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STOCK PRICE TREND FORECASTING USING SUPERVISED LEARNING METHODS

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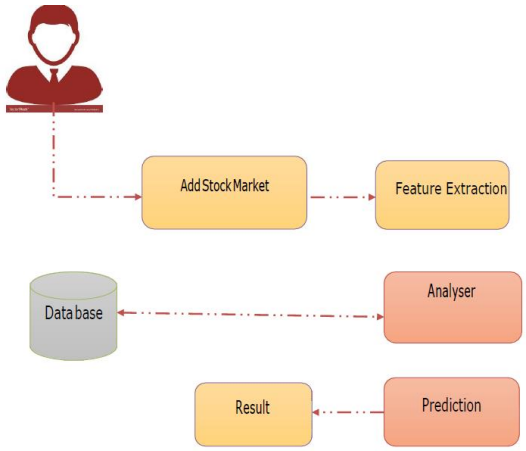
ABSTRACT

The aim of the project is to examine a number of different forecasting techniques to predict future stock returns based on past returns and numerical news indicators to construct a portfolio of multiple stocks in order to diversify the risk. We do this by applying supervised learning methods for stock price forecasting by interpreting the seemingly chaotic market data.

1. Introduction

The fluctuation of stock market is violent and there are many complicated financial indicators. However, the advancement in technology, provides an opportunity to gain steady fortune from stock market and also can help experts to find out the most informative indicators to make better prediction. The prediction of the market value is of paramount importance to help in maximizing the profit of stock option purchase while keeping the risk low. The next section of the paper will be methodology where we will explain about each process in detail. After that we will have pictorial representations of the analysis that we have made and we will also reason about the results achieved. Finally, we will define the scope of the project. We will talk about how to extend the paper to achieve better results.



2. LITERATURE SURVEY

Literature survey is the most important step in software development process. Before developing the tool it is necessary to determine the time factor, economy n company strength. Once these things r satisfied, ten next steps are to determine which operating system and language can be used for developing the tool. Once the programmers start building the tool the programmers need lot of external support. This support can be obtained from senior programmers, from book or from websites. Before building the system the above consideration are taken into account for developing the proposed system.

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Philip Ball (April 26, 2013). "Counting Google searches predicts market movements". Nature. doi:10.1038/nature.2013.12879. Retrieved August 10, 2013.

Crises in financial markets affect humans worldwide. Detailed market data on trading decisions reflect some of the complex human behavior that has led to these crises. We suggest that massive new data sources resulting from human interaction with the Internet may offer a new perspective on the behavior of market participants in periods of large market movements. By analyzing changes in Google query volumes for search terms related to finance, we find patterns that may be interpreted as "early warning signs" of stock market moves. Our results illustrate the potential that combining extensive behavioral data sets offers for a better understanding of collective human behavior. Nick Bilton (April 26, 2013). "Google Search Terms Can Predict Stock Market, Study Finds". New York Tim es.Retrieved August 10, 2013.The terms people search for on Google have been used to forecast how many Americans have the flu, travel plans and the price for which cars sell. Now a scientific study shows that Google search can be used to predict the stock market. Using Google Trends, a service that shows the popularity of search terms, researchers from Warwick Business School in England and Boston University's department of physics found that the type of terms people search Google for on a given week can predict whether the Dow Jones industrial average will rise or fall the following week. The study, titled "Quantifying Trading Behavior in Financial Markets Using Google Trends," was published Thursday in between 2004 and 2011. These included investment-related words, like debt, stocks, portfolio, unemployment and markets, and non-investment terms, including lifestyle, arts, happy, war, conflict and politics. One of the leading search terms used to predict the markets was the word "debt" — an increase in such searches heralded a sell-off of stocks. A decrease in searches found the market rose slightly the following week. But the results do not take into account volatile markets where a big sell-off can force investors to abandon ship sooner than they anticipated.

3. System analysis

3.1 Existing System

The following analyses are considered as the fluctuation of stock market is violent and there are many complicated financial indicators. Multi-layer are the greater part of the neural systems expect profound learning. It utilizes maybe a couple concealed layers. The principle advantage is they can be utilized for hard to complex issues. This system is very complicated and hard to implement. User must have deep knowledge about neural networks. Analyze more number of nodes for collecting information.

Disadvantages

- ➢ Less Accuracy.
- ➢ Less Performance.

3.2 Proposed System

Proposed system use an efficient supervised learning method for future stock prediction. The advancement in technology provides an opportunity to gain steady fortune from stock market and also can help experts to find out the most informative indicators to make better prediction. Admin collect the past stock market record and stored in a database. The prediction of the market value is paramount importance to help in maximizing the profit of stock option purchase while keeping risk low. Proposed achieved expected predicted values by using efficient regressor methods. Regressor

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methods using the past stock market values for prediction. Taking average of
past stock values and applied to the required regressor methods. User can easily predicts the future values by using our application.
Advantages

➢ High Accuracy.

➢ High Performance.

4. SYSTEM DESIGN

4.1 UML DIAGRAMS

UML stands for Unified Modeling Language. UML is a standardized general-purpose modeling language in the field of object-oriented software engineering. The standard is managed, and was created by, the Object Management Group. The goal is for UML to become a common language for creating models of object oriented computer software. In its current form UML is comprised of two major components: a Meta- model and a notation. In the future, some form of method or process may also be added to; or associated with, UML. The Unified Modeling Language is a standard language for specifying, Visualization, Constructing and documenting the artifacts of software system, as well as for business modeling and other non-software systems. The UML represents a collection of best engineering practices that have proven successful in the modeling of large and complex systems. The UML is a very important part of developing objects oriented software and the software development process. The UML uses mostly graphical notations to express the design of software projects.

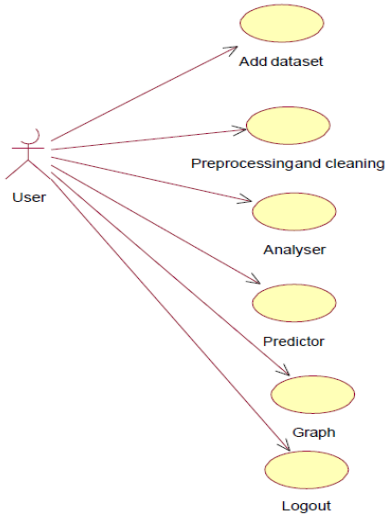
GOALS:

The Primary goals in the design of the UML are as follows:

1. Provide users a ready-to-use, expressive visual modeling Language so that they can develop and exchange meaningful models.
2. Provide extendibility and specialization mechanisms to extend the core concepts.
3. Be independent of particular programming languages and development process.
4. Provide a formal basis for understanding the modeling language.
5. Encourage the growth of OO tools market.
6. Support higher level development concepts such as collaborations, frameworks, patterns and components.
7. Integrate best practices.

4.2 USE CASE DIAGRAM:

A use case diagram in the Unified Modeling Language (UML) is a type of behavioral diagram defined by and created from a Use-case analysis. Its purpose is to present a graphical overview of the functionality provided by a system in terms of actors, their goals (represented as use cases), and any dependencies between those use cases. The main purpose of a use case diagram is to show what system functions are performed for which actor. Roles of the actors in the system can be depicted.



Use case diagram

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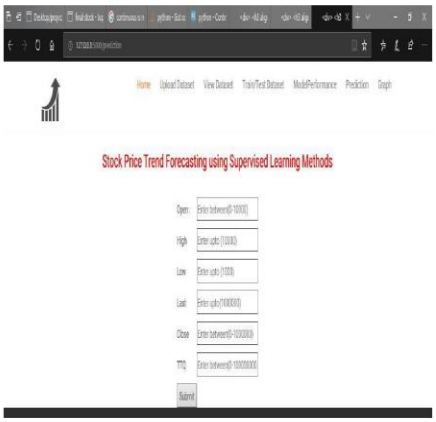
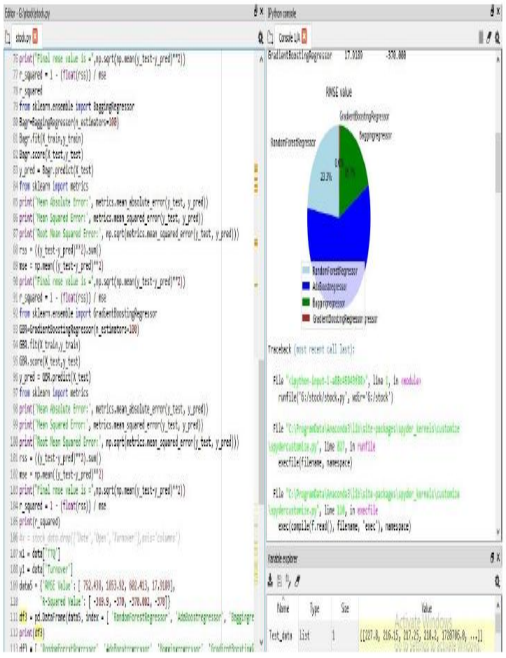
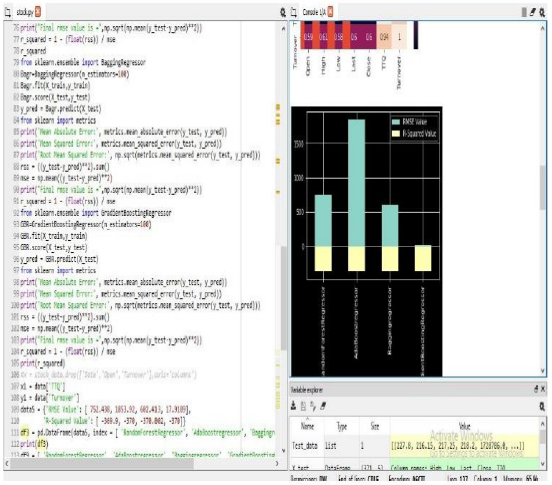
5. Results:



Uploading The Value



Gradient Boosing Regressor in Pie Chat



Gradient Boosting Regressor Result in Bar Graph

6. CONCLUSION

Based on the results obtained, it is found that Gradient Boosting Regressor consistently performs the best. This is followed by Bagging Regressor, Random Forest Regressor, and Adaboost Regressor and by K Neighbor Regressor. Bagging Regressor is found to perform good as Bagging (Bootstrap sampling) relies on the fact that combination of many independent base learners will significantly decrease the error. Therefore we want to produce as many independent base learners as possible. Each base learner is generated by sampling the original data set with replacement. From the results, it is safe to say that additional hidden layer(s) improve upon the score of the models. Random Forest is an extension of bagging where the major difference is the incorporation of randomized feature selection.

REFERENCES:

[1] https://en.wikipedia.org/wiki/F-test
[2] http://goo.gl/4OI84b
[3] http://scikit-learn.org/stable/
[4] http://deeplearning.net/software/theano/

[5] http://colah.github.io/posts/2015-08-Understanding-LSTMs/
[6] M.T. Philip, K. Poul, S.O. Choy, K. Reggie, S.c. Ng, 1. Mark, T.Jonathan, K. Kai, and W. Tak-Lam, "Design and Implementation of NN5 for Hong Stock Price Forecasting", Journal of E ngineering Application of Artificial I ntelligence, vol. 20,2007, pp.453-461.
[7] X. Wu, M. Fund and A. Flitman, "Forecasting Stock Performance using Intelligent Hybrid Systems", Springerlink, 2001, pp. 4 4 7-4 56.
[8] T. Kimoto, K. Asawaka, M. Y oda, and M. Takeoka, "Stock Market Prediction System with Modular Neural Network " , Processing of I nternational Joint Conference on Neural Networks, 1990, pp. 1-6.
[9] H. Mizono, M. Kosaka, H. Yajma, and N. Komoda, "Application of Neural Network to Technical Anaysis of Stock Market Prediction ", Studies in I nformatics and Control, 1998, Vol.7, No.3, pp.1l1-120. [10] S. R. Sexton, R. E . Dorsey and 1. D. Johnson, "Toward Global Optimization of Neural Network A Comparison of the Genetic Algorithm and Backpropagation", 1998, Decision Support Systems voL22, pp.I17-185.
[11] Robyn Ball and Philippe Tissot, "Demonstration of Artificial Neural Network in Matlab", Division of Nearhsore Research, Texas A&M University, 2006
[12] S. Neenwi, P. O. Asagba, L. G. Kabari. "Predicting the Nigerian Stock Market Using Artificial Neural Network", E uropean Journal of Computer Science and Information,VoLI ,
No.1, pp.30-39,J une 2013
[13] Phua, P. K. H. Ming, W. Lin, "Neural Network With Genetic Algorithms For Stocks Prediction", Fifth Conferences of the Association of AsianPacific Operations Research Societies, 2000, 51h_ 7th July, Singapore