



# Sprint 1 Planning Document

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## **Sprint Overview**

In Sprint 1, we will focus on creating the basic React webpages and backend routing to form the backbone of our project. We will create the Auth App and basic user profile as well as a stock tracking lookup page. These pages will require a database to be set up to handle new and old user data, as well as password encryption and application security. The stock tracker will require an Express web app that supports the routes and APIs the frontend needs to consume.

**Scrum Master:** Hugh Bromund

**Meeting Plan:** MWF @ 11:30

## **Risks and Challenges**

Given that we have never implemented an Auth App, creating a safe method of encryption and password storage is a challenge we have to deal with. We want to avoid any risks associated with user's financial data being exploited from a lack of account security. This will require us to make sure our database can't be accessed from unauthorized users. Another challenge will be to create a robust project structure that lets us test business logic separately and scale the project without having to rewrite code.

## Current Sprint Details

### User Story #1

As a user, I would like to be able to register for an account

Description	Estimated Time	Owner
Create a UI page/form to allow users to register for an account	3hr	Hugh
Handle routing from the main page to the register page	1hr	Aditya
Integrate the register page with the rest of the application	5hr	Hugh
Insert user information into the database	3hr	Niyati
Handle registration logic and validate the request	3hr	Peyton
Include unit tests for registration	5hr (Each)	Peyton, Niyati, Hugh, Aditya

#### Acceptance Criteria:

- Given that the frontend UI is implemented correctly, when the User attempts to create an account with an invalid email format, then the front end will stop the account from being created and alert the user to the problem.
- **Given that the frontend UI is implemented correctly, when the User types in a weak password, then the frontend will alert the user and suggest ways to make the password stronger.**
- Given that the backend and database have been implemented and integrated correctly when a user creates a new account, a new user with all relevant information will be created in the database.
- Given that the database stores current usernames, when a user attempts to register an account with an existing username, then an error will be displayed.
- Given that a user tries to sign up with an invalid email, the login page will request that they enter a valid email.

### User Story #2

As a user, I would like to be able to login to my account

Description	Estimated Time	Owner
Create a UI page/form to allow users to login for an account	3hr	Hugh
Handle routing from the main page to the login page	1hr	Aditya
Integrate the login page with the rest of the application	3hr	Hugh
Handle login logic and validate the request	5hr	Peyton, Niyati
Create unit tests to ensure functionality	5hr (each)	Hugh, Aditya, Niyati, Peyton

#### Acceptance Criteria:

- Given that the frontend UI is implemented correctly, when the user inputs an invalid username/password, the frontend will alert them and prompt them to try logging in again.
- Given that the authentication is implemented correctly, when the user inputs a valid username/password, then they are routed to the User Account screen automatically.
- Given that the backend and database have been implemented and integrated correctly when a user logs into their account their credentials should be searched for and verified efficiently.
- Given that the backend logic is implemented correctly, if the user repeatedly fails login attempts to the same account, the user will be locked out.**

### User Story #3

As a user, I would like to be able to change my associated email address

Description	Estimated Time	Owner
Create UI form which will allow for the input of a new email address	5hr	Nate
Integrate form with the rest of the application	3hr	Nate
Connect UI form with the backend	5hr	Nate
Handle backend logic to connect with the database to change the email address	5hr	Peyton, Niyati

Edit the database to reflect the change in user email address	3hr	Niyati
Create unit tests to ensure functionality	5hr (each)	Nate, Peyton, Niyati

#### Acceptance Criteria:

- Given that the user puts in an invalid email, the frontend will alert them and not call the backend until a valid email has been provided
- Given that the user successfully updates their email, the frontend will alert them that their email has been successfully updated
- Given that the user successfully updates their email, the frontend will automatically refresh and show the new email in the User Account page
- Given the user provides a valid email address, when the user enters the change, then an email will be sent to verify the change

## User Story #4

As a user, I would like to be able to search for a stock

Description	Estimated Time	Owner
Create input for user to search for stock by name or symbol	1hr	Aditya
Obtain stock names matching user input	5hr	Peyton
Create routing that returns autofilled list in backend	1hr	Peyton
Display list of potential search results dynamically from user input	5hr	Aditya
Create unit tests to ensure functionality	5hr (each)	Peyton, Aditya

#### Acceptance Criteria:

- Given that the search bar is implemented correctly, when a user is attempting to search for a particular stock, a dropdown menu will display relevant stock symbols and names as they type.
- Given that the API connection is working appropriately, when the user chooses a particular stock, the backend code will obtain the name of the chosen stock from the front end via API call.

- Given that the API connection is working appropriately, when the backend obtains a particular stock from user input, the backend will search stock API for the correct stock name and symbol.
- Given that the backend logic is implemented correctly, when the user enters a ticker symbol that does not match with a stock, the frontend will display an error to the user.

## User Story #5

As a user, I would like to be able to view information about a stock

Description	Estimated Time	Owner
Obtain stock data from API	3hr	Daniel
Parse JSON for required information	2hr	Daniel
Set up routing and project structure	6hr	Daniel
Decide which API to use	2hr	Daniel
Display information on stock page from parsed JSON	2hr	Aditya
Create unit tests to ensure functionality	5hr (each)	Daniel, Aditya

### Acceptance Criteria:

- Given that the API connection is working appropriately, when the backend requests a specific stock, the correct stock and the associated data will be obtained from the API.
- Given that the code integration is complete, when the backend retrieves stock data from the API, the stock data will be correctly sent from the backend to the frontend.
- Given that the frontend UI is implemented correctly, when I navigate to the stock information page, the data is displayed to me in an easy to read text format.
- Given that the frontend UI is implemented correctly, when a user searches for a stock that doesn't exist they are informed that the stock doesn't exist and are routed to a page to try searching again

## User Story #6

As a user, I would like to be able to view a stock's volume

Description	Estimated Time	Owner
Create routing for viewing stock volume	1hr	Daniel
Make API call, parse JSON, and return required stock's volume	2hr	Daniel
Display information on stock page from parsed JSON	2hr	Aditya
Create unit tests to ensure functionality	5hr (each)	Daniel, Aditya

#### Acceptance Criteria:

- Given that a stock has been searched for and its data has been obtained successfully, when a user wishes to view a stock's volume, then a current stock volume is displayed to the page.
- Given that a functional version of the task is built, when a unit test is run, a failed or passed result is returned based on whether the correct volume is retained.
- Given that the front end is functional, when the user searches for a stock its volume will be displayed when its general information is loaded.
- Given that the frontend UI is implemented correctly, when a user searches for a stock that doesn't exist they are informed that the stock doesn't exist and are routed to a page to try searching again

## User Story #7

As a user, I would like to be able to view a stock's trend/range

Description	Estimated Time	Owner
Create routing for viewing trend/range	1hr	Daniel
Make API call, parse JSON, and return required stock's trend/range	2hr	Daniel
Display information on stock page from parsed JSON	2hr	Aditya
Create unit tests to ensure functionality	5hr (each)	Daniel, Aditya

#### Acceptance Criteria:

- **Given that a stock is trending upward or downward, when the user looks up that stock, then the UI will change color to match the current trend.**

- Given that a stock trend is currently displayed, when a user changes the range, a new trend will be dynamically generated.
- Given that stock data is loaded, when a user wishes to view a trend, then a correct high and low price for the given data range will be presented for them to choose from.
- Given that the frontend UI is implemented correctly, when a user searches for a stock that doesn't exist they are informed that the stock doesn't exist and are routed to a page to try searching again

## User Story #8

As a user, I would like a graphical representation of stock prices and how they are changing over time

Description	Estimated Time	Owner
Create routing for viewing stock graph	1hr	Daniel
Make API call(s) format graph data, and return	2hr	Daniel
Format graph to display to the user	10hr	Nate
Create unit tests to ensure functionality	5hr (each)	Daniel, Nate

### Acceptance Criteria:

- Given that the user searches for a stock, they will see a graph with the prices of that stock plotted over time.
- Given that the user wants to adjust the time frame, they will see the plot shrink or expand to fit the time range they want.
- Given that a user hovers over a point on the graph, they should be able to see the price and date of the stock at that point.
- Given that a user changes the time range, they will see the scale of the axis change to reflect the new range.

## User Story #9

As a user, I would like the application to have an easily navigable UI

Description	Estimated Time	Owner
Verify that you can route easily from any	2hr	Aditya

component to another		
Create a Top Bar that is present on every page	4hr	Hugh
Handle any routing errors	3hr	Aditya
Create unit tests to ensure functionality	2hr (each)	Hugh, Aditya

#### Acceptance Criteria:

- Given that the frontend UI is implemented correctly, when the user is on a page, then the top navigation bar is always visible
- Given the frontend UI is implemented correctly, when the user clicks the back button in a browser, then the state of the page they are going back to is the same as it was the last time they were on that page.
- Given that the frontend UI is implemented correctly, when the user clicks navigates to the Account page without being logged in, they are redirected to the sign-in page.
- Given that the frontend UI is implemented correctly, when the user navigates to a page that does not exist, the user will be redirected to a custom 404 page.

## User Story #10

As a developer, I would like the user password and personal information to be encrypted to protect the privacy of the user

Description	Estimated Time	Owner
Implement password encryption within the database	5hr	Niyati
Test and verify encryption methods to ensure the most secure option is used	5hr	Niyati
Severely restrict database access permissions to increase security	5hr	Niyati
Create unit tests to ensure functionality	5hr	Niyati

#### Acceptance Criteria:

- Given that the user information is updated, when the user sends the updated information, then the information should be encrypted.
- Given that the password is encrypted, when the user sends the password in the form, it will not be subject to malicious attempts to steal the password.



- Given the user information is encrypted, when the user accessed their information, then the information should not be viewable in plaintext to unauthenticated users.

## User Story #11

As a developer, I would like the server to be able to store user data in a database

Description	Estimated Time	Owner
Create MongoDB database and push to cloud via Atlas	5hr	Niyati
Decide on and implement database organization and design	3hr	Niyati
Integrate database to backend code	10hr	Niyati, Peyton
Create methods to edit database based on user activity	10hr	Niyati, Peyton
Create unit tests to ensure functionality	5hr (each)	Niyati, Peyton

## Acceptance Criteria

- Given that the database is complete, when the backend makes requests to the database there will be a place for all of the user's information, including login information, email, color preferences, stocks, transactions, and budget information.
- Given that the database is appropriately integrated, when the backend makes a call to the database the database accurately returns the relevant data or updates itself.
- Given that the database has been pushed to the cloud when any user on any device makes a call to the database, the database responds as expected.

# Remaining Backlog

## Functional Requirements

1. User Account
  - ~~a. As a user, I would like to be able to register for an account.~~
  - ~~b. As a user, I would like to be able to login to my account.~~
  - c. As a user, I would like to be able to reset my password if I forget it.
  - d. As a user, I would like to be able to edit my personal information
  - ~~e. As a user, I would like to be able to change my associated email address~~
  - f. As a user, I would like to be able to sign in with my social media accounts so that I can have other ways of creating an account
  - g. As a user, I would like to be able to add a profile picture
2. Budget Tool
  - a. As a user, I would like to be able to create a monthly budget
  - b. As a user, I would like to be able to get personalized financial budgeting information
  - c. As a user, I would like to be able to add income to my finances so that I can manage my budget effectively.
  - d. As a user, I would like to be able to add expenses to my finances so that I can manage my budget effectively.
  - e. As a user, I would like to be able to have a dashboard of all of my personal finances.
  - f. As a user, I would like to view commonly used budgets from other users
  - g. As a user, I would like to be able to view personalized advice on how to manage my money so that I can make informed decisions.
  - h. As a user, I would like to generate a savable document of my finances so that I can access the information offline
  - i. As a user, I would like to keep track of my actual spending as compared to my projected budget plan
  - j. As a user, I would like a monthly analysis of where I am spending the most money (food, transportation, rent, etc.)
  - k. As a user, I would like to view my overall financial summary so that I can track my budgeting more closely
  - l. As a user, I would like to be able to be educated on how to create a budget so that I can make more responsible decisions in my daily life
3. Stock Tool
  - ~~a. As a user, I would like to be able to search for a stock~~
  - ~~b. As a user, I would like to be able to view information about a stock~~
  - ~~c. As a user, I would like to be able to view a stock's volume~~
  - d. As a user, I would like to be able to view a stock's volatility

- ~~e. As a user, I would like to be able to view a stock's trend/range~~
  - f. As a user, I would like to be able to save the stocks I'd like to watch so that I can quickly access the stocks that I have interest in.
  - ~~g. As a user, I would like a graphical representation of stock prices and how they are changing over time.~~
  - h. As a user, I would like a list of the top 5-10 stocks that increased most in value on a day-to-day basis
  - i. As a user, I would like to be able to change the time frame on stocks I'm viewing
  - j. As a user, I would like to be able to compare one stock's data to another's
  - k. As a user, I would like to be able to view a cryptocurrency's current price
  - l. As a user, I would like to view the exchange rate between various currencies so that I can better estimate the financial impact of certain purchases
  - m. As a user, I would like to change the timeframe over which my financial summary applies so that I can track the effectiveness of changes I am making
4. Analytics and Education
- a. As a user, I would like to be educated on building a strong stock portfolio so that I can make more informed purchases
  - b. As a user, I would like to be informed of the risks involved in financial investments so that I can make informed decisions.
  - c. As a user, I would like to be educated on risk management for investing so that I can make safer decisions
  - d. As a user, I would like to be educated on common stock trend graphs so that I can make more informed decisions
  - e. As a user, I would like to be able to simulate stock investments so I can see how much net gain or loss I would incur before investing in the actual market
  - f. As a user, I would like to receive recommendations on what stocks to buy and sell
  - g. As a user, I would like to be able to view breakout boundaries on the stock's graph
  - h. As a user, I would like to be able to view predictions of a stock's future price so that I can better make buying and selling decisions
  - i. As a user, I would like to be able to learn more about cryptocurrency so that I can understand different aspects of the financial markets
5. Communication and Sharing
- a. As a user, I would like to receive email or text notifications when the stocks I am following increase or decrease in price beyond a certain threshold

- b. As a user, I would like to be able to share my stocks to social media outlets
- c. As a user, I would like to email a document containing my finances so that I can move my information
- d. As a user, I would like to be able to share stocks with another user.
- e. As a user, I would like to be able to share my budget plan with other users

## Non-Functional Requirements

- 1. Usability
  - a. As a user, I would like to be able to switch between dark mode and a light mode so that I can have an easier time viewing the application
  - b. As a user, I would like to be able to use the application on a tablet
  - c. As a user, I would like to be able to view the website on my phone and have it format correctly so that I can view my information from multiple devices
  - d. As a user, I would like to be able to get help on how to use specific features of the application.
  - ~~e. As a user, I would like the application to have an easily navigable UI~~
  - f. As a user, I would like the application to be aesthetically pleasing
- 2. Security
  - ~~a. As a developer, I would like user password and personal info to be encrypted to protect the privacy of the user.~~
- 3. Server
  - a. I would like the server to support real-time server-client communication
  - ~~b. I would like the server to be able to store users data in a database~~