Requirements Analysis – Group 5

I. Use cases

Use case 1 – View login page with option to login with username/password or create account
Primary actor: player
A user decides to check on their virtual stock market portfolio. They go to the site and see the login page. They enter their username and password correctly and are able to log in, taking them to the landing page.

Use case 2 – View landing page with current balance, stock performances, and news section
Primary actor: player
A user decides to check on their virtual stock market portfolio. They log in successfully and are taken to the landing page, where they see their current balance, their individual stock performances, and news stories in the news section.

Use case 3 – View the initial sum of money that users start out with
Primary actor: player
A user wants to try out the virtual stock market game. They create an account, and are taken to the landing page, where they can see their initial sum of virtual money to invest with.

Use case 4 – Share portfolio progress on social media sites
Primary actor: player
A user sees that their virtual portfolio is doing very well. They want to share their portfolio progress to their friends on various social media platforms, starting with Twitter. They click on the option to share their portfolio progress on Twitter, which generates a tweet with a picture of their portfolio, which the user posts.

Use case 5 – View a friends list for friends to be able to see each others' portfolio balances
Primary actor: player
A user wants to check out their friend's portfolio balance. They go to their friends list and clicks on their chosen friend, which takes them to their friend's page. The page displays the friend's name and portfolio balance.

Use case 6 – Trade options
Primary actor: player
A user starts at the login page and can select the options trading section. In this section a user can view stock options that are available as well as the stock options they own in the game. Users can scroll through a list of stock options or use a search bar feature to find stocks. When they decide on a stock option to buy, they can see the price and select a quantity, then purchase

it and it deducts from their total in-game money. They are also presented with a list of stock options they currently possess in the game, and can select one of them and sell it.

Use case 7 – View changes in stock prices over time
Primary actor: player
In this section, which is accessible from the main menu, users can search for a certain stock and select one. Kill me I'm slowly dying inside please send help now. They are presented with a timeline of the stock's value. They can search for a different stock or return to the main menu from here. They can also press the back button in the corner of the window to cancel their search.

Use case 8 – Search for stocks using the search bar
Primary actor: player
This is a feature that is accessible in multiple sections of the app. It is a normal search bar, like those used in a search engine, and allows users to search for a certain stock by its name. When they select a stock, they can see more information about it, and it closes the searchbar. Also, users can just click away from the search bar.

Use case 9 – Buy and sell stocks
Primary actor: player
When a user has found a certain stock's information, they can purchase the stock. They can enter an amount of money to spend on the stock, and click the buy button, and it adds the stock from their stocks bought. Buying stocks brings users to their dashboard of stocks they have purchased in the game. From this dashboard which is also accessible from the main menu, users can view the current values of stocks they have purchased, buy more of them, or sell them at their current value. Buying and selling stocks affects the amount of money the user has available to work with.

Use case 10 – Enable notifications for stock change and dividends entering account alerts
Primary actor: player
When a user views a certain stock information, they can press the bell icon to add push notifications about their in-game stocks when the value changes significantly. They can remove these notifications by navigating back to the stock's information section and pressing the notification button again. When a user gets a notification about a stock value, they can click on the notification and the app opens, presenting the stocks's information tab.

Use case 11 – View news section of the app with current events that could change stock prices
Primary actor: player
Users can click on a button on the home screen to access the news section of the app. This section displays information about current events that can cause major changes in stock prices. Users can use this information to help them make more informed decisions about what stocks to buy and sell. If a user clicks on a headline, they are presented with the article's contents, and

can return to the news section by pressing the back button in the corner of the window.

Use case 12 – View portfolio information
Primary actor: player
A user wishes to view the status of their in game stocks. The user achieves this by first navigating to the landing page that would show the possible feature endpoints the user could choose from. The user then selects the display portfolio toggle. The display then updates to show the user information regarding their portfolio, such as total investment balance, list of currently held stocks, and gains or losses.

Use Case 13 – View portfolio growth over time
Primary actor: player
A user wishes to view the growth of their overall portfolio investments over a period of time. To do this, the user first reaches the landing page upon successfully logging in. Afterwards, the user selects the option to display their specific portfolio information. Once this screen is displayed, the user then scrolls the screen until they reach the diagram that displays the user's cumulative portfolio holdings, as well as their gains and losses over time.

Use Case 14 – Add stocks to personal performance watchlist
Primary actor: player
A user would like to observe the performance of certain stocks without having to purchase them. The user accomplishes this by first reaching the landing page upon logging in. Next, the user navigates to the "browse stocks" screen, from which the user will be able to view the current available stocks. The user then selects a specific stock and then chooses the "add to watchlist" toggle in order for viewing for future reference.

Use Case 15 – View highest-moving stocks for that specific day
Primary actor: player
A user wishes to view the highest-moving stock for their given day. To accomplish this, the user reaches the landing page after logging in. Next, the user navigates to the "browse stocks" screen in order to see the list of available stocks. The user then selects the "popular stocks" toggle in order to view the top highest-moving stocks of the current day.

Use Case 16 – View trending stocks/ETFs toggle
Primary actor: player
A user wishes to view the current trending stocks available for purchase on the market. To accomplish this, first the user reaches the landing page after logging in. Next, the user navigates to the "browse stocks" screen by selecting the "browse stocks" option. Upon reaching this screen, the user then selects the "trending stocks/ETFs" toggle. This will display the currently trending stocks in the market according to available trading data.

Use case 17 – Pay to put advertisements in the game

Primary actor: third-party company
Companies are allowed to pay a fee in order to put advertisements on the homepage of the game. These advertisements can go in either 2 places. One is on the sides of the UI for the game, and the other is advertisements that pop up on the screen when the player changes tabs/screens. Users can then click on these advertisements if they are interested in them which will take them to those companies' websites.

Use Case 18 – Pay for an ad-free version of the game
Primary actor: player
Since companies have the permission to, advertisements will appear on the screen of the game often but not too often. However, if this is something that the user wants to get rid of, they have the option of paying a small fee in order to remove these ads from appearing on their game. This will make sure that no pop-up ads, as well as advertisements that appear on the sides of the user interface will appear anymore while they are playing the game.

Use Case 19 – View "players who bought this sock also bought these other stocks" feature
Primary actor: player
When a user decides to put some of their virtual currency into a stock, there will be a dropdown menu that displays 5 other stock options that other players have put money into very shortly after putting money into that certain stock. This will give the user an idea of what kind of direction other players may have gone in after purchasing the stock, and also show them some stocks that they might be interested in since they purchased the stock.

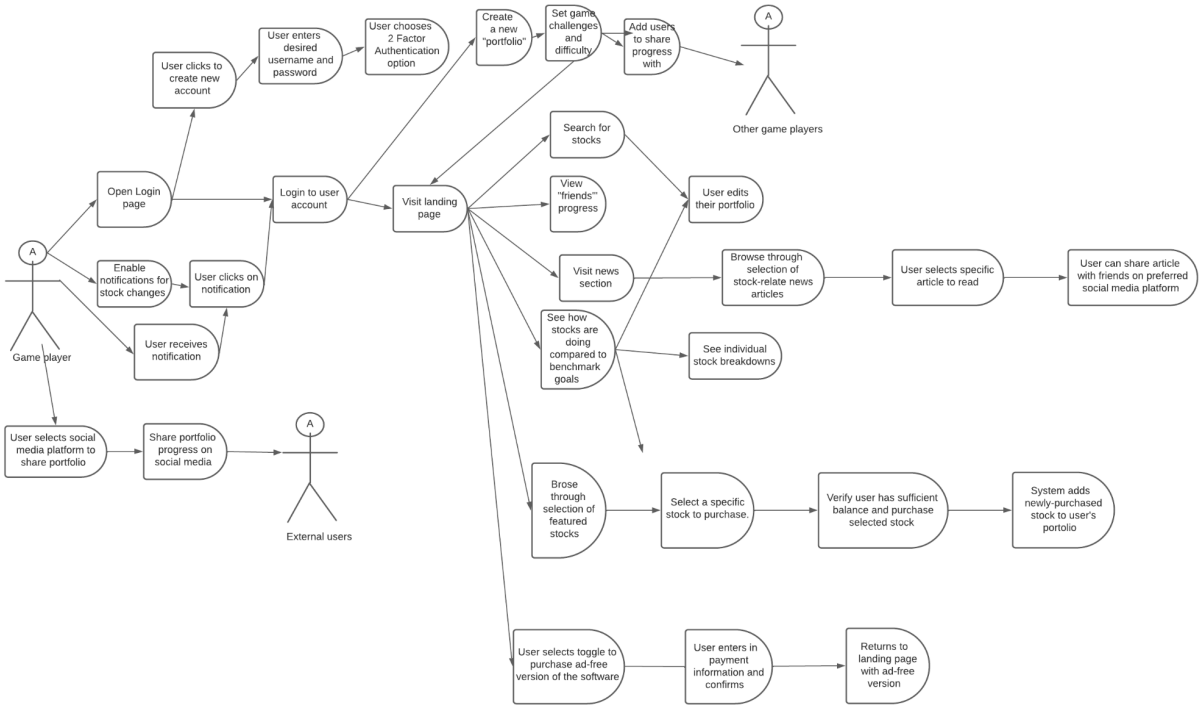
Use Case 20 – View analyst recommendations for stocks
Primary actor: player
When a player is looking at investing in a stock, there will be a section on the stock's main page that displays the opinions of several stock analysts on that particular stock. Here, the user will be able to see what the experts think about that stock to help make a decision about whether to invest in that stock and/or how much to invest.

Use Case 21 – View PE ratio, dividend yield, and other markers for stocks
Primary actor: player
When a player is looking at investing in a stock, there will be a section on the stock's main page that displays some of the important markers for the stock. These markers include Price to Earnings ratio, dividend yield, volume, market cap, and several others. The user can look at these to help them determine if the stock is one that they should be investing in.

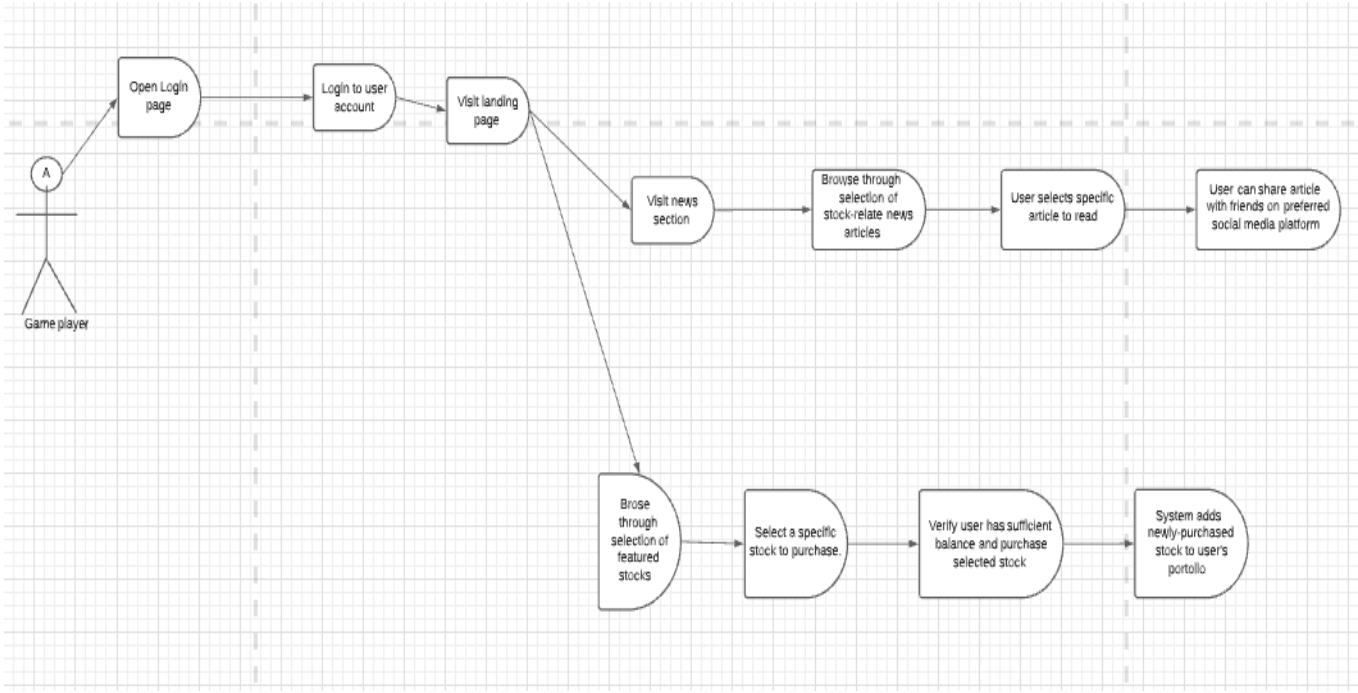
Use Case 22 – Set a portfolio benchmark goal and be notified when hit
Primary actor: player
When the user begins the game for the first time and they are setting up their account, they will be able to set a portfolio benchmark goal which will be a certain amount above their starting portfolio amount. When this benchmark is reached, a notification will be sent to the user telling them that they have hit their original benchmark.

II. Use case diagrams

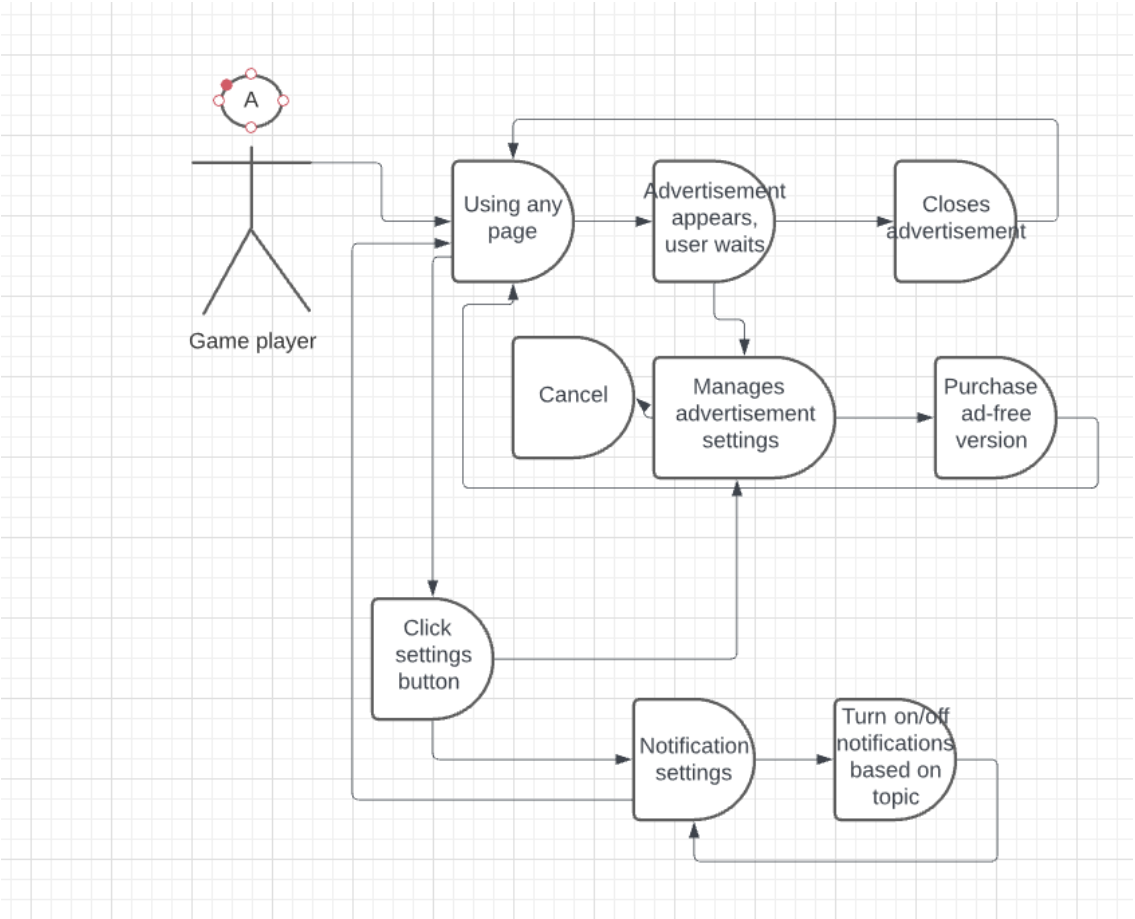
Use case diagram: general overview



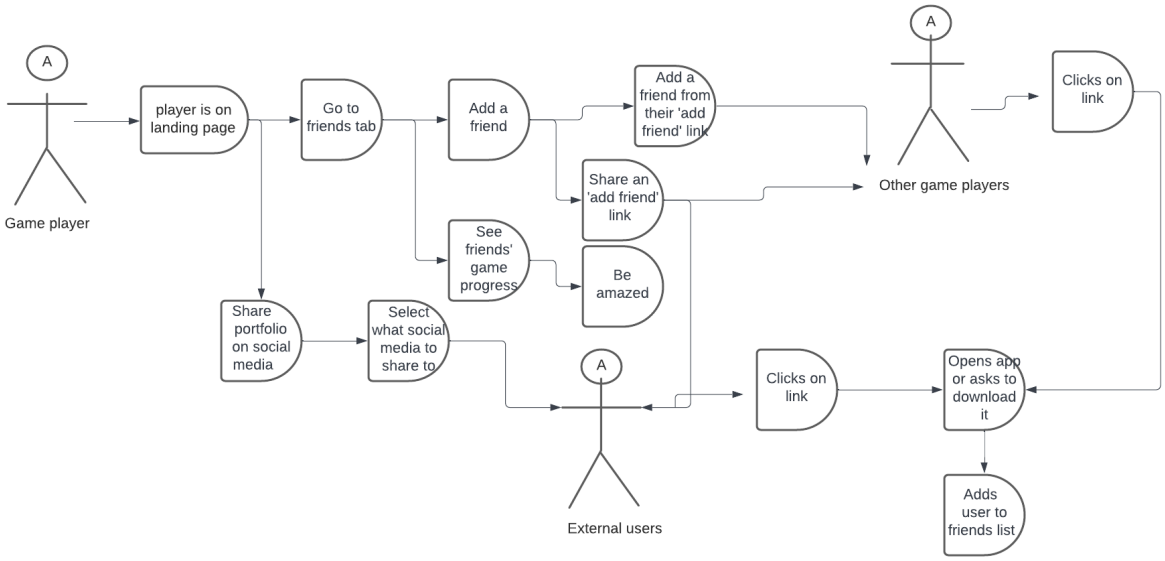
Use case diagram: news and recommendations



Use case diagram: advertisements and notifications settings

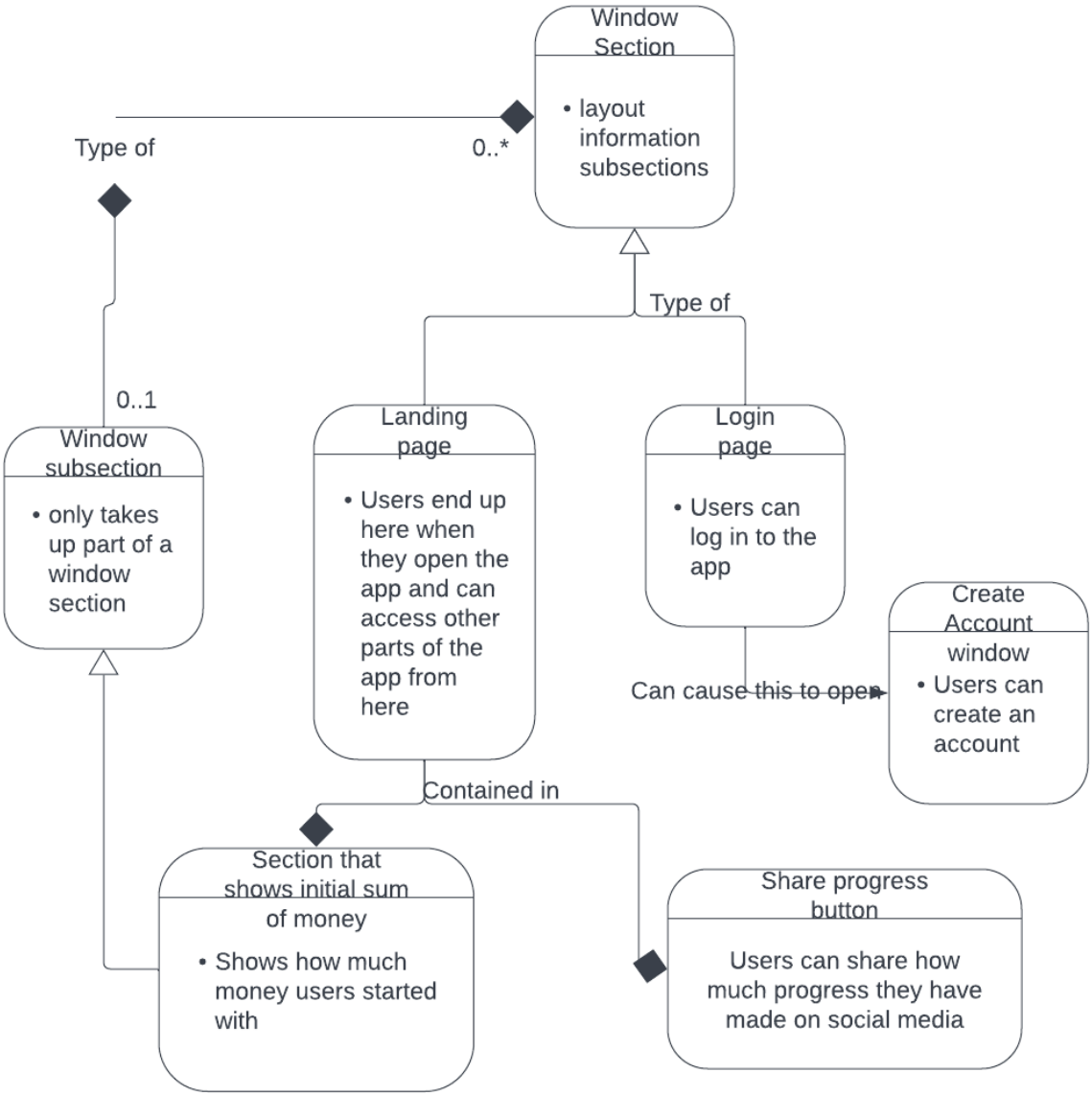


Use case diagram: social media and “friends” features

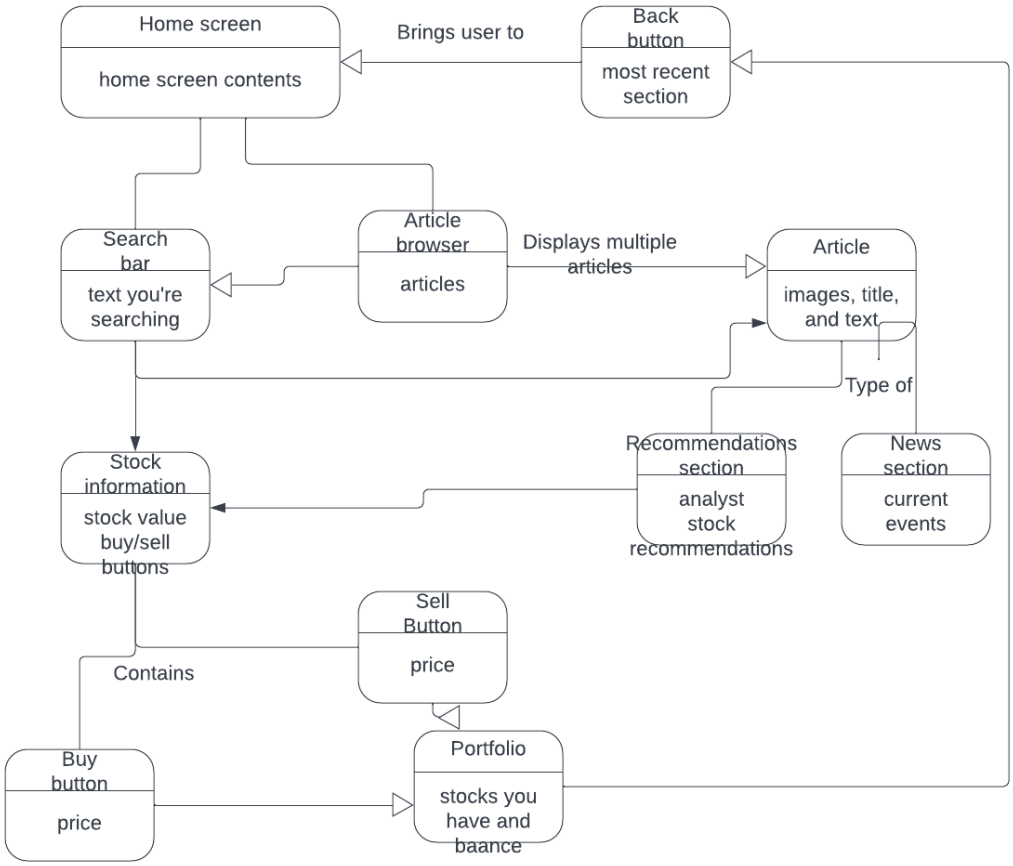


III. Conceptual class diagrams

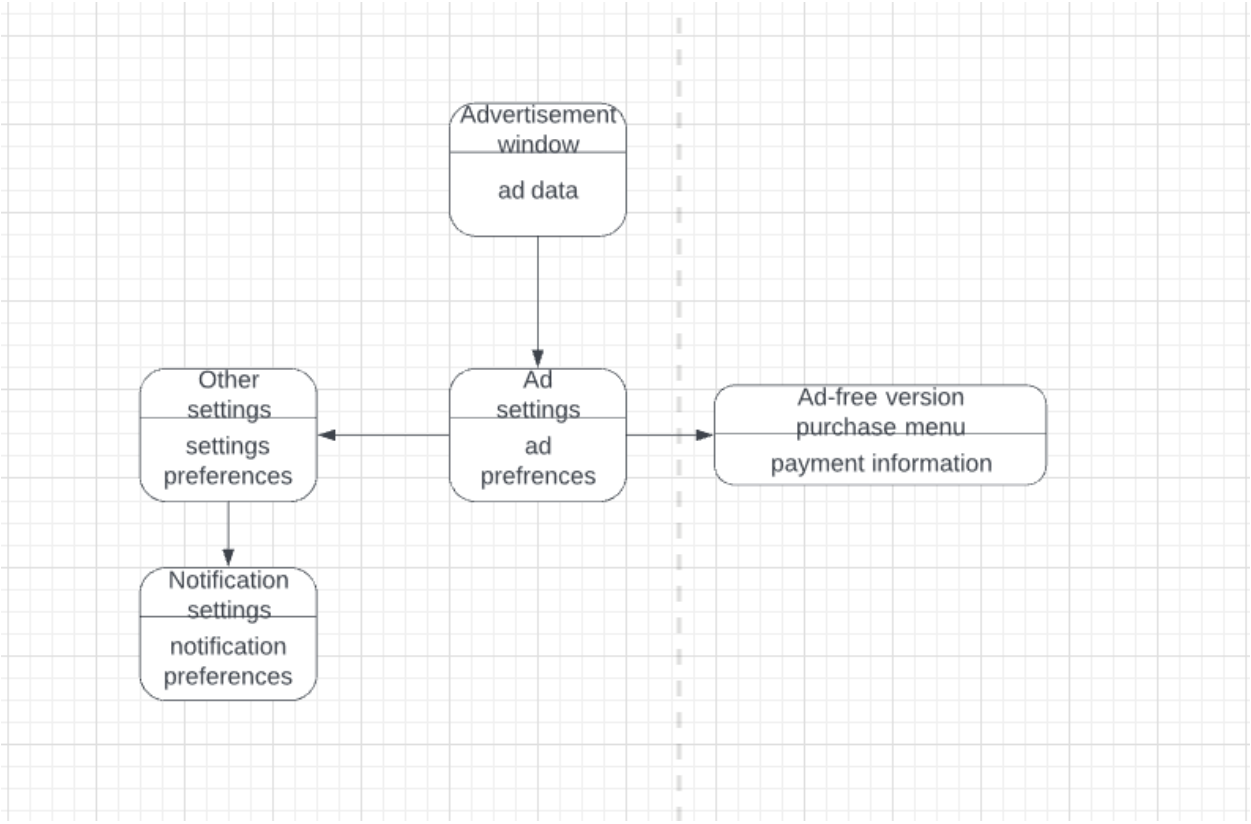
Conceptual class diagram: landing page, login page, and “app sections”



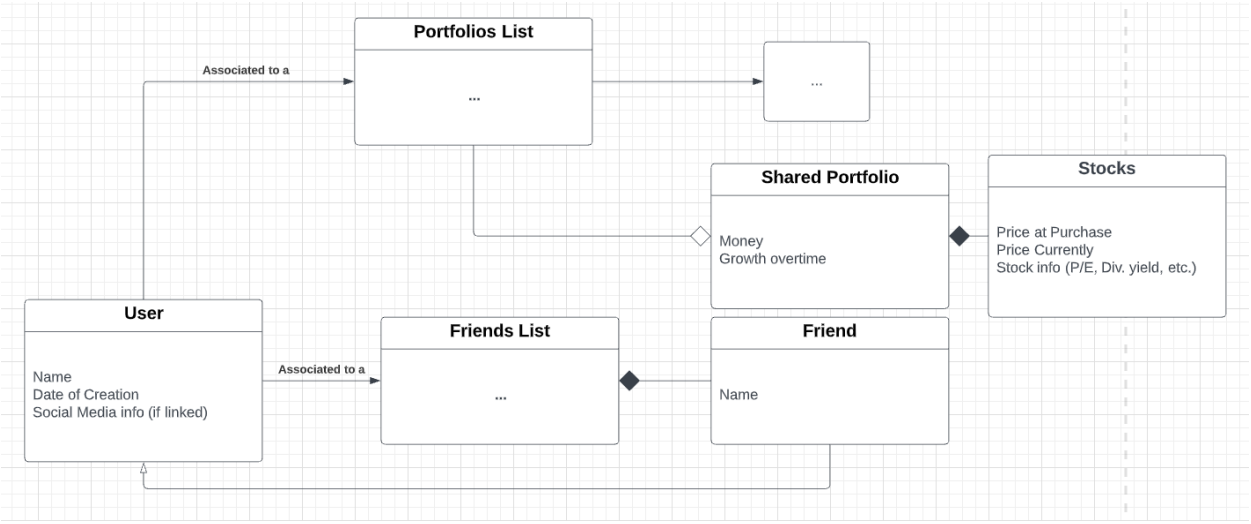
Conceptual class diagram: browsing and purchasing stocks, news, and recommendations



Conceptual class diagram: settings and advertising



Conceptual class diagram: social media and “friends” features



IV. Supplementary specifications

Robust documentation and tutorials add to ease of use. JavaDocs and tutorials are helpful to developers and users.

The app should have an easily usable and intuitive UI to make sure it is accessible.

Speedy responses to user commands, especially for tasks like buying/selling shares.

Reliable app with little to no bugs/crashes.

Secure accounts that are password protected with two factor authentication.