

Framework For Stock Prediction Using Data Mining Algorithm

^{#1}Miss.Dimpal Vasant Gavhane, ^{#2}Miss.Renuka Ramdas Bhakare,
^{#3}Miss.Aarti Suresh Varpe, ^{#4}Miss.Madhuri Balkrishn Jadhav, ^{#5}Prof. Abidali shaikh



¹dimpalgavhane@gmail.com

²renukabhakare1@gmail.com

³varpeaartis@gmail.com

⁴madhuribjadhav.jadhav99@gmail.com

^{#1234}Department of Computer Engineering

Parvatibai Genba Moze College of Engineering
Wagholi,Pune

ABSTRACT

The aim of this project is implementation of neural networks with back propagation algorithm for stock market. Borrowing from biology, researchers are exploring neural networks - a new, non algorithmic approach to information processing. A neural network is a powerful data-modeling tool that is able to capture and represent complex input/output relationships. The motivation for the development of neural network technology stemmed from the desire to develop an artificial system that could perform "intelligent" tasks similar to those performed by the human brain. Artificial Neural Networks are being counted as the wave of the future in computing. They are indeed self-learning mechanisms which don't require the traditional skills of a programmer. Back propagation is one of the approaches to implement concept of neural networks. Back propagation is a form of supervised learning for multi-layer nets. Error data at the output layer is back propagated to earlier ones, allowing incoming weights to these layers to be updated. It is most often used as training algorithm in current neural network applications. In this project, we apply data mining technology to stock market in order to research the trend of price it aims to predict the future trend of the stock market and the actuation of price. This paper points out the shortage that exists in current traditional statistical analysis in the stock, then makes use of BP neural network algorithm to predict the stock market by establishing a three-tier structure of the neural network, namely input layer, hidden layer and output layer. Finally, we get a better predictive model to improve forecast accuracy.

Keyword: Prediction/forecasting, Stock Market Return, Business analytics, Borsa Istanbul (BIST 100), Istanbul Stock Exchange (ISE)

ARTICLE INFO

Article History

Received: 29th May 2017

Received in revised form :
29th May 2017

Accepted: 31st May 2017

Published online :

1st June 2017

I. INTRODUCTION

In recent years, financial markets have become more interrelated. The fundamental factors are becoming more critical for the analysis of financial market. The research in recent past shows that the nonlinear domain with artificial intelligence technologies can be modelled more precisely compared to single market and linear statistical methods which have been the mainstay for technical analysis for past decade. Prediction of stock price index movement is regarded as a challenging task of financial time series prediction. An accurate prediction of stock price movement may yield products for investors. Due to the complexity of stock market data, development of efficient models for predicting is very difficult Statistical

methods and neural networks are commonly used for time series prediction. Since stock markets are complex, nonlinear, dynamic and chaotic. Neural networks among various artificial intelligence tools are increasingly used to the financial forecasting as neural nets are found to be technologically exi-ble and powerful, ideally suited to perform financial market analysis. Many studies have shown that artificial neural networks have the capacity to learn the underlying mechanics of stock markets. In fact, artificial neural networks have been widely used for forecasting financial markets.

Motivation:

There are several motivations for trying to predict stock market prices. The most basic of these is financial gain. Any system that can consistently pick winners and losers in the dynamic market place would make the owner of the system very wealthy. Thus, many individuals including researchers, investment professionals, and average investors are continually looking for this superior system which will yield them high returns. There is a second motivation in the research and financial communities. It has been proposed in the Efficient Market Hypothesis (EMH) that markets are efficient in that opportunities for profit are discovered so quickly that they cease to be opportunities. Neural networks are used to predict stock market prices because they are able to learn nonlinear mappings between inputs and outputs. In addition to stock market prediction, neural networks have been trained to perform a variety of financial related tasks.

II. LITERATURE SURVEY

Jageshwer Shriwas et.al [1] develop a model that would accurately predict the future closing price of the BSE. Once this was accomplished, the probability of an accurate forecast would be calculated. Given the accuracy of the forecast, the benefits of the network to the investor would be determined. Financial time series consists of multidimensional and complex nonlinear data that result in of pitfalls and difficulties for accurate prediction. This system use neural network as a prediction tool and accuracy is compared against a traditionally forecasting method.

Anil Rajput et.al.[2] focuses for the rule based classification model of historical BSE stock data with data mining techniques. They used decision tree and rule induction method with the help of data mining software. They have to create classification rules and induction rules with the use of J48 and PRISM classifiers under WEKA software.

Stephen Evans[3] uses classification data mining to attempt to predict the direction of daily returns of randomly selected stocks from the Russell 1000 and Russell 2000 stock indexes. The study uses moving averages of historical daily stock prices as attributes, along with different data mining classifiers, to attempt to make these predictions. A secondary goal of this study is to determine how effective using Distributed Data Mining (DDM) can be in predicting the direction of daily stock returns. Hence, DDM classifiers are used in the testing. This study discovers that the moving averages of daily returns do not help predict the direction of future daily stock returns any better than the percentages of returns from one trading day to the next. It also shows that the classifiers were no more than 60% accurate in predicting the directions of daily returns for any of the stocks used in this study.

S. Karthik et.al.[4] objective is to analyze the stock market trend using integrated clustering and weighted rule mining technique. For predicting and analyzing the market trends data mining techniques are also used.

Statistical techniques are used for the market price prediction process. Inaccurate results are produced in the statistical analysis. To find the stock market trend with index dependency analysis environment hybrid clustering and association algorithm is not appropriate. Statistic analysis techniques are not suitable for trend analysis with index relationship. The stock market transactions data is analyzed with clustering and weighted rule mining techniques. The K-mean clustering algorithm is used to cluster the transaction with respect to the market flows. The market trade transactions are divided into three zones such as up trend, down trend and stable zone. The weighted rule mining technique is applied to fetch patterns from the indexes, sector indexes and company price values. Apriority algorithm is modified to carry out weighted rule mining process. The system produces the market trade trend flow with market indexes and sector index values.

III. PROPOSED SYSTEM

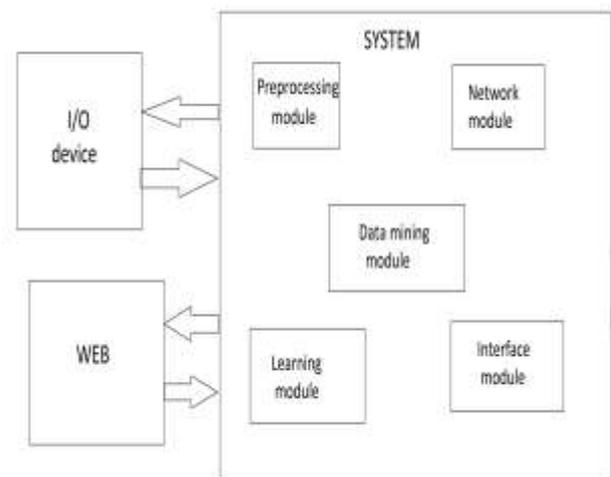


Fig 1. System architecture

This project contains modules as follows

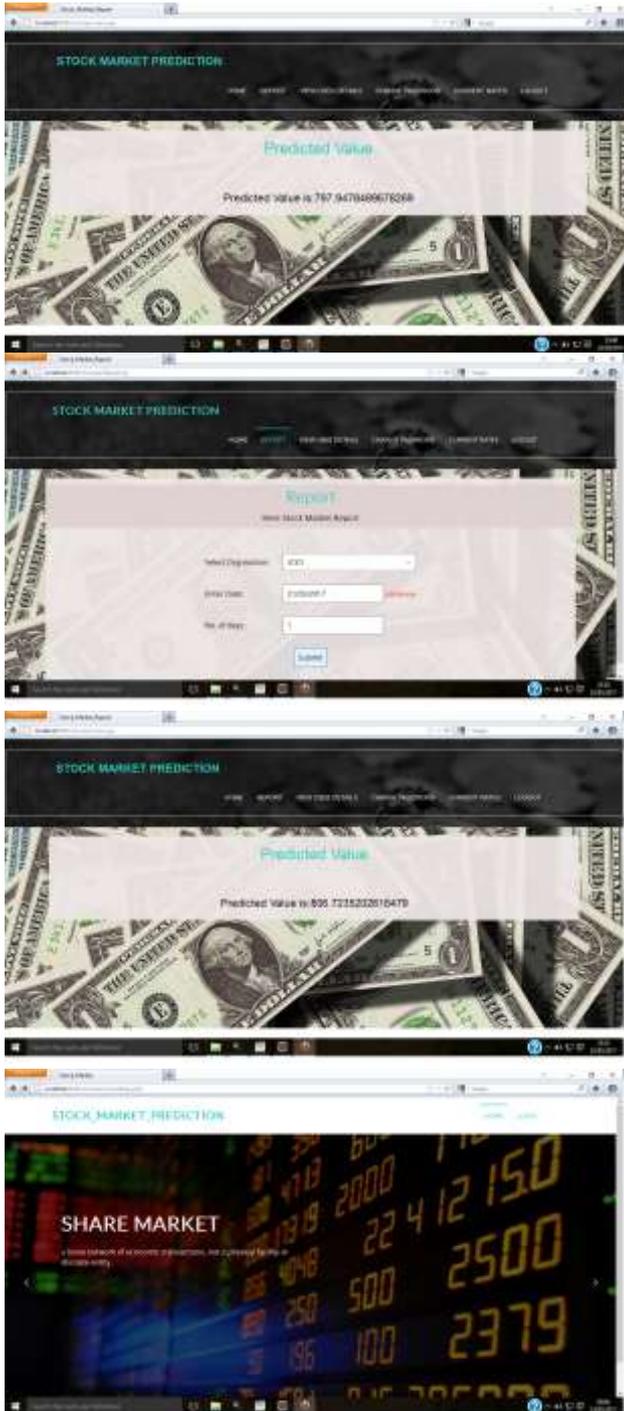
1. Data mining module: it downloads share indicator values given the name of shares from internet and makes that data available as an input.
2. Pre-processing module: this does functions of checking data whether it is in right format and then calculating weighted summation.
3. Network module: this module processes pre-processed input data to get the predictions.
4. Learning module: this module changes internal various values of weights and some parameters after calculation of error and performing some more operations on error values.

Algorithm

1. Accept input sample
2. Perform its weighted summation.

3. Apply it to input layer neurons.
4. Process all inputs at each neuron by transfer function to get individual out- puts.
5. Pass it as a input to all neurons of hidden layer and repeat 1,2,3,4 steps for hidden.
6. Layer neurons.
7. Pass outputs of hidden layer neurons to all output layer neurons and repeat 1,2,3,4.
8. Steps to get final output.
9. Display the final output

IV.RESULT



V. CONCLUSION

We conclude that paper implements neural network approach. The concept of self learning indicates using information of results to improve the next actions which is also been implemented with back propagation algorithm. Conceptual base of this project is awesome which will attract the users to explore their interest in share market with this project.

REFERENCES

- [1] Jageshwer Shriwas, Dr Samidha Dwivedi Sharma, "Stock Price Prediction Using Hybrid Approach of Rule Based Algorithm and Financial News" Int.J.Computer Technology & Applications, Vol 5 (1), 205-211
- [2] Anil Rajput , S.P. Saxena , Ramesh Prasad Aharwal and Ritu Soni —Rule based Classification of BSE Stock Data With Data Mining. International Journal of Information Sciences and Application. ISSN 0974-2255 Volume 4, Number 1 (2012).
- [3] Stephen Evans, "Data Mining in Financial Markets", 2011.
- [4] S.Karthik , K.K.Sureshkumar , " Analysis of Stock Market Trend using Integrated Clustering and Weighted Rule Mining Technique", International Journal of Computer Science and Management Research, ISSN 2278-733X, Vol 1 Issue 5 December 2012.
- [5] K.K.Sureshkumar Dr.N.M.Elango, "An Efficient Approach to Forecast Indian Stock Market Price and their Performance Analysis", International Journal of Computer Applications (0975 8887) Volume 34 No.5, November 2011.
- [6] Zabir Haider Khan, Tasnim Sharmin Alin Md. Akter Hussain, Price Prediction of Share Market using Artificial Neural Network (ANN), International Journal of Computer Applications (0975 8887) Volume 22 No.2, May 2011.
- [7] Md, Syedul Amin, Md. Mamun, Fazida Hanim Hashim, Jubayer Jalil and Hafizah Husain, Design and Implementation of Novel Artificial Neural Network Based Stock Market Forecasting System on Field-Programmable Gate Arrays, American Journal of Applied Sciences 8 (10): 1054-1060, 2011 ISSN 1546-9239.