

Functional Overview

My project is a cryptocurrency trading simulation game that allows users to buy, sell, and short popular cryptocurrencies to their heart's content without actually having any real money involved. Users can check their portfolio to see what cryptocurrencies they currently own and how their coins are performing. Additionally, users can compete against their friends to reach a higher rank on the leaderboard.

Design Overview

Page 1: Login screen. If the user does not have an account yet, they can click on the "Sign up" button to be directed to the sign-up form.

Page 2: This is the user's portfolio page, and serves as the homepage of the website.

Users can monitor their holdings and buy or sell their current holdings from this page.

Page 3: This page contains all of the cryptocurrencies available for trading on the simulation. Using the drop-down menu, a user can buy or short a specified amount of the given coin.

Page 4: These are the global leaderboards, showing the top 100 players in the game by total value of their portfolio.

The pages of the design are below.



Coin Sim

Username

Password

Log in

Don't have an account? Sign up.

CoinSim

Log Out

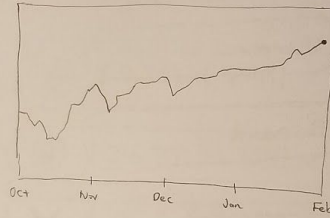
Coins

Portfolio


Leaderboards


Rank #32

\$142,419 (+2.18%)



Holdings

Sell  \$84,377 (+5.40%) 8.71 BTC Buy

Sell  \$58,042 (-1.95%) 326.43 ETH Buy

Coin Sim





Log Out

Cons

Portfolio

Leaderboards

Cryptocurrencies

BTC		\$ 9,752 (+5.40%) ▾	Bitcoin
ETH		\$ 216.98 (-1.95%) ▾	Ethereum
XRP		\$ 0.29 (+3.38%) ▾	xRapid
LTC		\$ 58.40 (-0.74%) ▾	Litecoin

CoinSim

Log Out

Coins

Portfolio

Leaderboards

Global Top 100

1. yoswag7
2. honeybunz
3. ultralite
4. alann88
5. quiescent
6. asxpliu
7. JHUMPA
8. 2013 idm room
9. rredarTV
10. Based Lord CTC



Design Testing Results

Added after feedback from Sidharth A.:

- Sign-up option at the bottom of the login page
- Logo for CoinSim
- “CoinSim” on the top of each page
- Box indicator for the current page

Added after feedback from Ryan T.:

- Buy/sell buttons to the sides of the user’s current holdings
- Coin’s ticker and name on the sides of each cryptocurrency on the “Coins” page
- Down arrow to visually indicate that the “Global Top 100” ranking does not end at #10

Prioritization of Features

Definitely will implement

- Sign-up and login
- Portfolio page that acts as the home screen
 - Shows the total value of the user’s portfolio and the performance of each of their current holdings
 - Allows users to sell any amount of their current holdings or buy more, as long as their balance is sufficient
- Page that lists all coins that can be traded in the simulation, as well as their current prices
 - Allows users to buy/sell/short coins from this page
- Leaderboard of all users, ordered by portfolio value

Will implement if I have time

- Graph of users’ portfolios and of coin prices
- Adding more coins that can be traded

- Including passive income on coins, such as NEO's passive GAS token
- The ability to add friends and have a leaderboard consisting only of friends
- Buy-limit orders and stop-limit orders
- Options, puts, and futures
- Something to prevent users from creating lots of accounts and then making high-risk trades to get to the #1 spot on the leaderboard
- Private games that are enterable by a code

Database Design

- Login info database
 - Stores users' login info, using a hash and salt to protect passwords
- Price history database (if I have time)
 - Stores the name of the cryptocurrency, time at which price was checked, and price at that time
 - Because the free CoinMarketCap API doesn't give historical data, I may have to create price history graphs starting from when this database is created by constantly logging the prices of the available coins and constructing a pretty recent historical price graph from this database
- Portfolio databases
 - Stores the names of the coins a user owns and how much of each coin they own

Proposed Implementation Schedule

11/5/19 - Understand how APIs work and how I will use CoinMarketCap's API to implement the features I need to include

11/8/19 - Complete very basic framework of website, including sign-up and login with secure passwords and non-SQL-injectable database

11/14/19 (Teacher Check-In) - Complete page listing coins available for trading and their prices

11/27/19 - Finish at least all “definitely will implement” features, have some decent CSS and possibly Javascript to make the website somewhat presentable

12/2/19 - Minor bug fixes and making the website look more nice

12/4/19 - Start creating presentation

12/6/19 - Turn-in

12/7/19 - Continue working on presentation

12/9/19 - Finish presentation

Potential Showstoppers and Open Questions

- CoinMarketCap’s free API does not provide historical market data, so creating graphs of coins’ prices may be difficult
 - How do I draw graphs on web pages?
- How do I prevent people from making many accounts to game the leaderboards?