Software Requirements Specification

for

TradeNow

Version 1.0 approved

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Revision History

Name	Date	Reason For Changes	Version

1. Introduction

The document discloses and analyzes all the thoughts related to the project **TradeNow** from the perspective of its consumers. The document infers about the scope of the project followed by all the requirements. This document helps the respective group of people to gain better insights of the project.

To sum up, this document attempts to document various ideas and vision of people about the project **TradeNow**, the requirements, scope, its effect on the market and difference it could make to the direct consumers

1.1 Purpose

The purpose of the project is to bridge the gap between stock brokers and consumers by allowing the consumers to interact with the stock trading facilities via a website **TradeNow.** The consumers can trade stocks easily from their comfort places and at their convenient time using the proposed project.

1.2 Document Conventions

The SRS document is prepared using the standards **IEEE 29148**.

1.3 Intended Audience and Reading Suggestions

This SRS document is intended for the client, developers, project managers. The target audience are expected to get a clear idea of the project by reading this document. It is suggested to read the document in the same order as displayed.

1.4 Product Scope

The **XX Solution Ltd.** wants to provide an online stock trading service to enable its consumers to make trades themselves. For this, a client must first register on their platform with all their details and then start to trade. Each client can create more than one trading account and trade from any number of accounts simultaneously. Once registration is done, the client can buy and sell the stocks that were registered by the registered brokering company. This website helps the shareholders in real time price monitoring and also helps in analysis of their past trading with charting tools. The website has a user-friendly and easy to use interface that benefits the users to trade effectively.

From the perspective of the brokerage firm, they can have a centralized view of their users and their trading. This helps in maintaining a structured information about their users and provide more security.

1.5 References

The references are:

- https://www.mavencluster.com/blog/how-to-build-stock-trading-website/
- https://tradee.vercel.app/dashboard.html
- https://finlab.dexignzone.com/xhtml/index-2.html

2. Overall Description

2.1 Product Perspective

The project **TradeNow** is expected to provide all the major functionalities that a typical stock brokerage firm offers to the consumers. It also provides a picto-graphical representation of the previous trades, profit-loss analysis and live monitoring of stock prices. The clients can improve their trading choices using the well organized representation of their previous trades. Overall, the project benefits the users to trade better.

2.2 Product Functions

The proposed system consists of the following functionalities

- Client Registration/Login
- Live Monitoring of the stock rates
- Statistical data on a particular stock
- Share transaction
- User Dashboard

These following functionalities are restricted to resource availability

- Send live updates of the stock price purchased
- Live news updates on the dashboard
- Trade Recommendations

2.3 User Classes and Characteristics

The targeted users of this website are traders.

2.4 Operating Environment

The website can be seamlessly accessed in any of the modern-day web browsers like Chrome, Edge, Firefox, brave, opera, safari.

2.5 Design and Implementation Constraints

The technology stack used for building this project is

- React, CSS as the front-end technologies
- Node js / Python for back-end
- Postgres as the database
- https://www.alphavantage.co/ API for fetching live stock updates.

2.6 Assumptions and Dependencies

One of the main dependency of the project is the availability of free API for live stock prices and for news updates about the stocks. If this API is revoked by the respective provider, it will be a major setback to the project. The crux of the project is dependent on those API.

3. External Interface Requirements

3.1 User Interfaces

TradeNow requires a monitor with large enough pixel size in order to display the graph. The input units are standard QWERTY keyboard and mouse. No additional input or output hardware is mandatory.

3.2 Communications Interfaces

TradeNow requires an internet connection with sufficient speed to get the current stock values. The stock index values are obtained periodically and when transactions are made. Thus, in order to complete the transactions quickly an internet connection with broadband or near broadband speed is mandatory.

4. System Features

In this section, all the product functionalities mentioned in section 2.2 are described in detail.

4.1 Client Registration/Login

4.1.1 Description and Priority

The client should register before investing and trading using this interface.

4.1.2 Stimulus/Response Sequences

A new registration can be initiated by clicking on the button Sign up/Register in the respective pages. This will display a new page where the client will be entering all the required details for registration.

First, the user is required to enter mobile number and email address. Then a verification process has to be completed to verify their mobile number and email.

4.1.3 Functional Requirements

The required fields for registration are as follows:

- First Name, Middle Name, Last Name
- Date of birth
- Gender
- Address for communication
- Permanent Account Number (PAN)
- Aadhar card number
- Bank Account details
- PIN number
- Profile Photo
- Digital Signature

After successful registration, the user will be given a client ID and a Demat account number

The functional requirements of this interface are as follows:

REQ-1: Mobile number should consist of only numeric character

REQ-2: Email address should contain alpha numeric characters along with an underscore followed by "@" and a domain name.

REQ-3: Name field can contain alphabets and spaces. No other characters are allowed. The maximum length of each of the name field is 255.

REQ-4: Address of communication consists of a textfield where the user is expected to enter their address. The other fields include city name, state name, pincode.

REQ-5: PAN card number should be a 10-digit alphanumeric number issued by the IT department. The first three characters should be between the series AAAAA and ZZZZZ. Next four characters should be numeric digits. The last character should be again a character.

REQ-6: DOB should be selected from the calendar displayed on the interface.

REQ-7: Gender is a radio-select /checkbox field consisting of the respective choices.

REQ-7: Aadhar card number should be a 12 digit long consisting of only numeric characters.

REQ-8: Bank account details should consist of account number, bank name, IFSC code of the bank.

REQ-9: Client ID is a alpha numeric string. (A six digit serial + first four characters of the name + first four numbers of aadhar number).

REQ-10: Demat account number is a 16-digit alpha-numeric number.

REQ-11: Profile Photo should be an image with .png, .jpg, .jpeg as the extensions.

REQ-12: Digital signature should be an image with .png, .jpg, .jpeg as the extensions.

REQ-13: A 6-digit numeric pin number is required to be set by the user which will be used at the time of login.

The login interface is quite simple with fields of mobile number and PIN created by the user at the time of registration. The user is also required to fill in a captcha for verification.

4.2 Live Stock Rates monitoring

4.2.1 Description and Priority

Displaying the live stock rates is the basic feature of any trading platform. As this is a project with no funding, this part of the project is relied on using the free API available in the internet to fetch the live-stock rates.

The long term options would be availing services from a paid API or deploying a team for fetching the live rates of the stocks.

4.2.2 Stimulus/Response Sequences

A graphical interface is used to display the stock rates using charts and graphs.

4.2.3 Functional Requirements

The functional requirements are as follows:

REQ-1: The stock prices are displayed used stock charts.

REQ-2: As the first index, nifty 100 stock rates are displayed.

REQ-3: The user is given the choice of selecting the index from the available indices and view the status of the stock. When a user selects the particular index, the stock related to that index is displayed. Further, the user can adjust the time period of the stock by using their mouse scroll. The scroll down decreases the scale of time axis and gives broader look at how the stock performed over a longer period of time. The scroll up increases the scale on time axis and displays the recent performance of the stock.

(The indices and various stocks to be displayed are yet to be decided.)

REQ-4: This feature is displayed when the user clicks trade now button on the interface.

REQ-5: Also, the same feature is displayed on the dashboard of the user. But the only change is that the initial stock displayed on the graph would be the one that the user previously bought or current holding.

REQ-6: According to the stock behavior from the start of trading time, the stock is labelled with the percentage change in the stock price.

4.3 Statistical data on a particular stock

4.3.1 Description and Priority

Here the user can see the stock's closing and opening prices over a week, yearly returns. This helps the users to get a clearer picture of the stock and its behavior in the past.

4.3.2 Functional Requirements

The functional requirements are as follows:

REQ-1: A table representing the stocks' closing and opening prices of the stock over the last week. A click on this table will display the same data in the form of a bar chart with y axis consisting of the stock prices and x axis having the representation of previous week.
REQ-2: The other table representing the stock's returns for the last day, last week, last month, last 3, 6 months, a year, and 5 years. Again, here also, a click on this table will transform the view into a bar graph (or any other chart comfortable at the time of development)

4.4 Stock Transaction

4.4.1 Description and Priority
In this interface, the user will be able to exchange (buy or sell) stocks.

4.4.2 Stimulus/Response Sequences
The process can be triggered by a click on the button sell/ buy in the respective interface. Then he will be redirected to transaction page. This interface will only be accessible to registered users.

4.4.3 Functional Requirements
The required fields in the transaction page are:

- Number of stocks
- Current stock price
- Price without brokerage
- Price with brokerage
- Checkout button

The functional requirements of the above fields are as follows:

REQ-1: Number of stocks should be a natural number (the limit is based on the company that the user wishes to purchase)

REQ-2: Current stock price is a display field where the current stock price is displayed in Indian rupees.

REQ-3: Price without brokerage is an automatic field generated when the user fills up the number of stocks price. It is calculated as #stocks * current stock price

REQ-4: Price with brokerage is an automatic field generated when the user fills up the number of stocks price. It is calculated as #stocks * current stock price + brokerage

REQ-5: Checkout button triggers the transaction.

When the transaction is succeeded, an invoice of the trade is automatically mailed to the user.

The invoice contains the following fields:

- Date of trade
- Time of trade
- Name of person to whom this trade corresponds to
- Demat Account number
- Name of the company
- Number of stocks involved in the trade
- The then price of the stock
- Brokerage involved in the trade
- Amount with brokerage
- Amount without brokerage

4.5 User Dashboard

4.5.1 Description and Priority

The user dashboard consists of a navbar, live stock information about the related stock, summary of assets invested, statistics of the stocks purchased.

4.5.2 Functional Requirements

The navbar should contain the following options:

- Profile
- Trade
- Trade history
- Invoices
- Revoke account
- Logout

The functional requirements of the navbar are as follows:

REQ-1: The profile section should display all the details of the user that were taken at the time of registration.

REQ-2: The trade section displays the live stock prices and enables to carry out trade.

REQ-3: The trade history section displays the previous trades carried out by the user.

REQ-4: The invoices section displays the list of invoices of the trades carried out by the user.

REQ-5: Revoke account section enables the user to delete the trading account that they have created.

REQ-6: Logout button closes the current session of the user.

The live stock information is similar to feature described in section 4.2 but only difference in the stock displayed. The top five current stock holdings of the user are displayed on the specified area.

The summary of the assets invested is in the form of a bar graph indicating the investment and income across various time periods.

The statistics of the stocks that are purchased are represented in the form of a table.

5. Other Nonfunctional Requirements

5.1 Performance Requirements

TradeNow is a software in which sensitive details of clients are stored. Thus, the information in them needs to be protected from intrusion and unauthorized modifications. For this the databases are made locked and can only be edited by the administrator. Also, there is an Authorization login when the software starts. Also, to view the client details, Client ID is required and thus the data is protected.

5.2 Safety Requirements

The idea of transaction processing is required in this. The transaction made must reflect in the databases. There should not be any data loss while a share is bought or sold. Also, the database needs to be used in such a manner so as to eliminate data loss or loss of data integrity.

5.3 Software Quality Attributes

TradeNow is reusable and can be extended to other exchanges or to other kinds of stocks. The testing of Stock master requires traversing of all forms, stress testing and Authorization tests.

6. Conclusion

The project is now ready for the subsequent stages in the software lifecycle, that is coding and testing.