

# Stock Price Prediction Using Sentiment Analysis and Historic Data of Stock

Abhishek Karpe<sup>1</sup>, Punit Bandal<sup>2</sup>, Sarthkee Waghchaure<sup>3</sup>, Tanmay Deore<sup>4</sup>, Prof. Vidya Jagtap<sup>5</sup>

<sup>1-5</sup>Department of Information Technology, JSPM's BSIOTR, Wagholi, Savitribai Phule Pune University, Pune, Maharashtra, India.

\*\*\*

**Abstract** -Predicting stock exchange movements may be a well-known problem of interest. Now, a day's social media is perfectly representing the general public sentiment and opinion about current events. Especially, Twitter has attracted lots of attention from researchers for studying the general public sentiments. Predicting exchange based on audience sentiments expressed on Twitter has been an intriguing area of research. The approach through sentimental analysis is to look at how well the changes in available prices i.e. the increase and fall are correlated to the opinion of individuals that are expressed by them on Twitter.

Sentimental analysis helps in analyzing the general public sentiments on Twitter; this approach is our approach through using make of sentimental analysis. Another approach within the same topic of our project is using technical analysis. We model the stock price movement as a function of those input features and solve it as a regression problem in a very multiple kernel learning regression framework. Machine learning not to mention fundamental and/ or technical analysis also yields satisfactory results for securities market prediction.

## 1. INTRODUCTION

The sentiments from various investors, investment firms, and traders are important to calculate a plan where the market can go, but this data can't be trusted completely as there is a trap utilized by various operators who are financially strong to control the market and make a state of confusion among the common retail investors. Hence technical analysis of the stocks is additionally important to predict the long-run performance of a stock or an organization.

## 2. PROBLEM STATEMENT

The purpose of algorithmic trading is to make a profit by buying less and selling more, or by reducing the cost of trading by buying or selling large blocks of financial products effectively.

## 3. MOTIVATION

The sentiments from various investors, investment firms,

and traders are important to calculate an inspiration where the market can go, but this data can't be trusted completely as there is often a trap employed by these various operators who is financially strong to govern the market and build a state of confusion among the common retail investors. Hence technical analysis of the stocks is additionally important to predict the longer-term performance of a stock or an organization.

## 4. ALGORITHM

### 4.1. Natural Language Processing:

Tongue processing (NLP) is also a subfield of linguistics, computing, information engineering, and AI concerned with the interactions between computers and human (natural) languages, especially the thanks to program computers to process and analyze large amounts of tongue data. Challenges in tongue processing frequently involve speech recognition, tongue understanding, and tongue generation.

### 4.2. Naive Bayes Algorithm:

Naive Bayes classifier uses math to classify data. Naive Bayes classifier algorithms make use of theorem. The key insight of the theorem is that the probability of an occasion is often adjusted as new data is introduced. What makes a naive Bayes classifier naive is its assumption that every attribute of a knowledge point into consideration is independent of each other.

**4.3. Time Series Prediction:** Statistic analysis comprises methods for analyzing statistic data so on extract meaningful statistics and other characteristics of the data.

Statistical forecasting is the utilization of a model to predict future values supported by previously observed values. While the statistical procedure is sometimes employed in such how on test theories that this values of 1 or more independent statistics affect this value of over again series, this kind of study of some time series isn't called "time series analysis", which focuses on comparing values of 1 statistic or multiple dependent statistics at different points in time. Interrupted statistical analysis is the analysis of interventions on one statistic.

#### 4.4. Automatic Regression:

Automatic regression is largely a statistical model that uses observations from previous time steps or from the past data as input to a regression of  $y$  on  $x$  to predict the price at the subsequent time step. It's an easy concept that will find yourself inaccurate forecasts on an expansion of its slow series problems which could be a good way to predict the long-run price of a company's stock.

#### 4.5. Arima from Stats Model:

Autoregressive integrated moving average (ARIMA) is a statistical model for statistic prediction. The quality notation for the model is ARIMA (p,d,q) where p is total lag observations also called lag order, d is the number of times that the raw observations are differenced also called degree of differencing, and q is the size of moving average window. The model predicts the future state by checking the difference between values in statistics rather than actual stock value.

#### 4.6. Forward Moving Average:

It's the foremost used technical indicator want to find the momentum of trading stock. It's calculated for a fixed time frame by adding the next successive items to the previously calculated average of a group of things. The foremost four-four time frame for predicting stock momentum is 14 days, 22 days, and 50 days. It's accustomed to understanding short-term fluctuations.

Simple moving average (SMA) and exponential moving average (EMA) are two basic varieties of moving forward average.

### 5. NEED OF PROJECT

The sentiments from various buyers, investment companies, and traders are crucial to calculate a concept where the marketplace can pass, but these records can't be trusted absolutely as there may be a lure utilized by diverse operators who're financially robust to manipulate the marketplace and create a nation of misunderstanding some of the not unusual retail traders. For this reason, technical evaluation of the stocks is likewise critical to predict the destiny overall performance of a stock or an organization.

### 6. SYSTEM ARCHITECTURE

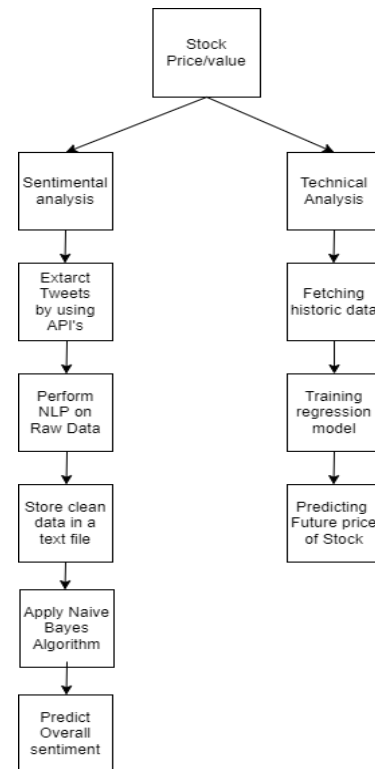


Figure 1. System Architecture

### 7. ADVANTAGES & APPLICATION

#### 7.1. Advantages

- [1] High-Frequency Trading or HFT is an extension of Algo-Trading
- [2] Human emotions have no role to play
- [3] Cost-efficient

#### 7.2. Application

- [1] Stock market prediction aims to determine the future movement of the stock value of a financial exchange. Accurately predicting the stock price movement will lead to more profits than investors can realize.
- [2] Accurately predicting the stock price movement will lead to more profits than investors can make

### 8. CONCLUSION

The proposed system will help novice buyers as a decision help device and assist them to take decisions thus. Collective evaluation of news concerning the market has been made easy the use of device studying algorithms.

## 9. REFERENCES

[1] Akba, F., Medeni, I. T., Guzel, M. S., & Askerzade, I. (2020). Assessment of Iterative Semi-Supervised Feature Selection Learning for Sentiment Analyses: Digital Currency Mark1 etc. 2020 IEEE 14th International Conference on Semantic Computing.

[2] Sarode, S., Tolani, H. G., Kak, P., & Lifna, C. S. (2019). Stock Price Prediction Using Machine Learning Techniques. 2019 International Conference on Intelligent Sustainable System

[3] "The Integration of Fundamental and Technical Analysis in Predicting the Stock Price", Isnaini Nuzula Agustin, Volume 18, Nomor 2, Mei 2019, pp 93-102. Studi Manajemen, Fakultas Ekonomi, University as Kristen Maranatha. ISSN 1411-9293 | e-ISSN 2579-4094.

[4] Aerambamoorthy Thavaneswaran, Na Yu, Md. Erfanul Hoque, Ruppia K. Thulasiram (2020). "Dynamic Data Science Applications in Optimal Profit Algorithmic Trading", 2020 IEEE 44th Annual Computers, Software, and Applications Conference (COMPSAC)

[5] Mohan, S., Mullapudi, S., Sammeta, S., Vijayvergia, P., & Anastasiu, D. C. (2019). Stock Price Prediction Using News Sentiment Analysis. 2019 IEEE Fifth International Conference on Big Data Computing Service and Applications (BigDataService).