

# Requirements Analysis Document

## STOCK APPLICATION

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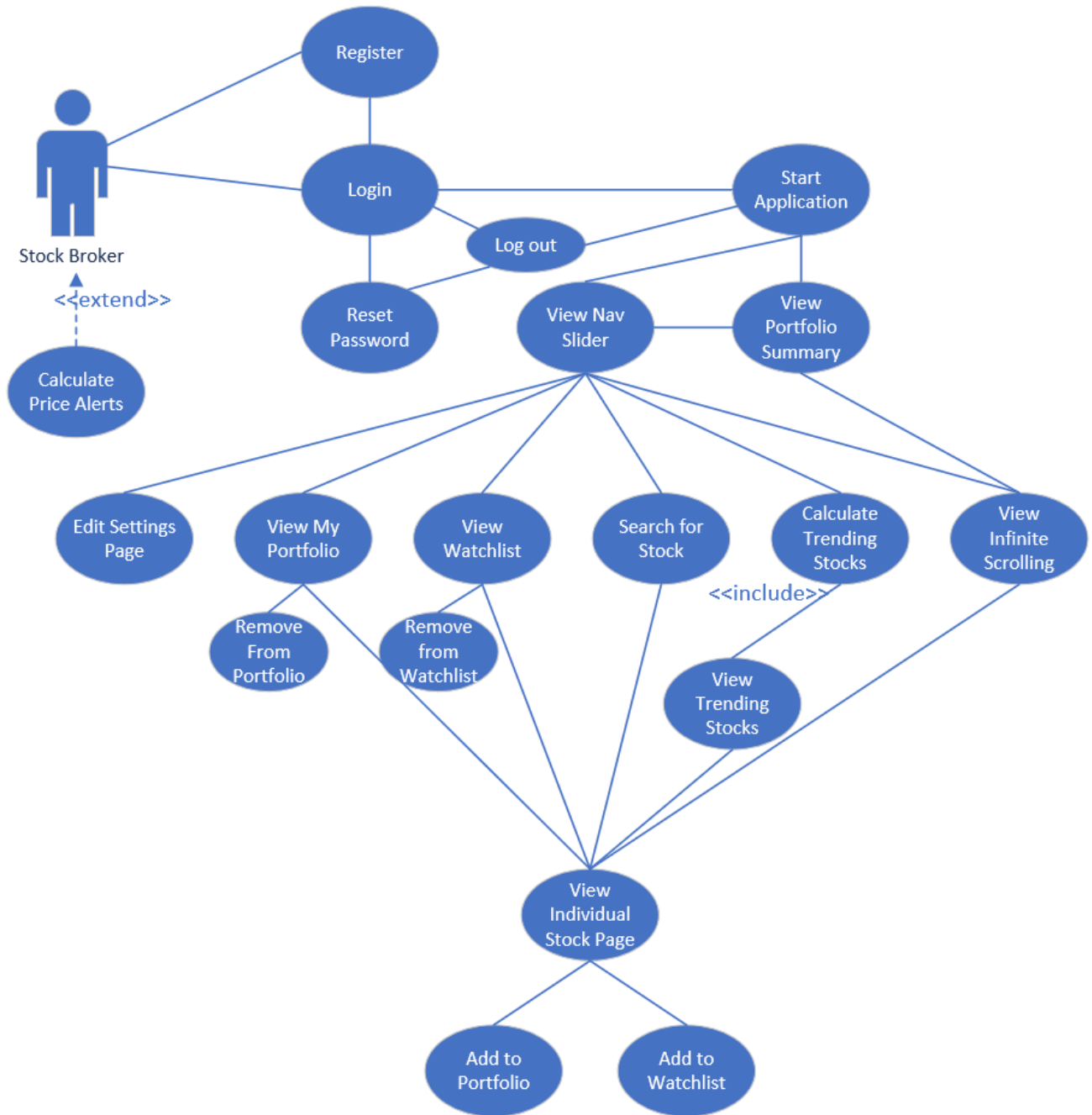
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### Functional Requirements

1. User can create a secure account with a user name and password.
2. User can Log in and Log out; user can choose to stay logged in.
3. User can update their profile settings which include password, phone number, text alerts, and country of origin.
4. User can add and remove a stock to their watch list.
5. User can add and remove a stock to their portfolio.
6. User can display stock information for a specific stock.
7. User can search for a specific stock using the company stock symbol.

### Non-Functional Requirements

1. The software uses the TextLocal api to send SMS alerts.
2. The software pulls the User's watch list, portfolio, and settings from the Firebase database.
3. The server-side web crawler will pull the trending stocks from websites every 15 mins via cron to upload to the Firebase database.
4. The software uses the IEX Trading API to pull stock information.
5. The software creates user information when registering in Firebase database.
6. Calculate the exchange rate based off the users chosen currency.



Use case: Register

Primary Actor: User

Goal in Context: Allows the user to register for an account.

Preconditions: Need internet connection.

Trigger: The User or user creates an account by pressing the create account button on the login page.

Scenario:

1. User sees a form that includes: first name, last name, email, phone number, password, and confirmation password fields.
2. User enters data into all of the fields.
3. The system validates the email address and confirms that the passwords are the same.
4. The system validates the email has not been registered before.
5. The system creates a new account on the server for the user.
6. The system displays a message to the user explaining that the account has been made and redirects the user to the login page. (See Login use case).

Exceptions:

1. User enters wrong confirmation password: Message 5 is displayed underneath the confirmation password field in red.

Priority: High

When Available: Week 1

Frequency of Use: Many times per day

Open Issues: No open issues at this time.

Use case: Login

Primary Actor: User

Goal in Context: For the user to be able to log into the app at any time they please and be able to see their profile.

Preconditions: User must be connected to the internet

Trigger: The user or user decides to log into his account, by clicking on the sign in button on the top right-hand screen.

Scenario:

1. User observes the login page which includes: username and password fields.
2. User enters username and password correctly for the app
3. System verifies credentials by sending that information to a server which compares with all other credentials
4. System transfers to the My Portfolio Summary screen

Exceptions:

1. Enters information in incorrectly: Message 5 is displayed if user enters the wrong username or password into the Stock App and an error is displayed asking user to re-enter username or password. If the user gets the username or password wrong five times, they are asked to enter email to reset the password.
2. Email is invalid: Message 1 is displayed if the user enters an invalid email.

Priority: High

When Available: Week 2

Frequency of Use: Many times per day

Open Issues: No open issues at this time.

Use case: Reset Password

Primary Actor: User

Goal in Context: Allows the user to reset the password by providing an email address.

Preconditions: User is Connected to the Internet.

Trigger: User clicks on forgot password button (see login use case).

Scenario:

1. User observes the reset password page which includes the email address field.
2. User enters email address.
3. User selects 'Reset.'
4. Password Server sends user email with reset password link.
5. User reads the email and clicks the link contained in the email.
6. User observes change password and web page.
7. User enters a new password twice and presses 'save' button.
8. Both passwords are checked to make sure they are the same.
9. Passwords are updated into the Database.
10. User is redirected to login page.

Exceptions:

1. User does not enter the same password twice. See Message to the User(4).
2. User does not enter a valid email address. See Message to the User(1).

Priority: High

When Available: Week 2

Frequency of Use: not regularly

Open Issues: No open issues at this time.



Use Case Name: Start Application use case

Primary Actor: User

Goal Context: The start application use case will determine if the user has already logged onto the website previously.

Preconditions: The user must be connected to the internet and have access to the firebase database

Trigger: The user enters the website's URL into a browser of their choice.

Scenario:

1. The application will check the browser for the user's credentials through the browser's cookies.
2. The application loads the view navigation slider. (See navigation use case).
3. The application loads portfolio summary.(See portfolio summary use case).
4. The application loads Search for stocks use case.(See Search for stocks use case).
5. The application loads Infinite Scrolling Banner.(See Infinite Scrolling Banner use case).

Exceptions:

1. There are no exceptions at this time

Priority: High

When available: Week 4

Frequency of use: This feature will be used frequently, when the User loads a new page or logs in for the first time.

Open Issues: No open issues at this time.

Use Case: View Navigation slider

Primary Actor: User

Goal Context: The view Navigation slider is a side panel and top bar which houses different panes including the search bar, and links to the trending stocks page, watchlist page, and the portfolio page.

Preconditions: The User must also be connected to the internet.

Trigger: The start application use case will have been triggered for this to occur for the first time.

Scenario:

1. The user views the navigation slider page which includes the following clickable buttons:
  - a) Search for Stock button in top right hand corner (see search for stock use case)
  - b) View Trending stocks button on the left hand side of the panel (see View Trending stocks use case)
  - c) View Watchlist button also on the left hand side of the panel (see View Watchlist use case).
  - d) View Portfolio button also on the left hand side of the panel (see View Portfolio use case).

Exceptions:

1. This page will view links and will not contain any user exceptions

Priority: High

When Available: Week 3

Frequency of Use: Many times per day

Open Issues: No open issues at this time.

Use Case: View Portfolio Summary

Primary Actor: User

Goal Context: The Portfolio Summary will display the calculated profit, portfolio growth, net worth, stock diversity, and four stocks from the user's portfolio.

Preconditions: The user must be connected to the internet. The IEX Trading server and a firebase must be up and running.

Trigger: The user selects the login button on the login page and enters the login information.

Scenario:

1. The application would pull users portfolio stock symbol from the Firebase database
2. The application will use the user's stock symbols to pull information through the IEX Trading api which will display stock price.
3. User observes the view portfolio summary page which includes: four stocks, portfolio growth, stock diversity, net worth, and calculated profit.

Exceptions:

1. If the user has not selected stocks to be in their portfolio, message 13 will be displayed.

Priority: High

When available: Week 5

Frequency of use: Every time the user logs into the application.

Open Issues: No open issues at this time.

Use case: Log out

Primary Actor: User

Goal in Context: Allows user to log out and takes them back to the login use case

Preconditions: User is connected to the internet

Trigger: User clicks the logout button to exit the application in the header.

Scenario:

1. User observes logout button on the View Navigation Slider use case
2. The application will display a Confirmation box to the user. Message 18 will be displayed.
3. The user will select yes.
4. The user is redirected to login page.

Exceptions:

1. User does not click on logout page, or the user selects 'no' in which the user will be returned to the Start Application use case.

Priority: High

When Available: Week 2

Frequency of Use: Every time the User wants to log out.

Open Issues: No open issues at this time.

Use case: Edit User Settings

Primary Actor: User

Goal in Context: Allows the user to set their country of origin, the conversion rate, SMS alerts, and phone number.

Preconditions: User is connected to internet

Trigger: User clicks on settings button to view and change settings which are located in the navigation slider use case.

Scenario:

1. User observes all the different settings: origin setting, conversion rates, SMS alerts, User phone number.
2. User checks on the checkbox on which setting they want to change.
3. The user changes their phone number in the text field.
4. User clicks on save button in the window to save the settings.
5. The application will send the updated information to the Firebase database to be overwritten.
6. User is returned to main/home screen with changes applied

Exceptions:

1. User does not want to change their settings.
2. User clicks on cancel button that redirects them back to the previous page

Priority: Medium

When Available: Week 2

Frequency of Use: probably infrequent

Open Issues: None at this time.

Use case: View Portfolio

Primary Actor: User

Goal in Context: The user will be able to see their net worth, portfolio growth, and stock diversity, along with the ability to view the price of individual stocks that the user has previously added to their favorite list.

Preconditions: The application is connected to the internet and the IEX Trading server and the Firebase database are not down.

Trigger: The user clicks the My Portfolio link from the navigation slider use case.

Scenario:

1. The user observes three charts and their favorite list. The favorite list has a list of stocks where each stock name has a hyperlink to that stocks page (see View Individual Stock use case). Each stock also has a button to remove the stock from the list.
2. The user's portfolio data is pulled from the Firebase database and stock information is pulled from the Iex Trading server.
3. The user's net worth is calculated and displayed in a bar chart, portfolio growth in a bar chart, and stock diversity in a pie chart.
4. Individual stocks from the user's favorite list are displayed
5. The Navigation Slider use case is displayed

Exceptions:

1. The user has no stocks in their favorite list. Message 12 is displayed in gray text under the favorite list.

Priority: High priority

When Available: Week 5

Frequency of Use: Common usage

Open Issues: No open Issues at this time.

Use case: View Watchlist

Primary Actor: User

Goal in Context: The goal is to show stocks that the user is interested in. The user will be able to quickly view prices and news about individual stocks that are on their watchlist.

Preconditions: The application is connected to the internet, and the IEX Trading server and the Firebase database are not down.

Trigger: The user clicks on the watchlist link on the navigation slider use case.

Scenario:

1. The user observes a list of stocks. Each stock name has a hyperlink to that stocks page (see View Individual Stock use case). Each stock also has a button to remove the stock from the list.
2. The user's watchlist data is pulled from the Firebase database and their stock information is pulled from the IEX server
3. Each stock on the user's watchlist is displayed with its current price
4. The Navigation Slider use case is displayed

Exceptions:

1. The user has no stocks in their watchlist. Message 11 is displayed in gray text under the watchlist.

Priority: Medium priority

When Available: Week 6

Frequency of Use: Common usage

Open Issues: No open issues at this time.



Use Case: Search for Stock

Primary Actor: User

Goal in Context: The goal of this use case is to search for stocks in the search bar that resides in the Navigation slider. Once the user has searched for a stock, the user will be transferred to the view individual stock use case to view information about that given stock.

Precondition: Access to IEX Trading Server and connected the internet

Trigger: User hovers the cursor over the search bar in the top right hand corner of the page

Scenario:

1. The user observes a text field that allows the user to input text.
2. User proceeds to enter the name of the desired stock in the search bar
3. User clicks the search button
4. The system connects to the IEX server and displays the information on the specified stock (See View Individual Stock use case).

Exceptions:

1. String Value entered in the search bar is not recognized as an actual stock and Message 6 is displayed in red font in the Search Bar.

Priority: Important, as that is how the User looks up stocks to place in his/her watchlist.

When Available: Week 4

Frequency of use: Many times

Open issues: No open issues at this time.

Use Case: Calculate Trending Stocks

Primary Actor: User

Goal in Context: The goal of this use case is to calculate trending stocks by sorting the user's stocks into categories.

Trigger: Calculated when user clicks on View Trending Stocks within the view navigation slider.

Scenario:

1. The application calculates trending stocks by sorting the user's stocks by categories, then finds the trending stocks in that category.

Priority: Important, as this forms the basis of the User's trending stocks page.

Frequency of use: Whenever the user views the Trending stock page.

When available: Week 10

Open Issues: No open issues at this time.

Use case: View Infinite Scrolling Banner

Primary Actor: User

Goal in Context: For the user to be able to view stocks that are trending, on the bottom of their screen.

Preconditions: Need access to the IEX Trading API and the Fire database.

Trigger: The scrolling bar is automatically loaded with trending stocks that the user gets to choose from.

Scenario:

1. The user observes an infinite banner that is scrolling to the left at the bottom of the screen (see Portfolio Summary use case).
2. User clicks on the stock in which they want to observe.
3. The user is taken to the profile of the stock (see individual stock use case).

Exceptions:

1. Bar doesn't scroll: The scroll bar is unmoving, but still displays stocks.
2. Bar does nothing when clicked: The stock is chosen, but when clicked it doesn't take you to the stocks page so that you may get more information.

Priority: Low Priority, doesn't need to be complete to finish project(week 7)

When Available: Middle increment

Frequency of Use: Many times per day

Open Issues: No open issues at this time.

Use Case: Remove from portfolio

Primary Actor: User

Goal Context: The goal of this use case is to remove a stock from their portfolio. There will be a button on the portfolio page to remove the stock

Preconditions: The User will have to be connected to the firebase database, and be connected to the internet.

Trigger: User selects the remove from portfolio button from the view portfolio use case

Scenario

1. User observes the option to remove the stock from the portfolio
2. The stock is removed by passing a query to the Firebase database.
3. User is given a prompt once clicked displaying message 16.

Exceptions:

1. If the portfolio is currently empty. Message to User (13) is displayed.

Priority: Medium

When available: Week 10

Frequency of use: depends on the customer and if they want to remove stocks frequently.

Assumed will be used very frequently

Open Issues: No open Issues at this time.

Use case: Remove from Watchlist

Primary Actor: User

Goal in Context: The goal of this use case is to remove a stock from the User's watchlist.

Preconditions: The application is connected to the internet, and the IEX Trading server and the Firebase database are not down.

Trigger: The User clicks a button on the watchlist use case or the individual stock use case

Scenario:

1. User observes the option to remove the stock from the portfolio
2. The stock is removed by passing a query to the Firebase database.
3. User is given a prompt once clicked displaying message 16.

Exceptions:

1. If the watchlist is currently empty. Message to User (12) is displayed.

Priority: Medium

When Available: Week 6

Frequency of Use: low usage

Open Issues: No open issues at this time.

Use case: View Trending Stocks

Primary Actor: User

Goal in Context: The User will be able to view information about trending stocks that will be pulled from numerous sites like CNN Money, Motley Fool, and Yahoo Money.

Preconditions: There is only a certain number of trending stocks that is recommended to that individual.

Trigger: The User or user decides to click on the Trending stocks page from the Navigation Slider use case and view the trending stocks that are displayed.

Scenario:

1. The user observes the trending stocks:
  1. Stock symbol with price
  2. Percentage growth that particular day.
2. The user clicks on one of the stocks to view individual information about that given stock (See Individual Stock use case)

Exceptions:

1. The application can not grab the information from the websites.

Priority: Medium Priority

When Available: Week 12

Frequency of Use: Many times per day

Open Issues: No open issues at this time.

Use case: View Individual Stock Page

Primary Actor: User

Goal in Context: To create a page that holds information about one given stock that includes information like view stock growth over months, view current stock price, current stock symbol, upcoming news, dividends, and peers.

Preconditions: The User will have to be connected to the internet. The User will need access to the IEX trading server.

Trigger: The User either searches for a given stock or finds one of interest from the portfolio page, main screen, watchlist page, or trending stock page.

Scenario:

1. The system connects to the IEX server and retrieves the following information:
  - a. Stock growth
  - b. Current stock price
  - c. Current stock symbol
  - d. Current News
  - e. Dividends
  - f. Peers
2. The user observes the page that will display the view stock growth in the middle of the pane. The view current stock price will be to the left of the view stock growth chart. The pane will also contain the current stock symbol above the chart next to the stock price. The upcoming news is displayed underneath and to the right of the view stock growth chart. The list of peers will be displayed to the left of the upcoming news. And the dividend information will be displayed below that.

Exceptions:

1. If the IEX trading API is down, this message will display to the user: 20.

Priority: High

When Available: Week 3

Frequency of Use: Many times per day

Open Issues: No open issues at this time.



Use Case: Add to Portfolio

Primary Actor: User

Goal Context: The add to portfolio feature will allow the user to be able to add individual stocks to their portfolio

Preconditions: Have to be connected to the firebase database, and be connected to the internet.

Trigger: User selects the add to portfolio button that will be viewed with an Individual stock page which will add that particular stock to their portfolio.

Scenario

1. The user observes the option to select the add to portfolio button that is synced through the individual stockpage and their portfolio.
2. The user selects the add button
3. The application will send a query to the Firebase database.
4. The user will receive a message to the user: 15.

Exceptions:

1. There are no exceptions at this time

Priority: Medium

When available: Week 8

Frequency of use: Depends on the customer and if they want to add stocks frequently. Assumed will be used very frequently

Open Issues: No open issues at this time.

Use case: Add to Watchlist

Primary Actor: User

Goal Context: The goal of this use case is to add a stock to the User's watchlist. Preconditions:

The application is connected to the internet, and the IEX Trading server and the Firebase database are not down.

Trigger: The User clicks a button on the individual stock use case

Scenario:

1. The user observes the option to select the add to watchlist button that is synced through the individual stockpage and their watchlist.
2. The user selects the add button
3. The application will send a query to the Firebase database.
4. The user will receive a message to the user: 14.

Exceptions:

1. There are no exceptions at this time.

Priority: Medium

When Available: Week 6

Frequency of Use: low usage

Open Issues: No open issues at this time.

Use Case: Calculate Price Alert

Primary Actor: User

Goal in Context: To calculate how much the User's stock price fluctuated and send the User an automated alert.

Trigger: When the User's Stock on his/her watch list or trending page goes up/down a certain percentage.

Scenario Watchlist Stocks:

1. The application notices a 5% increase/decrease in select stocks in the watchlist/trending stocks page.
2. The computer then sends an SMS message to the User via the telephone number provided in Register.

Priority: Optional, as the User could decide not to have SMS message alerts turned on for any of his/her stocks. See Messages to User (7,8,9,10)

Frequency of use: Dependent on User

Open Issues: No open issues at this time.

# Stock Application

ID	Use Case	Start	Finish	Duration	Jun 2018					Feb 2018					Mar 2018				Apr 2018				
					12/31	1/7	1/14	1/21	1/28	2/4	2/11	2/18	2/25	3/4	3/11	3/18	3/25	4/1	4/8	4/15	4/22	4/29	
1	Register	1/8/2018	1/12/2018	1w	<div></div>																		
2	Log In	1/15/2018	1/19/2018	1w	<div></div>																		
3	Log Out	1/15/2018	1/19/2018	1w	<div></div>																		
4	Reset Password	1/15/2018	1/19/2018	1w	<div></div>																		
5	Start Application	1/22/2018	1/26/2018	1w	<div></div>																		
6	View Navigation Slider	1/29/2018	2/16/2018	3w	<div></div>																		
7	Set Settings	1/29/2018	2/2/2018	1w	<div></div>																		
8	Search for stocks	2/5/2018	3/2/2018	4w	<div></div>																		
9	View Portfolio Summary	2/5/2018	2/16/2018	2w	<div></div>																		
10	View Portfolio	2/19/2018	3/2/2018	2w	<div></div>																		
11	Add to Portfolio	2/19/2018	2/23/2018	1w	<div></div>																		
12	Add to Watchlist	2/19/2018	2/23/2018	1w	<div></div>																		
13	View Watchlist	3/5/2018	3/9/2018	1w	<div></div>																		
14	Remove from Portfolio	3/5/2018	3/9/2018	1w	<div></div>																		
15	Remove from Watchlist	3/5/2018	3/9/2018	1w	<div></div>																		
16	Calculate Trending Stocks	3/12/2018	3/16/2018	1w	<div></div>																		
17	View Trending Stocks	3/19/2018	3/23/2018	1w	<div></div>																		
18	View Individual Stocks	3/26/2018	3/30/2018	1w	<div></div>																		
19	Calculate Price Alerts	4/2/2018	4/6/2018	1w	<div></div>																		
20	Scrolling Banner	4/9/2018	4/13/2018	1w	<div></div>																		

### Message to the User

1. Please enter a valid email
2. Username already exists!
3. Password does not meet all requirements!
4. Password incorrect!
5. Email already exists!
6. Email and Password combination is incorrect! Please Try Again.
7. Please enter valid stock symbol!
8. Stock in User's Watchlist has Increased
9. Stock in User's Watchlist has decreased
10. Stock in User's Portfolio has Increased
11. Stock in User's Portfolio has decreased
12. Watchlist is currently empty
13. Portfolio is currently empty
14. Added stock to the watchlist
15. Added stock to the portfolio
16. Removed stock from the watchlist
17. Removed stock from the portfolio
18. Are you sure you want to logout? Yes or No
19. Failed to load trending stocks
20. IEX Trading API is down.

## Glossary:

1. Dividends: a sum of money regularly paid (typically quarterly) by a company to its shareholders out of its profits (or reserves).
2. Stock symbol: unique series of letters assigned to security for trading purposes.
3. Peers: a group of individuals or entities who share similar characteristics and interests.
4. IEX trading server: is the API we are using to pull information for the stock information.
5. Stock Diversity: The differences in a stock page compared to other stocks
6. Trending stocks: Stock that is doing well and being looked at by many people
7. Net Worth of portfolio: Book value or shareholders equity
8. Pane: is the page in which the navigation slider use case encloses.
9. Firebase Database: Defines who has access to the data and how they can access it
10. User: A shareholder
11. Stock Portfolio: a group of financial assets such as stocks
12. Stock Watchlist: Stocks that are being added to a list so they can be seen faster
13. View Calculated Profit: (I.E., what this means for our app) Being able to see the profit of each stock on your profile
14. View stock growth:(I.E., what this means for our app) being able to see the growth in your stock over time
15. Portfolio Summary: is the main menu of the stock app so that you can see any stocks at the same time
16. Peers: group of individuals or entities who share similar characteristics and interests.