

STOCK PRICES PREDICTION USING MACHINE LEARNING TECHNIQUES

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ABSTRACT

Stock Market Prediction is a platform where an enormous amount of data exists and constantly needs to be scrutinized. Traditional stock market prediction models are based on analysis of historical data. Stock Market Prediction are based on social media is an intriguing field of research. Positive tweets and news in social media encourage people to invest in the stocks of the company, thereby increasing the stock price of the company. Data sets are big that it is difficult to analyze them using traditional data Preprocessing applications. We can extract the useful information to an understandable structure using machine learning. Using Deep Learning algorithms, and Sentiment Analysis as the approaches.

Keywords: Stock Market, Datasets, Data Preprocessing, Stock, Machine Learning.

I. INTRODUCTION

Stock market prediction is the act of determining the financial value of a company or other financial instrument. Prediction methodologies fall into three broad categories which can overlap such as Fundamental analysis, Technical analysis (charting) and Technological methods. Traditional short term models are usually based on analysis of historical market data. The efficient market hypothesis (EMH) states that financial market movements depend on news, current events and product releases. Twitter is a micro-blogging application that allows users to follow and comment other user thoughts or share their opinion in real time. The most prominent technique involves the use of artificial neural networks (ANNs), Genetic Algorithms (GAs) and Sentimental Analysis.

II. METHODOLOGY

Yahoo! Finance is a media property that is part of Yahoo!'s network. We have used Yahoo! Finance to get the historic data of the company, using this data we will predict the price of the company stock given a date. The prediction can be done by any of described algorithms based on the accuracy.

Tweepy Twitter is a popular social network where users share messages called tweets. The data will be tweets extracted from the user. The first thing to do is to get the consumer key, consumer secret, access key and access secret from twitter developer which will be available easily. We perform sentimental analysis on the mined data from the twitter using the TextBlob Python library



Figure 1: Twitter Analytics

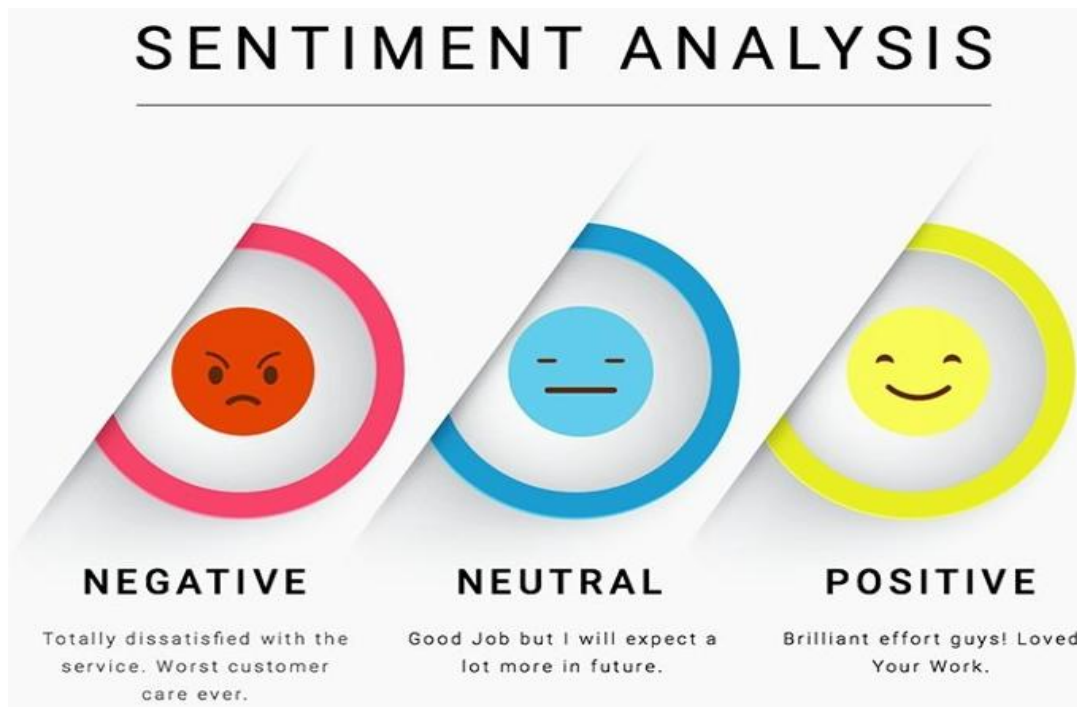
TextBlob is a Python library for processing textual data. It provides a simple API for diving into common natural language processing (NLP) tasks such as part – of - speech tagging, noun phrase extraction, sentiment analysis, classification translation, and more.



Figure 2 : TextBlob

Sentimental analysis using TextBlob

TextBlob has a built in sentiment analyser using which we can predict the sentiment of individual towards the company .we use analysis. Sentiment, polarity (i.e -1,0,1)



The obtained sentiment can be visualised using a pie-chart

Here is an example of sentiment analysis of TCS company stock. This is a real time plot and does not collide with historic data, the sentiments are used to understand the company’s moral in the society

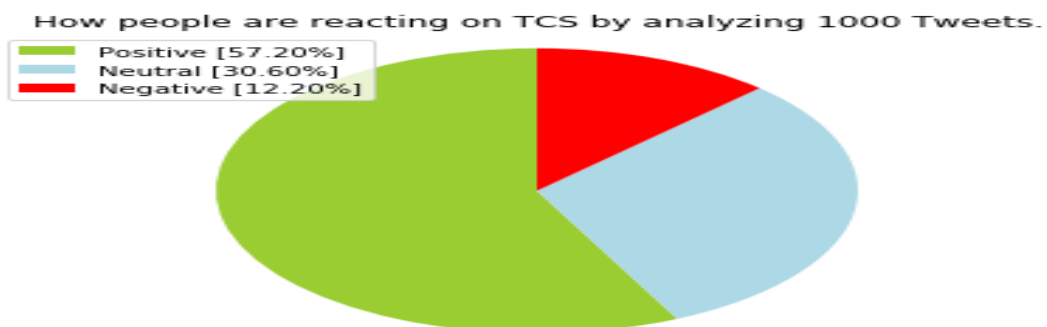


Figure 3: Pie-chart

III. RESULTS AND DISCUSSION

In the following graphs blue line is the line plotted from actual values and black line is the line plotted from the predicted values. This is done only using the historical values.

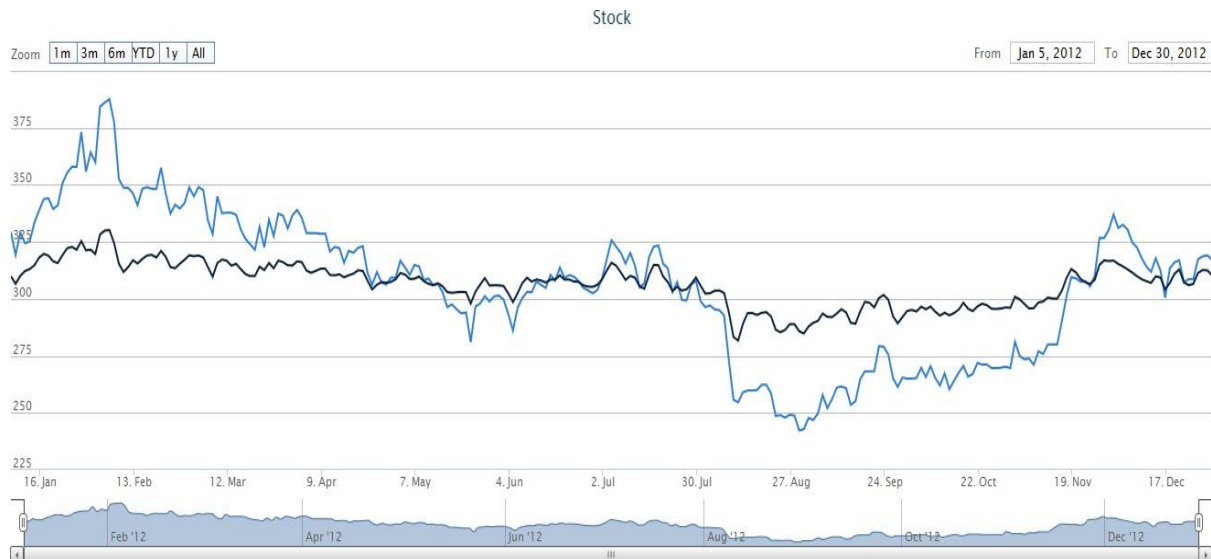


Fig 4: Prediction for the year of 2012 Stock – Airtel.

IV. CONCLUSION

In our project, we are able to predict the price and sentiment of an individual towards a particular company stock. By this, we are able to bring profit to the investment made on a stock. Stock market is unpredictable, many factors affect the price of the stock so our project is able to predict with only definite number of accuracy.

V. REFERENCES

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