# Stock Closing Price Prediction using Machine Learning Techniques

**Objectives and Motivations for the paper:** There are various applications for machine learning, one of which is to calculate time arrangements. Stock prices are one of the most curious (or perhaps most productive) time arrangements to forecast. I recently perused a web journal post applying strategies for machine learning to stock price prediction. It may be a well-written article, and various procedures have been investigated. In terms of a simple hypothetical and observational literature framework, the primary reason for this consideration was to investigate the causal interface between stock market performance and financial development. By performing the following functions, analysts have different assumptions as to the significance of stock markets playing a critical role in financial development forms: moving forward liquidity, amassing and assembling capital, watching supervisors and exerting corporate control, giving risk-pooling and sharing administrations counting venture.[1]

**Methodology:** The verifiable information was collected from the Yahoo Fund for the five companies. The dataset includes Nike, Goldman Sachs, Johnson and Johnson, Pfizer, and JP Morgan Chase's 10-year data from 4/5/2009 to 4/5/2019.[1]

**Artificial Neural Network:** A computer system designed to simulate how information is analyzed and processed by the human brain is an artificial neural network (ANN). It is the basis of artificial intelligence (AI) and solves problems that would prove impossible or difficult to solve by human or statistical standards. Employments show the essential Neural Arrange structure that has neurons with different layers. With three layers, the show works. This consists of the input layer, the layer covered, and the layer of yield. H-L O-C, and 7 DAYS MA, 14 DAYS MA, 21 DAYS MA, 7 DAYS STD DEV, and Volume are unused factors in the input layer. The weights are enhanced and included on each input stack and sent to the neurons. These neurons form the covered-up layer or the actuation layer. The total weight is calculated and moved to the third layer, the layer of yield. The yield layer consists of one neuron, as it were, that can give the expected appreciation in terms of the stock's closing price.[1]

**Random Forest:** A Random Forest (RF) is an ensemble machine learning method. It can do both regression and regression, and classification tasks as well. In this work, newly created variables are provided for the training of each decision tree, which in turn determines the decision at the decision tree nodes. It aims to minimize mistakes in forecasting by treating. As a classification problem based on training variables, the stock market analysis was forecast to close the next day. For a particular company, the stock price.[1]

**Contribution of the work:** This work is very useful for the final stage of the project. Due to reliably changing stock values that are dependent on numerous parameters that shape complex designs, predicting stock advertising returns can be a challenging errand. The chronicled dataset accessible on the site of the company consists of few highlights such as tall, open, near, adjoining near stock cost estimate, volume of exchanged offers, etc. Which is not sufficient enough. Using the current variables, modern variables have been created to achieve greater precision within the anticipated cost estimate.[1]

# Stock Market Analysis using Supervised Machine Learning

Objectives and Motivations for the paper: STOCK Market is one of the most seasoned strategies where a normal person would exchange stocks, make ventures, and win some money from companies that offer a portion of themselves at this stage.

It may well be that this paper proposes to use machine learning calculations to predict long-term stock prices for trade by using open source libraries and pre-existing algorithms to help make this unusual business arrangement less surprising. As we know, the stock market is a very powerful trading market. A system that affects all at the individual and national level. The basic concept is a very simple one. As small commodities, their stakes in the companies will be listed as shares. They do this to boost the company's funds. A company lists its stock at a price referred to this as the IPO or Initial offering from both the public.
Methodology:

First of all, They look at the raw data available to them during the data analysis phase. And study it to determine the appropriate attributes for the prediction of our selected label. They successfully analyzed the data and extracted the data Useful information that is needed for the classifier. This is a very important step and is to be treated with extreme Well, care. A lack of information or a small error in deriving useful information.

Information will lead to a failure of the prediction model and a very good one. The classifier is inefficient. In Training and Testing Stage, they shall preprocess the data to make the data which includes:

Shifted values of the label attribute by the percentage you want to predict.

Dataframe format is converted to Numpy array format.

 All NaN data values were removed before feeding it to the classifier.

 Now the data is ready for us to input into a classifier. They will be using the simplest classifier Linear Regression, which is defined in the Sklearn library of the Scikit-learn package. Once the model is ready, we use the model to obtain the desired results in any form they want.

How This Research Will Help us:
1)
Requirements and specifications: You need to know the exact requirements of the problem and Machine and throughput specifications are as complete as they are. In the first stage. We should not rush, as this is a very important step in Deciding on the overall plan for the development of the Program. Study the case carefully check the background, collect. Ample knowledge and identification of the subject in hand. What you want to do and set it as your goal.
2)
Careful function Analysis: We must be very careful while deriving the features from the data as they play a direct role in the prediction model. They all must make direct sense in conjunction with the labels. Minimizing the functions subject to the requirement constraints, as much as possible is highly recommended as well.

Machine learning, as we've seen so far is a very good thing. A powerful tool, and as preventable, it has some great application. We've seen so far that machine learning is a lot dependant on the data. It is therefore important to understand that Data is quite invaluable and as simple as it may sound, data Analysis is not an easy task to do.[2]

# Reference:

[1]     M. Vijh, D. Chandola, V. A. Tikkiwal, and A. Kumar, "Stock Closing Price Prediction using Machine Learning Techniques," in *Procedia Computer Science*, Jan. 2020, vol. 167, pp. 599–606, doi: 10.1016/j.procs.2020.03.326.

[2]     K. Pahwa and N. Agarwal, "Stock Market Analysis using Supervised Machine Learning," in *Proceedings of the International Conference on Machine Learning, Big Data, Cloud and Parallel Computing: Trends, Prespectives and Prospects, COMITCon 2019*, Feb. 2019, pp. 197–200, doi: 10.1109/COMITCon.2019.8862225.