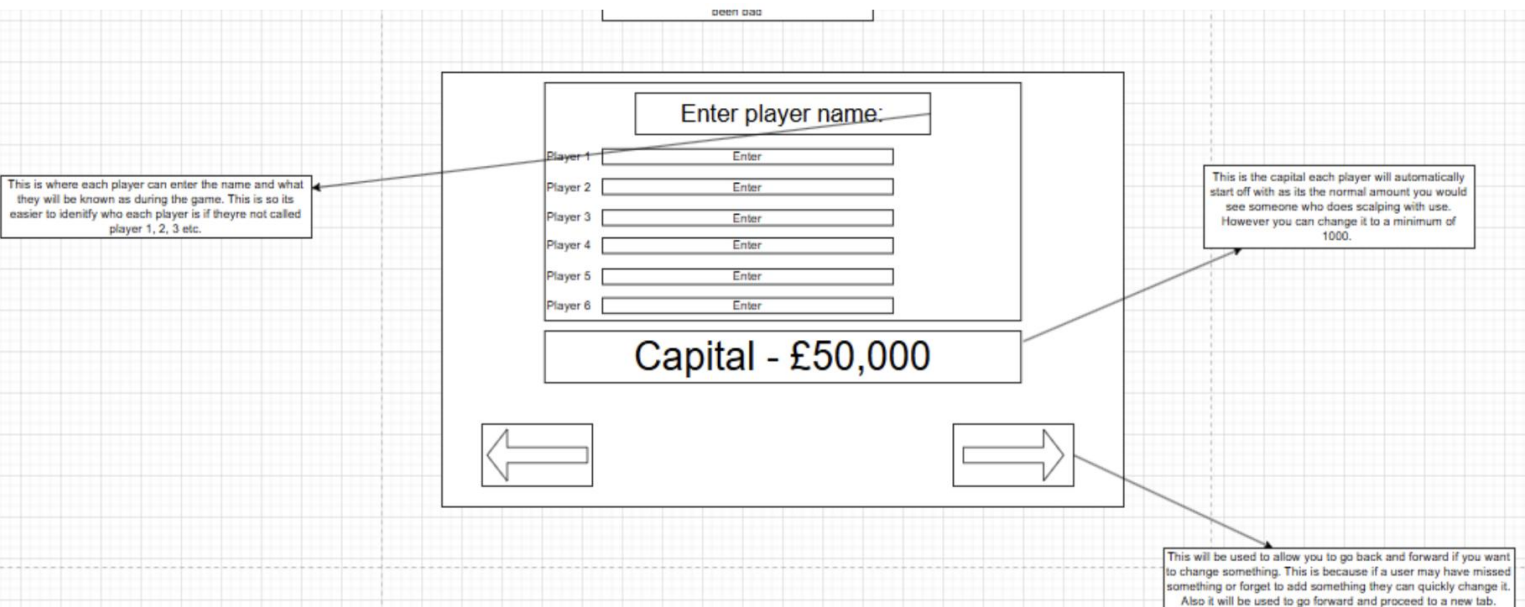
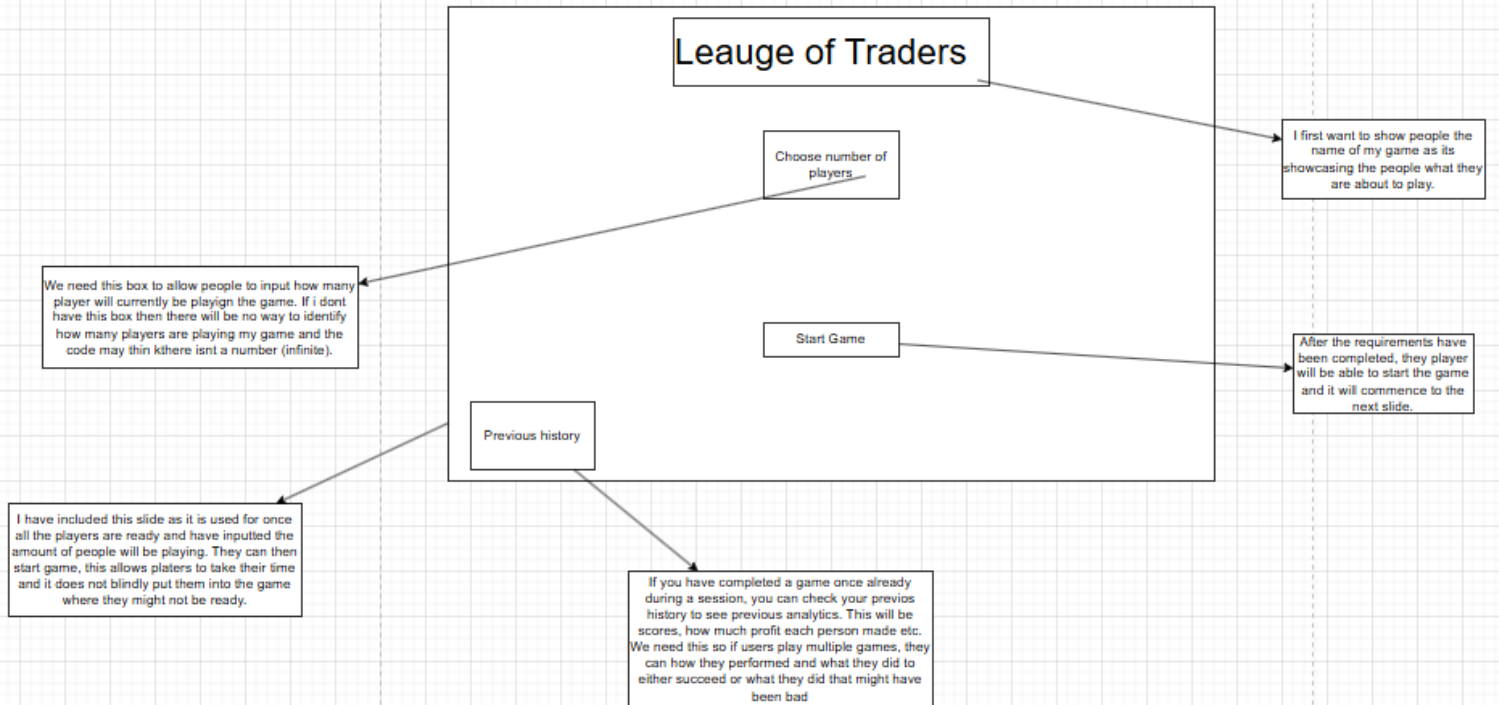
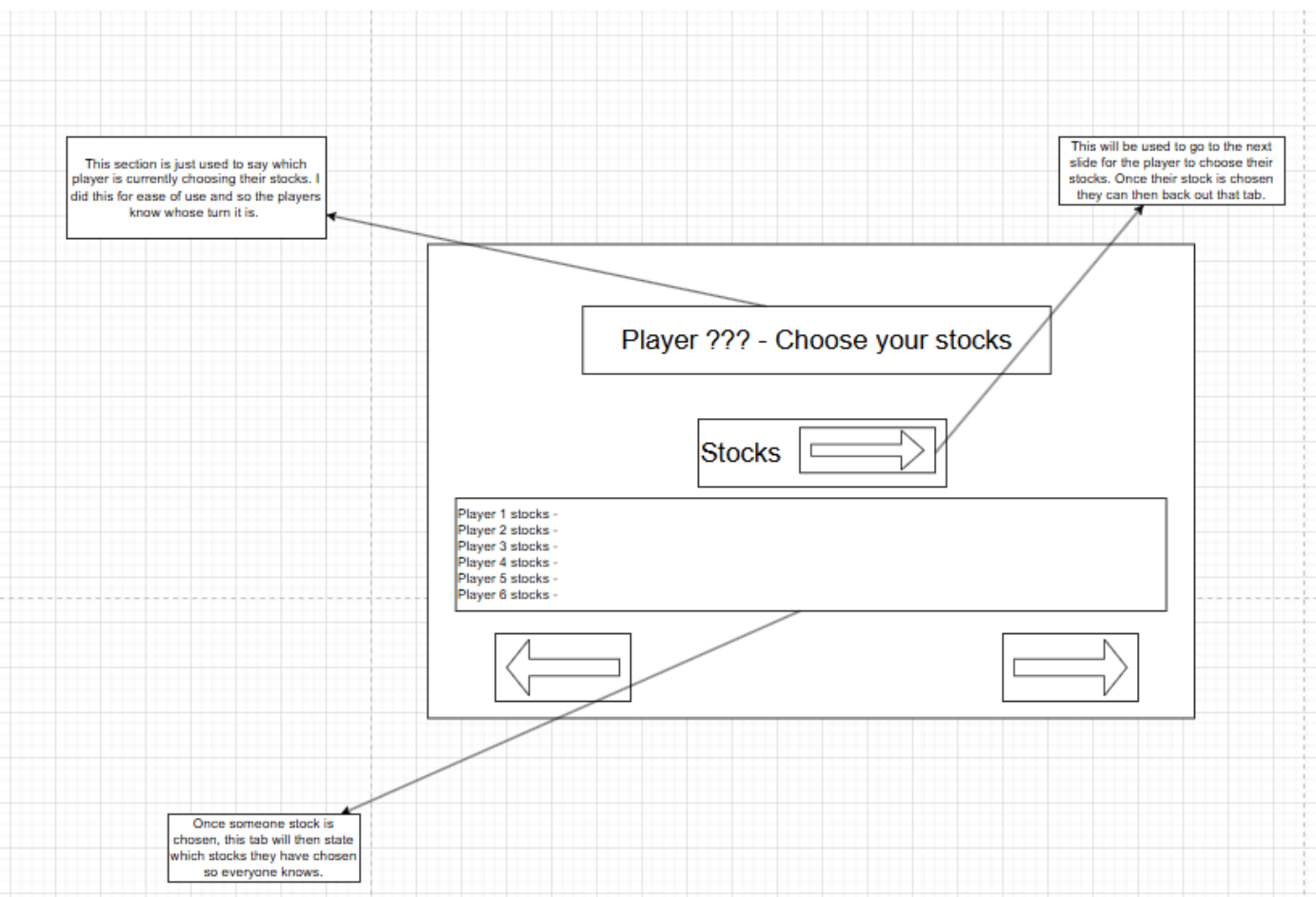
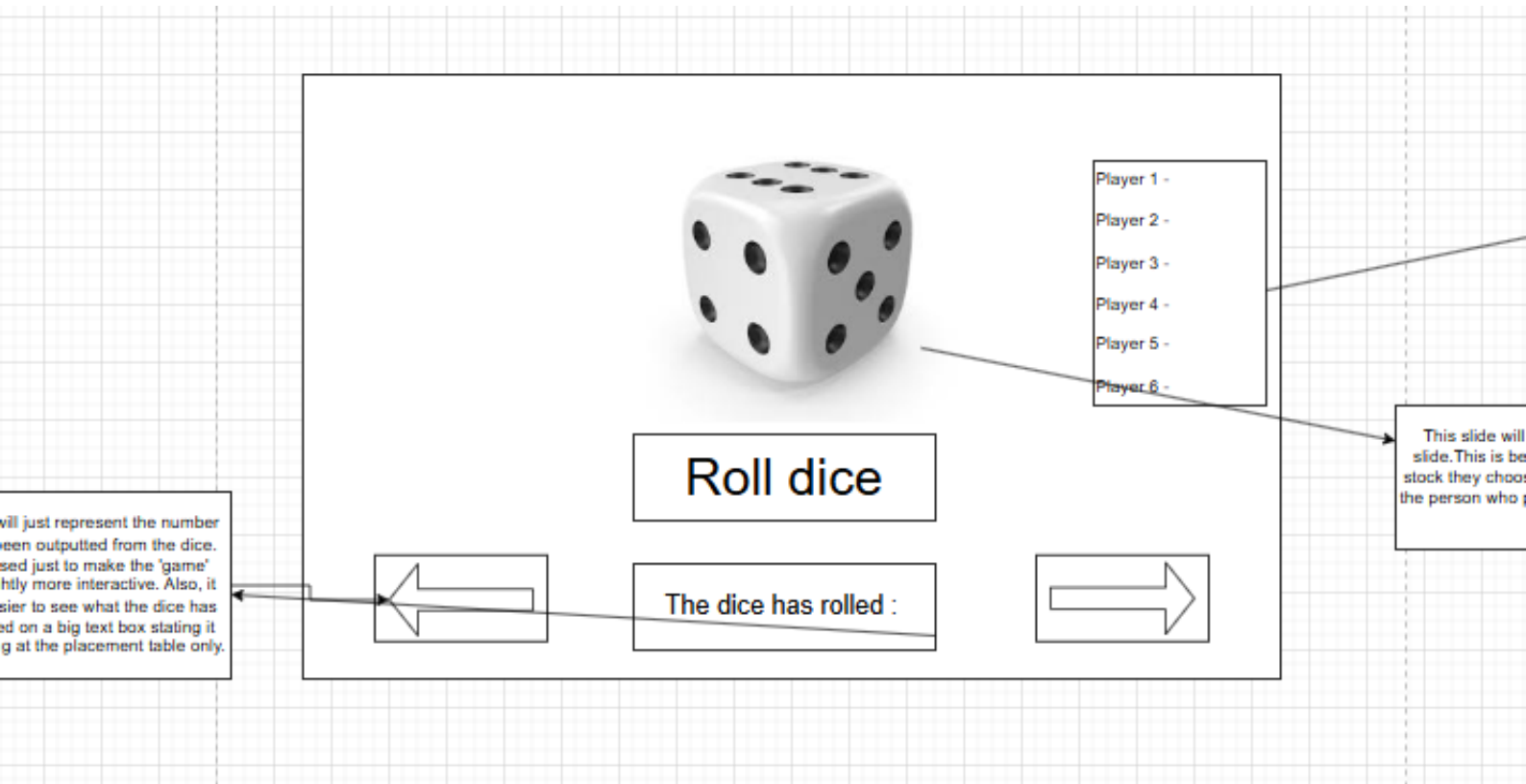


# Development:

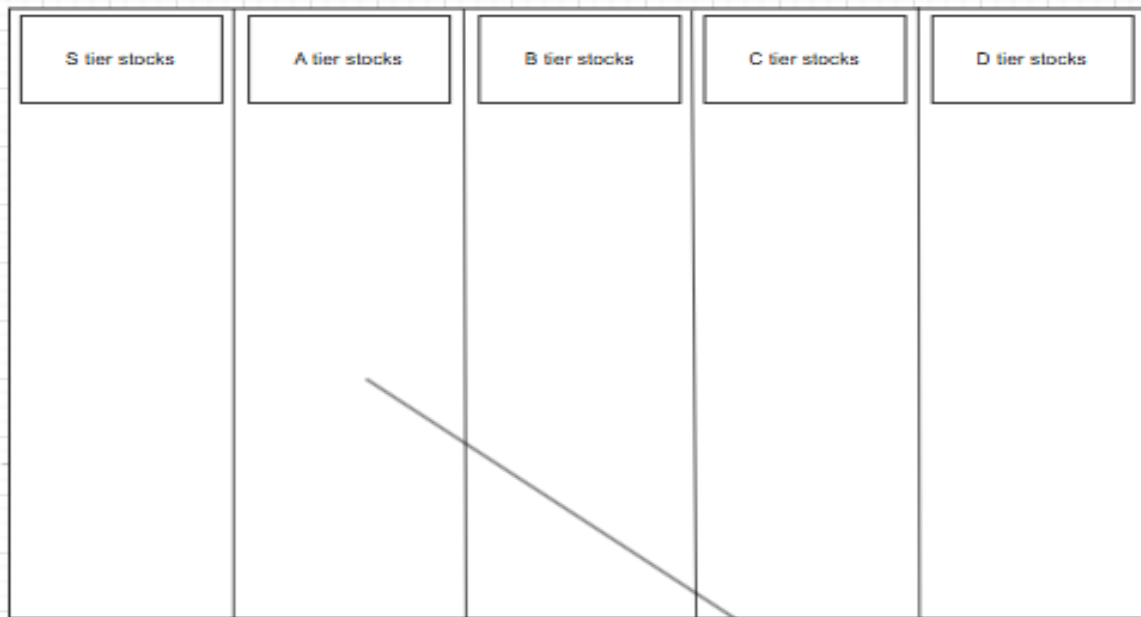
## Gui design



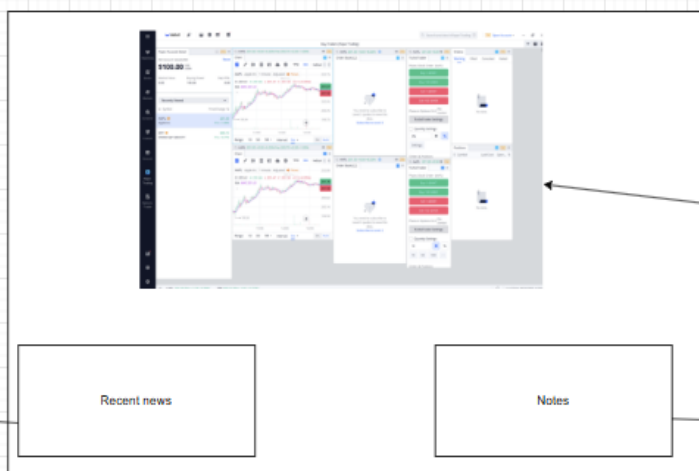
# Development:



# Development:



This tab here is where everyone can choose each of their stocks. They can choose only one stock in each tier and have to choose one in each tier. This is here so each player has a fair chance to have a good stock and a bad stock to trade with.

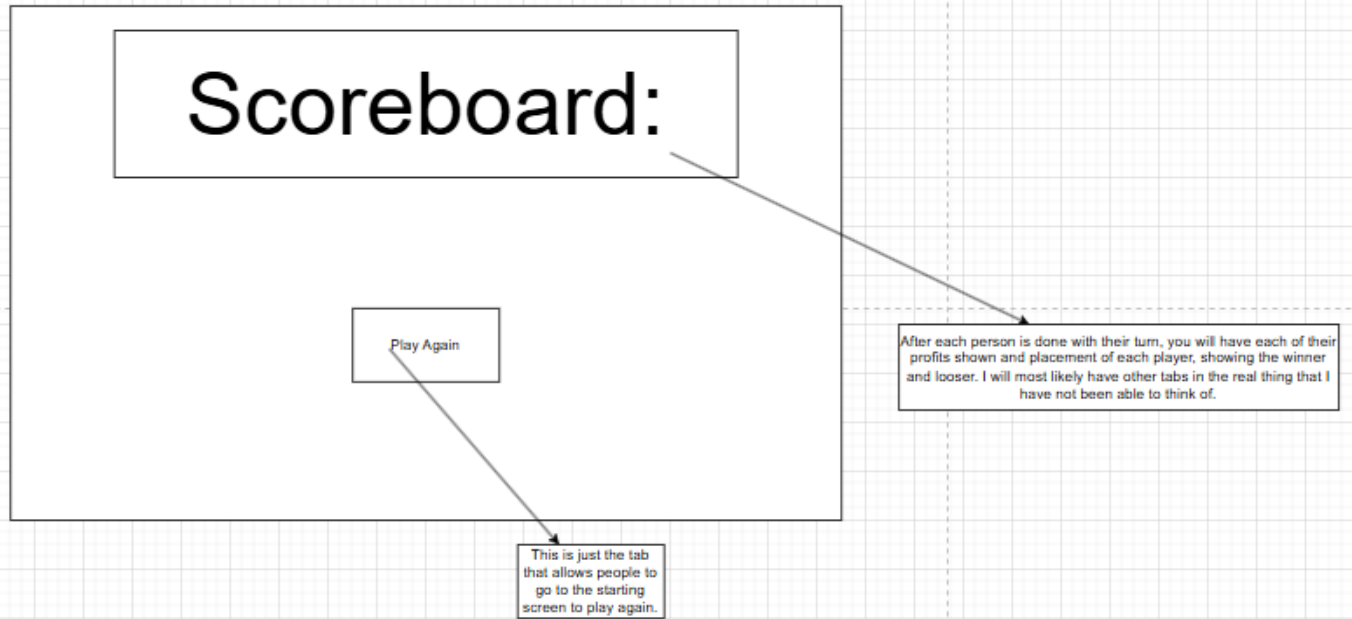


In the notes tab, this recent news tab will be able and be able to access before you start with your stock. This is where you can see news on the stock your about to trade with make a judgement with how you should trade during your scalping round.

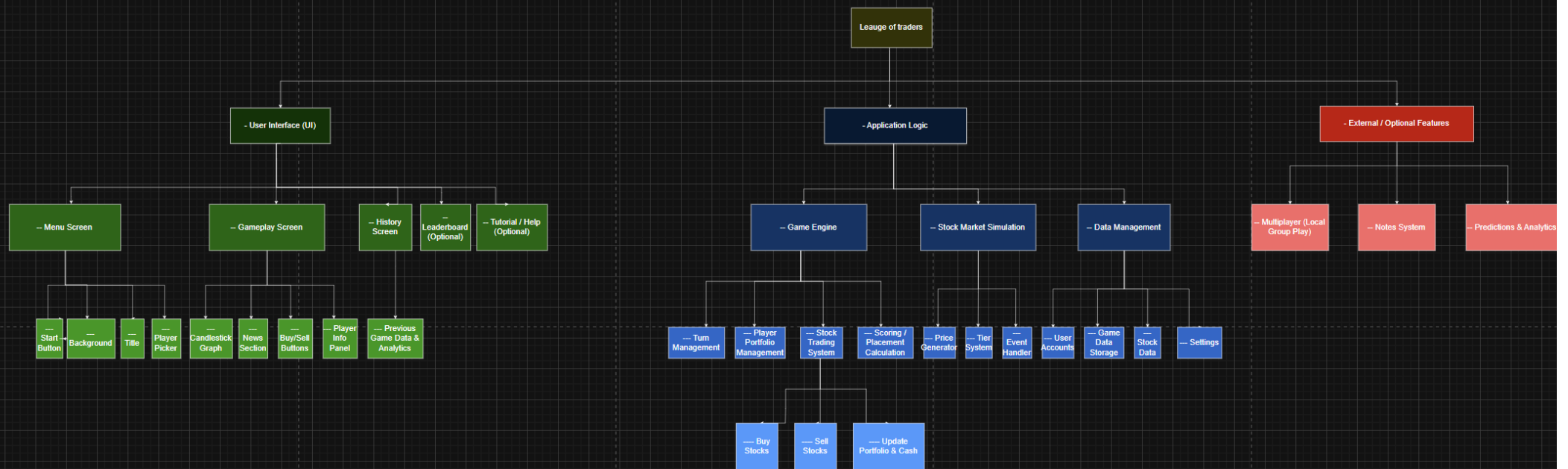
This is where the game will begin. I've shown an image of we bulls paper trading tab as i hope my game to have a tab very similar in look to this where they can buy and sell their stock with the capital they have, check how much profit they are making and switch between each of their stocks.

This clickable tab will let you, after scalping with one stock, be able to take notes on strategies you have done and what may bring you success and failure. Only you will be able to see the note tab tied to your player number so no one can copy strategies you may do in the future.

# Development:

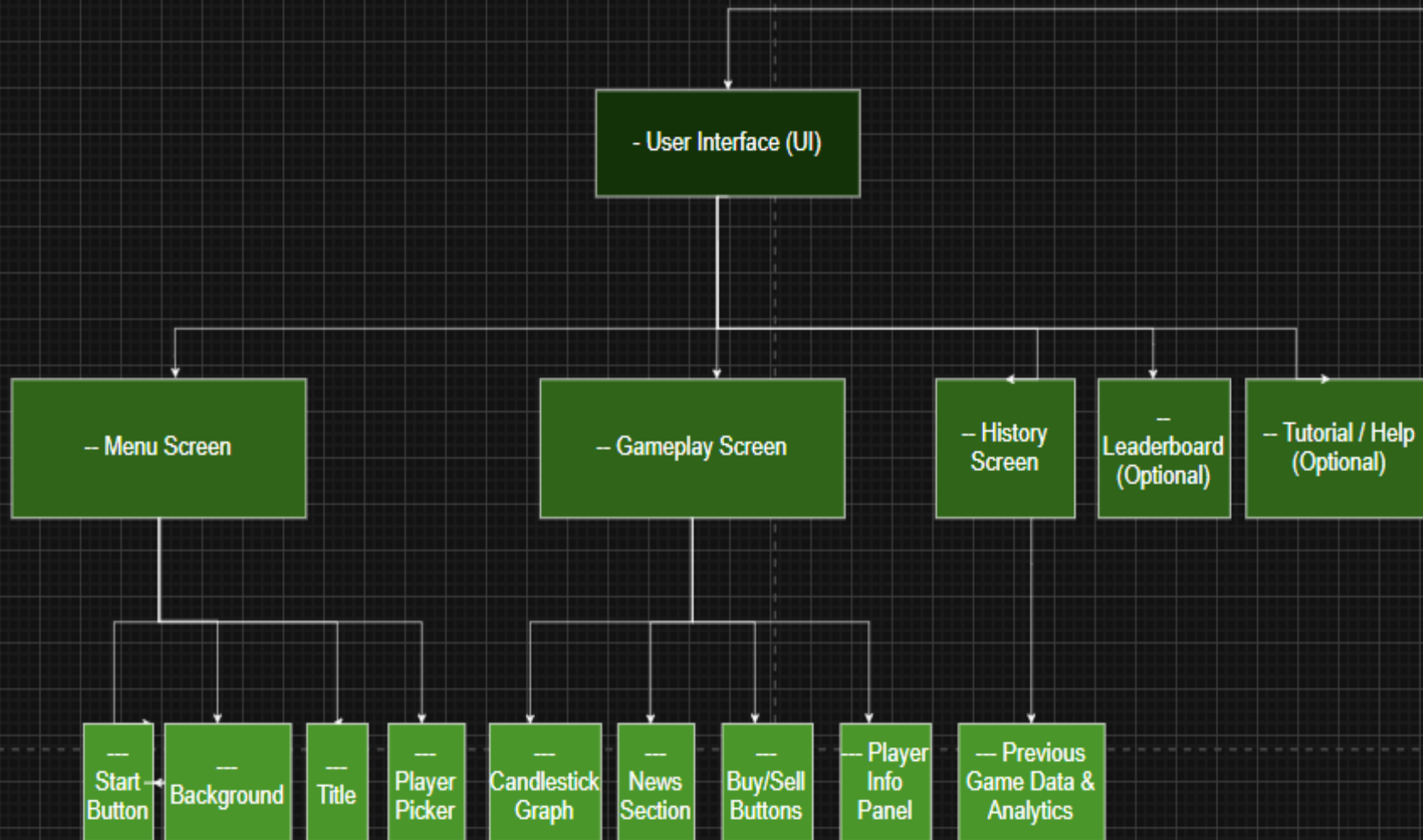


# Development:



My structure diagram for the game, 'League of traders', is split into 3 core thirds. 2 of these thirds contribute to a unique layer of my game to bring a more dynamic and interactive experience.

# Development:



## **Development:**

The left most third is centred towards the Ui of my game. The UI, also known as the user interface, is used to allow a human to interact with a computer. You can consider it the design of my game and what each part of my game will look like.

We first have our menu screen which allows you to start the game. This menu screen will be split up into 3 key components. My start button which basically lets you go into the next part of your game. Then we have the background of our menu screen which will be tied to the general purpose of my game. Like I stock trading graph, this is because it gives the user an understanding of what the game will look like. Then we will have a title screen which will be the name of my game, league of traders, this is essential for any game as it makes your screen filled out with more key information. I added a main menu screen, so the users do not have to go straight into the game but take their time to do things before they are all ready.

## **Development:**

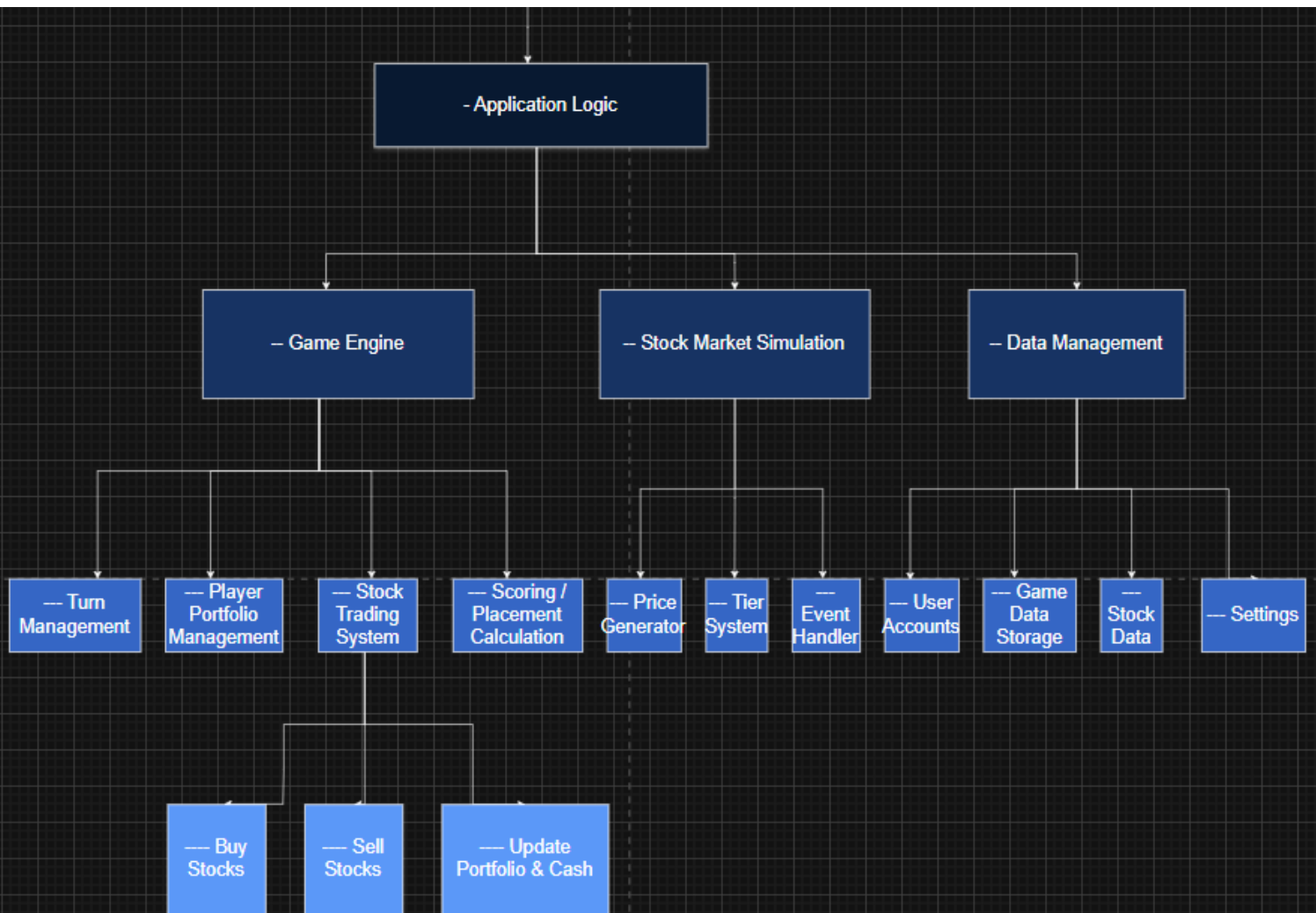
Then we have other parts such as the gameplay screen. One of the core features of this section will be the candle stick graph, this is because you use this graph to see how the stocks you used are looking. To see if it's better to buy or sell and needed to know how your stocks are interacting in the game. Furthermore, before the game starts, you will have a news section where you can see how your stocks have been acting with past analytic data of them represented by articles, percentages etc. Finally, you will have a buy or sell button to buy or sell your stocks and a player info panel showing the profits each player made during their turn.

Finally, I will have a history screen, which will be accessible after one game has been completed showing previous game data of how each player played and analytics indicated clear mathematical data on the very key parts of a game. A leaderboard of each game that has been played with that specific group to

## **Development:**

indicate the winners and loser of each game. Then a help option that will let you, if you are struggling, seek help to read how the game works.

# Development:



# Development:

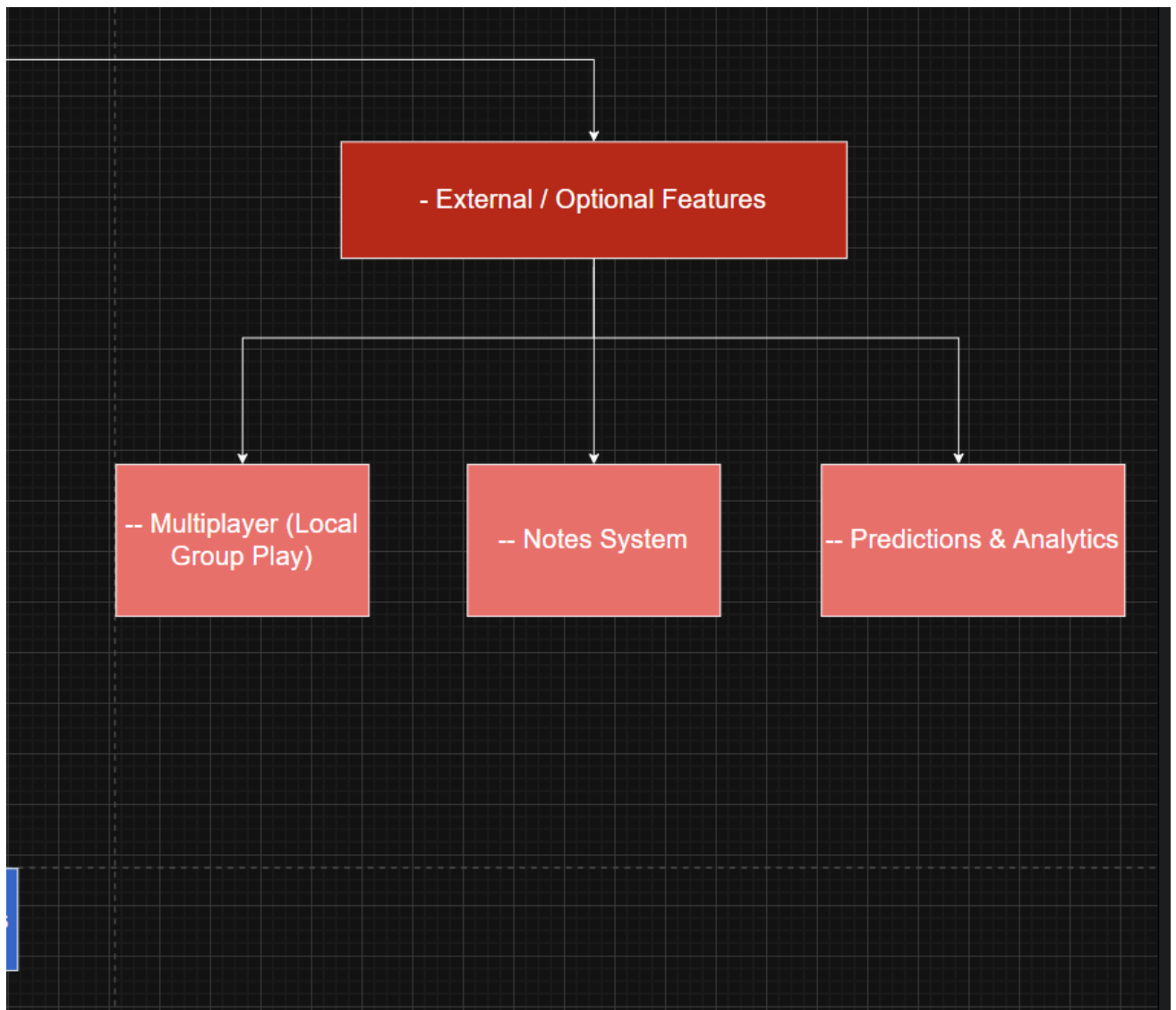
The 2<sup>nd</sup> third of my structure diagram showcases the application logic side of my game. This is the backbone of my game which will take over all core mechanics, trade algorithms, player interactions and in game system. To show case this I have first showed the 3-core feature that make up the application logic.

It will have the game engine which brings the turn management system, player portfolio management, stock trading system and placement calculation to life. Our stock trading system will have features such as buy stocks, sell stocks and updating your portfolio.

A stock management system that allows you to generate the pieces of each stock, the tier system which places each stock in a tier based off its volatility, cost, and many other features to base it off. Then finally an event handler.

# Development:

We finally have the data management section which holds the data of each of our users account Store all the analytics of the game data and our stock data. Finally the settings in which our users can adjust to fit their group's needs.



## **Development:**

Finally, I third section will contain all the optional features I may add to my game if I ever get the time to. The 3 main things I would like to add is a multiplayer version were the players can play all on different computers. A note system where each player can take notes on the strategies they performed on the game to do better or what they can do to do better. Finally, a prediction section which will possibly go into the tier system to add another layer to it showcasing predictions for what stocks are likely to rise in the future and fall.

# Development:

Development plan:

Before I design the full game, interface or adding all gameplay options, I should try to successfully implement a basic prototype of the game which represent my core fundamental mechanics. So, for this, I should have my gameplay involve generating a visual representation of stocks and player actions, testing the real time effects of trades and portfolio changes.

Features/functionality to implement:

- . A window showcasing the key gameplay actions, which can be changed by players. Players are able to interact with.
- . Basic actions players can do such as buying or selling stocks. Being able to pick their stocks. Either make or looser profit and update their capital

## **Development:**

showcasing their entire portfolio. Showing how it started and how it ended.

- . I will have visual feedback on the stock prices, represented as a candlestick graph showcasing real time update from the stock market.

- . I will be ensuring the capital and stock portfolio update correctly and as fast as possible during each trade and is clearly showcased to the player currently playing.

Stakeholders will be looking at the visual clarity and speed of each update of shifts within the stock trading market tied to their stock. If the speed of the candle stick graph is too fast, the interface may need to adjust the speed of it to fit in line with beginner traders who may not be used to high volatility stocks such as tesla, apple, NVidia etc.

This prototype serves as the foundation of my full game. Allowing all my testers to verify its features stripped down to its basic form. This is before adding other basic features such as my menu, tier system, news tab etc. The test plan showcased is building on

# Development:

the prototype, looking at initial setup and interface checks. Then on each of the players actions, stock interactions and finally updates to their portfolio.

Test No.	Description	Type of Test	Test Data	Expected Result	Actual results
1	Has the program started and opened the main menu	UI	Launch application, via starting the program	The menu screen is opened with the background, title screen, choose number of players, previous history and play game	
2	Does clicking the start button let you go to the next slide	UI	Click Start	The next slide opens showing the roll dice mechanic	
3	Does background and the title get rendered correctly	UI	Run game	Title and background display	
4	Does the player picker option show	UI	Open menu	A tab where you can pick the number of players is shown	
5	Can players input how many people you would like to play with	Input validation	Input: 2, 3, 4 players	The program allows you to pick how many players you would like to play with	
6	Does program reject putting a player count out of bounds	Input validation	Input: $\geq 0$ / $< 10$	A message will pop up stating an invalid number has been inputted	
7	Are players assigned with a starting capital	Gameplay mechanics	Start new session	Each player starts with \$50,000	
8	Can players change how much capital they will all have?	Input validation	Input: \$10,000	Game assigns a new amount in which they will use to trade with	
9	Does program reject putting a capital out of bounds	Input validation	Input: $< \$100,000$ or $> \$1,000$	A message will pop up stating an invalid number has been inputted	
10	Does the program let you enter the name of each player that they will go by	input validation	Input: George, Richard	Once you enter the name it will then be assigned to you	
11	Does the program reject putting the same name as another player	input validation	input: 2 people being named George	A message will pop up stating an error due to 2 people having the same name, someone will have to change it	
14	Does clicking the next slide button let you go to the next slide	UI	Click right arrow	You will go to the next slide of the game in which you can see your next set of objectives	
15	Does clicking the previous slide button let you go to the previous slide	UI	Click left arrow	You will go to the previous slide of the game in which you can change previous data	
16	Does program output a picture of a dice	UI	Run game	When the next slide is opened you will now see a dice being shown	
17	Does program let you click roll dice	Gameplay mechanic	Click roll dice button	You can interact with the button and roll a dice	
18	Does the dice present a score	Gameplay mechanic	output: 1, 2, 3	It gives a viable answer such as 2 or 3	
19	Does the dice restart if 2 or more players get the same score and are at the top	Gameplay mechanic	output: 6 and 6	It restarts for the 2 players who got the same score	
20	Does stock list generate correctly?	Gameplay mechanics	Start session	List of available stocks appears	
21	Are stock prices generated realistically?	Gameplay mechanics	Run 10 turns	Prices vary smoothly, not random noise	
22	Are stock prices generated in the correct tier	Gameplay mechanics		Shows tiers A* to D indicating their tier based off a variety of different factors such as volatility, price etc	
23	Are players able to go to the stock menu	UI	Right arrow	A clickable arrow that opens a new slide indicating they have gone to buy their stocks	

# Development:

24	Does it indicate what stock each player has	UI	Player 1 stocks - NVIDIA, APPLE, MICROSOFT	Next to their name it shows the stocks they have given to them self	
25	Are stock prices displayed with candlestick chart?+B38:E60	UI	Select a stock	Chart displays with price movement	
26	Does prediction graph generate?	UI	Use prediction feature	Graph displays without crash	
27	Can players buy a stock successfully?	Gameplay mechanics	Select stock + buy	Stock added to portfolio, capital reduced	
28	Can players sell a stock successfully?	Gameplay mechanics	Sell stock from portfolio	Stock removed, capital increased correctly	
39	Does program prevent invalid trades?	Input validation	Try buying with insufficient funds	Error message shown	
30	Do Buy/Sell buttons update portfolio?	UI	Player buys/sells stock	Portfolio updates instantly	
31	Does News Section display events?	UI	Trigger news	News text appears on screen	
32	Does Player Info Panel show updates?	UI	Change capital	Info panel updates with new balance	
33	Does game cycle between players?	Gameplay mechanics	2+ players	Turns rotate correctly	
34	Does timer end turn with no input?	Gameplay mechanics	Skip input	Turn ends automatically	
35	Do portfolio updates persist across turns?	Gameplay mechanics	Buy in turn 1	Portfolio still updated in turn 2	
36	Do price changes apply to all players?	Gameplay mechanics	Compare players	All see same stock prices	
37	Does leaderboard update correctly?	Gameplay mechanics	Complete 3 turns with trades	Rankings update based on profit/loss	
38	Does game end after fixed number of turns?	Gameplay mechanics	Play until limit reached	Final results screen displayed	
39	Does final ranking reflect net worth?	Gameplay mechanics	Finish game	Leaderboard ranks correctly	
40	Does History Screen load correctly?	UI	Select "History"	Past game data displays	
41	Does Save function work?	Persistence	Save mid-game	Save file created with correct data	
42	Does Load function work?	Persistence	Load save	Game state restored correctly	
43	Do Settings adjust correctly?	UI	Change difficulty	Settings persist in gameplay	
44	Does local multiplayer support >2 players?	Gameplay mechanics	Add 3 players	Game runs without error	
45	Can Notes be added/edited/deleted?	UI	Create/Edit/Delete note	Notes update as expected	
46	Do Notes persist between turns?	Persistence	Add note in turn 1	Note still exists in turn 2	
47	Does program exit safely?	UI	Select quit	Applications close without error	