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Dynamic Stock Prediction Framework using Machine Learning Approaches

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ABSTRACT:

Much of stock value analysis relies on the ability to discern stock price development, as well as to predict the hidden instances and patterns that the market follows. In the last several years, information examinations have taken on a greater role in the financial markets. To reap the rewards of their investment, many financial advisors need to know how to analyse important data from the stock market. A few clear directions can be found in many broad articles on stock forecasting. As a result, the question of how to predict the stock market from recovery information becomes an important and impressive subject. The stock market is one of the world's most volatile and high-risk environments. Foreseeing the stock price is impossible because there are no critical methods. Despite the fact that there are three primary methods for predicting the stock price of an offer market, none of these methods has been proven to be a reliably accurate forecast device. A forecast apparatus is one of the most challenging tasks because stock cost depends on a wide range of important factors and highlights. Using a Moving average-based model, we can predict the offer rate and compare it to the actual cost. In order to do this, we take data from the stock market over the past half year of 5 years, reduce their high dimensionality so that we can prepare faster and more effectively, and use the same method and our approach for forecasting the following day's share price. In order to verify the framework's suitability, a variety of stock market data is used. Research in this area shows that information mining techniques may be used to estimate historical stock costs and obtain useful information by determining the right monetary values. identified to be in need of the most effective DT model was Efforts were also made to estimate, as accurately as possible given the current circumstances. In this regard, we proposed dynamic stock prediction frame work to estimate the stock prices and support the investor to take wise decision. The framework uses machine learning techniques to adopt itself to the market and perform reliable prediction. Since, LSTM is more suitable for dealing with non-linear time series applications. We have included this in our framework. In our experimentation, we focused on three thematic share domains. We consider,

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google, AVL, IOS, share history of 5 years with an accumulated record around three thousand. Experimental results show proposed news of our framework with accuracy 97%.

The DT, SVM, Lasso, and Ridge models are among the most commonly used.

Keywords: Multi spectral compression, Cold out classifier, Decision tree model, Ridge model, Port polio theorems, Stock prediction.

1. INTRODUCTION

The introduction part can be written briefly and lead in to the main issue directly rewrite the introduction succinct in a polished way stitching together the major advancement made in the area and also pin-point the gaps to justify the study's claim

Literature review is required to improve and strengthen. However, author(s) need to cite latest researches in the relevant field to provide an up-to-date picture of work.

As of present, the concept of making money via currency exchange businesses is widely accepted. NSE, BSE, is the main financial stock units which contributes economic growth of our country. The question of whether or not we can be sure of our bet is a common one in the world of financial trading, as we are all aware of. Investments in the stock market are linked to profiting from the money we choose to invest in firms. Trying to foresee how the financial market will perform is difficult. Numerous factors are involved in predicting the future, including actual and physiological aspects, wise and inconsiderate behavior, and so on. All of these points of view combine to make it difficult to accurately anticipate how much a company's shares will cost. In this case, could we benefit much from machine learning? AI and ML techniques are capable of extracting unexplored knowledge of the stock market behavior.

Fig.1: Example figure

When it comes to making financial decisions, traders are increasingly turning to Intelligent Trading Systems rather than relying just on fundamental analysis. Predicting the stock price is an important objective for traders because it allows them to sell their stocks before they decline in value or to buy them before they rise in value. It is argued by proponents of the efficient market theory that stock prices cannot be forecast and instead move at random. It looks impossible to replace the professionalism of an experienced trader in predicting stock values. The amount of data and technological advancements have made it possible to construct a good prediction algorithm that can help traders and investment firms make more money. As a result, an algorithm's accuracy is directly related to the benefits it provides.

2. Methodology add more details 9dataset consulted; period of coverage; parameters considered; software/ algorithm used/ modified/ compared etc

2.1. Existing Approach

- Stock forecasting methods such as multispectral forecasting, distortion-controlled forecasting, and Lempel-Ziv-based forecasting already exist. When it comes to data representation, this is due to the fact that redundancy is eliminated and relevant information remains in an accessible manner (Azhar et al. 1994). Despite their limitations, the KNN algorithm and the MA formula proved to be the most effective tools for this project.
- DRAWBACKS:
- a lack of faith in the market
- There is no clear direction.
- Phobia of investment losses as a result of urban legends

2.2. Proposed Approach

- A Machine Learning (ML) approach is proposed in this study, which is trained using stock data to build intelligence, and then uses that intelligence to make correct

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predictions. The ability to quickly and effectively prepare and conduct a similar inquiry and our technique for forecasting the following day's share price.

- In order to verify the framework's suitability, a variety of stock market data is used. Research in this area shows that information mining techniques may be used to estimate historical stock costs and obtain useful information by determining the right monetary values. identified to be in need of the most effective DT model was Efforts were also made to estimate, as accurately as possible given the current circumstances.
- ADVANTAGES:
- It is possible to use data mining systems for the creation of models and additional computations based on a wide range of time and money-related data.
- The level of precision conveyed by each result is critical. In accordance with our requirements, and as stated previously, a model that is less than 95% accurate is effectively useless.

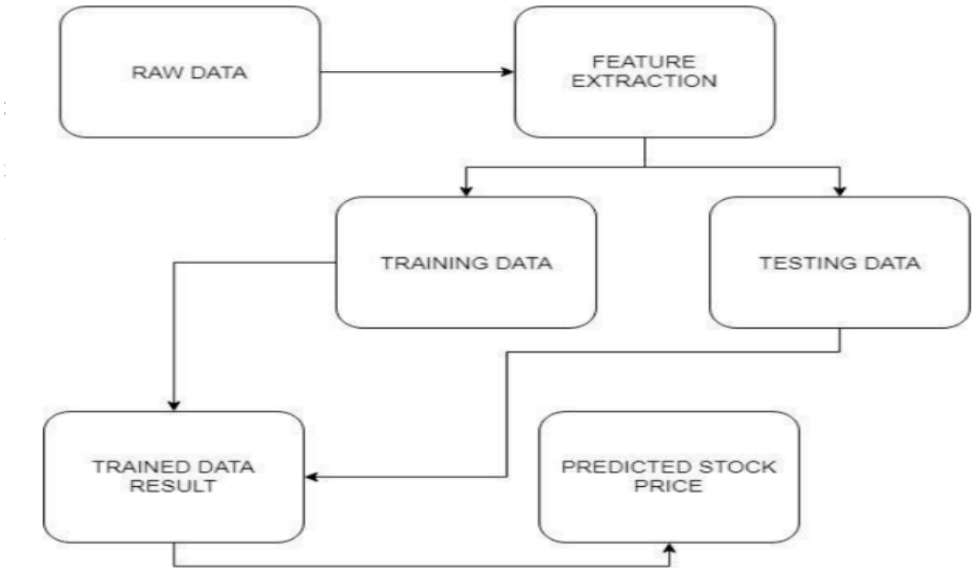

Fig.2: System architecture

2.3. Modules

2.3.1. Data Collection: The underlying progress towards the project is being made by the collection of information, which is a key module. It generally fits with the privilege dataset's assortment. For the market projection to be accurate, the data used must be sorted through from a variety of perspectives. The inclusion of extra externally-sourced data to the information collection further enhances the dataset. The stock values from the previous year make up the bulk of our data's. Once we have analyzed the Kaggle dataset, we will use the model and information to accurately break down forecasts.

An important part of information mining is transforming raw data into an organized structure. Data Pre-Processing is an example of this. Many errors can be found in crude information, which tends to be inconsistent or fragmentary. The pre-handling of information includes seeking for missing qualities, searching for clear-cut qualities, and dividing the informative collection into a preparation and a testing set. a Last but not least, apply a component scaling to limit the scope of factors so that they can be considered in a more typical context.

The process of training the machine is similar to preparing the information for the calculation to remove the test data from the machine. To fine-tune and customize the models, the preparatory sets are put to use. The test sets are clean since a model should not be created based on inconspicuous information. In our model, we use 70% of the data to build the model and 30% of the data is used to test the model.

If we use irregular splitting to divide the data into preparation and testing groups, we will obliterate the time period we are trying to work with. It's all here for testing purposes, and for creating the model, from the previous year's data.

2.4. Data Compression Techniques for Stock Market Prediction.

For the purpose of forecasting stock market behavior using generally accepted financial market models, we provide here advanced data compression methodologies. With the techniques, technical analysis, portfolio theory, and nonlinear market models can all benefit For predicting stock values and market patterns like strong trends and large alterations, lossy and lossless compression techniques are ideal, according to the authors Multispectral compression techniques

can also be applied to portfolio theory, stock correlations, interest rate effects, transaction costs, and taxes.

2.5. K-Nearest Neighbor (KNN) Approach:

For economic forecasting, the k-Nearest Neighbor categorization method was tested. In the financial sector, distress prediction models have become a popular area of study because of the impact that financial difficulties have on the interests of the company's stakeholders. Following the global financial crisis, there has been an upsurge in the number of bankrupt businesses. The use of financial ratios to predict financial distress has gotten out of hand due to the fact that the first step in filing for bankruptcy is experiencing financial difficulty. A few nonparametric methods have been used in studies that have grown in recent years, but the vast majority of them have used standard statistical methodologies to predict Iranian firms' financial difficulties. This method has been found to be more effective than others in recent studies.

2.5.1. Nearest Neighbour classifiers validation

This work demonstrates how to construct error boundaries for k-nearest neighbour classifiers that are likely to be correct. In order to reduce the holdout classifier's error rate, the approach employs some training data as a validation set. In order to limit the error rate difference between the holdout classifier and the all-data classifier, the technique then leverages the validation set as a constraint. The classifier's out-of-sample error rate is then constrained using all of the training data.

2.6. ALGORITHMS USED

2.6.1. Decision Tree Algorithm

Decision tree algorithm is a supervised learning algorithm. In decision tree approach, we can also solve classification and regression problems as well. Predicting a variable's class or value by inferring basic decision rules from prior data is the purpose of a Decision Tree training model (training data).

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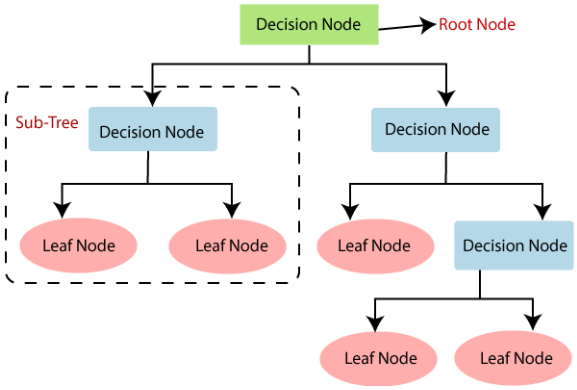

Fig.3: Decision tree architecture

2.6.2. SVM Algorithm

There are several applications for SVM, including classification and regression. Using the kernel trick, it transforms your data before finding an ideal boundary between the various outputs depending on these modifications.

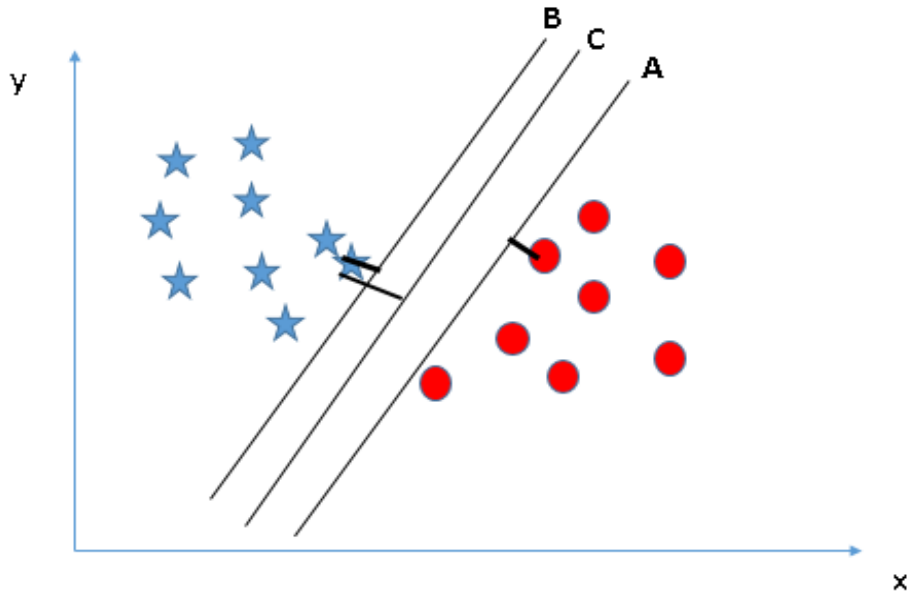

Fig.4: SVM architecture

2.6.3. LASSO

When using lasso regression, the goal is to find the most accurate predictors for a quantitative response variable. When the lasso is used, regression coefficients for some variables are reduced to zero because of the constraint it places on the model parameters.

Fig.5: LASSO architecture

2.6.4. Ridge Model

For example, Ridge regression can be used when the number of predictor variables in a set is more than the number of observations or when a data set includes multicollinearity (correlations between predictor variables).

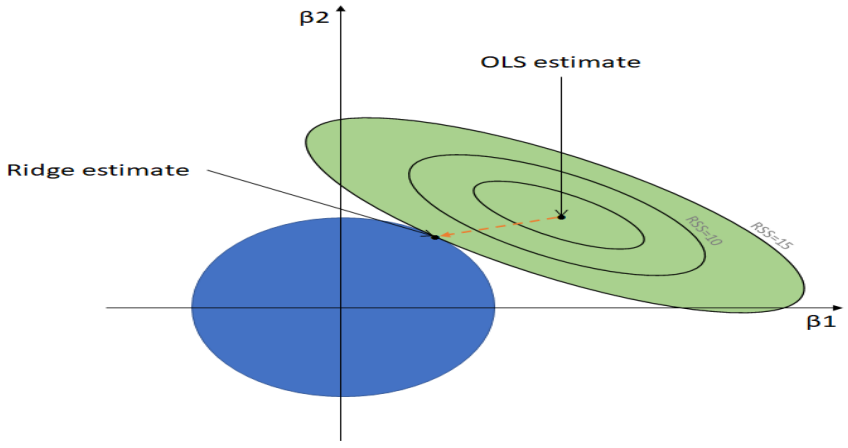

Fig.6: Ridge model

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3. Results and Discussion

Results should be included and needs to be validated with previous results on recent relevant literatures and to be discussed with favoring and contradicting the current findings

Fig.7: Analyzing telsa dataset

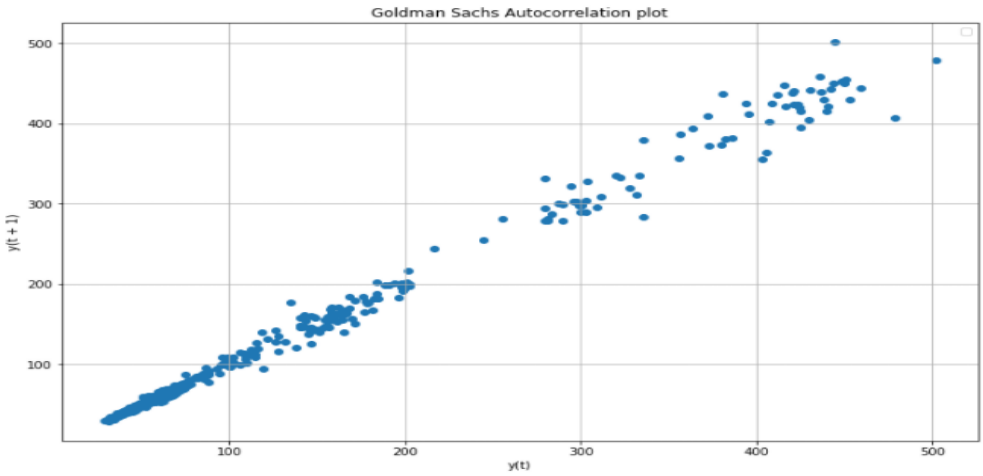

Fig.8: Goldman Sachs Prediction Price

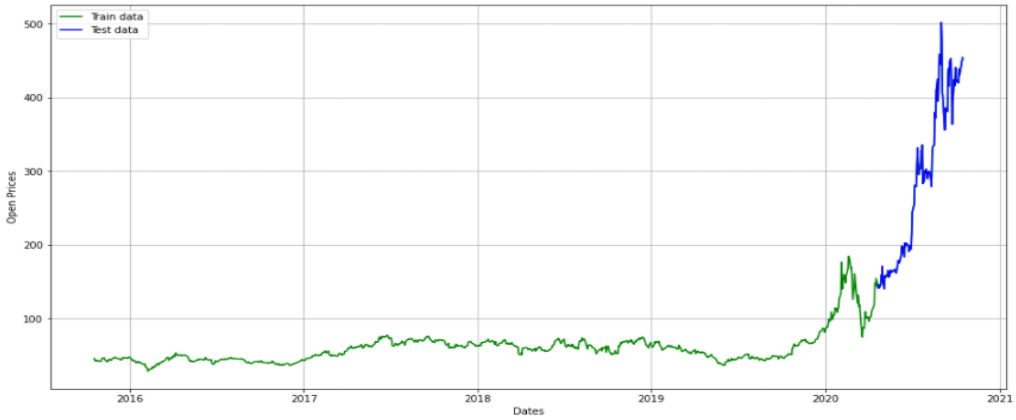

Fig.9: Analyzing Prices

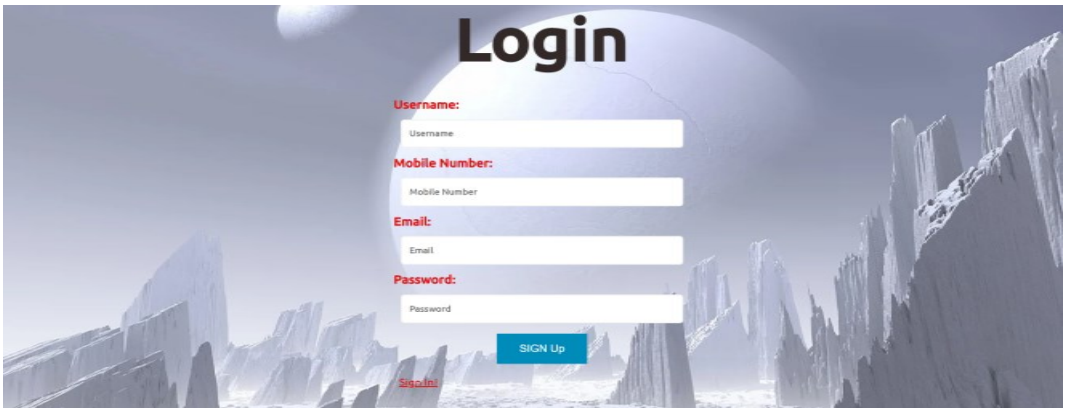

Fig.10: login screen

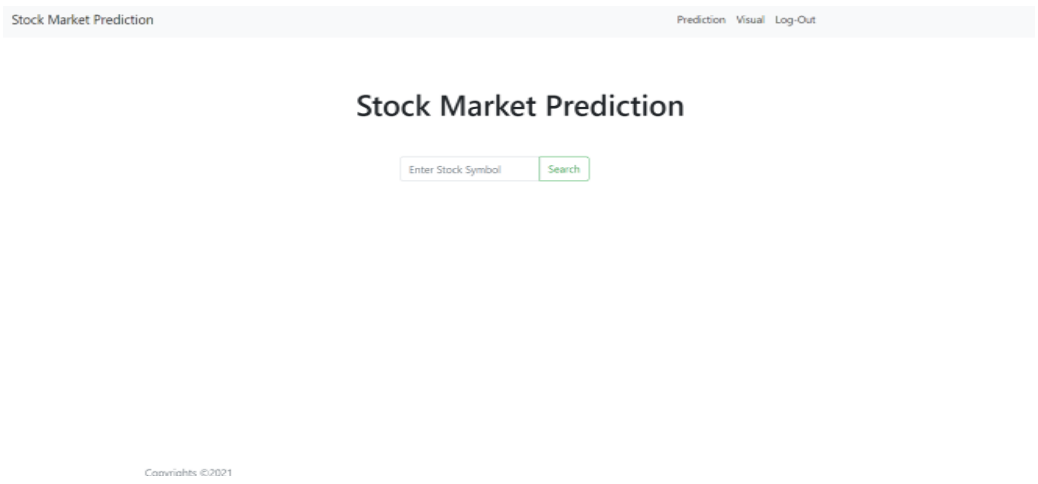

Fig.11: stock price prediction

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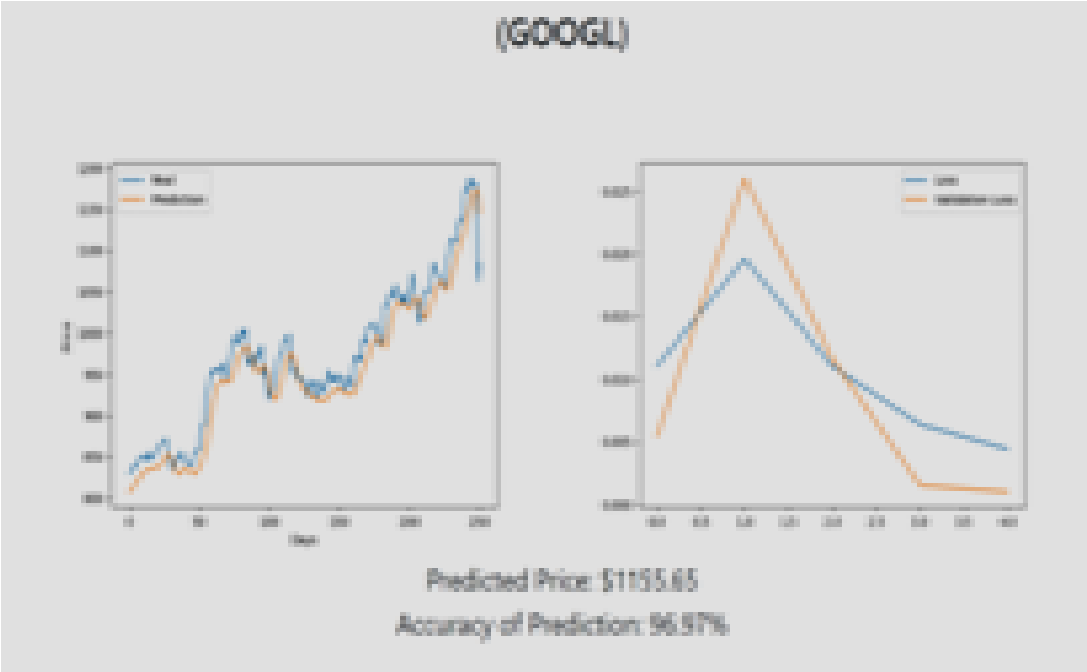

Fig.12: Accuracy graph

4. CONCLUSION

A Machine Learning (ML) approach is proposed in this study, which is trained using stock data to build intelligence, and then uses that intelligence to make correct predictions. In order to predict the stock market, we used DT, SVM, Lasso, and Ridge models, and the results suggest that our calculations were fair in dissecting and foreseeing data. When compared to relapse computations such as DT, SVM, Lasso and Ridge calculations, for instance. The machine works flawlessly and is more accurate than Linear Regression. DT, SVM, Lasso, and Ridge models outperformed regression algorithms when it came to predicting stock prices.

6. References

[1] Stock Price Prediction Using LSTM on Indian Share Market by Achyut Ghosh, Soumik Bose1, Giridhar Maji, Narayan C. Debnath, Soumya Sen

[2] S. Selvin, R. Vinayakumar, E. A. Gopalkrishnan, V. K. Menon and K. P. Soman, "Stock price prediction using LSTM, RNN and CNN-sliding window model," in International Conference on Advances in Computing, Communications and Informatics, 2017.

[3] Murtaza Roondiwala, Harshal Patel, Shraddha Varma, “Predicting Stock Prices Using LSTM” in Undergraduate Engineering Students, Department of Information Technology, Mumbai University, 2015.

[4] Xiongwen Pang, Yanqiang Zhou, Pan Wang, Weiwei Lin, “An innovative neural network approach for stock market prediction”, 2018

[5] Ishita Parmar, Navanshu Agarwal, Sheirsh Saxena, Ridam Arora, Shikhin Gupta, Himanshu Dhiman, Lokesh Chouhan Department of Computer Science and Engineering National Institute of Technology, Hamirpur – 177005, INDIA - Stock Market Prediction Using Machine Learning.

[6] Pranav Bhat Electronics and Telecommunication Department, Maharashtra Institute of Technology, Pune. Savitribai Phule Pune University - A Machine Learning Model for Stock Market Prediction.

[7] Anurag Sinha Department of computer science, Student, Amity University Jharkhand Ranchi, Jharkhand (India), 834001 - Stock Market Prediction Using Machine Learning.

[8] V Kranthi Sai Reddy Student, ECM, Sreenidhi Institute of Science and Technology, Hyderabad, India - Stock Market Prediction Using Machine Learning.

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[10] Mariam Moukalled Wassim El-Hajj Mohamad Jaber Computer Science Department American University of Beirut - Automated Stock Price Prediction Using Machine Learning.