



Stock Market Prediction using Artificial Intelligence

Advait Dhage , Zainil Alachiya, Sanghrash Surwase, Aniket Magar, Prof. Sneha Deshmukh

Department of Computer Engineering
Dhole Patil College of Engineering, Pune

Abstract—Investing in a group of assets has never been straightforward; the abnormality of the financial market does not enable simple models to anticipate future asset values with more precision. Machine learning, which involves teaching computers to execute activities that would ordinarily need human intelligence, is the leading topic in scientific research right now. This article seeks to create a model utilizing AI, to forecast future stock market values. The primary goal of this research is to determine the precision with which a AI system can predict. Stock market price prediction is a difficult undertaking that has typically required substantial human-computer cooperation. When compared to existing stock price prediction systems, this will produce more accurate results. The network is trained and tested for accuracy with data of varying sizes, and the results are summarized. The purpose of this study is to forecast stock market prices to make more informed and precise investment decisions.

Keywords—:Data Analysis, Stock Prediction, AI, Stock Market.

I. INTRODUCTION

Stock (also known as equity) is a financial instrument that reflects ownership of a portion of a firm. This allows the stockholder to a share of the corporation's assets and profits in proportion to the amount of stock they own. Stock units are referred to as "shares." A stock is a broad phrase that refers to any company's ownership certificates. Market forces cause

stock prices to fluctuate daily. This means that share prices fluctuate due to supply and demand. When more individuals desire to purchase a stock than sell it (demand), the price rises. If more people wanted to sell a stock than acquire it, there would be more supply than demand, causing the price to fall. It is simple to understand supply and demand. What is tough to understand is what makes individuals like one stock and dislike another. It all boils down to determining what news is good for a company and what news is bad for it. There are numerous solutions to this problem, and almost every investor has their own thoughts and techniques. Having said that, the main premise is that a stock's price movement represents what investors believe a company is worth. Don't confuse a company's worth with its stock price. A company's worth is determined by its market capitalization, which is the stock price multiplied by the number of shares outstanding. A firm that trades at \$100 per share and has 1,000,000 shares outstanding, for example, has a lower value than one that trades at \$50 and has 5,000,000 shares outstanding ($\$100 \times 1,000,000 = \$100,000,000$, while $\$50 \times 5,000,000 = \$250,000,000$). To make matters even more complicated, a stock's price reflects not only a company's current value, but also the future growth that investors anticipate.

II. RELATED WORK

Darmadi Komo et al. The radial basis function (RBF) and multilayer perceptron (MLP) were employed in algorithmic models to provide and price predictions, which were individually trained on different sets of data. Actual data from

the Wall Street Journal (Dow Jones Industrial Average) was used as a reference in these experiments. The suggested Dow Jones index by the models achieved a significant level of accuracy, providing index funds that tracked more than 80% of the average monthly return. In actuality, the data demonstrate that the RBF network outperforms the MLP network significantly.

D. Venugopal Setty et al. An in-depth investigation of the efficiency of various data mining methodologies for business results was conducted. This is offered for further information on the fundamentals of the Indian stock market, such as how significant data mining is in the field of prediction, as well as other relevant data mining techniques, which are explained in the article. In other words, the gap between stronger storage and more efficient retrieval technologies is growing. There is a completely new sequence of discovery that should be implemented to improve end-user information layout and resolution.

Dase R.K. et al. He broadened his knowledge by doing a literature review on the application of neural networks to stock prediction. They discovered that time series analysis could not accurately predict indexes, but it appears that an artificial neural network may be suitable for this purpose. Neural networks can extract an astonishing amount of knowledge from massive amounts of data. Based on past research, they conclude that a market Artificial Network model is useful in forecasting the world's financial markets. They suggested, with evidence, that this is a unique field of application for Artificial Neural Networks, with high expectations for their use in accurate stock market index analysis.

Akhter Mohiudd et al., In his study, he forecasted stock price changes using a neural network-based approach. To estimate potential stock returns, a neural network was used. Several ways have been used to examine the indicator's ability to produce false findings. Real data from the National Stock Exchange of India (NSE) was used in controlled studies to test the correctness of this technique. TCS, Wipro, Axis Bank, Maruth, and Tata Steel were among the companies that began operations on January 2, 2007 and ended on March 3, 2010. In his perspective, neural PERSISTEMBLE did not fulfil the

standard, but he also created novel neural system design and training methodologies to reduce inaccuracy in prospective forecasts.

D. Ashok Kumar et al. General time series concepts were discussed, as well as the necessity for market indexes and the implications of applying an ANN to time series. A review of past work was also undertaken to investigate models employing neural networks for time series forecasting. NIFICS ranks in the middle of the stock market index (MIDCAP) and the neural network market model (BSE). The findings indicate that the score is slightly above average. According to their findings, the best performance is attained with an ideal weighting factor of 0.28, a momentum of 0.5, and a best epoch of 2960. In the industry, the model achieved a lower-than-expected fit and could be used to any type of stock outcomes.

Aditya Nawani et al. A comparison of data mining techniques and market forecasting methods can be investigated for use in constructing market capitalization models for trading firms. Their thesis looks on how neural networks are used in conjunction with the Graphical User Interface for the MATLAB Graphical Digital Toolbox to produce reliable results. When the qualified technique is utilized, forecasts regarding the parameters involved in supply and demand in a certain sector can be made.

III. OPEN ISSUES

In many economies, stock trading is big business. Stockbrokers do not appear to have any sophisticated technology that can help them advise clients on which stocks are suited for any purchase or sell trade, based on the information on their websites. These websites offer information pointing to the application of fundamental, technical, and time series analytic approaches. These popular strategies display a trend in future movement rather than the expected transaction price for any asset in the future. It is thus 7 desired to have a tool that not only reveals the direction of price movement, but also the most likely price value of the stock itself.

IV. PROPOSED SYSTEM

In the proposed approach, we want to precisely determine the next day's closing value so that investors can purchase or sell shares with certainty.

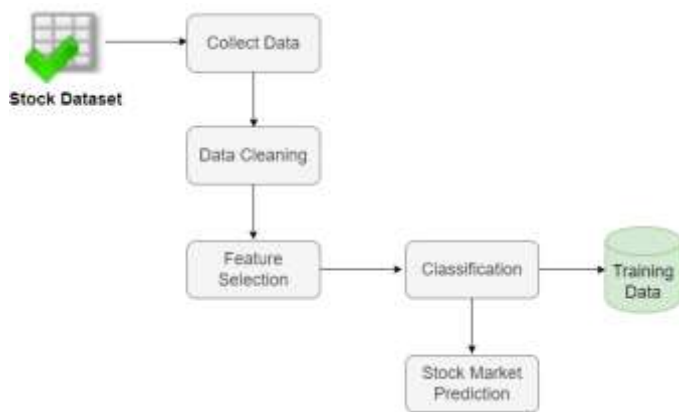
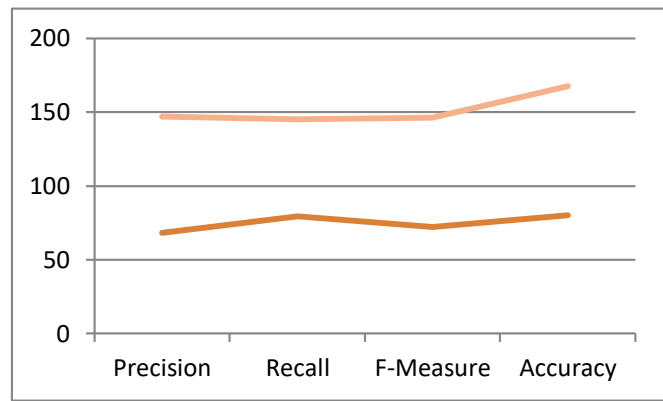


Figure 1. System Architecture

following graph and table shows the stock price prediction accuracy result based on classification technique.



	Existing System	Proposed System
Precision	68.45	77.70
Recall	79.44	65.64
F-Measure	72.11	74.31
Accuracy	80.29	88.26

V. RESULTS AND DISCUSSION

We compared the proposed stock price prediction accuracy on number of samples and show the result graphically. Let see the Investors are quite popular with stock price predicting because investors want to know their return on investment. Historically, technical analysts and traders employed stock market forecasts based on prior rates, amounts, price dynamics, and fundamental patterns. Stock price forecasts are presently quite high. Not only the financial situation, but also the complicated when equity markets are touched by nation economics, political environment, and natural disasters, among other factors. Returning to the financial exchange Standard procedures cannot be predicted precisely in nature. Investors are quite popular with stock price predicting because investors want to know their return on investment. Analysts and traders have traditionally employed stock market projections based on previous rates, amounts, price dynamics, and fundamental tendencies.

Conclusion

References

[1] Darmadi Komo, Chein-I Chang, Hanseok KO, "Neural Network Technology for Stock Market Index Prediction", International Symposium on Speech, Image Processing and Neural Networks, 13-16 April 1994

[2] D. Venugopal Setty, T.M.Rangaswamy and K.N.Subramanya, "A Review on Data Mining Applications to the Performance of Stock Market", International Journal of Computer Applications, (0975 – 8887) Volume 1 – No. 3, 2010

[3] Dase R.K. and Pawar D.D., "Application of Artificial Neural Network for stock market predictions: A review of literature", InternationalJournal of Machine

- Intelligence, ISSN: 0975-2927, Volume 2, Issue 2, pp-14-17, 2010
- [4] Akhter Mohiuddin Rather, "A prediction-based approach for stock returns using autoregressive neural networks", IEEE, 978-1-4673-0126-8, 2011
- [5] D. Ashok Kumar and S. Murugan, "Performance Analysis of Indian Stock Market Index using Neural Network Time Series Model", International Conference on Pattern Recognition, Informatics and Mobile Engineering (PRIME), IEEE, 978-1-4673-5845-3, 2013
- [6] Aditya Nawani, Himanshu Gupta, Narina Thakur, "Prediction of Market Capital for Trading Firms through Data Mining Techniques", International Journal of Computer Applications (0975 – 8887) Volume 70– No.18, May 2013
- [7] Chi Kin Chow, Tong Lee, "Construction of multi-layer feed forward binary neural network by a genetic algorithm Neural Networks", IJCNN Proceedings of the 2002 International Joint Conference, Honolulu, HI, USA, 2002
- [8] Cao Q, Leggio KB, Schniederjans Mj., "A comparison between Fama French's model and artificial neural networks in predicting the Chinese stock market", Computers & Operations Research, Vol. 32, pp. 2499-2512, 2005.
- [9] Satyajit Dhar, Tuhin Mukherjee, Arnab Kumar Ghoshal, "Performance Evaluation of Neural Network Approach in Financial Prediction: Evidence from Indian Market", Proceedings of the International Conference on Communication and Computational Intelligence, pp.597-602, 2010.

