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STOCK MARKET PREDICTION

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Abstract - Stock price prediction is very important as it is used by most of the business people as well as common people. People will either gain money or lose their entire life savings in stock market activity. It is a chaos system. Building accurate model is difficult as variation in price depends on multiple factors such as news, social media data, fundamentals, production of the company, government bonds, historical price and country's economics.

The purpose of predictive stock price systems is to provide abnormal returns for financial market operators and serve as a basis for risk management tools. Although the Efficient Market Hypothesis (EMH) states that it is not possible to anticipate market movements consistently, the use of computationally intensive systems that employ machine learning algorithms is increasingly common in the development of stock trading mechanisms. Using Machine learning algorithms we predict the stock market prices based on historical data available.

Keywords: Stock price, Efficiency Market Hypothesis, Machine learning.

INTRODUCTION

The stock market prediction is the act of trying to determine the future value of a company stock or other financial instrument traded on an exchange. The successful prediction of a stock's future price could yield significant profit. The stock market is basically an aggregation of various buyers and sellers of stock. A stock is also known as shares more commonly in general represents ownership claims on business by a particular individual or a group of people. The attempt to determine the future value of the stock market is known as a stock market prediction. The prediction is expected to be robust, accurate and efficient. The system must work according to the real-life scenarios and should be well suited to real-world settings. The system is also expected to take into account all the variables that might affect the stock's value and performance.

Stock market price prediction for short time windows appears to be a random process. The stock price movement over a long period of time usually develops a linear curve. People tend to buy those stocks whose prices are expected to rise in the near future.

There is growing interest in stock market prediction models is to provide abnormal returns for financial market operators and serve as a basis for risk management tools. Previously, studies that predicted stock market incidence mainly adopted linear regression, non-linear methods.

Machine Learning is a way of making a computer, a computer-controlled robot, or software thinks intelligently, in the similar manner the intelligent humans think. AI is accomplished by studying how human brain thinks and how humans learn, decide, and work while trying to solve a problem, and then using the outcomes of this study as a basis of developing intelligent software and systems.

Machine Learning may be defined as the field of computer science, more specifically an application of artificial intelligence, which provides computer systems the ability to learn with data and improve from experience without being explicitly programmed. Basically, the main focus of machine learning is to allow the computers learn automatically without human intervention. It can be started with the observations of data. The data can be some examples, instruction or some direct experiences too. Then on the basis of this input, machine makes better decision by looking for some patterns in data.

PROBLEM STATEMENT

Stock market prediction is basically defined as trying to determine the stock value and offer a robust idea for the people to know and predict the market and the stock prices. It is generally presented using the quarterly financial ratio using the dataset. Thus, relying on a single dataset may not be sufficient for the prediction and can give a result which is inaccurate. Hence, we are contemplating towards the study of machine learning with various datasets integration to predict the market and the stock trends. The problem with estimating the stock price will remain a problem if a better stock market prediction algorithm is not proposed. Predicting how the stock market will perform is quite difficult. The movement in the stock market is usually determined by the sentiments of thousands of investors. Stock market prediction, calls for an ability to predict the effect of recent events on the investors. These events can be political events like a statement by a political leader, a piece of news on scam etc. It can also be an international event like sharp movements in currencies and commodity etc. All these events affect the corporate earnings, which in turn affects the sentiment of investors. It is beyond the scope of almost all investors to correctly and consistently predict these hyper parameters. All these factors make stock price prediction very difficult. Once the right data is collected, it then can be used to train a machine and to generate a predictive result.

LITERATURE REVIEW

Ashish Sharma, Dinesh Bhuriya, Upendra Singh [1], The stock market prediction has become an increasingly important issue in the present time. One of the methods employed is technical analysis, but such methods do not always yield accurate results. So, it is important to develop methods for a more accurate prediction. Generally, investments are made using predictions that are obtained from the stock price after considering all the factors that might affect it. The technique that was employed in this instance was a regression. Since financial stock marks generate enormous amounts of data at any given time a great volume of data needs to undergo analysis before a prediction can be made. Each of the techniques listed under regression has its own advantages and limitations over its other counterparts. One of the noteworthy techniques that were mentioned was linear regression. The way linear regression models work is that they are often fitted using the least squares approach, but they may alternatively be also be fitted in other ways, such as by diminishing the "lack of fit" in some other norm, or by diminishing a handicapped version of the least square's loss function. Conversely, the least squares approach can be utilized to fit nonlinear models.

Addition-Wesley Data & Analytics [2], The use of machine learning and artificial intelligence techniques to predict the prices of the stock is an increasing trend. More and more researchers invest their time every day in coming up with ways to arrive at techniques that can further improve the accuracy of the stock prediction model. Due to the vast number of options available, there can be n number of ways on how to predict the price of the stock, but all methods don't work the same way. The output varies for each technique even if the same data set is being applied. In the cited paper the stock price prediction has been carried out by using the random forest algorithm is being used to predict the price of the stock using financial ratios form the previous quarter. This is just one way of looking at the problem by approaching it using a predictive model, using the random forest to predict the future price of the stock from historical data. However, there are always other factors that influence the price of the stock, such as sentiments of the investor, public opinion about the company, news from various outlets, and even events that cause the entire stock market to fluctuate. By using the financial ratio along with a model that can effectively analyze sentiments the accuracy of the stock price prediction model can be increased.

Martin C. Brown [3], Accurately predicting the stock, market is a challenging task, but the modern web has proved to be a very useful tool in making this task easier. Due to the interconnected format of data, it is easy to extract certain sentiments thus making it easier to establish relationships between various variable and roughly scope out a pattern of investment. Investment pattern from various firms show sign of similarity, and the key to successfully predicting the stock market is to exploit these same consistencies between the data sets.

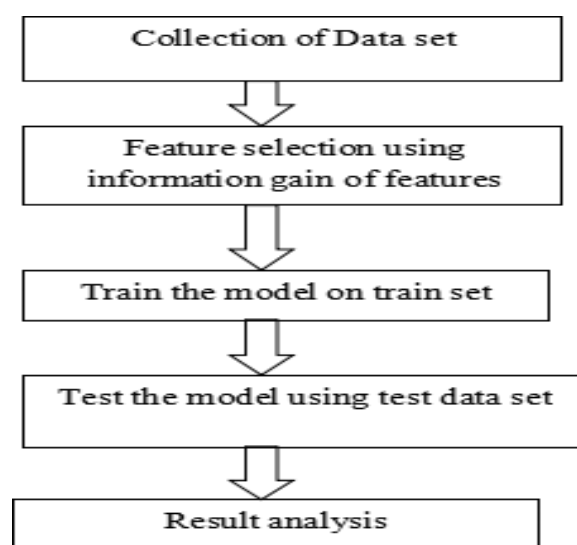
The way stock market information can be predicted successfully is by using more than just technical historical data, and using other methods like the use of sentiment analyzer to derive an important connection between people's emotions and how they are influenced by investment in specific stocks. One more important segment of the prediction process was the extraction of important events from web news to see how it affected stock prices.

PROPOSED METHODOLOGY

In our model we are using classification algorithms. The idea of Classification Algorithms is pretty simple. You predict the target class by analyzing the training dataset. This is one of the most, if not the most essential concept you study when you learn Data Science. In this model we are using the training dataset to get better boundary conditions which could be used to determine each target class. Once the boundary conditions are determined, the next task is to predict the target class. The whole process is known as classification.

SVM - Support vector machine forests is a supervised learning algorithm. It can be used both for classification and regression. It is also the most flexible and easy to use algorithm. However, it is mostly used in classification problems. SVM can efficiently perform a nonlinear classification using what is called the kernel trick, implicitly mapping their inputs into high dimensional feature spaces. In SVM algorithm, we plot each data item as a point in n-dimensional space with the value of each feature being the value of a particular coordinate.

Then, we perform classification by finding the hyper-plane that differentiates the two classes very well. Support vectors are simply the co-ordinates of individual observation. Support vectors has a variety of applications, such as image recognition, medical diagnosis, text and hypertext categorization and text analytics.



Architecture of Model

RESULTS

The Support vector Regression model results in classifying the test data. It predicts the stock market value that is going to be happening in future. It uses train set to train and fit the model. The test data is transformed and predicts the accurate result.



By Using Django and Aws we prepared the User Interface.

The below figure describes that home page takes the open, close, high, low values as input in text boxes.

The below figure describes that new page which displays the predicted stock price of the inputs produced by our algorithms.

← → 🔍 Not secure | 54.82.46.226/newpage1/?high=45&low=38&open=42.049&close=38.238&text=1

🖱️ ell bios setup 📧 Inbox (77) - kanna.a... 🔍 Find Length of a Lin... 📄 Exam 70-486

Stock Price Prediction

Close Value for 1 month is :124.12619354653478

CONCLUSION

With the assistance of AI innovation, it has gotten simple to discover connection and examples among different data's. By estimating the exactness of the various calculations, we found that the most appropriate calculation for foreseeing the market cost of a stock dependent on different information focuses from the recorded information is the irregular backwoods calculation. The calculation will be an extraordinary resource for merchants and speculators for putting cash in the securities exchange since it is prepared on an enormous assortment of recorded information and has been picked in the wake of being tried on an example information. The undertaking shows the AI model to anticipate the stock an incentive with more exactness when contrasted with recently executed AI models. One of the significant money related issues is the recognition of market cost at its beginning time. In this examination, orderly endeavors are made in structuring a framework which brings about the expectation of securities exchange cost. During this work, five AI characterization calculations are examined and assessed on different measures. Information perception is a significant ability in applied measurements and AI. Insights does to be sure spotlight on quantitative portrayals and estimations of information. It gives a significant set-up of instruments for increasing a subjective comprehension. This can be useful when investigating and becoming acquainted with a dataset and can help with distinguishing designs, degenerate information, exceptions, and substantially more. With a little space information, information perceptions can be utilized to communicate and show key connections in plots and diagrams that are more instinctive to yourself and partners than proportions of affiliation or criticalness. Test results decide the amplexness of the structured framework with an accomplished exactness utilizing the Decision Tree calculation. In future, the planned framework with the pre-owned AI grouping calculations can be utilized to anticipate the securities exchange esteem. The work can be broadened and improved for the robotization of financial exchange value investigation including some other AI calculations.

The proposed strategy is essentially established on chronicled data. There are many researches will recall for protections trade gauge, for instance, political clarifications, government announcements, customer overviews and so on. By using all the recently referenced points we can set up our model subject to insightful assessment similarly as recorded data assessment. We can in like manner improve it by using neural framework figurings besides.

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