

Fortune

A Cryptocurrency Trading Game

Product Backlog

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Problem Statement:

Many stock market games available today are focused on the simulation of a real stock market and pose a barrier to beginners who are unfamiliar with the stock market or those who wish to play a game without the full intricacies of the market. Players may feel easily overwhelmed by the thousands of companies available to invest in. This is why we wanted to create a game with a much more manageable number of choices to invest in. Also, very few market games are found that incorporate cryptocurrencies. Our game will offer the unique experience of cryptocurrency trading while remaining accessible for people with no market experience. Stock-based games also tend to take long amounts of time in the same sitting and are, in general, a large commitment. We intend to create a cryptocurrency trading game with a low barrier of entry and a competitive aspect.

Background Info:

Audience:

Many people would like to get into trading but are held back by overwhelming numbers of options to buy or the risk of losing money. Our audience is based on people who would like to learn and explore cryptocurrency trading. The game is geared towards newcomers to trading and players with experience alike, so anyone is able to jump in and play.

Similar Projects:

There are various different games online that are similar in concept to ours. Notably, there is Bitcoin Hero, Altcoin Fantasy, and Bitcoin Flip. These games are all based on the idea of buying and selling various cryptocurrencies with fake money. They also incorporate the use of real cryptocurrency data and Bitcoin Hero and Bitcoin Flip both incorporate a global leaderboard through social media. Altcoin Fantasy has various "contests" that players participate in in order to earn points.

Limitations:

These similar games are not without their limitations, however. Bitcoin Hero and Bitcoin Flip are only limited to playing either a global game or a generalized leaderboard with friends on social media. They also limit the amount of money players are able to spend on cryptocurrencies to pre-set increments. They are also simplistic in terms of buying and selling cryptocurrencies. There is no overview of how many coins a player has at any given time and players do not buy through different cryptocurrency exchanges. Altcoin Fantasy is centered around participating in contests started by Altcoin Fantasy to earn points and not necessarily directly compete in games created by others.

We address these limitations by creating a game with a global leaderboard based on users of the game and not through social media as well as allowing players to create different game sessions for others to join. Players are given the choice of how much they want to buy and sell and are given a complete view of what cryptocurrency they own as well as what exchange they want to buy and sell from.

Functional Requirements:

1. As a player, I would like to be able to register for a Fortune account.
2. As a player, I would like to be able to log in.
3. As a player, I would like to be able to reset my password (optional).
4. As a player, I would like to access the leaderboards.
5. As a player, I would like to see usernames on the leaderboards.
6. As a player, I would like to see current net value on the leaderboards.
7. As a player, I would like to be able to buy mock cryptocurrency and have it attach to my account.
8. As a player, I would like to create a private group game.
9. As a player, I would like to join a private game that has been created.
10. As a player, I would like to obtain more money if my net balance goes to zero (go into debt)
11. As a player, I would like to receive in-app notifications for large movements in crypto price.
12. As a player, I would like to see results from past games I have participated in
13. As a player, while creating a game, I would like the following functionality:
 - a. As a player, I would like a choice of which cryptocurrencies (BTC, ETH, etc) are to be traded during the game.
 - b. As a player, I would like a choice of duration of the game.
 - c. As a player, I would like a choice of initial cash amount each player has.
 - d. As a player, I would like a choice of game title.

- e. As a player, I would like a shareable link or code to give to other players to invite them
- 14. As a player, I would like to see a landing page that includes the amount of money I currently have and the current prices of several cryptocurrencies.
- 15. As a player, I would like to see a “play” page with the following options for players to choose:
 - a. As a player, I would like to be able to navigate to the global indefinite game, so that I can play and compete with strangers.
 - b. As a player, I would like to be able to navigate to the global timed game.
 - c. As a player, I would like to be able to navigate to any of my currently active games.
 - d. As a player, I would like to be able to create a game
 - e. As a player, I would like to be able to join a game (with 4 digit code)
- 16. As a player, I would like to be able to join a game via a shareable link.
- 17. As a player, I would like to see a game screen with the following options:
 - a. As a player, I would like to see the title of the game.
 - b. As a player, I would like to see a button that reveals the 4 digit code to join the game.
 - c. As a player, I would like to see the current leader of the game.
 - d. As a player, I would like to be able to navigate to a leaderboard for the current game.
 - e. As a player, I would like to see my current cash within the current game.
 - f. As a player, I would like to see my current net worth.
 - g. As a player, I would like to be able to liquefy all current assets immediately.
 - h. As a player, I would like to see the time remaining in a game.
 - i. As a player, I would like to modify the time span of crypto data to display (min/hr/day/month/yr), so that I may modify the data view to fit my buying and selling needs.
 - j. As a player, I would like to be able to buy/sell currency and view data about said currency (Price, history, % change, amount, min/max price on various exchanges)
 - k. As a player, I would like to be able to chat with other players in the game room (optional).
- 18. As a player, I would like to see a user page popup with the following information:
 - a. As a player, I would like to log out of my account.
 - b. As a player, I would like to be able to change username (optional)
- 19. As a player, I would like to have a guest player option (if time allows)
- 20. As a player, I would like to add and manage friends (if time allows) with the following functionality:
 - a. As a player, I would like to see a friends list.
 - b. As a player, I would like to invite friends to game by username
 - c. As a player, I would like to filter leaderboard by friends

21. As a user, I would like to backtest trading bots to test my cryptocurrency trading models (if time permits and obtaining real-time cryptocurrency data is not feasible)
22. As a developer, I would like to create a service/daemon to fetch live cryptocurrency data.
23. As a developer, I would like to parse the raw data from (potentially) several APIs.
24. As a developer, I would like to integrate historical cryptocurrency prices into the platform.
25. As a developer, I would like to serve live cryptocurrency prices (and potentially other cryptocurrency statistics) to the user with websockets.
26. As a developer, I would like to calculate a player's net worth, so that a player can see an accurate representation of their standing compared to others.

Non-Functional Requirements:

Architecture

We intend to develop the frontend and backend separately. We will employ a client-server architecture with the client being developed with React and the server developed in Python with Flask. We also intend on persisting user and cryptocurrency data with a hosted PostgreSQL database. We plan on deploying through Amazon Web Services in order to integrate our frontend and backend easily.

Design

The UI should be intuitive, straightforward, and interactive. Users should be able to play the game without having to read tutorials or a Frequently Asked Questions (FAQ). There should be enough of a "flow" to the game to keep the user engaged. A user should be able to quickly and seamlessly execute trades, log in and out, view price statistics and charts. We plan on using a cool-colored color scheme of blues and greens. This color palette can be viewed here:

<https://coolors.co/4aa7d6-2a628f-13293d-79b473-db504a>.

Security

Since Fortune is a sandboxed simulation, there is no personally identifying information associated with an account. The only details that are tied to a player's account is a username (they are free to choose any name), and password. In order to keep passwords hidden from developers ensure they are not stored in plain text, we will use a modern authentication service to encrypt passwords using the bcrypt hashing algorithm and store them securely. The python framework we are planning to use, Flask, enables us to secure some routes to only be accessed by authenticated users, while leaving some routes open for any user.

Performance

We would like to design our project to be capable of handling a variable amount of users, from just a few up to many players at any given time. Ideally, our project would be scalable given the number of users playing. Our database would also be scalable as more and more players register for an account.