

Cryptocurrency Portfolio Management

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ABSTRACT

Altfolio is a cryptocurrency portfolio management application. It is a web application developed using React JS, which is a free and open-source JavaScript library for building user interfaces based on UI components. This research paper provides a detailed description about how the application works, how the data is stored and how we achieve concurrency with our data. Our software provides users clean, elegant and minimalistic look and feel along with features like portfolio analysis and charting.

Keywords:—Cryptocurrency, React, Portfolio Management.

INTRODUCTION

Cryptocurrency is a digital or virtual currency designed to work as a medium of exchange through the use of a computer network. It is a tradable digital asset or digital form of money, which is built upon the blockchain technology, that only exists online. These currencies use encryption to authenticate and protect transactions, due to which it gained its name.

Cryptocurrency does not exist in physical form like regular paper money. But it is digital money that can be used like cash to buy and sell products and services. Unlike traditional currencies, which are often backed by a government, cryptocurrency is a decentralized digital currency that is often exchanged in the digital world. It can be used to purchase items in the “real world” too, such as food, clothing, and real estate. You can also invest in cryptocurrency, hoping to make a profit on your investment. There are currently over thousands of various cryptocurrencies in the digital world.

What is a cryptocurrency portfolio?

A cryptocurrency portfolio is software or an application that helps you manage your investments in digital currency. It tracks the performance of each coin and provides you with tools to analyze that performance. From simple trackers that tell you when to buy and sell, to advanced systems that help you make predictions, a cryptocurrency portfolio allows you to manage your coins in one place. Building a cryptocurrency portfolio can be a complex process. There are hundreds of potential investments to choose from, and the market is constantly evolving and adapting to new technologies. That’s why many investors turn to cryptocurrency portfolio management software. This software offers a variety of tools to help you track your investments, monitor their performance, and keep an eye on the market as a whole upcoming “Web3” architecture, thus, maintaining control over the server collectively between different users.

LITERATURE REVIEW

According to our review based on multiple research papers and resources, we evaluated key areas of improvements and limitations of existing systems. We learnt that much of the research is conducted on the effectiveness of portfolio management in stock market. Most of this research focuses on the benefits of diversification, which reduces the risk of a small loss on a large investment. The research also streamlines on the benefits of rebalancing, which is the process of selling an asset and replacing it with a similar, but more profitable, asset. In the past, most portfolio management systems have been web-based, which has allowed the user to view their holdings from anywhere with internet access.

Limitations of Existing Systems

There are many cryptocurrency portfolio management systems which provide many features, but the problem with them is that they are a part of a platform where you can also buy and sell currencies. The whole system works perfectly fine but it has some limitations: -

1. You have to create a new full-fledged account for the platform. That is, you have to give your PAN card details, bank details, identity proof etc.
2. Very steep learning curve for beginners with little or no experience.
3. Too many features, which overwhelms and confuses beginners.
4. No proper documentation or tutorial for the existing applications specific for beginners.

Features of Altfolio

1. Platform-independent, Web application
2. Firebase to manage user data
3. Simple user registration
4. Add, Update, Remove and Sell Coin
5. View Current price and gain
6. View user portfolio with coin statistics

Minimum Hardware Requirements

CPU: Intel Core i3 any generation / AMD Athlon or Ryzen 3

RAM: 4 GB or more, HDD: 50 GB or more

Internet Connection: At least 500 Kbps speed for efficient functioning of the application

Software Requirements

Any JavaScript-enabled browser, like Google Chrome, Mozilla Firefox, Microsoft Edgeetc.

RESEARCH METHODOLOGY

Altfolio is designed keeping in mind simplicity and ease-of-use for beginners who just need to analyze their investments in cryptocurrencies. Our application is developed using JavaScript acting as both front-end and back-end. That is, we are using **React JS** for front-end user interface development and **Node JS** as a server. **Firebase** is used to store and retrieve the user data. The API used for getting latest data and achieving concurrency is **Coin Gecko**. The application from project point of view contains different files for achieving modularity and distributed design. According to linear progression, primarily the user will have to register. The main advantage that Altfolio provides over other portfolio management applications is that user doesn't have to enter his bank credentials or card details. He only needs to enter name, email and password. These credentials will be saved to Firestore database which is a collection of key-value pairs stored in document format. Firebase as a collection of utilities provides a strong mechanism for email validation purpose. After the user registers, he will be able to login with his details he used for registration. Then user will be able to add new coin. While adding new coin, the user will need to enter the Coin ID, quantity and buying price. These details will be cross-checked with the API data which is taken through GET request. If valid coin ID is found, then it will be added to user coin list which will also be saved to the database. This data will be then again used, when the user logs in to the system. Then, for particular coin the user will be able to see the graph for coin value for previous 10 days. The user can manage his coins by accessing the pie chart data and analyzing his investments.

SYSTEM ARCHITECTURE

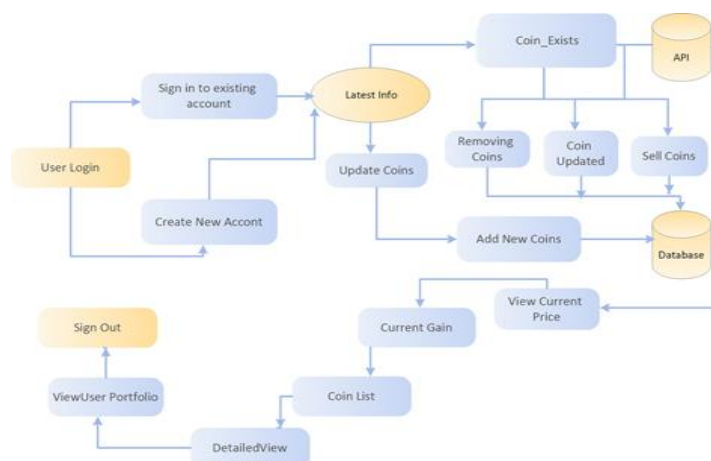
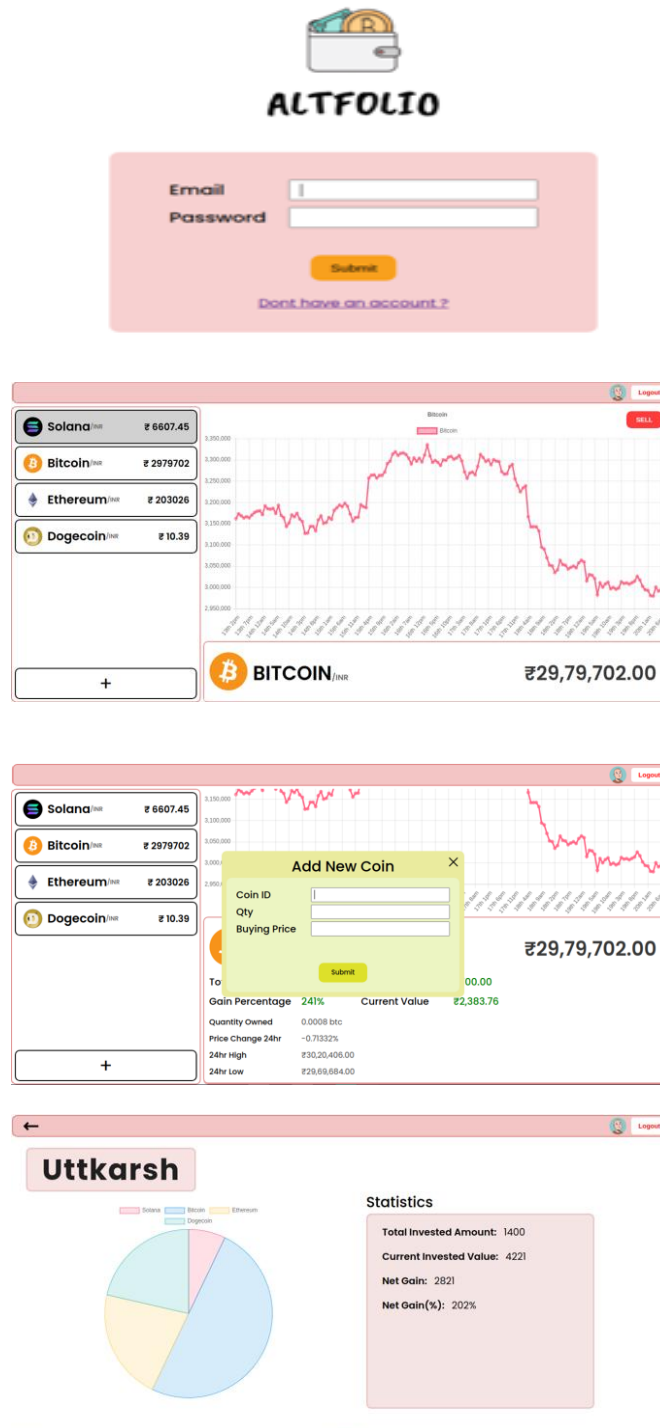


Fig. Block Diagram

In the above diagram, we can see that the complete system is depicted with all the functional modules and data interfaces throughout the application. It is used to impose visual representation of all components of Altfolio.

Screenshots



CONCLUSION

Our ultimate goal and purpose for this project is to help cryptocurrency users understand and manage their portfolio better. We intend to make the software easy to use and to help beginners learn about many cryptocurrencies and their technology. The conclusion is that the cryptocurrency portfolio management software will allow the users to track and manage their portfolio with ease.

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