STOCK-SENTIMENT ANALYSIS

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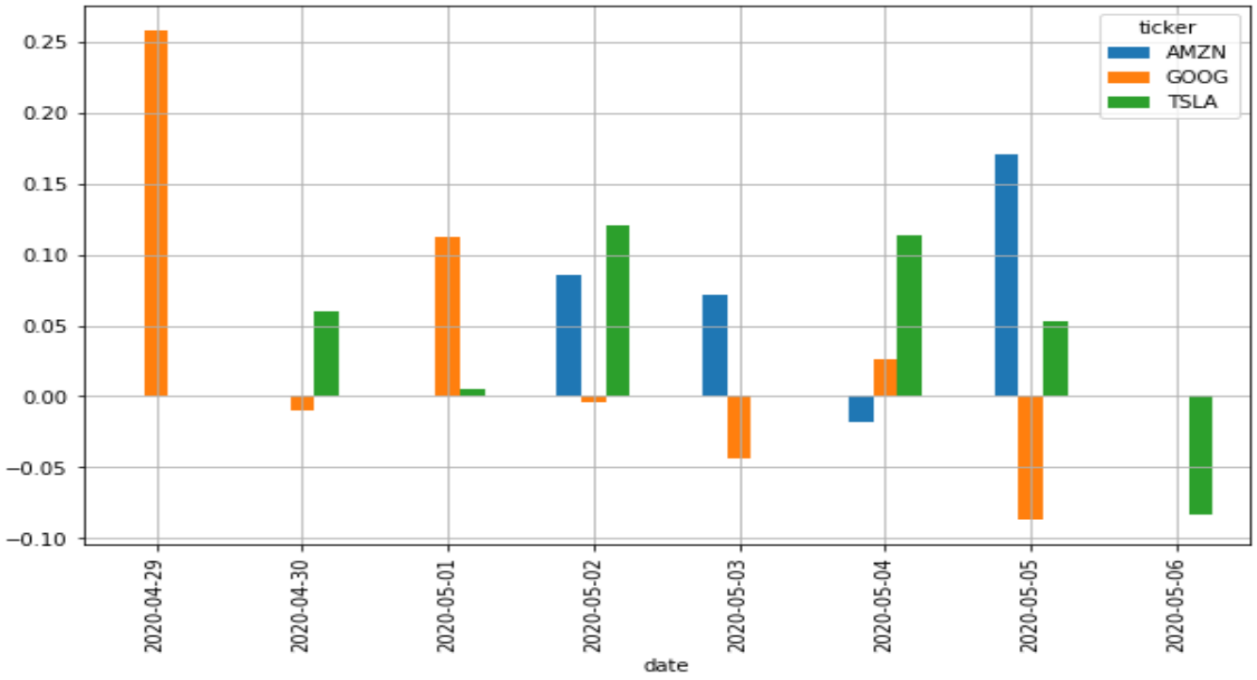
CSE,Final Year

Sentiment analysis combines the understanding of semantics and symbolic representations of language. The algorithm will learn from labeled data and predict the label of new/unseen data points. This approach is called supervised learning, as we train our model with a corpus of labeled news.



METHODOLOGY:

- All required libraries include

```
## import all required libraries
import numpy as np
import matplotlib.pyplot as plt
import pandas as pd
from sklearn.metrics import classification_report,confusion_matrix,accuracy_score
from sklearn.feature_extraction.text import CountVectorizer
from sklearn.svm import SVC
```

- Then I include dataset file data.csv
- File will contain date,news and target variable **'label'**

```
## include the dataset
dataset = pd.read_csv("Data.csv")
dataset.shape
```

```
(4101, 27)
```

```
dataset.head()
```

- Then split the dataset into tranning and testing phase on the basis of **date.**
- Tranning data train the model and model perform on testing data

```
#split the train and test data according to date
#from sklearn.model_selection import train_test_split
#train,test = train_test_split(dataset,test_size=0.1,random_state=0)
train = dataset[dataset['Date'] < '20150101']
test = dataset[dataset['Date'] > '20141231']
train.shape
```

- After that clean the dataset (remove everything apart letter from a-z or A-Z).
- Change the column name and all words change to lower words for **bow** model

```
# cleaning the data
data=train.iloc[:,2:27]
data.replace("[^a-zA-Z]"," ",regex=True, inplace=True)
# change the column names
list1= [i for i in range(25)]
new_Index=[str(i) for i in list1]
data.columns= new_Index
data.head()
# Convertng headlines to lower case
for index in new_Index:
    data[index]=data[index].str.lower()
data.head()
```

- Combine all the news headlines in one paragraph for indivisual date.

```
headlines = []
for row in range(0,len(data.index)):
    headlines.append(' '.join(str(x) for x in data.iloc[row,0:25]))
```

```
headlines[1]
```

- Then implement bag of words model using countvectorizer and put all **unique** words

In the bag. N_gram range represent what type of ngram used in the bag of words model.

- We use **SVM** classifier to classify the data into two category. **Label-0**

  Describe decrasing of stock price and **Label-1** describe increasing of stock price.

```
## implement BAG OF WORDS
countvector=CountVectorizer(ngram_range=(2,2))
traindataset=countvector.fit_transform(headlines)
# implement SVM Classifier
svclassifier = SVC(kernel='linear')
svclassifier.fit(traindataset,train['Label'])
```

- Predict the test dataset According to the trained model by the use of bow and svm classifier into two classes.

```
##Predict for the Test Dataset
test_transform= []
for row in range(0,len(test.index)):
    test_transform.append(' '.join(str(x) for x in test.iloc[row,2:27]))
test_dataset = countvector.transform(test_transform)
predictions = svclassifier.predict(test_dataset)
print(predictions)
```

- Evaluation of model
- After creation of model we find the peformance of model Ex. Accuracy,F1_measure and report.Accuracy of this model is 86%.

```
#find accuracy of model
matrix=confusion_matrix(test['Label'],predictions)
print(matrix)
score=accuracy_score(test['Label'],predictions)
print(score)
report=classification_report(test['Label'],predictions)
print(report)
```

Instructions to Run:

- Some libraries such as numpy , sklearn etc. Required for run the stock_sentiment.ipynb file.
- Open the file in jupyter notebook
- After Run all the code step by step and find output.
- For more details pls refer to https://github.com/harry-v528/Stock_sentiment-analysis.