

Prediction of Stock Market using Long ShortTerm Memory Algorithm

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Abstract— Stock market tactics are intricate and rely on a tone of data. As a result, many professionals and investors have long found it difficult to predict stock prices. Numerous deep learning algorithms have been developed as a consequence of extensive research in order to manage complex computational problems and enhance prediction abilities. This study examines a method for predicting changes in stock prices. To gauge, based on the variable's volatility, based on long short-term memory (LSTM) was used to estimate whether the S & P 500 will increase (up) or decline (down) throughout the upcoming trading month. Return, trading volume, and trade volume make up the three parts of time sequence data. Both the area and the accuracy.

Index Terms— Long Short-Term Memory, Deep Learning, Stock Market Prediction.

I. INTRODUCTION

A daily market place for the buying and selling of stocks and other financial products is the stock exchange. The S&P 500 index includes shares of the 500 most well-known American corporations [1]. A fraction of ownership in a corporation is represented by each share. Since the beginning of markets, investors have been looking for ways to better understand the companies listed on the market and keep up with the massive volume of information available worldwide. Investors' capacity to recognize market trends based on prior experience has declined as the market's size and trading volume have increased. A wide range of strategies have been created by investors and academics. Typically, information about businesses and stocks, such as accounting data and pricing on the financial instrument market, is included in models that explain the performance of particular equities. You can use these traits to predict stock returns outside of the sample. Most studies [2, 3] produce comparable results using straight forward linear models. An increasing corpus of academic research suggests that more complex approaches from stock return forecasts can be enhanced using Machine Learning (ML) and Deep Learning (DL) toolboxes that permit interactions between nonlinear predictors [4] [5], [6].

II. RELATED WORK

The adoption of deep learning techniques in the banking industry has been slow. It is also challenging to find convincing literature because strong financial models are frequently proprietary That exhibits cutting-edge performance in relation to our particular goal. The breakthroughs in financial machine learning are starting to be acknowledged by the academic community, on the other hand. Since stock market prediction is such a challenging subject, there are an increasing number of articles that try to apply DL techniques to it. A recurring topic in these articles is the employment of an LSTM-based recurrent neural network. Using a recurrent neural network to forecast the stock market [10]: Using a Recurrent Neural Network (RNN) with Long Short-Term Memory, this article looks at Recurrent neural networks with long short-term memories are used to predict the stock market. The objective of this study is to examine the applicability and effectiveness of LSTM stock market forecasting. The LSTM (Long Short-Term Memory) formula is suggested as a method in this article for creating a low-cost stock value projection. Prediction of stock market price fluctuation using LSTM neural networks [11] This study aims to investigate the applicability of recurrent neural networks, namely LSTM networks, to the issue of predicting changes in stock market prices. Utilize experiments on actual data to assess their usefulness in terms of accuracy and other metrics to determine whether they provide any advantages over more conventional approaches.

III. THE PROPOSED MECHANISM

The study of stock market analysis using deep learning algorithms, in specifically Long Short-Term Memory (LSTM), has gained popularity in recent years. LSTM is a type of recurrent neural network (RNN) that can analyze sequential data, such as stock market data, by memorizing long-term correlations between data points. LSTM is used in stock market analysis to discover patterns and trends in the data by training the algorithm on past stock market data, and then using this knowledge to forecast future stock values.

PERFORMANCE EVALUATION

The accuracy in trading must be maximized because it reveals how well the suggested model performs during ups and downs. Both the training (63 percent "Up's") and test data (71 percent "Up's") are significantly skewed. As a result, accuracy must be treated with caution, and the AUC score, which is unaffected by class imbalance, is perhaps a better choice for the model's performance. One cause could be that our features are inadequate data to forecast future results



Fig.1 Login Page of the Stock market prediction



Fig.2 Company Dataset of the Stock market prediction

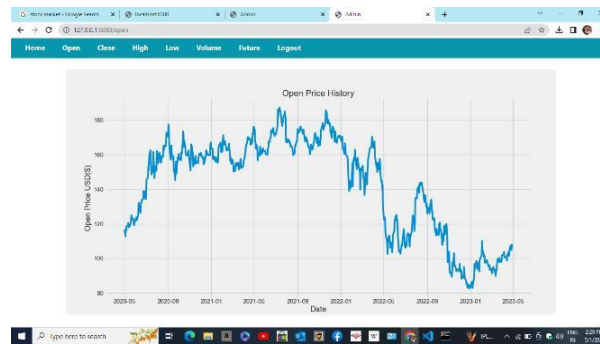


Fig.3 LSTM Model of the Stock market prediction

IV. CONCLUSION

The work demonstrated the potential use of machine learning in analyzing the stock market based on the company name, previous price and current prices. The developed webpage is user friendly and the accuracy of predictions are above 90 percent. The process was adopted for all the area to improve and authenticate the price of the products which are useful for the country's GDP growth.

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Authors Profile



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