COMP3000 Computing Project

2021/2022

Project Title

CryptoShare

Links

Source code: https://www.github.com/Xtrendence/CryptoShare

Project Vision

After searching the Google Play Store and Apple App Store, it became clear that apps that offer the ability to manage your finances, track your income, and help you budget don't take into account your investments, and if they do, they simply ask you for your profits and losses, and use that to calculate how much money you have. By doing it this way, a lot of potential automation is left on the table, and the user has to manually update this information, and keep track of their investments. The apps that track their investments are usually separate from the income and budgeting apps, and are also usually either for tracking cryptocurrencies or stocks rather than both. My solution is an app called CryptoShare, where investors can track their cryptos and stock shares they hold, and include both of these when it comes to income management and budgeting. The app would offer them a way to track the value of their assets, view market data, and record transactions. Aside from this, they can set up recurring events that provide them with income, such as cryptocurrency mining and staking, or stock dividends paid out to them for holding certain assets. In addition, the API and all user data is self-hosted, and the app would be completely open-source. Existing solutions are often proprietary, and users have no way to verify their data is actually safe, and considering the confidentiality of financial data, it's important users can retain control of their data. By collating all this information, the main functionality of the app can be used, which is a chat bot with Natural Language Processing capabilities that is able to help the user manage their finances. It can record transactions, provide price updates and alerts, or simply tell the user if they can afford to buy a pizza for the weekend while taking their income, spending habits, and overall net worth into account. The goal is to outsource financial stress to an AI.

Risk Plan

While there's no identifiable risks when it comes to delivering a minimum viable product, a few can be considered when it comes to the more advanced features of the software and app. Despite already being proficient at using most of the libraries, frameworks and languages in the project's tech stack, there are some that I've never used before, namely GraphQL, SQLite, "node-nlp", and NeutralinoJS.
As a result, there's a chance there might be issues with the use of such technologies including bugs or other unwanted behavior. Furthermore, the AI functionality of the app involves some techniques I'm unfamiliar with at the time of writing this.

To combat these risks, precautions will be taken to ensure the product is fully functional and meets as many requirements as possible, such as having fallback approaches I'm already familiar with in case I fail to implement the more convoluted aspects of the project. There'd be an extensive research and planning period at the start of the project as well to ensure the project has a clear and defined roadmap from the very beginning, and that there aren't any sudden surprises later on.

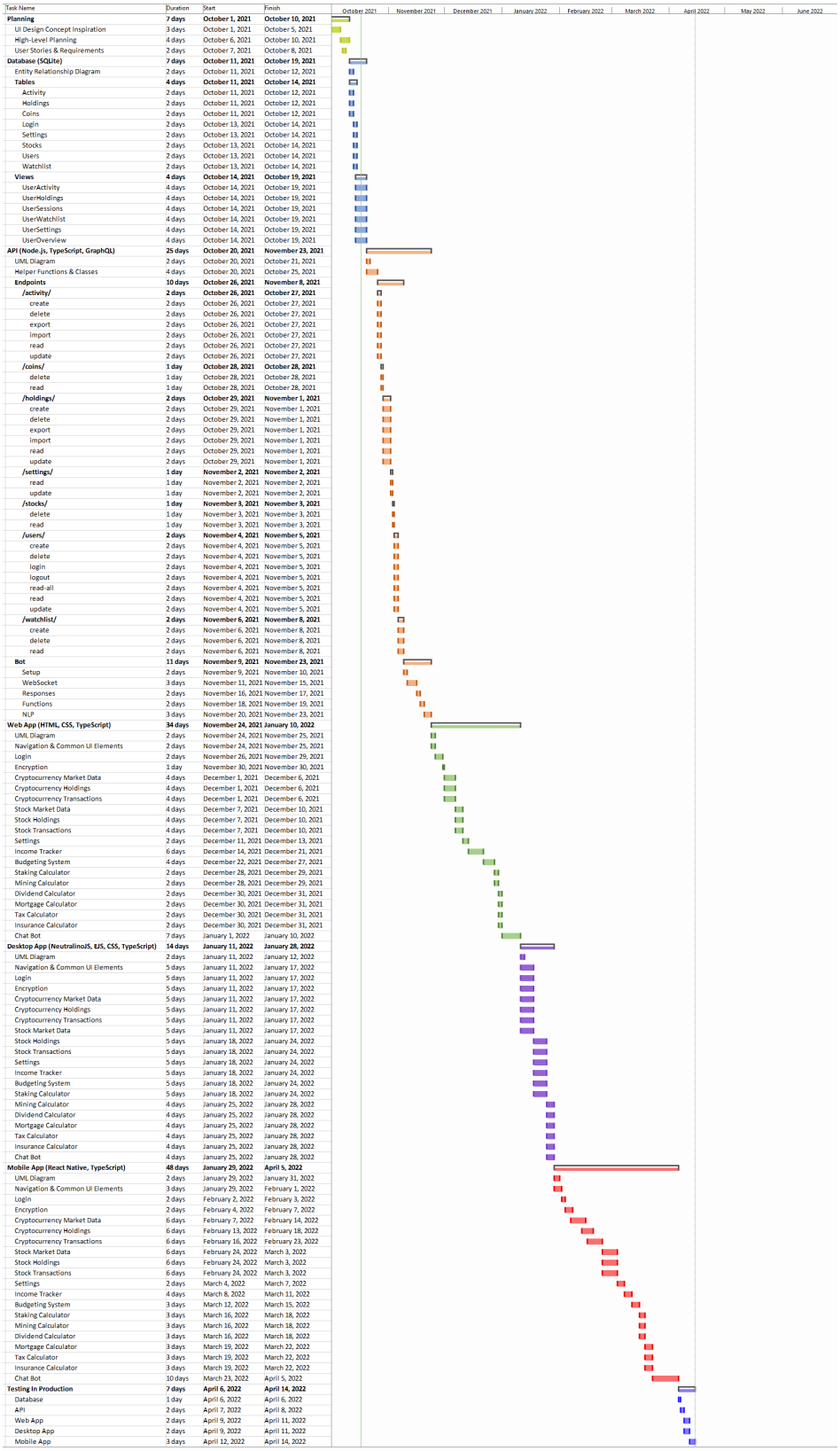
One other risk is a personal and medical one; I've been experiencing some pain in my right arm's nerve, and have been unable to code for longer amounts of time. I've already considered this when designing the Gantt chart though, and do not expect it to be a major problem.

A risk matrix can be used to better illustrate this:

		Impact						
Probability	Risk Matrix	1	2	3	4	5		Key
	1	1	2	3	4	5		Low
	2	2	4	6	8	10		Medium
	3	3	6	9	12	15		High
	4	4	8	12	16	20		Very High
	5	5	10	15	20	25		

Risk	Probability	Impact	Score	Level	Solution
Tech stack unfamiliarity.	3	3	9	H	Research the different technologies, read through the documentation, and have fallback plans with already familiar technologies..
Poor quality code.	2	4	8	H	Follow OOP principles, use design patterns, remember the importance of user data security etc.
Data loss.	1	4	4	M	Use version control, and regularly commit.
Poor time management.	2	3	6	M	Follow Gantt chart and sprint plans.
Scope creep.	3	2	6	M	Focus on requirements based on user stories. Avoid developing additional features that would only be useful to a minority of users.
Medical issues (arm pain).	3	5	12	VH	Be careful not to code too much too often, and to stick to the Gantt chart.
Unclear requirements.	2	4	8	H	Create realistic user personas, and derive clear and focused user stories based on said personas. Ensure the requirements are both achievable and within the scope of the project.

Proposed Gantt chart



Task Name	Duration	Start	Finish
Planning	**7 days**	**October 1, 2021**	**October 10, 2021**
UI Design Concept Inspiration	3 days	October 1, 2021	October 5, 2021
High-Level Planning	4 days	October 6, 2021	October 10, 2021
User Stories & Requirements	2 days	October 7, 2021	October 8, 2021
Database (SQLite)	**7 days**	**October 11, 2021**	**October 19, 2021**
Entity Relationship Diagram	2 days	October 11, 2021	October 12, 2021
Tables	**4 days**	**October 11, 2021**	**October 14, 2021**
Activity	2 days	October 11, 2021	October 12, 2021
Holdings	2 days	October 11, 2021	October 12, 2021
Coins	2 days	October 11, 2021	October 12, 2021
Login	2 days	October 13, 2021	October 14, 2021
Settings	2 days	October 13, 2021	October 14, 2021
Stocks	2 days	October 13, 2021	October 14, 2021
Users	2 days	October 13, 2021	October 14, 2021
Watchlist	2 days	October 13, 2021	October 14, 2021
Views	**4 days**	**October 14, 2021**	**October 19, 2021**
UserActivity	4 days	October 14, 2021	October 19, 2021
UserHoldings	4 days	October 14, 2021	October 19, 2021
UserSessions	4 days	October 14, 2021	October 19, 2021
UserWatchlist	4 days	October 14, 2021	October 19, 2021
UserSettings	4 days	October 14, 2021	October 19, 2021
UserOverview	4 days	October 14, 2021	October 19, 2021
API (Node.js, TypeScript, GraphQL)	**25 days**	**October 20, 2021**	**November 23, 2021**
UML Diagram	2 days	October 20, 2021	October 21, 2021
Helper Functions & Classes	4 days	October 20, 2021	October 25, 2021
Endpoints	**10 days**	**October 26, 2021**	**November 8, 2021**
/activity/	**2 days**	**October 26, 2021**	**October 27, 2021**
create	2 days	October 26, 2021	October 27, 2021
delete	2 days	October 26, 2021	October 27, 2021
export	2 days	October 26, 2021	October 27, 2021
import	2 days	October 26, 2021	October 27, 2021
read	2 days	October 26, 2021	October 27, 2021
update	2 days	October 26, 2021	October 27, 2021
/coins/	**1 day**	**October 28, 2021**	**October 28, 2021**
delete	1 day	October 28, 2021	October 28, 2021
read	1 day	October 28, 2021	October 28, 2021
/holdings/	**2 days**	**October 29, 2021**	**November 1, 2021**
create	2 days	October 29, 2021	November 1, 2021
delete	2 days	October 29, 2021	November 1, 2021
export	2 days	October 29, 2021	November 1, 2021
import	2 days	October 29, 2021	November 1, 2021
read	2 days	October 29, 2021	November 1, 2021
update	2 days	October 29, 2021	November 1, 2021
/settings/	**1 day**	**November 2, 2021**	**November 2, 2021**
read	1 day	November 2, 2021	November 2, 2021
update	1 day	November 2, 2021	November 2, 2021
/stocks/	**1 day**	**November 3, 2021**	**November 3, 2021**
delete	1 day	November 3, 2021	November 3, 2021
read	1 day	November 3, 2021	November 3, 2021
/users/	**2 days**	**November 4, 2021**	**November 5, 2021**
create	2 days	November 4, 2021	November 5, 2021
delete	2 days	November 4, 2021	November 5, 2021
login	2 days	November 4, 2021	November 5, 2021
logout	2 days	November 4, 2021	November 5, 2021
read-all	2 days	November 4, 2021	November 5, 2021
read	2 days	November 4, 2021	November 5, 2021
update	2 days	November 4, 2021	November 5, 2021
/watchlist/	**2 days**	**November 6, 2021**	**November 8, 2021**
create	2 days	November 6, 2021	November 8, 2021
delete	2 days	November 6, 2021	November 8, 2021
read	2 days	November 6, 2021	November 8, 2021
Bot	**11 days**	**November 9, 2021**	**November 23, 2021**
Setup	2 days	November 9, 2021	November 10, 2021
WebSocket	3 days	November 11, 2021	November 15, 2021
Responses	2 days	November 16, 2021	November 17, 2021
Functions	2 days	November 18, 2021	November 19, 2021
NLP	3 days	November 20, 2021	November 23, 2021
Web App (HTML, CSS, TypeScript)	**34 days**	**November 24, 2021**	**January 10, 2022**
UML Diagram	2 days	November 24, 2021	November 25, 2021
Navigation & Common UI Elements	2 days	November 24, 2021	November 25, 2021
Login	2 days	November 26, 2021	November 29, 2021
Encryption	1 day	November 30, 2021	November 30, 2021
Cryptocurrency Market Data	4 days	December 1, 2021	December 6, 2021
Cryptocurrency Holdings	4 days	December 1, 2021	December 6, 2021
Cryptocurrency Transactions	4 days	December 1, 2021	December 6, 2021
Stock Market Data	4 days	December 7, 2021	December 10, 2021
Stock Holdings	4 days	December 7, 2021	December 10, 2021
Stock Transactions	4 days	December 7, 2021	December 10, 2021
Settings	2 days	December 11, 2021	December 13, 2021
Income Tracker	6 days	December 14, 2021	December 21, 2021
Budgeting System	4 days	December 22, 2021	December 27, 2021
Staking Calculator	2 days	December 28, 2021	December 29, 2021
Mining Calculator	2 days	December 28, 2021	December 29, 2021
Dividend Calculator	2 days	December 30, 2021	December 31, 2021
Mortgage Calculator	2 days	December 30, 2021	December 31, 2021
Tax Calculator	2 days	December 30, 2021	December 31, 2021
Insurance Calculator	2 days	December 30, 2021	December 31, 2021
Chat Bot	7 days	January 1, 2022	January 10, 2022
Desktop App (NeutralinoJS, EJS, CSS, TypeScript)	**14 days**	**January 11, 2022**	**January 28, 2022**
UML Diagram	2 days	January 11, 2022	January 12, 2022
Navigation & Common UI Elements	5 days	January 11, 2022	January 17, 2022
Login	5 days	January 11, 2022	January 17, 2022
Encryption	5 days	January 11, 2022	January 17, 2022
Cryptocurrency Market Data	5 days	January 11, 2022	January 17, 2022
Cryptocurrency Holdings	5 days	January 11, 2022	January 17, 2022
Cryptocurrency Transactions	5 days	January 11, 2022	January 17, 2022
Stock Market Data	5 days	January 11, 2022	January 17, 2022
Stock Holdings	5 days	January 18, 2022	January 24, 2022
Stock Transactions	5 days	January 18, 2022	January 24, 2022
Settings	5 days	January 18, 2022	January 24, 2022
Income Tracker	5 days	January 18, 2022	January 24, 2022
Budgeting System	5 days	January 18, 2022	January 24, 2022
Staking Calculator	5 days	January 18, 2022	January 24, 2022
Mining Calculator	4 days	January 25, 2022	January 28, 2022
Dividend Calculator	4 days	January 25, 2022	January 28, 2022
Mortgage Calculator	4 days	January 25, 2022	January 28, 2022
Tax Calculator	4 days	January 25, 2022	January 28, 2022
Insurance Calculator	4 days	January 25, 2022	January 28, 2022
Chat Bot	4 days	January 25, 2022	January 28, 2022
Mobile App (React Native, TypeScript)	**48 days**	**January 29, 2022**	**April 5, 2022**
UML Diagram	2 days	January 29, 2022	January 31, 2022
Navigation & Common UI Elements	3 days	January 29, 2022	February 1, 2022
Login	2 days	February 2, 2022	February 3, 2022
Encryption	2 days	February 4, 2022	February 7, 2022
Cryptocurrency Market Data	6 days	February 7, 2022	February 14, 2022
Cryptocurrency Holdings	6 days	February 13, 2022	February 18, 2022
Cryptocurrency Transactions	6 days	February 16, 2022	February 23, 2022
Stock Market Data	6 days	February 24, 2022	March 3, 2022
Stock Holdings	6 days	February 24, 2022	March 3, 2022
Stock Transactions	6 days	February 24, 2022	March 3, 2022
Settings	2 days	March 4, 2022	March 7, 2022
Income Tracker	4 days	March 8, 2022	March 11, 2022
Budgeting System	3 days	March 12, 2022	March 15, 2022
Staking Calculator	3 days	March 16, 2022	March 18, 2022
Mining Calculator	3 days	March 16, 2022	March 18, 2022
Dividend Calculator	3 days	March 16, 2022	March 18, 2022
Mortgage Calculator	3 days	March 19, 2022	March 22, 2022
Tax Calculator	3 days	March 19, 2022	March 22, 2022
Insurance Calculator	3 days	March 19, 2022	March 22, 2022
Chat Bot	10 days	March 23, 2022	April 5, 2022
Testing in Production	**7 days**	**April 6, 2022**	**April 14, 2022**
Database	1 day	April 6, 2022	April 6, 2022
API	2 days	April 7, 2022	April 8, 2022
Web App	2 days	April 9, 2022	April 11, 2022
Desktop App	2 days	April 9, 2022	April 11, 2022
Mobile App	3 days	April 12, 2022	April 14, 2022

High Quality Version

https://github.com/Xtrendence/CryptoShare/blob/main/docs/GanttChart/GanttChart.gif

Keywords

Cryptocurrency, Stocks, Investments, Income, Finance, Financial App, Budgeting, NLP, AI, Chat Bot, React Native, SQLite, HTML, CSS, JS, JavaScript, TypeScript, Khodadad, Nouchin, Xtrendence, Adrian, Encryption, CryptoShare, Money, GraphQL, NeutralinoJS.