

TRADICTION
CSC648 SOFTWARE ENGINEERING
SPRING 2020
TEAM 01

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M3 Version V2	05/17/2020
M3 Version V1	04/23/2020
M2 Version V2	04/10/2020
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M1 Version V2	03/09/2020
M1 Version V1	03/05/2020

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Data Definitions

- **New User:** Users visiting the site for the very first time. They can create an account, view stock lists, know details of a particular stock, but cannot buy/sell stocks or chat with an expert.
- **Traders:** Registered Users with an account, who can view stocks, buy/sell stocks, update personal details, view transaction history, update portfolio, chat with an expert.
- **Experts:** Registered Stock experts. Can view, analyze and chat with users to provide them best advice and guidance for buying/selling stock.
- **Admin:** A registered person having full access to the site. Also, the one reviewing and approving accounts of the traders and experts.
- **Customer Support:** Dedicated 24/7 service available for the customers to answer and resolve their queries. Customers can have questions answered such as payment problems, report issues and bugs with the website, and report inappropriate or incorrect articles .
- **Prediction Tab:** A dedicated tab for accurate prediction of prices of a stock just by entering a stock symbol. This section uses a special prediction algorithm to predict open prices of the stock for the next day.
- **Newsfeeds:** Displaying top news related to the stock market. It will have multiple news articles separated by containers. Each article container will contain important information to get the user to click on the article. This information includes the name of the article, a picture, and the date the article was published.

- **Expert Chat:** Traders communicate with stock experts through a chatting service. When a trader wants a greater amount of information regarding a stock, they can communicate directly with an expert of that stock to get advice.
- **Sentiment-Analysis:** This is the part which analyzes the tweets of stock companies on twitter and returns the answer whether people are interested in companies or not. This part uses a special API which fetches twitter comments related to the companies, analyzes them and outputs results to positive, negative or neutral eventually helping users in deciding whether they should invest in the stock or not.

Functional Requirements

Priority 1:

UNREGISTERED USERS: -

1. Shall be able to create a new account as a trader.
 - 1.1. Shall be able to enter an email address of choice during registration.
 - 1.2. Shall be able to enter a password during registration.
 - 1.3. Shall have minimum password requirement of letters, numbers and special characters.
 - 1.4. Shall be able to enter the address during registration.
 - 1.5. Shall be able to enter contact number during registration.
 - 1.6. Shall be able to enter Social Security Number during registration.
 - 1.7. Shall be able to link a bank account during registration.
 - 1.8. Shall be able to upload bank statements during registration.
 - 1.9. Shall receive an Email verification upon registration.
2. Shall be able to create a new account as an expert.
 - 2.1. Shall be able to enter an email address of choice during registration.
 - 2.2. Shall be able to enter a password during registration.
 - 2.3. Shall have minimum password requirement of letters, numbers and special characters
 - 2.4. Shall be able to enter the address during registration.
 - 2.5. Shall be able to enter contact number during registration.
 - 2.6. Shall be able to enter Social Security Number during registration.
 - 2.7. Shall receive an Email verification upon registration.
 - 2.8. Shall be required to upload an expert certificate.
3. Shall be able to view Stock lists.
 - 3.1. Shall be able to sort the list alphabetically.
 - 3.2. Shall be able to search for a list of particular stocks.
 - 3.2.1. Shall be able to enter text into a search field

- 3.2.2. Shall be able to modify text in a search field.
- 4. Shall be able to view a particular stock in detail.
 - 4.1. Shall be able to click on the individual stock.
 - 4.2. Shall be redirected to a detailed stock page.
- 5. Shall be able to view news feeds.
 - 5.1. Shall be able to click on news articles.
 - 5.2. Shall be able to open another tab with an article.
- 6. Accounts shall be put on hold for verification from admin.

REGISTERED TRADERS: -

- 1. Shall be able to login.
 - 1.1. Shall be able to enter an email address.
 - 1.2. Shall be able to enter a password.
 - 1.3. Shall have minimum password requirement of letters, numbers and special characters.
 - 1.4. Shall be authenticated during login.
 - 1.5. Shall have the account blocked for a few hours, incase of multiple incorrect login attempts.
 - 1.6. Shall be prompted with a message if credentials are incorrect.
 - 1.7. Shall be able to recover password through mail by clicking on "Forgot Password".
- 2. Shall be able to edit personal information.
 - 2.1. Shall be able to change their password.
 - 2.2. Shall be able to update their phone number.
 - 2.3. Shall be able to update their address.
- 3. Shall be able to logout.
- 4. Shall be able to view news feeds.
 - 4.1. Shall be able to click on news articles.
 - 4.2. Shall be able to open another tab with an article.
- 5. Shall be able to view the Stock list.

- 5.1. Shall be able to sort the list alphabetically.
- 5.2. Shall be able to search for a list of particular stocks.
 - 5.2.1. Shall be able to enter text into a search field
 - 5.2.2. Shall be able to modify text in a search field.
- 5.3. Shall be able to add stock to the watchlist.
- 6. Shall be able to view a particular stock in detail.
 - 6.1. Shall be able to click on the individual stock.
 - 6.2. Shall be redirected to a detailed stock page.
- 7. Shall be able to view the portfolio.
 - 7.1. Shall be able to show a summary of the portfolio for the day.
 - 7.1.1. Shall be able to show all stocks owned.
 - 7.1.2. Shall be able to show gains and losses from purchase price.
 - 7.2. Shall be able to sell stock.
 - 7.2.1. Shall be able to enter a quantity of stock to sell.
- 8. Shall be able to buy stocks by clicking on the buy button on the stock details page.
 - 8.1. Shall be able to enter quantities of stocks to buy.
- 9. Shall be able to view the transaction history.
 - 9.1. Shall be able to view the stock name of the stock bought.
 - 9.2. Shall be able to view the purchasing price of stock bought.
 - 9.3. Shall be able to view the quantity of stock bought.
 - 9.4. Shall be able to view the date of stock bought.
 - 9.5. Shall be able to view the time of stock bought.
- 10. Shall be able to add interested stocks to a watchlist.

REGISTERED EXPERTS: -

- 1. Shall be able to login.
 - 1.1. Shall be able to enter an email address.
 - 1.2. Shall be able to enter a password.

- 1.3. Shall be authenticated during login.
 - 1.4. Shall be prompted with a message if credentials are incorrect.
 - 1.5. Shall be able to recover password through mail by clicking on “Forgot Password”.
2. Shall be able to edit personal information.
 - 2.1. Shall be able to change their password.
 - 2.2. Shall be able to update their phone number.
 - 2.3. Shall be able to update their address.
3. Shall be able to logout.
4. Shall be able to view news feeds.
 - 4.1. Shall be able to click on news articles.
 - 4.2. Shall be able to open another tab with an article.
5. Shall be able to view the Stock list.
 - 5.1. Shall be able to sort the list alphabetically.
 - 5.2. Shall be able to search for a list of particular stocks.
 - 5.2.1. Shall be able to enter text into a search field
 - 5.2.2. Shall be able to modify text in a search field.
 - 5.2.3. Shall be able to click on the search button to view results.
 - 5.3. Shall be able to add stock to the watchlist.
6. Shall be able to view a particular stock in detail.
 - 6.1. Shall be able to click on the individual stock.
 - 6.2. Shall be redirected to a detailed stock page.
7. Shall be able to add interested stocks to a watchlist.

ADMIN: -

1. Shall be able to login.
 - 1.1. Shall be able to enter an email address.
 - 1.2. Shall be able to enter a password.
 - 1.3. Shall be authenticated during login.
2. Shall be able to logout.

3. Shall be able to view details entered by traders.
4. Shall be able to view details entered by experts.
5. Shall be able to put traders' accounts on hold for verification.
6. Shall be able to put experts' accounts on hold for verification.
7. Shall be able to accept trader accounts.
8. Shall be able to reject trader accounts.
9. Shall be able to accept expert accounts.
10. Shall be able to reject expert accounts.

Priority 2:

UNREGISTERED USERS: -

1. Shall be able to view a particular stock in detail
 - 1.1. Shall be able to refine parameters for graph
 - 1.2. Shall be able to refine the length of time displayed on the graph.
 - 1.3. Shall be able to refine the graph to show the open prices.
 - 1.4. Shall be able to refine the graph to show the close prices.
2. Shall be able to contact customer support for queries.
 - 2.1. Shall be able to click on the customer support tab.
 - 2.1.1. Shall be able to contact via phone.
 - 2.1.2. Shall be able to contact via mail.
 - 2.1.2.1. Shall be able to enter an email address in the email field.
 - 2.1.2.2. Shall be able to enter a message in the message field.
 - 2.1.2.3. Shall be able to receive an acknowledgment email.

REGISTERED TRADERS: -

1. Shall be able to view a particular stock in detail
 - 1.1. Shall be able to refine parameters for graph

- 1.2. Shall be able to refine the length of time displayed on the graph.
- 1.3. Shall be able to refine the graph to show the open prices.
- 1.4. Shall be able to refine the graph to show the close prices.
- 1.5. Shall be able to enter a symbol of stock.
- 1.6. Shall be able to click on a predict button.
 - 1.6.1. Shall be shown the predicted opening price for the stock the following day.
- 2. Shall be able to receive email notifications if stocks reach a certain price threshold in watchlist.
- 3. Shall be able to contact customer support for queries.
 - 3.1. Shall be able to click on the customer support tab.
 - 3.1.1. Shall be able to contact via phone.
 - 3.1.2. Shall be able to contact via mail.
 - 3.1.2.1. Shall be able to enter an email address in the email field.
 - 3.1.2.2. Shall be able to enter a message in the message field.
 - 3.1.2.3. Shall be able to receive an acknowledgment email.

REGISTERED EXPERTS: -

- 1. Shall be able to view a particular stock in detail
 - 1.1. Shall be able to refine parameters for graph
 - 1.2. Shall be able to refine the length of time displayed on the graph.
 - 1.3. Shall be able to refine the graph to show the open prices.
 - 1.4. Shall be able to refine the graph to show the close prices.
- 2. Shall be able to receive email notifications if stocks reach a certain price threshold in watchlist.
- 3. Shall be able to contact customer support for queries.
 - 3.1. Shall be able to click on the customer support tab.
 - 3.1.1. Shall be able to contact via phone.
 - 3.1.2. Shall be able to contact via mail.

- 3.1.2.1. Shall be able to enter an email address in the email field.
- 3.1.2.2. Shall be able to enter a message in the message field.
- 3.1.2.3. Shall be able to receive an acknowledgment email.

ADMIN: -

Priority 3:

UNREGISTERED USERS: -

- 1. Shall be able to contact customer support for queries.
 - 1.1. Shall be able to contact via chat support.
 - 1.1.1. Shall be able to see the number of people waiting in the queue.
 - 1.1.2. Shall be able to see an estimated waiting time for response.
 - 1.1.3. Shall be able to see the time spent in the queue.
 - 1.1.4. Shall be able to send a message to the support agent.
 - 1.1.5. Shall be able to receive a message from the support agent.

REGISTERED TRADERS: -

- 1. Shall be able to chat with an expert.
 - 1.1. Shall be able to see the number of people waiting in the queue.
 - 1.2. Shall be able to see an estimated waiting time for response.
 - 1.3. Shall be able to see the time spent in the queue.
 - 1.4. Shall be able to send a message to the expert.
 - 1.5. Shall be able to receive a message from the expert.

REGISTERED EXPERTS: -

- 1. Shall be able to chat with traders.
 - 1.1. Shall be able to navigate to the chat tab.
 - 1.1.1. Shall be able to view all traders in the queue.
 - 1.1.2. Shall be able to communicate with the trader that is first in the queue.

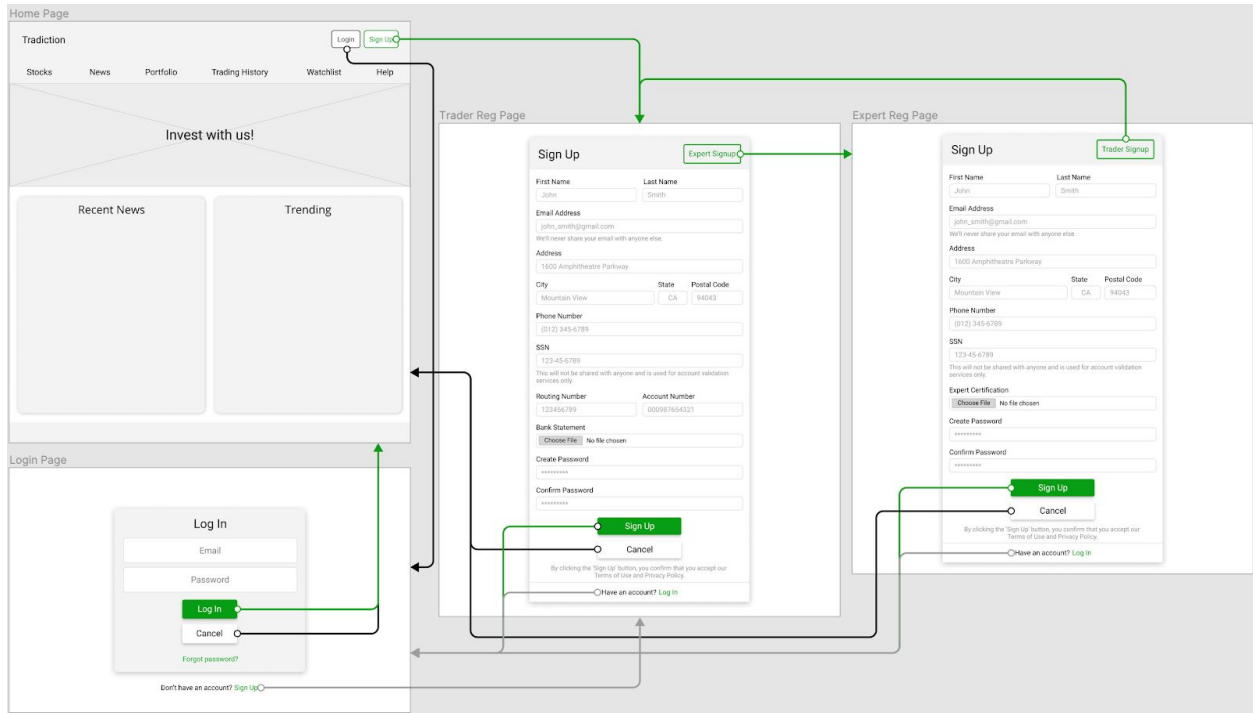
- 1.1.2.1. Shall be able to send messages to the trader.
- 1.1.2.2. Shall be able to receive messages from the trader.
- 1.1.2.3. Shall be able to end the session with the trader.

ADMIN: -

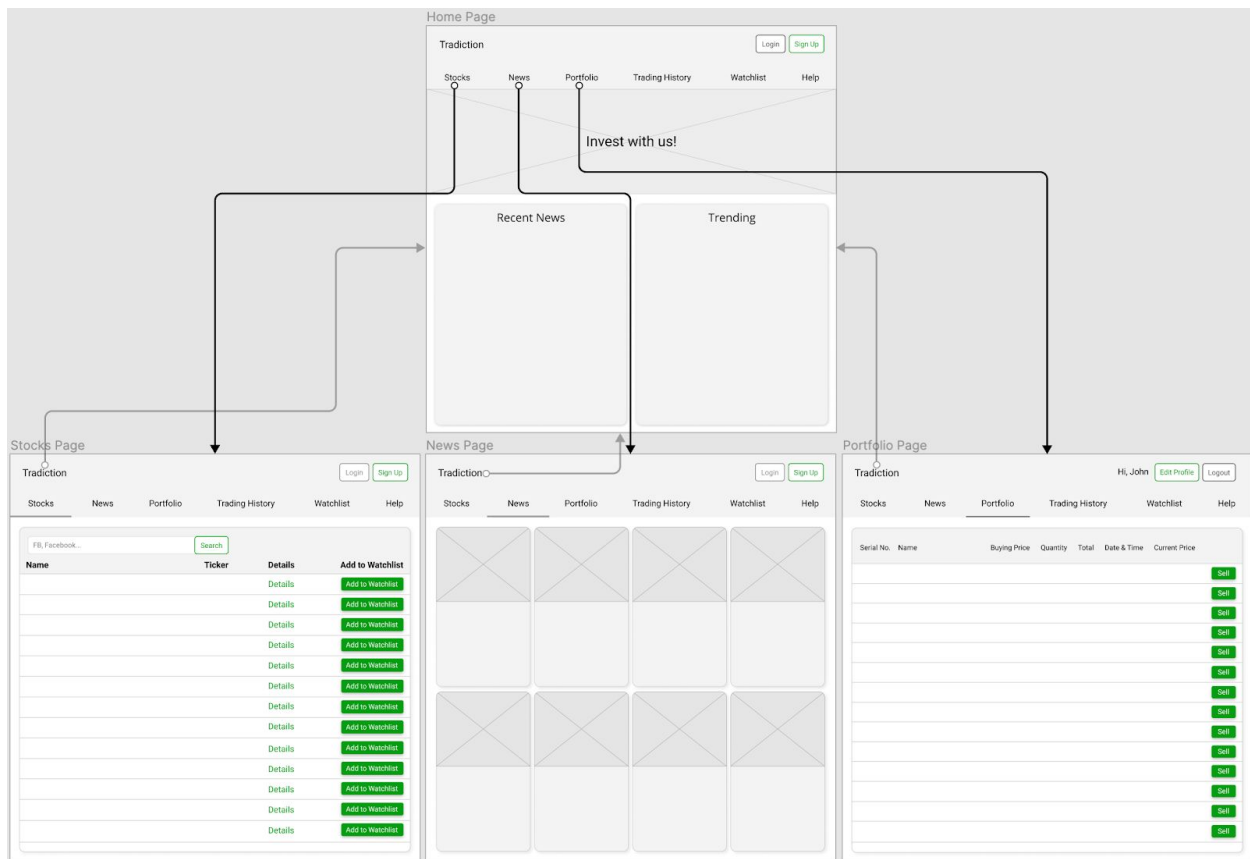
No Priority 3 functional requirements for admin

Wireframes

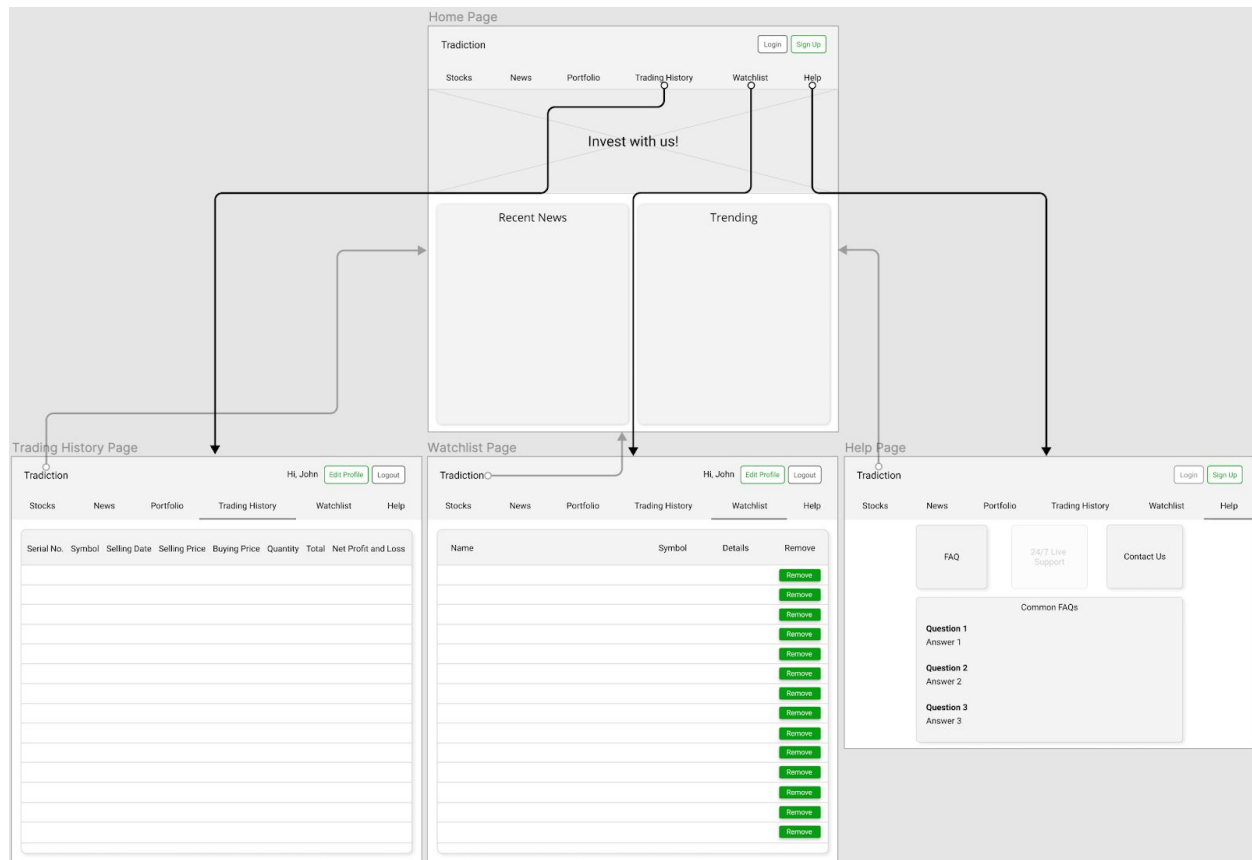
Login and Sign Up



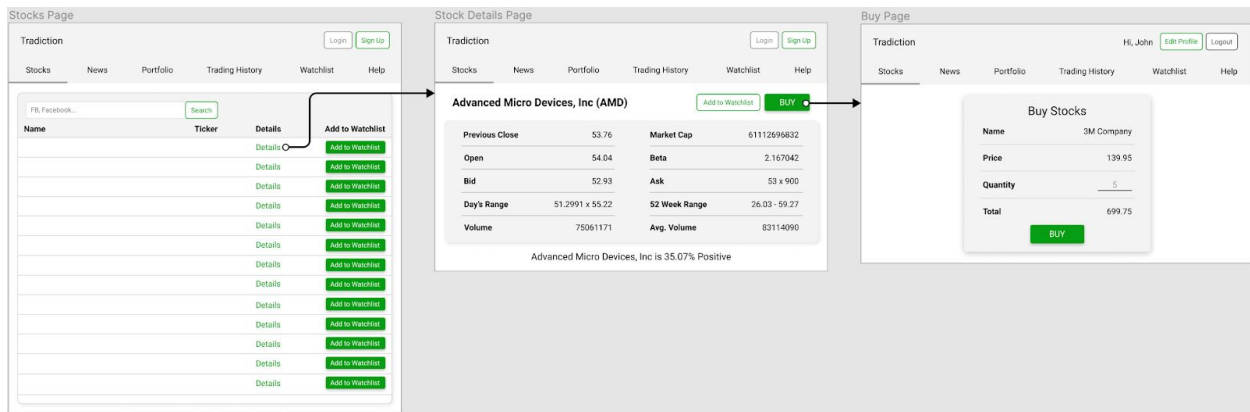
Navigation Bar (Stocks, News, and Portfolio Pages)



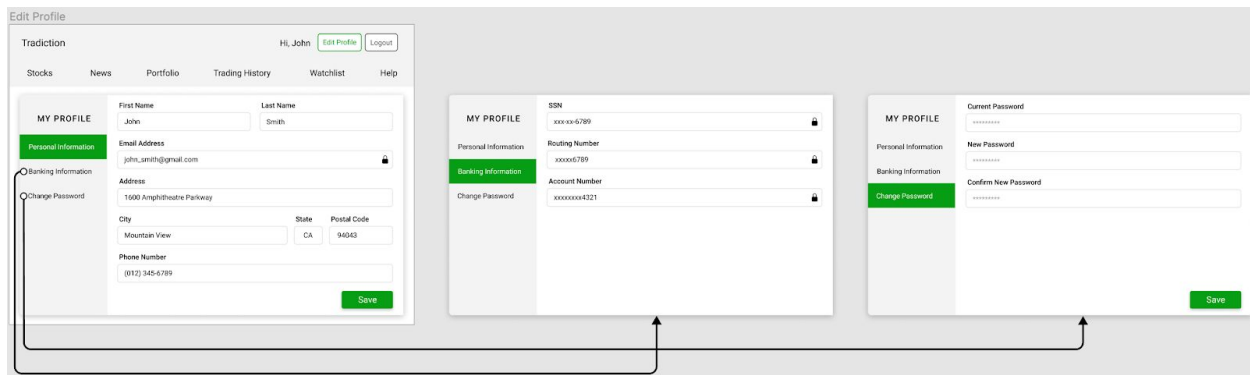
Navigation Bar (Trading History, Watchlist, and Help Pages)



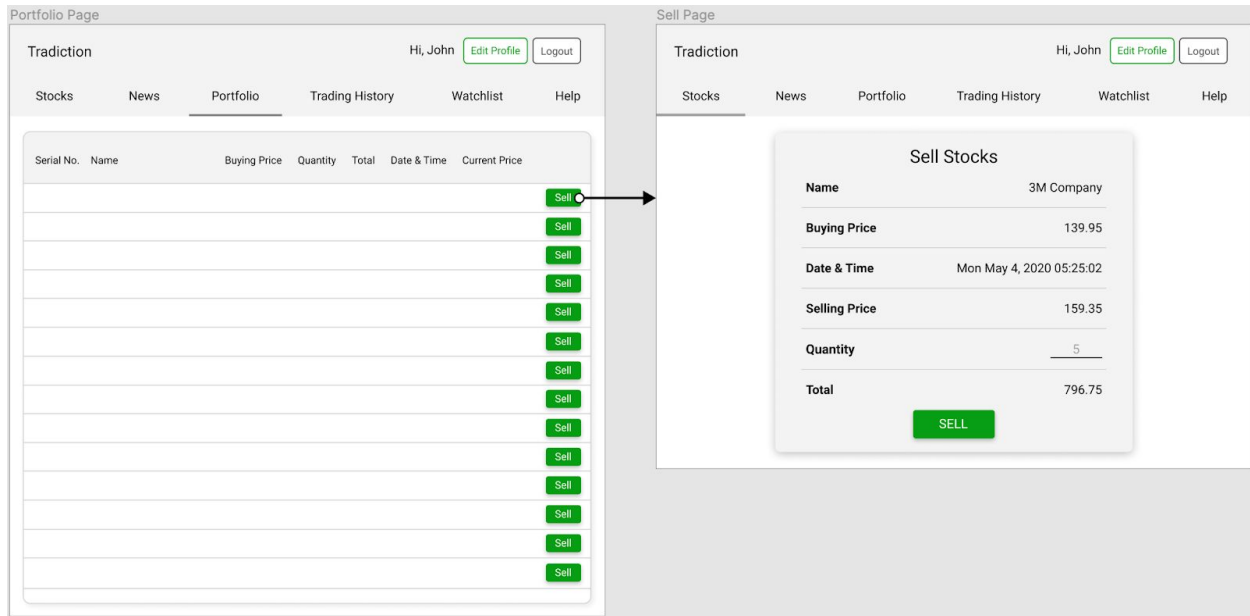
Stock Details and Buy Pages



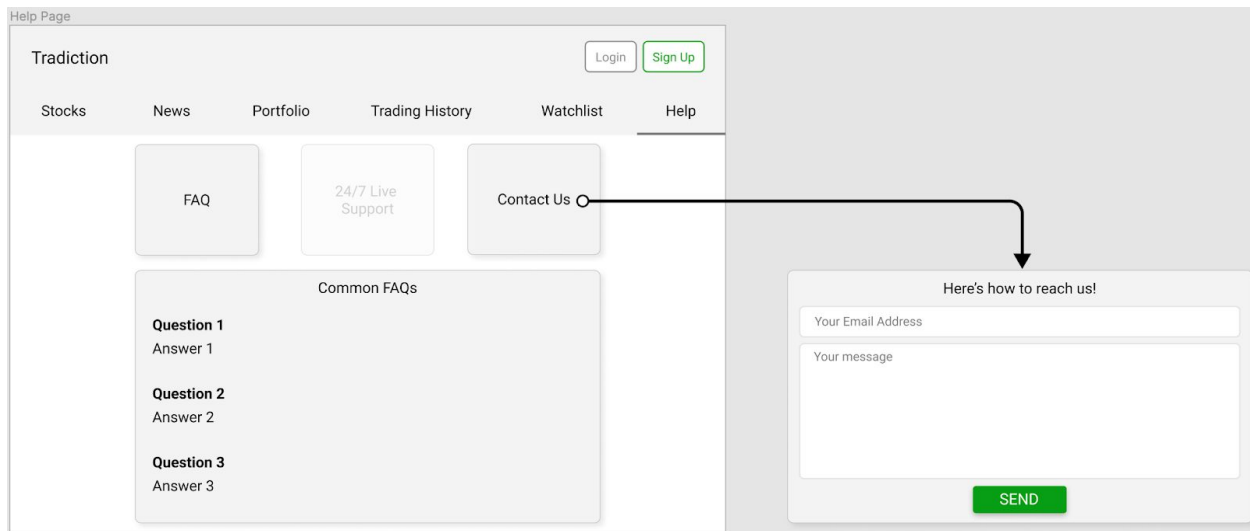
Edit Profile Page



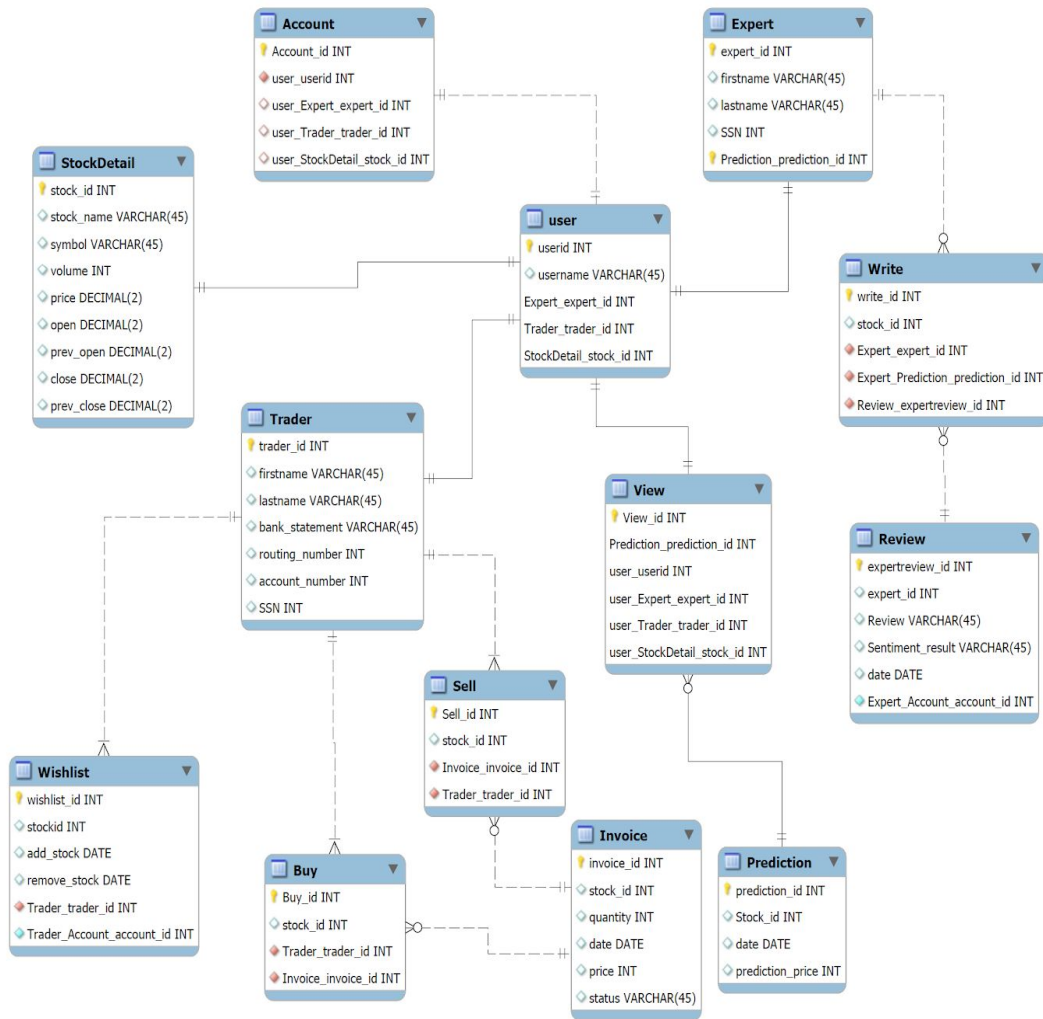
Sell Page



Help Page

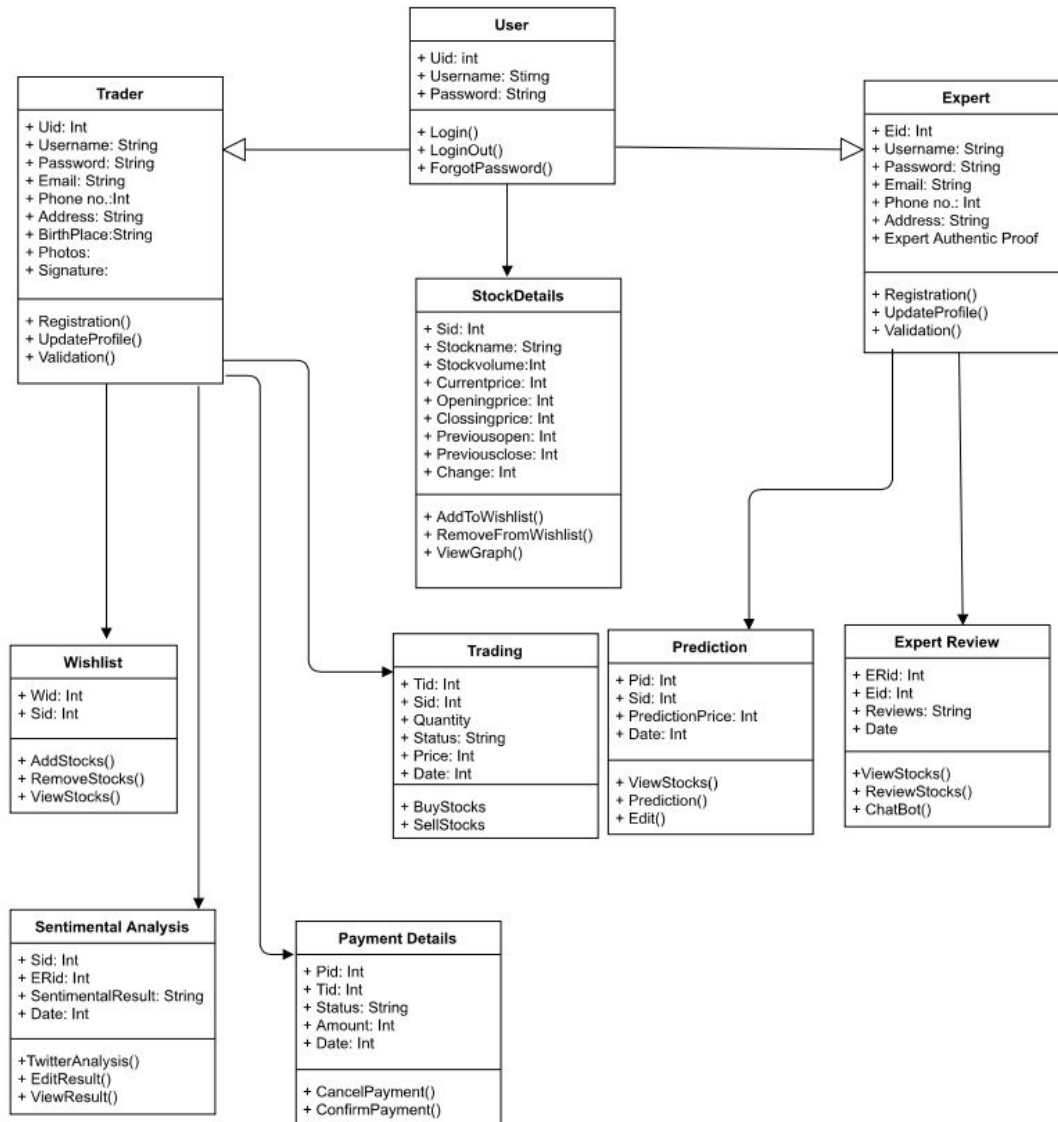


Database Architecture

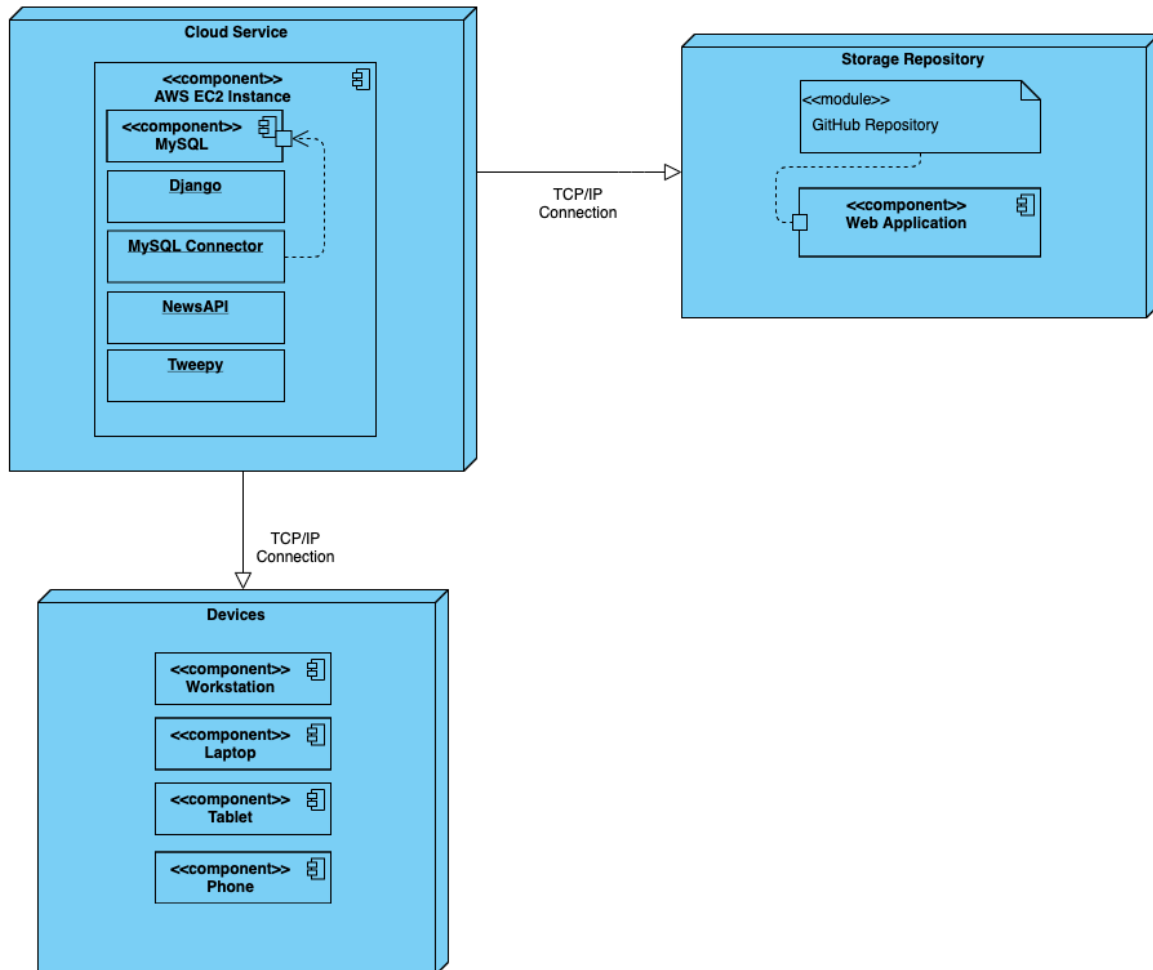


High Level Diagrams

UML Diagram



Deployment Diagram



Network Diagram

