysis for KOP on 2022-05-16T16:00:00
Executing Tweet Analysis for IGACW on 2022-05-16T16:00:00
Executing Tweet Analysis for GRTS on 2022-05-16T16:00:00
Executing Tweet Analysis for ENERR on 2022-05-16T16:00:00
Executing Tweet Analysis for AGRI on 2022-05-16T16:00:00
Executing Tweet Analysis for ARBG on 2022-05-16T20:00:00
Executing Tweet Analysis for GNE on 2022-05-16T20:00:00
Executing Tweet Analysis for NVSA on 2022-05-16T20:00:00
Executing Tweet Analysis for TKNO on 2022-05-16T20:00:00
Executing Tweet Analysis for BRX on 2022-05-16T20:00:00
Executing Tweet Analysis for HUSN on 2022-05-16T20:00:00
Executing Tweet Analysis for XOMAO on 2022-05-16T20:00:00
Executing Tweet Analysis for MGRC on 2022-05-16T20:00:00
Executing Tweet Analysis for IAS on 2022-05-16T20:00:00
Executing Tweet Analysis for SCD on 2022-05-16T20:00:00
Executing Tweet Analysis for CFSB on 2022-05-16T20:00:00
Executing Tweet Analysis for GGGVR on 2022-05-16T20:00:00
Executing Tweet Analysis for ENO on 2022-05-16T20:00:00
Executing Tweet Analysis for MMX on 2022-05-16T20:00:00
```

```
Executing Tweet Analysis for TETCU on 2022-05-16T20:00:00
Executing Tweet Analysis for PYN on 2022-05-16T20:00:00
Executing Tweet Analysis for FRLA on 2022-05-16T20:00:00
Executing Tweet Analysis for PRTC on 2022-05-16T20:00:00
Executing Tweet Analysis for TBLA on 2022-05-16T20:00:00
Executing Tweet Analysis for COWN on 2022-05-16T20:00:00
Executing Tweet Analysis for GBX on 2022-05-16T20:00:00
Executing Tweet Analysis for NPCT on 2022-05-16T20:00:00
Executing Tweet Analysis for DECAU on 2022-05-16T20:00:00
Executing Tweet Analysis for DCRDW on 2022-05-16T20:00:00
Executing Tweet Analysis for JACK on 2022-05-16T20:00:00
Executing Tweet Analysis for PVL on 2022-05-16T20:00:00
Executing Tweet Analysis for KOP on 2022-05-16T20:00:00
Executing Tweet Analysis for IGACW on 2022-05-16T20:00:00
Executing Tweet Analysis for GRTS on 2022-05-16T20:00:00
Executing Tweet Analysis for ENERR on 2022-05-16T20:00:00
Executing Tweet Analysis for AGRI on 2022-05-16T20:00:00
```

In [17]:

```
tweet_sentiments_all = tweet_sentiments + tweet_sentiments_2 + tweet_sentiments_3 + tweet_
len(tweet_sentiments_all)
```

Out[17]:

```
713
```

In [18]:

```
#Initialise DataFrame from tweet sentiments
stock_tweet_sentiment_df = pd.DataFrame(tweet_sentiments_all)

#Change the date format to include TZ information to align ALPACA output from previous no
stock_tweet_sentiment_df = stock_tweet_sentiment_df.set_index("Date")
stock_tweet_sentiment_df.index = stock_tweet_sentiment_df.index.tz_localize("UTC")

stock_tweet_sentiment_df = stock_tweet_sentiment_df.reset_index()
```

In [19]:

```
stock_tweet_sentiment_df
```

Out[19]:

	Date	Ticker	Sentiment_Score
0	2022-05-11 12:00:00+00:00	ARBG	0.000000
1	2022-05-11 12:00:00+00:00	GNE	0.000000
2	2022-05-11 12:00:00+00:00	NVSA	0.000000
3	2022-05-11 12:00:00+00:00	TKNO	0.000000
4	2022-05-11 12:00:00+00:00	BRX	0.000000
...	...	...	...
708	2022-05-16 20:00:00+00:00	KOP	-0.004660
709	2022-05-16 20:00:00+00:00	IGACW	0.139300
710	2022-05-16 20:00:00+00:00	GRTS	0.080411
711	2022-05-16 20:00:00+00:00	ENERR	0.113333
712	2022-05-16 20:00:00+00:00	AGRI	0.104030

713 rows × 3 columns

In [20]:

```
stock_tweet_sentiment_df = stock_tweet_sentiment_df.sort_values(by=["Ticker", "Date"])
#stock_tweet_sentiment_df = stock_tweet_sentiment_df.reset_index()
stock_tweet_sentiment_df
```

Out[20]:

	Date	Ticker	Sentiment_Score
30	2022-05-11 12:00:00+00:00	AGRI	0.000000
61	2022-05-11 16:00:00+00:00	AGRI	0.100719
92	2022-05-11 20:00:00+00:00	AGRI	0.103330
123	2022-05-12 08:00:00+00:00	AGRI	0.063434
154	2022-05-12 12:00:00+00:00	AGRI	0.008716
...	...	...	...
564	2022-05-15 20:00:00+00:00	XOMAO	-0.401900
595	2022-05-16 08:00:00+00:00	XOMAO	-0.401900
626	2022-05-16 12:00:00+00:00	XOMAO	-0.401900
657	2022-05-16 16:00:00+00:00	XOMAO	-0.401900
688	2022-05-16 20:00:00+00:00	XOMAO	-0.401900

713 rows × 3 columns

In [21]:

```
stock_tweet_sentiment_df.to_csv("Data/stock_tweet_sentiment.csv")
```