VISUALIZING AND FORECASTING STOCK MARKET PRICE

[1]Subin Lalu A,

[1]MCA, School of CS & IT, Jain (Deemed-to-be University), Bangalore, India.

[2]Dr.Manju Bargavi S.K,

[2]Professor, School of CS & IT, Jain (Deemed-to-be University), Bangalore, India

ABSTRACT – Stock market forecasting can be a fashionable and important topic in the fields of finance, education, and research. It is difficult to predict the stock market because there are no important rules for estimating or predicting the value of stocks on the stock market. Various methods such as technical analysis, fundamental analysis, statistical analysis, applied mathematical analysis, and fundamental analysis is all insufficient to predict the value of the stock market, but all of these methods are systematically accepted. I am. This is a prediction tool. Not proven. This document conceptualizes, predicts, and analyzes replacement costs. Artificial neural networks and machine learning are effective tools for implementing inventory cost, revenue, and inventory modeling forecasts. With the help of applied theoretical analysis, the relationship between the selected factor and the stock price is developed, making it easy to predict the correct result. The stock market is unpredictable due to its inaccurate range, but this task aims to apply component forecasting and analysis to predict stock costs.

*Key Words***: Analysis, Artificial Neural, Forecasting, Modelling, Machine Learning, Predicting.**

1. INTRODUCTION

Investment companies, hedge funds, and even humans abuse financial models to better understand market behavior and generate profitable investments in trading. Lots of knowledge about fluctuations in gift stock data for analysis and processing}. Is predicting inventory costs using machine learning a very economical choice? Investors make inferences calculated by analyzing knowledge. They scan the news and investigate various variant variables related to the creation of company history, business trends, and forecasts. The general theory is that the storage cost of a unit is random and unpredictable. This raises the question of why large companies like Morgan Stanley and Citigroup hire quantitative analysts to create predictive models. This white paper attempts to predict inventory costs using a deep learning model, the Long Short Term Memory (LSTM) neural network. Recurrent neural networks (RNNs) can be used for time-framed information, but recent studies have shown that the network area unit LSTM is the leading standard and most useful variant of RNNs. Companies can be vulnerable to market fluctuations on the other side of management as market sentiment, economic conditions, or industry developments.

2. LITERATURE REVIEW

As many have invested their time and effort in this world trade for getting it closer and more reliable to the people for carrying out the resources and make their lifestyle more deliberate than the previous. In the past few years, various strategies and plans had been derived and deployed ever since its continuation and the topic is still a point of research where people are coming up with ideas to solve.

According to the paper "Stock market prediction using Hidden Markov Model,". IEEE 7th Joint International Information Technology and Artificial Intelligence Conference. (2018) Intelligence fascinates mankind and having one in the machine and integrating on the same is the hotkey of research. Various people are contributing to the same research. A Sheta tried its invention on two nonlinear processes and had come up with TS which is used as a model for fuzzy sets.

According to the paper "Stock Prediction using Machine Learning a Review Paper", International Journal of Computer Applications (2017), All the learning systems from the past are limited and are simplest where learning of the simple algorithm for a computational mean is not enough which can even be done by the human brain itself. The main motto of learning was limited and the learning model was not efficient. The existing models can't cope with the vulnerabilities and remove the rarest information that they can't process causing a major data loss which creates a problem in forecasting.

The paper "Equity Forecast: Predicting Long Term Stock Price Movement" Using Machine Learning arXiv. 2016 states that the observation is an integral part of resource and prediction management. If the outcome can't be observed its point of time estimation is compromised causing it less liable in the market. Monitoring of the same is not possible in the existing system. The existing system in stock market predictions is biased because it considers the only source point for the data source. Before the prediction of the data set a simple data retrieval should be generated and tested on the training data set which is more flexible and versatile. Loss of sights is a major problem in the existing system as the stock varies each day and the loss margin can be higher concerning time. An initial instance is taken for prediction.

According to the paper "stock market prediction using ann", International Research Journal of Engineering and Technology, .(2018). This project has used Keras to feed an LSTM model to predict the stock prices using historical closing price and trading volume and visualize both the predicted price, values over time, and the optimal parameters for the model. The model predicts 30 data points based on the test data set and the last data point is pushed as the output. This model was set as a backend for a website with computer file integration practicality.

According to the paper "Financial stock market forecast using data mining Techniques", Proceedings of the international multiconference of engineers and computer scientists. 2010, Initially, we've got tried regression and so we've got used Long STM networks – sometimes simply known as "LSTMs" to predict the damage of the S&P five hundred employing an information set of past costs. we've got used Mean square Error (MSE) as a performance live and Root Mean square Error (RMSE) calculated because of the distinction between foreseen and actual values of the target stock at the adjusted shut value and therefore the delta between the performance of the benchmark model (Linear Regression) and our primary model (Deep Learning).

3. IMPLEMENTATION

Implementation is the last stage of the project when the theoretical design is turned into a working system. At this stage the main workload, the greatest upheaval, and major. Impact on existing practices shifts to the user department.If the implementation stage is not carefully, planned and controlled it can cause chaos. Thus it cannot be thought of to be the additional crucial stage in achieving a prosperous new stage and in giving the user confidence that the system can work and be effective. The implementation stage involves careful planning, investigation of the current system and its constraints on implementation, design of methods to achieve the change in our procedure

and evaluation of change over methods.

The implementation of this website will satisfy the needs of the company as well as customers. The effort spent on developing this website result in success only when the system is implemented effectively.

Implementation is the most crucial stage in achieving a successful system and giving users confidence that the new system is workable and effective. Ontology provides an associate overarching framework and vocabulary for describing system parts and relationships. As such, they represent a way to plan, analyze and compare info systems. This project investigates the development of a software-based on ontology.

Moreover, it's been talked about that records overload, the limitations of timeliness, and the excessive human and monetary prices of scientific mistakes suggest that it turns into increasingly

difficult for physicians to practice high-quality evidence-based medicine without the aid of computerized decision support systems at the point of care.

The implementation of this website will satisfy the needs of the company as well as its customers. The effort spent on developing this website result in success only when the system is implemented effectively.

This project has used Keras to feed an LSTM model to predict the stock prices using historical closing price and trading volume and visualize both the predicted price, values over time, and the optimal parameters for the model. The model predicts 30 data points based on the test data set and the last data point is pushed as the output. This model was set as a backend for a website with input data integration functionality.

Initially, we have tried linear regression and then we have used Long Short-Term Memory networks – usually just called "LSTMs" to predict the closing price of the S&P 500 using a data set of past prices. We have used Mean Squared Error (MSE) as a performance measure and Root Mean Squared Error (RMSE) calculated as the difference between predicted and actual values of the target stock at the adjusted close price and the

delta between the performance of the benchmark model (Linear Regression) and our primary model (Deep Learning).

The dataset we use for the proposed project is been taken from Kaggle.But, this data set is in raw format. The data set is a collection of valuation of stock market information about some companies. The initial step is to convert raw data into processed data. This is done by feature extraction since the raw data collected have multiple attributes but only some of those attributes are needed for the prediction. Feature extraction is a reduction process. The structure, behavior, and views of a system are given by the structural model.
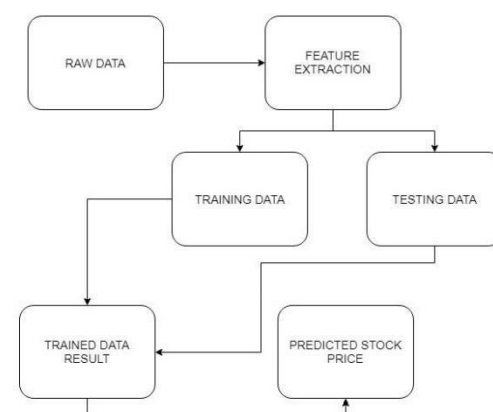

Figure:3.1- System Architecture

Ontologies represent the associate degree approach for information illustration which will be shared establishing a shared vocabulary for various applications and also are the backbone of the linguistics net. the most objective of the procedure planned during this paper is to use ontologies to convert a haul domain text description into an associate degree object model.

Ontology can be compared by evaluating them in a running application. Thus, the comparison of ontologies in a very running application aims at evaluating the effectiveness of system victimization of the evaluated ontologies. The most unremarkably used implementation strategies square measure pilot and parallel.

Pilot Running

Processing the current data by one user at a time is called the pilot running process. When one user is accessing the data at one system, the system is set to be engaged and connected to the network.

This process is useful only in a system where more than one user is restricted.

Parallel Running

Processing this information by quite one user at a time at the same time is alleged to be parallel running. This same system can be viewed and accessed by more than one user at a time. Hence the implementation method used in the system is a pilot type of implementation.

EXPERIMENTAL RESULTS

A. This result determines the loss of the given stock price. Limiting the loss is one of the biggest successes in the stockmarket.

Figure 3:1: Limiting the Loss

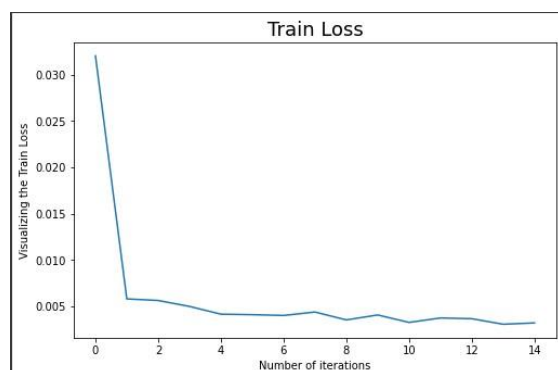**B.** In this result determine the test and train data of the given stock price.

Figure3:2: Test and train data

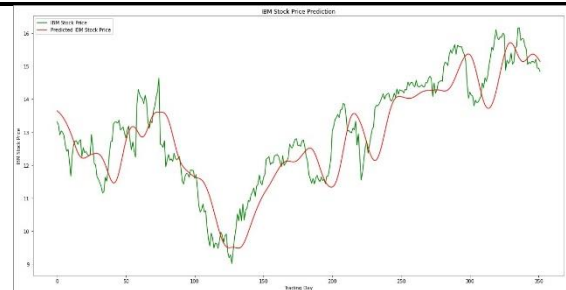**C.** This result determines the predicted value of the stock price

Figure: 3:4: Predicted IBM Stock price

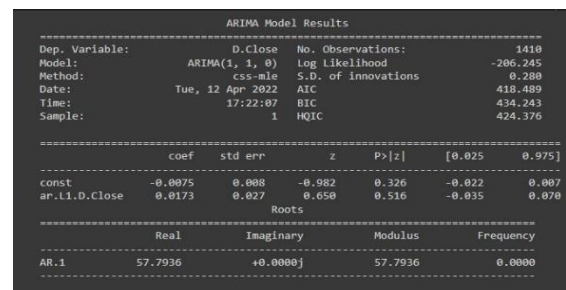**D.** In this result we can see the analysis based on the ARIMA network.
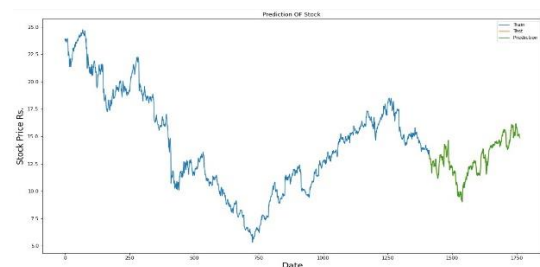

Figure: 3:5: ARIMA model Result.

Figure: 3:6: predicted Stock price

3. CONCLUSION

When comparing the regression of the benchmark model with the mean and the finally improved LSTM model, improving the mean square error was important. Average leveling is overworked LSTMs have helped North American countries recover results and additional correct patterns for hysterical knowledge sets. Equity price forecasts can be risky and usually result in inaccurate value forecasts, primarily due to the number of factors that depend on them. This project will be expanded and modified in the future by teaching models of additional options and some important non-numeric options with the help of professional competence.

4. REFERENCES

[1], Poonam Somani, Shreyas Talele, Suraj Sawant, "Stock market prediction using Hidden Markov Model,". IEEE 7th Joint International Information Technology and Artificial Intelligence Conference. (2004)

[2], Mruga Gurjar, Parth Naik, Gururaj Mujumdar "STOCK MARKET PREDICTION USING ANN", International Research Journal of Engineering and Technology, (2018)

[3], Nirbhey Singh Pahwa, Neeha Khalfay, Vidhi Soni, Deepali Vora. "Stock Prediction using Machine Learning a Review Paper", International Journal of Computer Applications (0975-8887) Volume 163 – No 5. (2017)

[4], V Kranthi Sai Reddy, "Stock Market Prediction Using Machine Learning", International Research Journal of Engineering and Technology, Volume 05 Issue: 10 (2018)

[5], Bhardwaj, Aditya, Yogendra Narayan, and Maitreyee Dutta. Sentiment analysis for Indian stock market prediction using Sensex and nifty. Procedia Computer Science 70: 85–91, 2015.

[6] Milosevic, Nikola. Equity Forecast: Predicting Long Term Stock Price Movement Using Machine Learning. arXiv. 2016

[7] K. Senthamarai Kannan, P. Sailapathi Sekar, M.Mohamed Sathik and P. Arumugam, "Financial stock market forecast using data mining Techniques", Proceedings of the international multiconference of engineers and computer scientists. 2010,

[8] Md. Rafiul Hassan and Baikunth Nath, "Stock Market forecasting using Hidden Markov Model: A New Approach", Proceeding of the 2005 5th International Conference on Intelligent Systems Design and Application 0-7695-2286-06/05, IEEE 2005.

[9] Bonde, Ganesh, and Rasheed Khaled. "Extracting the best features for predicting stock prices using machine learn- ing." Proceedings on the International Conference on Artificial Intelligence (ICAI). The Steering Committee of The World Congress in Computer Science, Computer Engineering and Applied Computing (WorldCom), 2012.

[10] Dirash A R | Dr. S K Manju Bargavi "LSTM Based Sentiment Analysis" Published in International Journal of Trend in Scientific Research and Development (ijtsrd), ISSN: 2456-6470, Volume-5 | Issue-4, June 2021, pp.728-732,

[11] P. Hajek, Forecasting Stock Market Trend using Prototype Generation Classifiers, WSEAS Transactions on Systems, Vol.11, No. 12, pp. 671-80, 2012.