Process Model Used: Incremental Model

1. Problem Statement:

Stock Market Analysis and Prediction

Our aim is to create software that analyzes previous stock data of certain companies, with help of certain parameters that affect stock value. And determine the values that particular stock will have in near future. Analysis of stocks will be useful for new investors to invest in the stock market based on the various factors considered by the software.

2. Functional Requirements:

Homepage:

1. Search box to search the stock you want from the available options.
2. Show data of around 50 stocks.
3. Nifty and Sensex should always be visible on the homepage.
4. View blogs to be familiar with current news of the stock market.
5. View documentation on how to use the website

Once the stock is selected:

1. Graph
Normal and Candlestick graph
Histogram for analysis (showing frequencies of the price)
Custom time duration (1 week, 1 month, 1 year ….)
Graph showing data on moving cursor over it

2. Analysis
a. Open value, Close value, Volume, Market Cap, PE ratio (stock and sector), Dividend etc. (Basically standard data to analyse the stock)
b. High, low (can select various time frames)
c. Some information about the company and sector (not possible if too many stocks are to be displayed)

3. Prediction
a. Predict stock price using ML models (can select time frame at max 2 months)

-Documentation of website (different section)

3.Non Functional Requirements:

1. Data should be accurate.
2. Data to be updated in least possible time frames (at min gets updated everyday).
3. Prediction of ML algorithms should be as accurate as possible.
4. Website should be accessible 24x7

4. Elicitation Techniques:

We searched for any existing websites related to the stock market. and we found some websites like moneycontrol.com , bloomerberg.com , tradebrains.com. We have taken those sites at reference to create our own website.

5. Future Developments

We have created the basic UI consisting of the home page, a search bar and blogs which has some news related to the stock market. We are yet to display the graphs from the backend, add the buttons required to adjust the stock which needs to be selected and the duration for which we need to display the same.

On the design part of it , we are yet to complete the following tasks :
1. Sequence diagram
2. Analysis Class Diagram
3. State diagram
4. System Design a class/package/component diagram
5. System Architecture

At the code end , we have finished separate components of acquiring the stock data from yahoo API, charting the same data, making predictions based on it and some parts of the UI like the search list which suggests options as you type and a minimalistic homepage. But integration of these components , further refinement, more developed UI according to our early version of the website and bringing the prediction part from backend to frontend remains to be completed.
At the testing end, all the tasks given remain to be finished.

5. Activity Diagram: