

**IT258 SGP****STOCK PRICE PREDICTION USING MACHINE LEARNING****PROJECT REPORT****CONTRIBUTORS:**

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ABSTRACT:

Stock price prediction is a well known and very useful for finance studies and investing money. Since there are not any significant methods to estimate or predict the price of stock in the market ,stock market is not an easy place for predicting. There are various methods like fundamental analysis, technical analysis, time series analysis and many others, etc. are all used to make an try to estimate the price in the stock market but unfortunately none of the any methods are up to the mark or proved as an accurate tool for acceptable prediction . In this project we are going to use various machine learning algorithms to predict stock market prices with the help of historical data and analysing it. Although, stock market is difficult to be predicted, due to its large domain, this project aims at applying machine learning in predicting the stock prices and to obtain the most accurate results.

1.INTRODUCTION

Problem Definition

Stock market is a very huge field and thus it is not easy to be understood. But we find Stock market prediction to be interesting as well as it further bifurcates researchers and analysts into two different groups, one are those who think that they can apply various methods to estimate the stock market and others include those who very much think that the market is well efficient and the moment some new information arrives about the stock market they absorbs it by adjusting itself, thus prediction gets no space. It is regarded too unsure to get predictable or estimated due to large fluctuations occurring in the market. Going for a well doing stock but at a improper time can give unwanted results, while investing in a stock at the proper time can give good profits. So a system is needed that helps us to predict a time which is proper to invest for a stock and give good results.

PROJECT OUTLINE

The accurate stock predictions can take us to large gains. Generally, it is known out that prediction is more chaotic than being uneven, which concludes that it is only predictable by minutely studying the history of given stocks. Machine learning estimates a market value close to the tangible value, which eventually increases the accuracy. Machine learning is an structured way for representing such processes. Introducing machine learning to the field of stock prediction has pleased most analysts because of its efficiency and accuracy in the measurements because a minute change of the information can compel huge fluctuations in the results. In our project, machine learning is applied on a dataset acquired from various companies. This dataset consists of five variables: low, high, open, close and volume. Low, open, close and high are different bid prices for the stock at different times with almost direct names. The volume is the number of stocks that are passed from one owner to other during the time duration. The test data examines the model.

HARDWARE PREREQUISUTE

Automated systems of trading seems complex but only needs low hardware costs, we just need computer that has a good editor and you're all set, not much requirement of extra hardware specifications.

SOFTWARE PREREQUISUTE

Anaconda Navigator

Jupyter Notebook

Memory and disk space required per user: 1GB RAM + 1GB of disk + .5 CPU core.

Server overhead: 2-4GB or 10% system overhead (whatever is larger), .5 CPU cores, 10GB disk space.

Port requirements: Port 8000 plus 5 unique, random ports per notebook.

2.LITERATURE SURVEY

EXISTING SYSTEMS

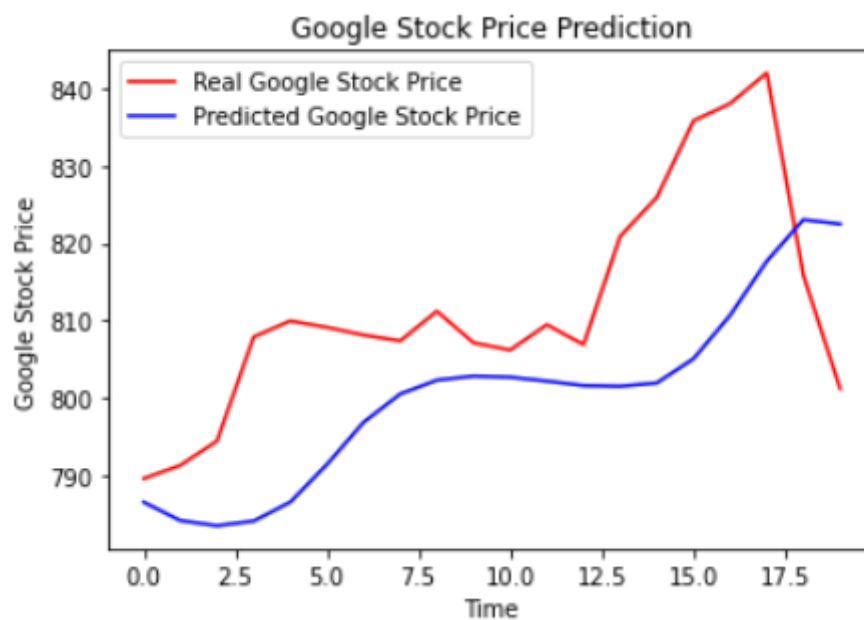
The existing system are a failure when there are very rare outcomes or predictors, as the algorithm is based on bootstrap sampling. The current system reports highly predictive values, by selecting a specific duration for their experiment to obtain highly predictive scores. The previous outcomes are an indicator that the stock price is impossible to predict when the traditional classifier is used. The current system fails to perform well when changes occur in the operating environment. It fails to remain focussed on external events occurring in the environment, like news events or social media. It works on only one single source of data, hence it is very biased.

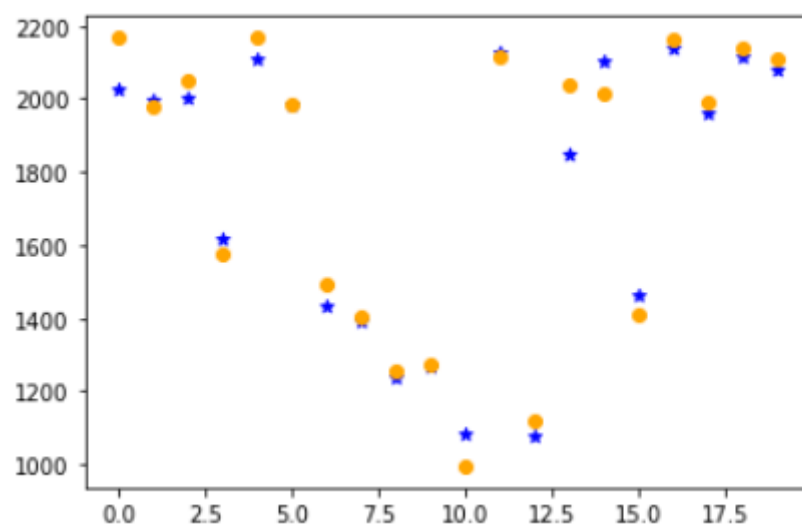
PROPOSED SYSTEM

In our project, we are dedicated to predict the stock values by the use of various machine learning algorithms like linear regression, Logistic regression, LSTM(Long Shortterm memory), Random Forests Regression and LSTM models operates for this procedure differently. Regression includes reducing error and LSTM works to remembering the data and results for the long period. Eventually, graphs for the fluctuation of prices along with dates (for Regression based model) and between actual and predicted price (in case of the LSTM based model) are plotted. Random forests rely on ensemble learning techniques. Meaning of ensemble is a group or a collection, which in our case, is a collection of decision trees, together called as random forest. The random forest comprises of uncorrelated decision trees which are deep that are built by several data samples . The procedure for constructing a random forest is simple. For every decision tree, we initially generate a random subset as a sample from the original dataset. Then, we grow a decision tree with this sample to

its maximum depth. Thus finally predictions are made by comparing values.

OUTPUT OF PREDICTION ALGORITHMS:





prediction

```
6      0.464519
7      0.471147
8      0.473940
9      0.473523
10     0.489328
...
490    0.449600
491    0.494918
492    0.557937
493    0.476456
494    0.490781
```

Length: 489, dtype: float64

Predicted **Down** **Up**

Actuals

	Down	Up
Down	25	26
Up	20	27

