

STOCK MARKET PREDICTION

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Abstract: A web application that helps newcomers to invest into the stock market. We use Sentiment Analysis to understand the current trend of a particular stock. This app provides stock data from all over the world, for users to select from. It shows the possible chances of stock to fall or rise and give recommendations as needed. It uses machine learning algorithms like NLP, Naive Bayes to understand public opinions. The web app also provides historical price charts for the particular stock.

Keywords: Sentiment Analysis, Public Review, NLP (Natural Language Processing), Naïve Bayes.

I. INTRODUCTION

Stock Market Prediction is the act of trying to determine the future value of a company stock or other financial instruments traded on an exchange. Stock Market Prediction can be successful of a stock's future price that could be significant profit. The stock market prediction is a very important part of the economy. It can play a role in the growth and commerce of the country which will affect the economy. The stock market prediction which is based on the demand and supply. If the company's stock market for demand is high then the company of share price will increase otherwise it decreases.

The stock market prediction is the way to find the future value of a company's shares has been traded. It depends upon public opinion news articles, on a particular company or stock. For e.g. We can get these opinions from various sources like Google trends, Facebook, Twitter, etc. After working on it, the result will guide users to decide whether to buy, sell or hold stocks.

The Stock Market Prediction methods which has include three types of following categories are:

1. Fundamental Analysis
2. Technical Analysis
3. Technological Methods

1. Fundamental Analysis:-

Fundamental Analysts are concerned with the company that underlies the stock itself. They evaluate a company's past performance as well as the credibility of its accounts. Many performance ratios are created that aid the fundamental analyst with assessing the validity of a stock, such as the P/E ratio. Warren Buffett is perhaps the most famous of all Fundamental Analysts.

What fundamental analysis in the stock market is trying to achieve, is finding out the true value of a stock, which then can be compared with the value it is being traded with on stock markets and therefore finding out whether the stock on the market is undervalued or not.

2. Technical Analysis:-

Technical analysts or chartists are not concerned with any of the company's fundamentals. They seek to determine the future price of a stock based solely on the trends of the past price (a form of time series analysis). Numerous patterns are employed such as the head and shoulders or cup and saucer.

There are some basic assumptions used in this analysis, first being that everything significant about a company is already priced into the stock.

3. Technological Methods

With the advent of the digital computer, stock market prediction has since moved into the technological realm. The most prominent technique involves the use of artificial neural networks (ANNs) and Genetic Algorithms (GA).

II. LITRATURE SURVEY

Phichhang Ou and Hengshan Wang can apply ten different data mining techniques to predict the price movement of the Hang Seng index of Hong Kong stock market. Quadratic discriminant analysis (QDA), Linear discriminant analysis (LDA), Naive Bayes based on kernel estimation, K-nearest neighbour classification, neural network, Tree based classification, Support vector machine (SVM), Bayesian classification with Gaussian process.

Binoy B. Nair, N.Mohana Dharini and V.P. Mohandas proposed an auto stock market trend system for prediction of the stock market. Automated stock market trend prediction system is proposed by using decision tree adaptive neuro-fuzzy hybrid system. They can be used to different techniques like technical analysis and decision trees. First technical analysis which is generally used by stock traders for feature extraction and second decision tree for feature selection.

A.E Hassanien can be proposed a generic rough set model using data set consisting of daily variations of a stock traded by gulf-bank of Kuwait. The main objective is to modify the existing rough set and build new models that reduce the number of decision rules. They created an information table containing the set of market indicators like is closing, high low price, trade, value, etc.

OBJECTIVE

- Identifying factors affecting the share market.
- Predicting approximate value of share price.
- Providing analysis and suggestion to users through the web application.

MOTIVATION

The motivation for Stock Market Prediction is that there are many theoretical and experimental challenges. The most important part of stock market prediction is Efficient Market Hypothesis (EMH). Efficient market hypothesis suggests that stock prices will be reflected in all information which is currently available. Any of the changing prices that are not based on newly revealed information thus are unpredictable. The EMH has stock market prices which are information which is available for market its constituents. For e.g. The biggest exchange for the stock market is the New York Stock Exchange.

There are many industries and companies, which contain large sets of data which are very difficult to extract the information and analyze manual work. Stock market prediction can be revealing the market patterns and predicts the time to the purchasing stocks.

III. PROPOSED SYSTEM

A. Architectural design

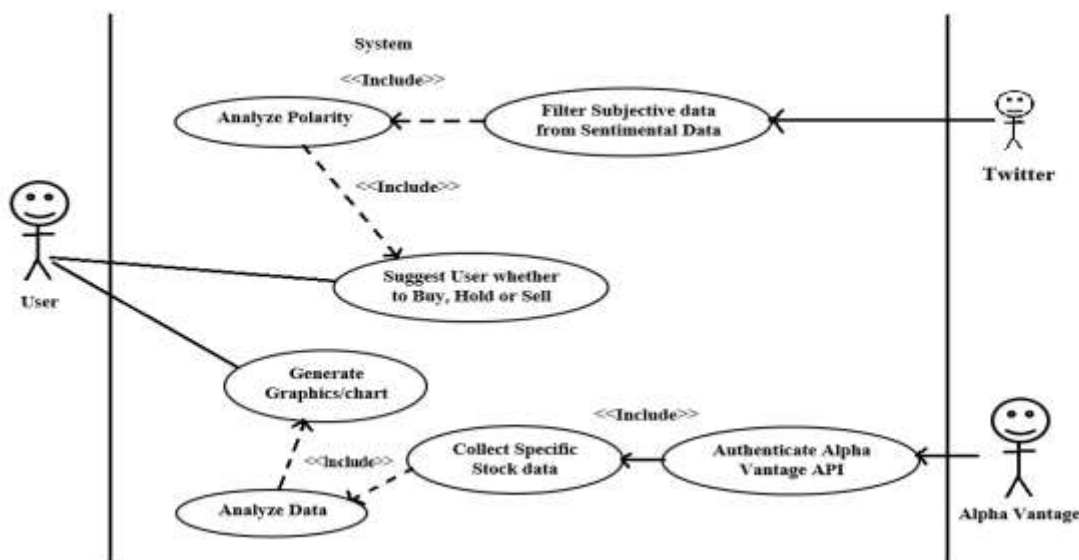


Fig. 1 Use case diagram

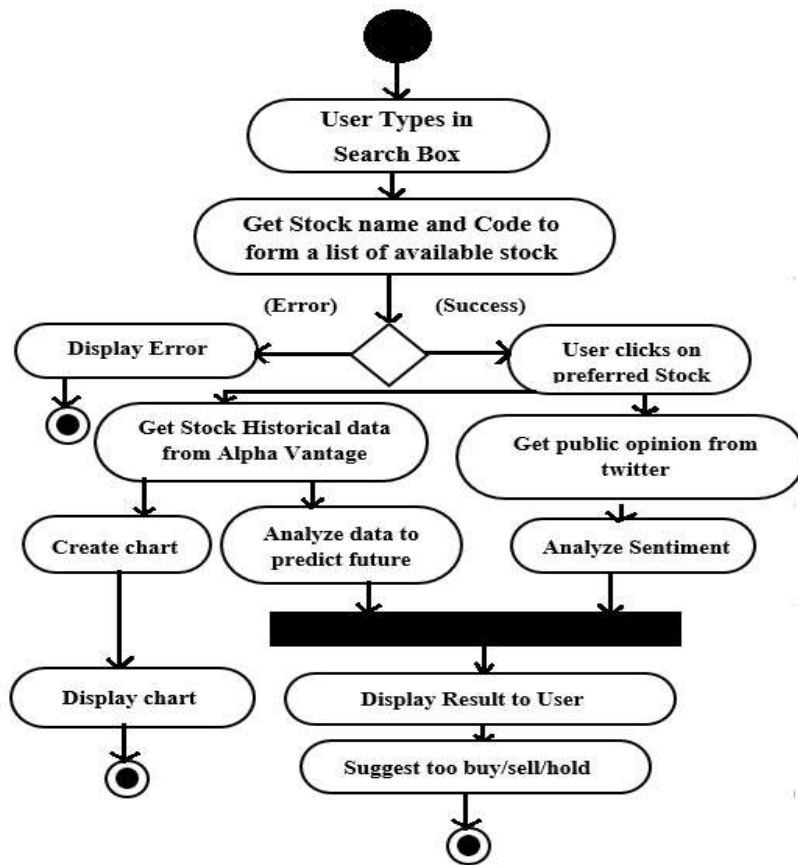


Fig. 2 Activity diagram

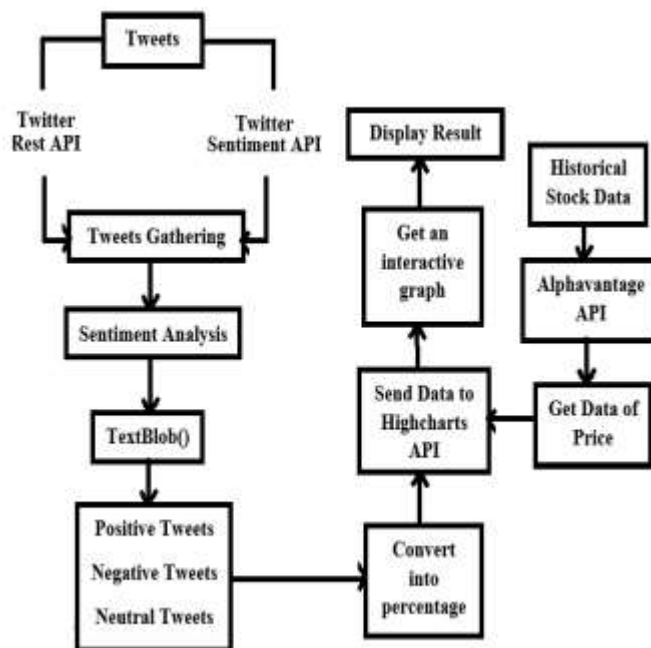


Fig. 3 System Architecture

Above figure shows the proposed architecture of the system. In our system, users will have to open our web app in their browser. Then the user will have to start typing their preferred stock, and the system will automatically generate a list of most relevant stocks. Then he/she has to click on the particular stock they were looking for.

After this, the system will gather data from Twitter for public opinion. It will then calculate ratio among positive, negative and neutral tweets. This data is then sent to Highcharts API, that will generate a pie chart of buy, sell, and hold that will be displayed at frontend.

On the other hand the same stock search will fetch historical price data from Alpha Vantage API. And using that data a OHCL chart will be displayed to users. All this will help investors to easily decide whether to buy, sell or hold stock.

CONCLUSION

Determining stock market value has always been challenging work. So, this project applies the sentiment analysis technique to predict stock price. And as a huge amount of public data is gathered, the system almost provides correct result.

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