Dhirubhai Ambani Institute of Information and Communication Technology

Stock Analysis and Prediction

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Introduction

- ### Purpose

  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.

- ### Intended Audience

  - The intended audience are the people who are interested in the stock market and want to trade and invest in the market.

- ### Description

  - The website which we have created is providing some information about the stock market and tries to predict the prices based on the available statistics and their previous price movements.

❏ Data for a large number of stocks will be displayed on the website. The user can do in-depth analysis through the visualisation and data analysis provided.

❏ Various mathematical models will be used in a try to predict as accurate future prices of stocks as possible. However, the website does not take any responsibility for losses suffered by the user.

❏ A blog section has been added to the website to encourage users to gain more knowledge about the market and learn various techniques for investing their money.

❏ Documentation has been provided to understand various features of the website.

● <u>Requirements</u>

❏ Functional Requirements

=> Homepage:

- Search box to search the stock you want from the available options.

- Show data of around 50 stocks.

- Nifty and Sensex should always be visible on the homepage.

- View blogs to be familiar with current news of the stock market.

- View documentation on how to use the website.

=>Once the stock is selected:

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

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

➔ **Prediction:**
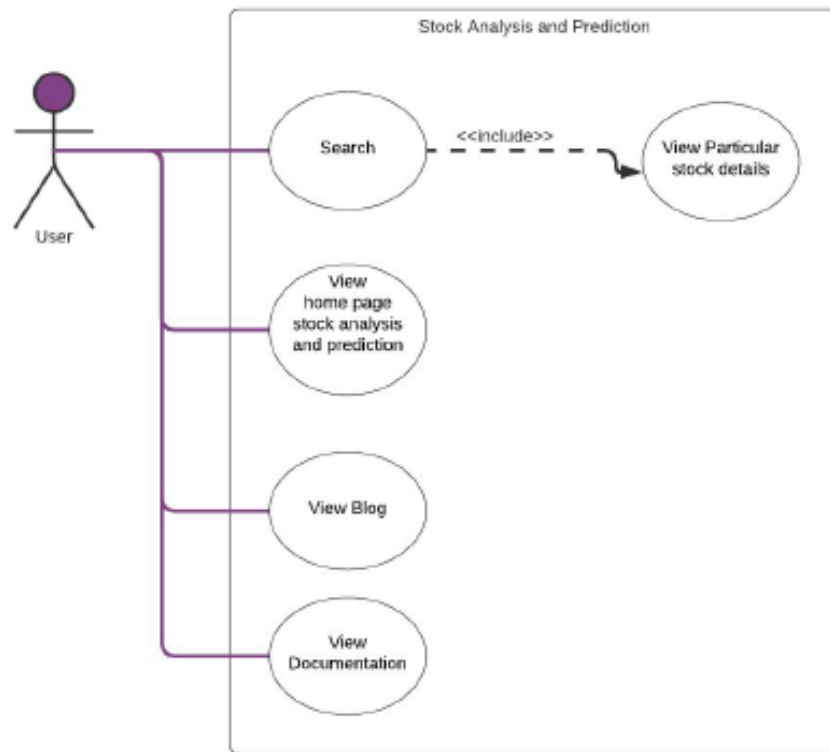- ◆ Predict stock price using various ML models (Here a user can select at max 2 months of time frame)

➔ **Documentation of a website.**

❏ Non-Functional Requirements

➜ Data should be accurate.

➜ Data to be updated in least possible time frames
(at max gets updated everyday).

➜ Prediction of ML algorithms should be as accurate as
possible.

➜ Website should be accessible 24x7.

❏   Use Cases

➜ Search

Include use case: View particular stock analysis and prediction

➜ View home page

(Sensex ,Nifty and some trending stocks information)

➜ View Blog

➜ View documentation

Stock Analysis and Prediction

● <u>Use case Templates</u>

1. **Name**: Search for stock data

   Actors: Users of the website

   Goals: To be able to search stocks from available stocks.

   Pre-conditions: The website homepage should be loaded and search bar should be visible.

   Trigger: After clicking on the search bar, searching will be initiated.

Related Use Cases:

Include relation: View particular Stock details

Steps:

Main Flow

1. The user will go on the search bar at the top of the homepage.

2. The user will type the name of the stock.

Alternate flow

2a. If the searched stock is not available, an error message will be shown.

2a.1 The user can navigate to the home page again.

Post-Conditions: The searched result is displayed.

Special Requirements: Search should be maximum 30 characters long and it should be keyword(s) indicating stock companies.

2.   **Name**: **View Home Page stock analysis and result**

Actors: Users of the website

Goals: To see the nifty indices graph and analysis data of given stock companies

Pre-conditions: The website should be loaded completely.

Trigger: Type the URL in the browser search bar and press enter.

Related Use Cases: Not applicable

Steps:

1. The website will be opened.

2. The user will view the nifty indices graph and alter timeline

3. The user will view company analysis data.

Post-Conditions: Data of the default stock will be displayed

3.   **Name**: **View Blog**

    Actors: Users of the website

    Goals: To get information regarding the market affairs

    Pre-conditions:The website homepage should be loaded and Blogs should be visible in the menu

    Trigger: Click on the Blog tab in the menu.

Related Use Cases: Not applicable

Steps:

1. Click on the blog menu on the home page.

2.The user will get the list of blogs.

3.The user will click on the blog that he/she wants to read about.

Post-Conditions: The selected blog will be displayed.

4.   **Name**: **View documentation**

    Actors: Users of the website

    Goals: To have an understanding of stock variables and algorithms used for prediction of stocks. After reading the documentation ,users would be aware regarding basic stock variables and risk to make decisions just on the basis of prediction.

Pre-conditions: The website homepage should be loaded and Documentation should be visible in the menu

Trigger: Click on Documentation tab in menu.

Related Use Cases: Not applicable

Steps :

1. Click on the documentation menu on the home page.

2. The user will be able to read documentation after clicking the documentation button.

Post-Conditions: Documentation will be visible.

5. **Name**: **View a particular stock's details**

   Actors: Users of the website

   Goals: To get data of the selected stock. Look at analysis and prediction. View graphs and data from various time frames.

Pre-conditions: The stock should be one of the available stocks on the website.

Trigger: Selection of stock from the search option.

Related Use Cases: It is an included relation of Search Base case.

Steps:

1. Open the website

2. Use the search option and select the stock whose data is to be displayed.

3. To display data from different timeframes, select from the given options.

Post-Conditions: The data, analysis and prediction according to the selected time frame will be displayed.