BIRLA INSTITUTE OF TECHNOLOGY & SCIENCE, PILANI
FIRST SEMESTER 2022-23

DSECLZG628T **DISSERTATION**

Dissertation Title:	Stock price movement forecasting using machine learning in trading
Name of Supervisor:	Amit Sharma
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Abstract

The stock market is one of the most important areas of focus for investors; therefore, the prediction of stock market price trends is a perennially popular issue for researchers in both the financial and technical professions. The purpose of this study is to develop a state-of-the-art prediction model for price trend forecasting, with a focus on short-term price trend forecasting in the intraday market. Hence, the ability to accurately estimate the price movement of stocks is the key to trading success.

Three month's worth of data with a minute interval from the Nifty and MSFT stock market is collected using cURL requests and preserved in the actual format for analysis. After collecting the data, it has been processed to obtain the fields like type, date, time, open, etc., and a model based on machine learning is presented for predicting the price trend of stock markets. The suggested solution is comprehensive, as it involves the pre-processing of the stock market information, the use of numerous feature engineering approaches, and a machine learning-based system for predicting price trends on the stock market. The method achieves overall high precision in predicting stock market trends. The extensive design and assessment of prediction term lengths, feature engineering, and data pre-processing methodologies adds to the financial and technical stock analysis study communities.

Numerous techniques, such as technical analysis, fundamental analysis, time series analysis, and statistical analysis, etc., are used to anticipate the price of stocks on the stock market, but none of these techniques has been demonstrated to be a consistently reliable prediction tool. To obtain better results, the SVM Regression(LINEAR, POLY) algorithm is employed and the model is then trained.

The LINEAR, POLY is comparable to a long short-term memory (SVM) with a forget gate, however it has fewer parameters than SVM due to the absence of an output gate. LINEAR, POLY seeks to tackle the problem of disappearing gradients inherent to traditional scalers.

Various plots for the data has been generated in EDA. With the help of Streamlit platform, the python application is hosted for real time analysis of the data.

This model has an advantage over other new advanced models because it is straightforward to deploy in any existing web application.

Key Words: Machine Learning, Stock Market, Trading, Decision Tree, Intraday, SVM

BIRLA INSTITUTE OF TECHNOLOGY AND SCIENCE, PILANI

I SEMESTER 22-23

DSE CL ZG628T DISSERTATION

Dissertation Outline

BITS ID No.	2020SC04239
Name of Student:	Sarvsav Sharma
Name of Supervisor:	Amit Sharma
Designation of Supervisor:	Assistant Consultant
Qualification and Experience:	B.Tech in Electronics and Communication 12 Years of Experience
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Topic of Dissertation	Stock price movement forecasting using machine learning in trading

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Designation of Second Examiner:	
Qualification and Experience:	
E- mail ID of Second Examiner:	

(Signature of Student)

Date: 11/12/2022

(Signature of Supervisor)

Date: 11/12/2022

1. Student details:
   Name: Sarvsav Sharma
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2. Date: 11 Dec, 22

3. Dissertation Title: Stock price movement forecasting using machine learning in trading

4. Supervisor details:
   Name: Amit Sharma
   Role in organization: Senior Developer
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5. Problem statement (what is the problem being addressed): Failure to Obtain Adequate Stock Market Returns

6. Business process flow, if any
   Monitor opening and close index of a stock
   Monitor lowest stock value
   Monitor highest stock value
   Buy or Sell the stock

7. Objective of the project: To determine the best time to buy and sell the stock in stock market

8. Uniqueness of the project: Model with accuracy to predict the price of stock every minute

9. Benefit to the organization: With this functionality, the traders will be able to make profitable and defensive investments in intraday trading.

10. Scope of work:
    Using a Python script, data is scraped as well as processed, and fitted to machine learning (ML) models using different algorithms to predict the price of the stock, and deploy it as a web application.

11. Resources needed for the project, including people, hardware, software, etc.
    Tools: Jupyter Notebook, Anaconda, Streamlit, flask
    People: Supervisor (For guidance) and self
    Languages: python 3.x

12. Potential challenges & risks in doing the project:
    Data collection using web scraping
    Data cleaning
    Deployment on Streamlit platform

13. Background of previous work done in the chosen area: Predicting of storage capacity in the artifactory using machine learning

14. Solution architecture, if any - Not applicable

15. Detailed Plan of Work (as follows)

#	Task	Expected date of completion	Names of Deliverables
1	Web scraping of data from Nifty	20 Dec, 22	Data collection
2	Pre processing of data	10 Jan, 23	Valid data
3	Visualising and insights of data by plotting	02 Feb, 23	Data visualization
4	Obtain best model using ML algorithms	20 Feb, 23	ML model
5	Deployment using streamlit and flask	21 Feb, 23	Web Application

Supervisor's Rating of the Technical Quality of this Dissertation Outline

EXCELLENT / GOOD / FAIR/ POOR (Please specify): GOOD

Supervisor's suggestions and remarks about the outline (if applicable).

Date 11 Dec, 22

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(Signature of Supervisor)

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