Project Phase III Report

On

Forecasting Stock Price

Submitted for the requirement of

Project course

BACHELOR OF ENGINEERING

COMPUTER SCIENCE & ENGINEERING

Submitted to: Jyoti
E-code: E12236

Submitted By

Name	Uid
AMAN SHARMA	**20BCS1229**
RAVI RANJAN	**20BCS1382**
VRINDA	**20BCS1290**
SAHIL GOYAL	**20BCS1262**

Co-Supervisor Signature
(PRIYA RANA & E-code)

Name: Ravi Ranjan
UID: 20BCS1382

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
CHANDIGARH UNIVERSITY, GHARUAN
June 2022

1. Feature/characteristics identification

The financial market is a dynamic and composite system where people can buy and sell currencies, stocks, equities and derivatives over virtual platforms supported by brokers. The stock market allows investors to own shares of public companies through trading either by exchange or over the counter markets although humans can take orders and submit them to the market

1. Objectives–

   The main objective of this project is to find the best model to predict the value of the stock market. In, this project we are going to present and review a more feasible method to predict the stock movement with higher accuracy. The first thing we have taken into account is the dataset of the stock market prices from various sources. our application is to serve retail investors as a third party investment tool that uses machine learning and deep learning to help them navigate in the fast-changing stock market. The project aims to introduce and democratize the latest machine learning and deep learning technologies for retail investors.

2. Single entity –

   A project is one whole thing. This means that in a project although different people contribute still is recognized as a single entity. The teams are often specifically assembled for a single project.

3. Life Span –

   No project can be ceaseless and indefinite. It must have one and beyond which it cannot proceed. Every project is invariably time-bound. At the time of planning, you will see the time phase of the project where the team can work independently on the project modules. Let's consider an example project that is divided into three modules let's say A, B, and C. If the total time span of a project is 5 months then you can set the time span for modules independently like A can complete in 2 months and also B can complete in 2 months and C can complete in month as per requirement.

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4. Require funds –

   Our project requires minimum 1 to 2 Lakhs for working it includes the cost of servers, storage, hosting website ,security and other hardware requirements

5. Life Cycle –

   In our forecasting stock Price website with python and ML lifecycle has Five phases. The phases are repeated to form an iterative process that you follow to build, manage, and incrementally improve your assistant.

   Phase 1: Planning

   In this first phase for building our project we all together build a plane which include what was the project, what are the features we want to implement, what are the challenges may come and how to divide the team int different task.

   All these thinks are included in our first phase and for this phase we are really excited but also nervous because starting any project always looks difficult but when you try it to implement practically it make the hard work simple.

   Phase 2: Create

   In this second phase we started building our Stock Forecasting with Python, Data Science and ML. And also parallelly making website for forecasting the stock price in more organized way. So, now we first divided our work by divided our team into four because we are only four members so we divided our work also as per the knowledge of the field that we have. Then we arrange meetings and discuss the error we are facing and how to short them.

   Phase 3: Analyze, train and test command

   This is the most important phase of our project making where we complete our coding part and we debug our code where we analyze the performance, speed, time execute and overall performance.

   Phase 4: Deploy

   To reach this point, we have created a currency Converter, analyzed its performance, and have updated it several times based on testing.
   At this stage we have deploy the project on system and analyzing its performance.

   Phase 5: Improvement

   After completing all phase, we left with improvement phase were examining the result and analyzing the improvement that we can do to make our Stock Forecasting system more effective.

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6. Team Spirit –

   We all four work together to make our project successfully within the mentorship of our co-supervisor Priya Rana ma'am who time - to - time guided us and take the report that who the work is going on. So in this project at first we arranged one meeting for us where we decided our strategy then we divided our group in four parts i.e, Aman Sharma is working on Python, Machine Learning and data science for stock forecasting system, Ravi Ranjan is working on website end and currency Converter api, Sahil Goyal working on Making Reports and Documentation as asked by the college and Vrinda help us in debugging all the errors and try to short it out. Like this we firstly completed our stock forecasting system parallelly webpage is ready to forecast stock price as required. After that Ravi Ranjan is working on currency converter end and like this work is on Progress. In this way we all are working together to make our project more effective and attractive.

7. Risk and Uncertainty –

   The project is generally based on forecasting. So risk and uncertainty are always associated with this project projects. No prediction is 100% accurate Therefore, the upper bound and lower bound of the stock prices will be displayed to illustrate the trading range the investors should be looking at. This application serves as a supplementary quantitative tool for investors to see the market at a different perspective with the help of technology.

8. Directions –

   Web-app, based on Machine learning and Deep learning which will predict the stock price based on data retrieved from various sources. Web-based App will predict the price of the stock, show charts, and also show real-time stock prices, and data. Relevant stock data, company data, and other data will be retrieved from the third-party data provider through the various sources, the back-end will pre-processes the data and builds the models according to that. After that, predictions are made on various factors and the prediction results will be displayed on the Web-Based application in form of Graphs, Candlesticks, charts, values etc.

9. Uniqueness –

   Forecasting stock price will not only predict the price of stock but it will also display the the upper bound and lower bound of the stock prices to illustrate the trading range the investors should be looking at which will reduce the risk of loss, it will also have currency converter.

10. Flexibility –

    Flexibility has value in the context of uncertain projects, as management can repeatedly gather information about uncertain project and market characteristics and, based on this information, change its course of action

11. Cost –

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Our project requires minimum 1 to 2 Lakhs for working it includes the cost of servers, storage, hosting website, security and other hardware requirements.

2. Constraints Identification

There are six major constraints in project management to consider.

1. Time: To complete the project at least 3 to 4 months are required excluding testing, maximum time required for completing projects is 5 to 6 months.
2. Cost: Our project requires minimum 1 to 2 Lakhs for working it includes the cost of servers, storage, hosting website, security , cost for other professional software and services from third party providers other hardware requirements.
3. Scope: Forecasting stock price Web- App based on Machine learning and Deep learning, will predict the stock price with high accuracy which will help investors to increase their profit and reduce human errors and with simultaneous automated checks on multiple market conditions.
4. Quality: quality of the project will be improved with updates and another upgrades and updates will include quality improvements, security updates, and removing bugs
5. Benefits: Forecasting a stock price is web-app, based on Machine learning and Deep learning which will predict the stock price based on data retrieved from various sources. Web-based App will predict the price of the stock, show charts, and also show real-time stock prices, and data. After that, predictions are made on various factors and the prediction results will be displayed on the Web-Based application in form of Graphs, Candlesticks, charts, values etc. Apart from profit opportunities, it will reduce the possibility of mistakes made by humans based on emotional and psychological factors.
6. Risk: No prediction is 100% accurate Therefore, the upper bound and lower bound of the stock prices will be displayed to illustrate the trading range the investors should be looking at. This application serves as a supplementary quantitative tool for investors to see the market at a different perspective with the help of technology.

3. Analysis of features and finalization subject to constraints

In The main objective of this project is to find the best model to predict the value of the stock market. In, this project we are going to present and review a more feasible method to predict the stock movement with higher accuracy. The first thing we have taken into account is the dataset of the stock market prices from various sources. The raw data was pre-processed and tuned up for real analysis. Hence, our project will also focus on data preprocessing and data cleansing of the raw dataset. In addition, the proposed project examines the use of the prediction system in real-world settings and issues associated with the accuracy of the overall values given. The successful prediction of the stock will be a great asset for the stock market institutions and will provide real-life solutions to the problems that stock investors face. Forecasting accuracy is the most important factor in selecting any forecasting methods. The key factor for each investor is to earn maximum profits on their investments. Stock price

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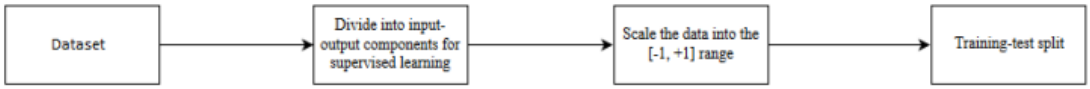
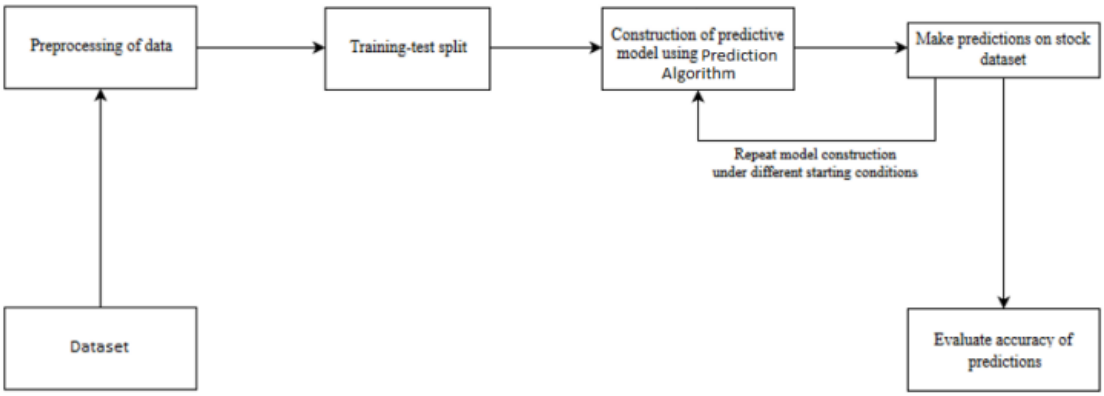
prediction is the most significantly used in the financial sector. Stock market is volatile in nature, so it is difficult to predict stock prices. There are so many existing methods for predicting stock prices. The prediction methods are Logistic Regression Model, SVM, ARCH model, RNN, CNN, Back propagation, Naïve Bayes, ARIMA model, etc. In these models, Long Short-Term Memory (LSTM) is the most suitable algorithm for time series problems.

4. Design selection

1) Pre-processing of data



2) Overall Architecture



3) Structure Chart

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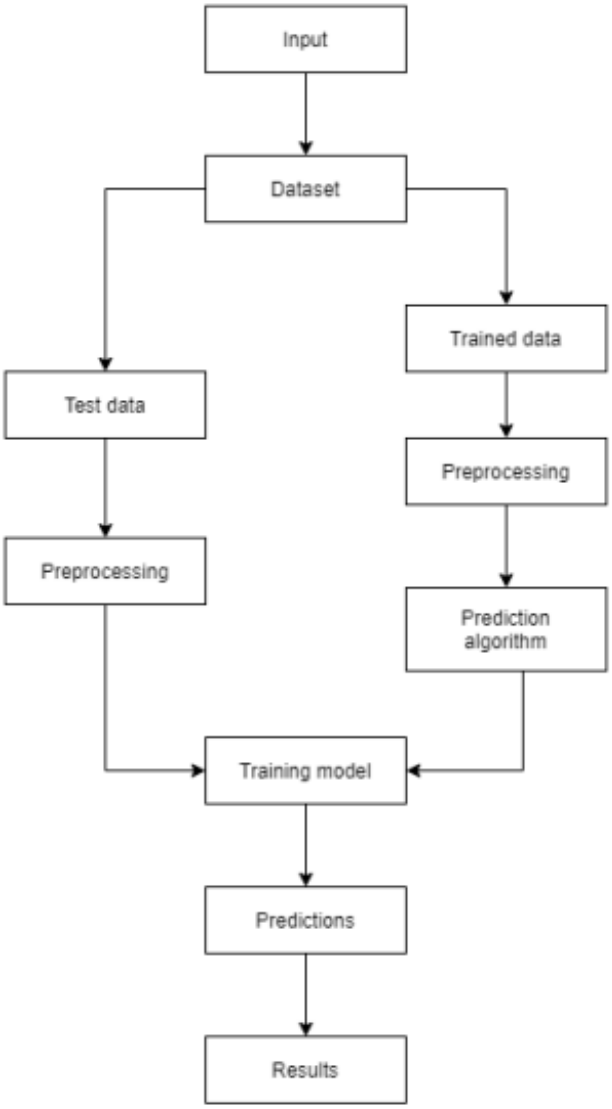

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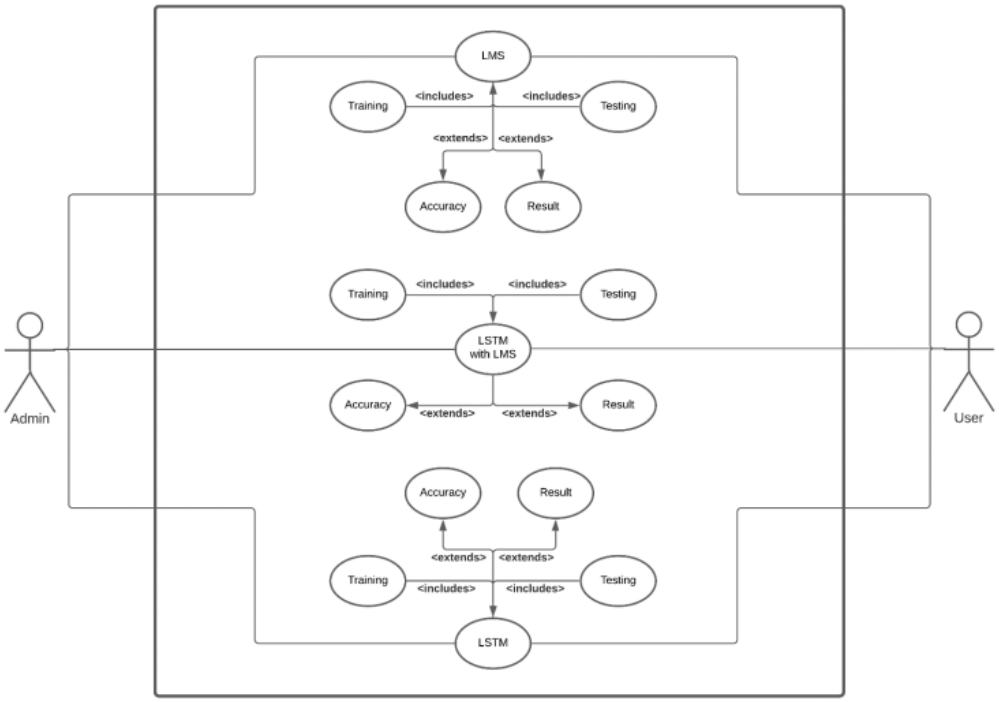
4) Use Case Diagram



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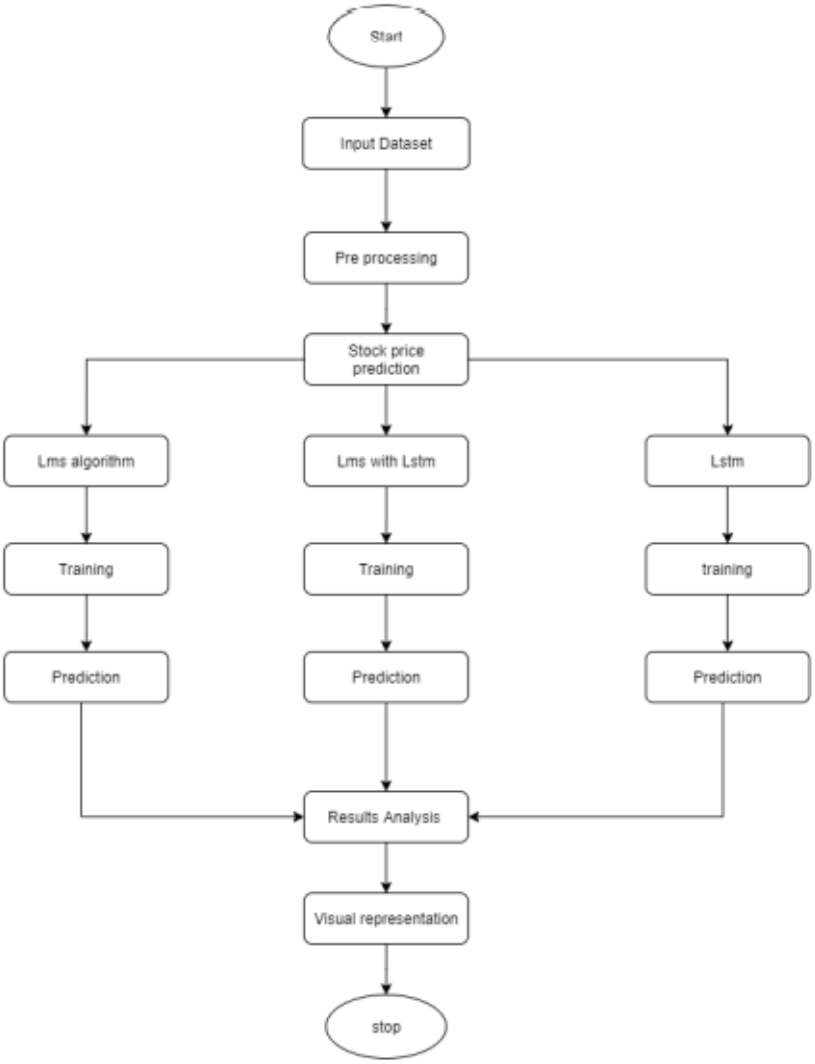
5) Data Flow Diagram



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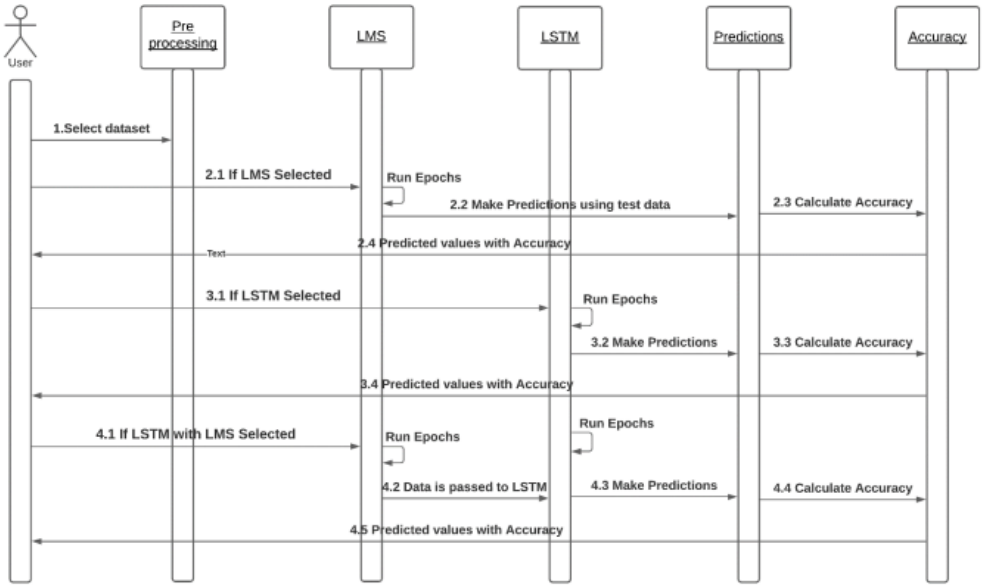
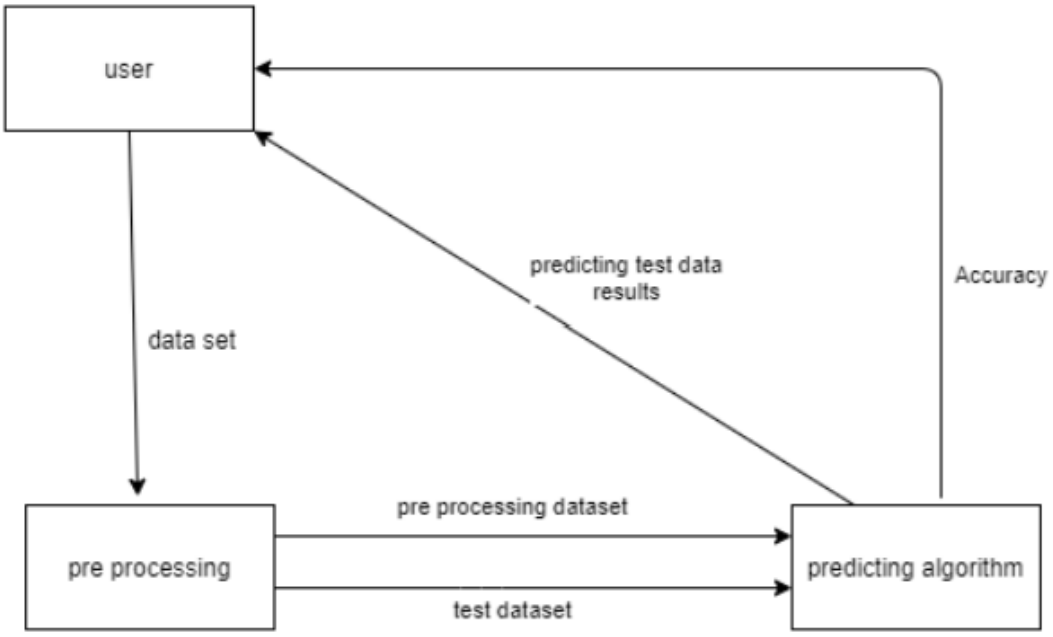
6) Execution based on model selection



7) Data transfer between modules



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