

STOCK MARKET PREDICTION USING LSTM

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ABSTRACT

Stock market is one of the most activities in financial world. This paper explains the prediction of stock prices using machine learning. Stock market is play Important role in economic development, where investors to purchase and sell their Shares. The Prediction of Stock prices aim to predict the future value of the financial stocks of the company. Machine Learning it is a different model to make prediction easier and authentic. Money related markets Being exceedingly unsteady, there's huge whole of flimsiness and danger related with them. This paper presents a creative methodology to except another day closing costs of stocks utilizing combination of significant learning approach utilizing log short-term memory, plan of particular neural frameworks, auto in reverse facilitators moving typical time course of action illustrate and suspicions examination illustrate to expect another day closing costs of stocks. These models have been combined in a nourish forward neural organize to provide the extreme desire. Stock markets depend on high demands, high demand stock will increase prices, heavily stocks will decrease prices. The programming language is python used to predict the stock market using machine learning.

Keywords: Stock Market, Finance, Long Short-Term Memory, Machine Learning, Prediction.

I. INTRODUCTION

Today many people are invested in stock market who invests in stock markets. They are usually unaware of the stock market behavior. Investors are facing the problem of stock trading as they do not know which stocks to buy and which to sell in order to gain more profits. When it is constructing and selecting a portfolio for investment, evaluation of its expected returns and risks is considered the bottom line. Stock markets depend on high demands, high demand stock will increase prices, and heavily stocks will decrease prices. The programming language is python used to predict the stock market using machine learning. The algorithm is the LSTM (Long-Short term memory) network. Stock market is a type of recurrent network that has proved very successful on a number of problems given its capability to distinguish between recent and early examples by giving different weights for each forgetting memory it considers irrelevant to predict the next output. In share market prices are not fixed it will change daily. Stock plays a important role in investment portfolios. Stock market open at 09:00am and closed 03:00pm. Technology has also been an important factor, for selling and buying trade there are so many mobile apps available.

II. METHODOLOGY

RELEVANT THEORY

2.1 PROBLEM STATEMENT

The investors who are invest in stock markets usually unaware of the stock market. Many investors are facing the problem of stock trading because they do not know which stocks to buy and sell in order to gain more profits. When it is constructing and selecting a portfolio for investment, evaluation of its expected returns and risks is considered the bottom.

2.2 PROBLEM FARMING

The problem of the project is set to predict the stock price for the next N business days. "N days" is chosen as the time farms as short-term price movements tend to depend more on trend momentum and price pattern, while long term price movements depend on the fundamentals of a stock (e.g company management capabilities, revenue model, market demand, macroeconomics factors, etc.)

2.3 OBJECTIVES

The main objectives of this application are:

- To predict the market performance of (SEBI) on day closing using different machine learning techniques.
- To understand recent technology used for Prediction Purpose in Share Market.
- To trade the stock market prices for individual investment.
- To save their income by marketing a profit.

2.4 SCOPE

- This Proposed system will analyze stock with respective factors.
- It particularly focuses on open, close, high, low value of previous data.
- Stock Market prices are volatile in nature and are affected by factors like inflammation and economic growth
- A price of a share market is depending on heavily demand and supply. High demanded stocks will increase the price whereas heavily sold stocks will decrease in price.

III. MODELING AND ANALYSIS

3.1 Hardware and Software Requirement

Software Requirement

1. Numpy
2. Python IDE
3. Y finance
4. Pandas
5. Date time
6. Matplotlib
7. Fbprophit

Hardware Requirement

1. Machine with windows or Linux Platform.
2. RAM 1 GB or above.
3. Monitor.
4. GPU for Training the Model.

3.2 PROCESS MODEL

A model base class is used for a common interface for all machine learning models, all process model has their own model class and specifying model specific details like method to build a model, train the model used the model and save the model each model is defined by a JSON object, which specifies the model's architecture and hyper parameters with model options and the model inputs with input options. A corresponding model it can be created by passing the object to the model class constructor.

3.3 REQUIREMENT ANALYSIS

Requirement analysis used to focus on a task it determines the needs or condition meet the new or altered product or project, taking account of the possibility conflicting requirement of the various stakeholders, analysis documenting validating and managing software or system requirements. Requirement analysis it is critical for both the success and failure of a system or software project. The requirement should be documented, actionable, measurable, testable, and traceable related to identified business needs or opportunities, and defined to level of detail sufficient for system design. Software requirement specification is a compressive description of the intended purpose and environment for software requirement system is minimizing the time and effort required by developers for achieve desired goals and minimize the development cost.

3.4 REQUIREMENT SPECIFICATION

The term specification it means different things for different people. A specification is written document or a graphical model, and a formal mathematical model.

These requirement specifications are of three types' i.e.

- 1. N: Norma Requirements
- 2. E: Expected Requirements
- 3. X: Excited Requirements

3.5 ALGORITHMS

LONG SHORT-TERM MEMORY (LSTM)

Long short-term memory (LSTM) tackles the problem of learning to remember information over time interval, by introducing memory cells and get units in the neural network architecture. A typical formulation involves the used for the memory cells, each of which has a cell state that store previously encountered information. Always time input is passed into the memory cells, and the cell state is updated. When another input is passed into the memory cells, the updated cells state and the new input can be used to compute the new output in the system.

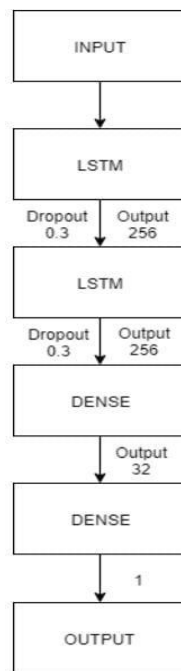


Figure 01. LSTM

3.6 SYSTEM ARCHITECTURE

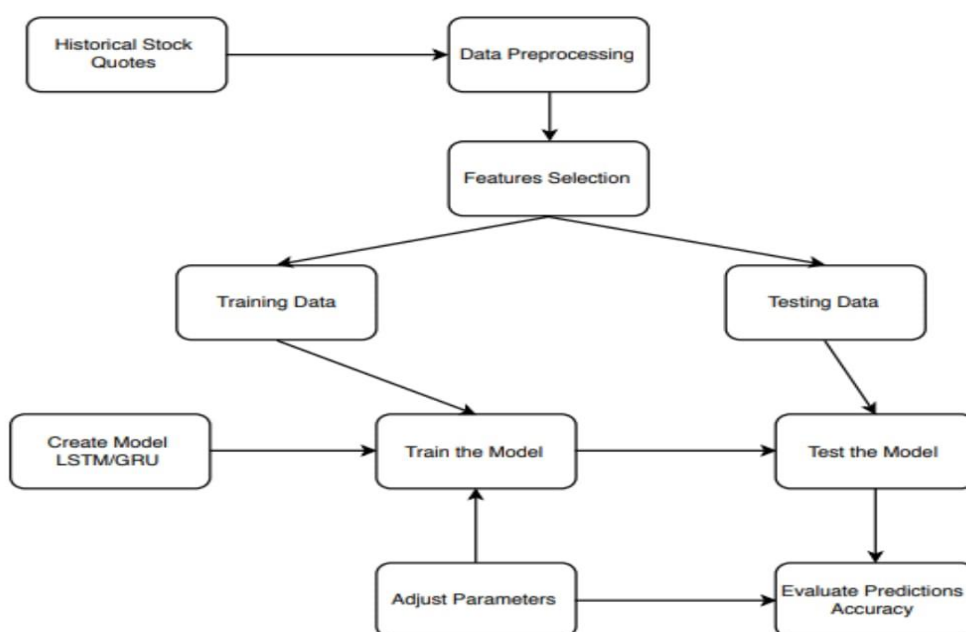


Figure 02. System Architecture

3.7 METHODOLOGY AND DESIGN

Stock market prediction it is a complex problem because there are many factors that have yet to be address and it does not seem statistical at first. The power of machine learning techniques, one can be related previous data to be current data and train the machine to learn from it and make appropriate assumptions. Machine learning has many models but these papers focus on two most important of them and make the predictions using them.

IV. CONCLUSION

We are able to watch that in common the show proposed on this article beat the baselines with few special cases. The stock advertise is put where individuals go to stock.

The results can be considered exceptionally proposing because it has demonstrated able to anticipate well compared to other approaches utilized nowadays within the writing in spite of the fact that the input measurement is exceptionally huge, the calculation has request. We are going observe that in common the show proposed on this article outflank the base line with few exemptions. Stock advertise is classifying its classification depend on company. The contributing may be a chance of making more cash. We watch the one company exchange from final 10-year long time to this current year and graphically is spoken to utilizing relapse calculation. The result can be considered uncommonly promising since it has illustrated able to predict well compare to other approaches utilizes presently days inside the composing in show disdain toward of the truth that the input estimation it exponentially tremendous the calculation has asked.

FUTURE SCOPE

- Potential improvement it can be made to our data collection.
- Future research it can be done with the possible to Improvement.
- Implementation of discussion forums and economic news.

V. REFERENCES

- [1] Zhen HU jibe Zhu and Ken T se "Stock market Prediction Using Support Vector Machine", 6th International conference on information management innovation management and Industrial engineering 2013.M.
- [2] Wei Huang Yoshiteru Nakamori, Shou-Yang Wang, "Forecasting stock market movement direction with support vector machine", Computers Operations Research, Volume 32, Issue 10, October 2005.
- [3] N. Ancona Classification Properties of support vector machine for regression technical report RIIESI/CNRNr. 02/09.
- [4] K. Jae Kim, "Financial time series forecasting using vector support machine", Neuro computing, Vol. 55, 2003.
- [5] M.Glantz and R. Kassel, Multi-asset Risk Modeling, 1st ed. Academic press, 2013.
- [6] E. F. Fema and B.G Malkeiel, "Efficient capital markets: A review of theory and empirical Work", The journal of finance, Vol. 25, no. 2, pp. 383-417, 1970. {online}, Available: <http://dx.doi.org/10.1111/j.1540-6261.1970.tb00518.x> BG. Malkei, A Random Walk down wall Street Norton, New York, 1973.
- [7] A. E. Biondo, A. Rapisarda, and D. Helbing, "Are Random Trading Strategies More successful than technical ones?" PLOS ONE , Vol. 8, P.e68344, jul. 2013.
- [8] C. Kirkpatrick and J. Dahlquist, Technical Analysis: The complete Re-source for financial Market Technicians, 1st ed. FT Press,2006.
- [9] A. Lo and A. Mackinlay, A non random walk down wall street. Princeton, NJ[u.a]: Princeton Univ. Press, 1999.[Online]. Available: <http://gso.gbv.de/DB=2.1/CMD?ACT=S IKT=1016TRM=ppn+249613484 sourceid=fbw bibisonomy>.
- [10] F. Allen and R. Karjalainen. "Using genetic algorithm to find technical trading rules." Journal of Financial Economics. Vol. 51, no. 2, pp. 245-271, 1999,[Online], Available: <http://www.sciencedirect.com/science/article/pii/S0304405X9800052X>.