

CS4530 Final Project: "Stock Exchange"

Group 404": Omar, Astor, Sebastian, and Chris

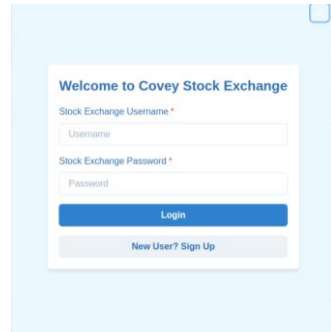
Exchanging Stocks!

The current Covey.Town environment doesn't leverage the potential for economic interactions between players. This can heighten engagement, stimulate sustained user participation, and foster a vibrant, dynamic virtual economy. Our solution to this looks to infuse an economic simulation into Covey.Town by enabling players to engage in resource trading through a stock market mechanism, manage their own resources by buying and selling, and compete against other users to see who has the most money.

Our **Stock Exchange Area** adds an additional interactable area within the Covey.Town by orchestrating an integrated, economy-based layer of interaction, competition, and cooperation among players, enhancing their virtual experience and fostering diversified interactions.



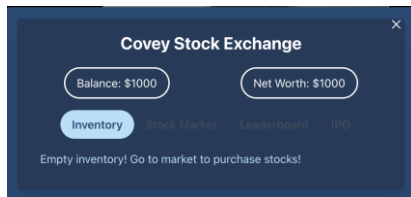
Users can see the Stock Exchange area with a unique Stock Exchange Market and Leaderboard.



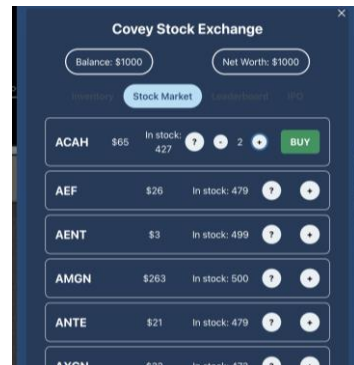
Upon pressing the space bar in the area, a UI Modal appears, initializing the user via a login and password to keep their data persistent.

Demo Site:

Our demo site is available here <https://covey-stock-exchange-frontend.onrender.com/> and our code is at <https://github.com/neu-cs4530/fall23-team-project-group-404>.



Users will first have an empty inventory, that they can fill up by purchasing stocks.



The Stock Market displays each stock available and allows users to buy as many as they want.

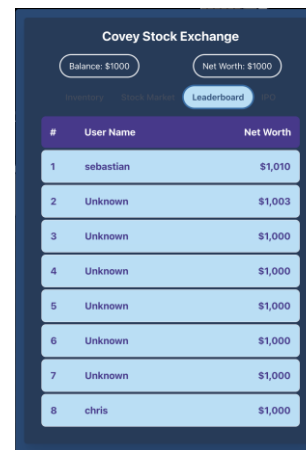
Tech Stack, Design Decisions:

Using the existing covey.town codebase and adding our own features, our Stock Exchange Area is represented as an "object" within the tilemap. When a player approaches the Stock Exchange desk, they are able to see the Stock Exchange, their own inventory, the leaderboard of all players, and an IPO. Additionally, if users have questions regarding the different stocks, they can pull up charts and data for the given stock on right with a "question mark" symbol that will allow users to make better decisions on purchases and selling. All of this is run through a React UI modal input and relies on different React hooks to change the information.

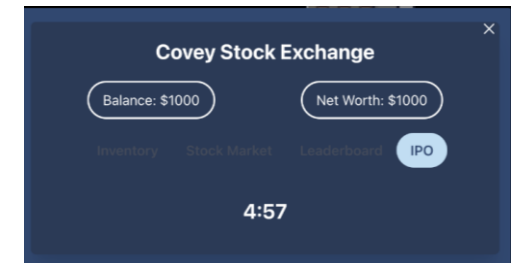
The Stock Exchange is input from our database that stores player's ID and their money, as well as the stocks with their prices, if it has been IPOed, and remaining amount left. Using an API, we created a class that implements the StockExchangeArea (interface) and allows many different features for us to configure the stock data. The controller we implemented runs the backend and passes all the information that our frontend displays. In the end, we are using Heroku and Netlify to deploy and our pipeline setup continually tests both the frontend and backend implementations.

Future Works:

Future works may look at pulling more real-life information such as articles or Yahoo interactions that users will use to navigate a stock market. We also changed some implementations late into the project that forces users to make an account to keep their data persistent. I think in the future, making sure that we keep that in mind earlier would make our execution smoother and not just depend on the database to keep it running.



The Leaderboard keeps track of each user's net worth and display it in one place.



The last tab shows the stock IPO, where you have 5 minutes to do so.