

MINI PROJECT – II
(2019-2020)

Stock Price Prediction
Group No-

MID TERM REPORT



Institute of Engineering & Technology

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Declaration

I hereby declare that the work which is being presented in the Mini Project Titled: “Stock Price Prediction”, in fulfillment of the requirements for Mini-Project LAB, is an authentic record of our own work carried under the supervision of Mr. Pankaj Sharma, GLA University, Mathura

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ABSTRACT

In the finance world stock trading is one of the most important activities. Stock market prediction is an act of trying to determine the future value of a stock other financial instrument traded on a financial exchange. This paper explains the prediction of a stock using Machine Learning. The technical and fundamental or the time series analysis is used by the most of the stockbrokers while making the stock predictions. The programming language is Used to predict the stock market using machine learning is Python. In this paper we propose a Machine Learning (ML) approach that will be trained from the available stocks data and gain intelligence and then uses the acquired knowledge for an accurate prediction. In this context this study uses a different machine learning techniques to predict stock prices for the large and small capitalizations and in the three different markets, employing prices with both daily and up-to-the-minute frequencies.

INTRODUCTION

Basically, quantitative traders with a lot of money from stock markets buy stocks derivatives and equities at a cheap price and later on selling them at high price. The trend in a stock market prediction is not a new thing and yet this issue is kept being discussed by various organizations. There are two types to analyze stocks which investors perform before investing in a stock, first is the fundamental analysis, in this analysis investors look at the intrinsic value of stocks, and performance of the industry, economy, political climate etc. to decide that whether to invest or not. On the other hand, the technical analysis it is an evolution of stocks by the means of studying the statistics generated by market activity, such as past prices and volumes. In the recent years, increasing prominence of machine learning in various industries have enlightened many traders to apply machine learning techniques to the field, and some of them have produced quite promising results. This paper will develop a financial data predict or program in which there will be a dataset storing all historical stock prices and data will be treated as training sets for the program. The main purpose of the prediction is to reduce uncertainty associated to investment decision making. Stock Market follows the random walk, which implies that the best prediction you can have about tomorrow's value is today's value. Indisputably, the forecasting stock indices is very difficult because of the market volatility that needs accurate forecast model. The stock market indices are highly fluctuating and it effects the investor's belief. Stock prices are considered to be a very dynamic and susceptible to quick changes because of underlying nature of the financial domain and in part because of the mix of a known parameters (Previous day's closing price, P/E ratio etc.) and the unknown factors (like Election Results, Rumors etc.). There has been numerous attempts to predict stock price with Machine Learning. The focus of each research projects varies a lot in three ways. (1) The targeting price change can be near-term (less than a minute), short-term (tomorrow to a few days later), and a long-term (months later), (2) The set of stocks can be limited to less than 10 particular stock, to stocks in particular industry, to generally all stocks. (3) The predictors used can range from a global news and economy trend, to particular characteristics of the company, to purely time series data of the stock price. The probable stock market prediction target can be the future stock price or the volatility of the prices or market trend. In the prediction there are two types like dummy and a real time prediction which is used in stock market prediction system. In Dummy prediction they have define some set of rules and predict the future price of shares by calculating the average price. In the real time prediction compulsory used internet and saw current price of shares of the company. Computational advances have led to introduction of machine learning techniques for the predictive systems in financial markets. In this paper we are using a Machine Learning techniques i.e., Support Vector Machine (SVM), Linear Regression etc. in order to predict the stock market and we are using Python language for programming.

OBJECTIVE

Build a model using machine learning algorithms for predicting the stock price.

Problem Statement:

Financial analysts investing in stock market usually are not aware of the stock market behavior. They are facing the problem of trading as they do not properly understand which stocks to buy or which stocks to sell in order to more profits. In today's world, all the information pertaining to stock market is available. Analyzing all this information individually or manually is tremendously difficult. As such, automation of the process is required. This is where data mining techniques help.

Motivation:

Nowadays, as the connections between worldwide economies are tightened by globalization, external perturbations to the financial markets are no longer domestic. With evolving capital markets, more and more data is being created daily.

The intrinsic value of a company's stock is the value determined by estimating the expected future cash flows of a stock and discounting them to the present, which is known as the book value. This is distinct from the market value of the stock that is determined by the company's stock price. This market value of a stock can deviate from the intrinsic value due to reasons unrelated to the company's fundamental operations, such as market sentiment.

The fluctuation of stock market is violent and there are many complicated financial indicators. Only few people with extensive experience and knowledge can understand the meaning of the indicators and use them to make good prediction to get fortune. Most people have to rely solely on luck to earn money from stock trading. However, the advancement in technology, provides an opportunity to gain steady fortune from stock market and also can help experts to find out the most informative indicators to make better prediction. The prediction of the market value is of paramount importance to help in maximizing the profit of stock option purchase while keeping the risk low.

Future Prospects:

- It is used to predict the future value of company stocks.
- Can be used to predict the price hike
- Can be beneficial for stock buyer as they get to know the future hike of stock
- Explaining stocks value to others

Requirements:

a) Hardware:

- Computer/Laptop
- 8GB RAM
- Processor i3 or more

b) Software:

- Jupyter
- Anaconda Navigator

c) Technology:

- Python
- Numpy
- Sklearn
- Pandas

IMPLEMENTATION

The implementation is dividing into two parts:-

1. Loading data

UCI repository provide the stock price data and start preparing a machine learning model for predicting future stock price. First we have to label the data according to the algorithm.

2. Test Different Algorithm

After applying the different classifications model, we have got below different models:

1. Logistic Regression
2. Nearest Neighbor
3. Support Vector Machines
4. Linear Regression

METHODOLOGY

1. Data Collection

Data collection is a very basic module and the initial step towards the project. It generally deals with the collection of the right dataset. The dataset that is to be used in the market prediction has to be used to be filtered based on various aspects. Data collection also complements to enhance the dataset by adding more data that are external. Our data mainly consists of the previous year stock prices. Initially, we will be analyzing the Kaggle dataset and according to the accuracy, we will be using the model with the data to analyze the predictions accurately.

2. Pre Processing

Data pre-processing is a part of data mining, which involves transforming raw data into a more coherent format. Raw data is usually, inconsistent or incomplete and usually contains many errors. The data pre-processing involves checking out for missing values, looking for categorical values, splitting the data-set into training and test set and finally do a feature scaling to limit the range of variables so that they can be compared on common environs.

REMAINING WORK

Now as all the group members are aware with the model so here we divide the work in different modules and everybody is responsible for their module only.

1. Data inconsistencies are there we have to label the data according to need or we can say feature scaling with respect to algorithm.
Above work will be handling by Ayush Kumar Singh.
2. Finalize the algorithm which is most suitable for model and which increase the accuracy and we also have to check that algorithm for untargeted or random values.
This work will be handling by Ayush Sinha.
3. Work for website- we have to connect our machine learning code with a website where user can sign up and login and then person can input her detail and on the basis of provided detail output come and person can check that whether she can affect or

suffer from breast cancer and it also provide that what things not to do or what are the main cause which are responsible for breast cancer.
Website work will be handling by Ishan Rathi.

CONCLUSION

In the project, we proposed the use of the data collected from different global financial markets with machine learning algorithms in order to predict the stock index movements. SVM algorithm works on the large dataset value which is collected from different global financial markets. Also, SVM does not give a problem of over fitting. Various machine learning based models are proposed for predicting the daily trend of Market stocks. Numerical results suggest the high efficiency. The practical trading models built upon our well-trained predictor. The model generates higher profit compared to the selected benchmarks.

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