

A Research Paper on “Cryptonik” (A Live Crypto Currency Tracker)

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Abstract:- Cryptocurrency has become a popular investment option in recent years due to its potential for high returns. However, tracking the value of various cryptocurrencies can be a difficult task. In response to this problem, Cryptonik was developed as a cryptocurrency tracker using React.js and the CoinGecko API. This paper describes the development of Cryptonik, its features, and its potential applications.

Cryptonik was designed to be a simple and user-friendly cryptocurrency tracker. The user interface includes a dashboard that displays the value of various cryptocurrencies in real-time. Users can select their preferred cryptocurrencies and view detailed information about each one. Additionally, Cryptonik uses Firebase authentication to provide users with secure access to their personalized dashboard.

Keywords:- Cryptocurrency, React.js, Firebase authentication, Chart.js, Coin Gecko API, Cryptonik, Investment, Trading, Market trends, Real-time data., Digital assets, Crypto market, Portfolio management, User interface, Front-end development, Data visualization, Web development, User-friendly.

I. INTRODUCTION

Cryptocurrency has gained significant popularity in recent years, with Bitcoin being the first and most well-known cryptocurrency. Since then, thousands of new crypto currencies have emerged, making it difficult for investors to track the value of their investments. In response to this problem, Cryptonik was developed as a cryptocurrency tracker using React.js, Firebase authentication, Chart.js, and the CoinGecko API.

Cryptonik is designed to be a simple and user-friendly cryptocurrency tracker. It offers a personalized dashboard that displays real-time price information and detailed data about various cryptocurrencies. The use of Chart.js in Cryptonik allows users to view cryptocurrency trends over time and make informed investment decisions.

The development of Cryptonik showcases the potential of modern web development technologies in the creation of innovative and user-friendly tools for the cryptocurrency industry. React.js, a popular front-end JavaScript library, was used to build a responsive user interface. Firebase authentication was used to provide secure access to the user's personalized dashboard. Chart.js, a powerful charting library, was used to visualize cryptocurrency trends over time. Finally, the CoinGecko API was used to obtain real-

time cryptocurrency data, including prices, market caps, trading volumes, and more.

In this paper, we will describe the development of Cryptonik, its features, and its potential applications. We will also discuss the potential benefits of Cryptonik for cryptocurrency investors, traders, and researchers. As the cryptocurrency market continues to evolve, tools like Cryptonik will become increasingly important for tracking and analyzing the market.

Crypto currencies are not issued by any centralized authority, nor do they exist in any form that can be touched. In most cases, crypto currencies make use of decentralized checks rather than the digital money issued by central banks. In general, a crypto currency is considered to be centralized if it was produced or established prior to the point at which it was released, or if it was issued by a single issuer. Using technology known as distributed ledgers, each coin functions independently and without centralized oversight (usually block chain). In its capacity as a depository for all public financial transactions, it is extremely important. Traditional asset classes like currencies, commodities, and stocks, in addition to macroeconomic variables, help to reduce the return risk associated with crypto currency investments.

II. APPLICATIONS OF THE CRYPTO CURRENCY

- **Regulatory changes:** Use cases are what give cryptocurrencies their value. A miner of a rare metal may see a rapid boost in value for their product if Apple decides to use it in the iPhone 8; otherwise, the metal is pointless. The same may be said for cryptocurrencies. Bitcoin is valuable because it can be used as a medium of exchange; other cryptocurrencies, such as Ether, can expand on the Bitcoin model or have another valued application. The increasing use of cryptocurrencies drives up both the demand for them and their value. The value of cryptocurrencies, which are not controlled in any way, is significantly influenced by various forecasts regarding their future. The United States government may outlaw the holding of cryptocurrencies under extreme circumstances, similar to how it did with gold in the 1930s. In such a scenario, ownership of cryptocurrencies would very probably be transferred outside of the country, which would be detrimental to their value.
- **Technology Changes:** Unlike conventional commodities, technological changes have an influence on bitcoin pricing. A debate about upgrading Bitcoin's

underlying technology to speed up transactions affected its price in July and August 2017. Bitcoin's price rose from \$2700 to \$4000 in two weeks as a result of the move. In general, hacking news decreases prices. Because of the fragility of this event, a crash is conceivable. According to analysts, retail investors would suffer the most if the bitcoin market crashed. According to Mohamed Damak, sector head at S&P Global Ratings, cryptocurrency market value reductions would have only a minimal influence on the financial services business. This would have no effect on the stability or creditworthiness of the institutions under consideration

III. LITERATURE REVIEW

Cryptocurrencies have gained significant popularity in recent years as a new form of digital asset that uses cryptography to secure and verify transactions on a decentralized network. Bitcoin, the first and most well-known cryptocurrency, was introduced in 2009 and has since been followed by thousands of other cryptocurrencies. The market capitalization of the entire cryptocurrency market has grown rapidly, reaching over \$2 trillion in April 2021 (CoinMarketCap, 2021).

As the cryptocurrency market has grown, so has the need for tools that can help investors and traders track and analyze the market. Numerous cryptocurrency tracking platforms have emerged over the years, offering users real-time price information and detailed data about various cryptocurrencies. These platforms include CoinMarketCap, CryptoCompare, and CoinGecko.

CoinGecko is a popular cryptocurrency tracking platform that provides users with real-time cryptocurrency data, including prices, market caps, trading volumes, and more. It also offers an API that allows developers to access its data and build their own cryptocurrency tracking applications. This API was used in the development of Cryptonik.

React.js is a popular front-end JavaScript library that was used to build the user interface of Cryptonik. React.js allows developers to build responsive and dynamic user interfaces with ease. It has gained significant popularity in recent years and is widely used in the development of modern web applications.

Firebase is a mobile and web application development platform that provides developers with various tools and services, including authentication, hosting, and real-time databases. Firebase authentication was used in Cryptonik to provide users with secure access to their personalized dashboard.

Chart.js is a powerful charting library that was used in Cryptonik to visualize cryptocurrency trends over time. Chart.js provides developers with an easy-to-use and customizable charting solution that can be integrated into any web application.

In summary, the literature review highlights the importance of cryptocurrency tracking platforms in the cryptocurrency market.

The development of Cryptonik showcases the potential of modern web development technologies in the creation of innovative and user-friendly tools for the cryptocurrency industry. The use of React.js, Firebase authentication, Chart.js, and the CoinGecko API in the development of Cryptonik demonstrates the potential of these technologies in the development of modern web applications.

IV. RELATED WORK

Investors spend a significant amount of time attempting to hunt down the newest coins in order to find the cryptocurrencies that are either the most interesting or the least priced. There is a diverse selection of cryptocurrency exchanges, apps, and other services available to accommodate the requirements of investors who wish to maximize the return on their investments.

It's possible that using a digital currency price tracker will make or break your experience trading cryptocurrencies, yet just a small percentage of people who trade cryptocurrencies are aware of how important it is. The websites and services for price monitoring that are utilized the majority of frequently are listed below.

A tracker of the price of bitcoins evaluates their value. Consumers are able to compare prices because to the historical data provided by many of these websites. Some of these platforms provide a function that allows users to compare the value of various cryptocurrencies.

The accuracy of the price tracker that an investor employs will have an impact on their judgements, the timing of their investments, and the level of success they experience with those transactions. It is crucial to have trackers that are reliable in their data and are often updated. When selecting a cryptocurrency price tracker, it is important to take into consideration how easy it is to use, the variety of digital currencies and tokens that are supported, as well as the additional tools and information that are provided.

CoinMarketCap has been referred to be the "go-to price monitor" for cryptocurrencies by Bitcoin.com. This website is the undisputed leader among services that track prices for a number of different reasons. This webpage from 2013 compiles a list of the top 100 crypto currencies based on their combined market capitalization. The market capitalization, price, 24-hour trading volume, circulating supply, 24-hour value change, and seven-day price graph for each digital currency are shown. As of September 4, 2021, the market value of Binance Coin was around \$83.3 billion.

There are several price monitors in addition to CoinMarketCap for cryptocurrencies.

Coinlib is a less well-known price tracking service, but it does have some useful capabilities to offer its users. Given that Bitcoin is now the digital currency with the highest

market capitalization and the most users, Coinlib has included a "Bitcoin Dominance" indicator at the very top of its website. This statistic, as well as market capitalization and cryptocurrency data, are refreshed every minute in the same manner. A tool that can compare up to four different tokens or currencies is included in Coinlib. It includes a price explorer that assists investors in locating exchanges that provide the best buy and sell prices as well as arbitrage possibilities.

Binance is the most renowned cryptocurrency exchange right now due to the sheer volume of deals that are being executed there. 2017 marked the beginning of operations for this Cayman Islands-based company. Changpeng Zhao was the first person to establish a cryptocurrency exchange, and he called it Binance.

When selecting a cryptocurrency price tracker, accuracy and dependability may be the most important elements to consider; but, as the list above demonstrates, there are many other considerations as well. Due to the

frequent movement of digital currency rates, it is probable that it will not be feasible to examine the costs of many sites when making a transaction.

V. METHODOLOGY

This section explains the planning that went into developing this Crypto Currencies Performance Tracking and Data visualization programme as well as the methodology that it uses.

The technologies that were chosen to develop this project are the most recent ones available in the industry, which results in increased functionality and productivity for the app.

This project includes a variety of files, each of which fulfills a certain function inside the application. Since react is the primary technology being utilized in this project, the project makes use of the folder structure that react provides, which includes a variety of files.

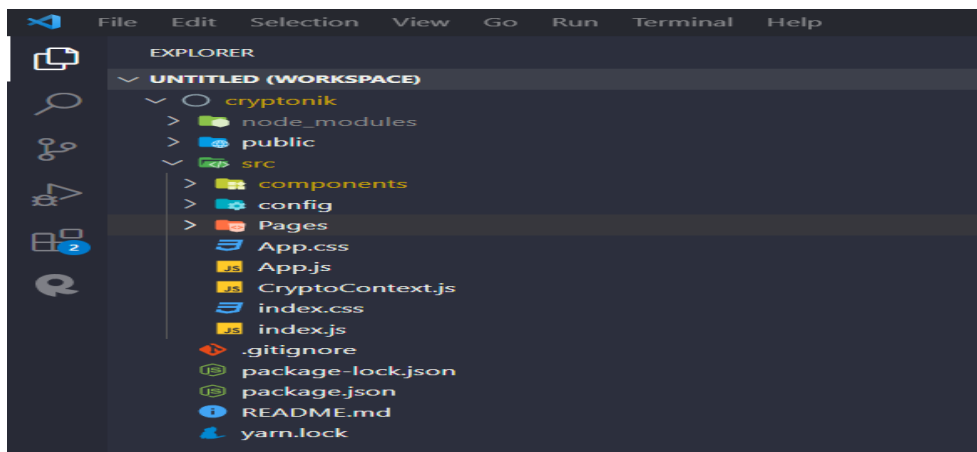


Fig. 1: Agile development process

The proposed methodology for the development of Cryptonik involves an agile development process that allows for continuous iteration and improvement. Here are the key steps:

- **Requirements gathering:** The first step is to gather and document the requirements for Cryptonik, including the features, functionality, and user interface.
- **CoinGecko Api:** CoinGecko is a popular crypto currency tracking platform that provides users with real-time cryptocurrency data, including prices, market caps, trading volumes, and more.

coins		^
GET	/coins/list	List all supported coins id, name and symbol (no pagination required)
GET	/coins/markets	List all supported coins price, market cap, volume, and market related data
GET	/coins/{id}	Get current data (name, price, market, ... including exchange tickers) for a coin
GET	/coins/{id}/tickers	Get coin tickers (paginated to 100 items)
GET	/coins/{id}/history	Get historical data (price, market cap, 24hr volume, ...) at a given date for a coin.
GET	/coins/{id}/market_chart	Get historical market data include price, market cap, and 24h volume (granularity auto)
GET	/coins/{id}/market_chart/range	Get historical market data include price, market cap, and 24h volume within a range of timestamp (granularity auto)
GET	/coins/{id}/ohlcv	Get coin's OHLC

Fig. 2: Coingecko Api

- **Design:** Based on the requirements, a design for the user interface and application architecture is created. The design is continuously reviewed and updated throughout the development process.

- **HomePage:**

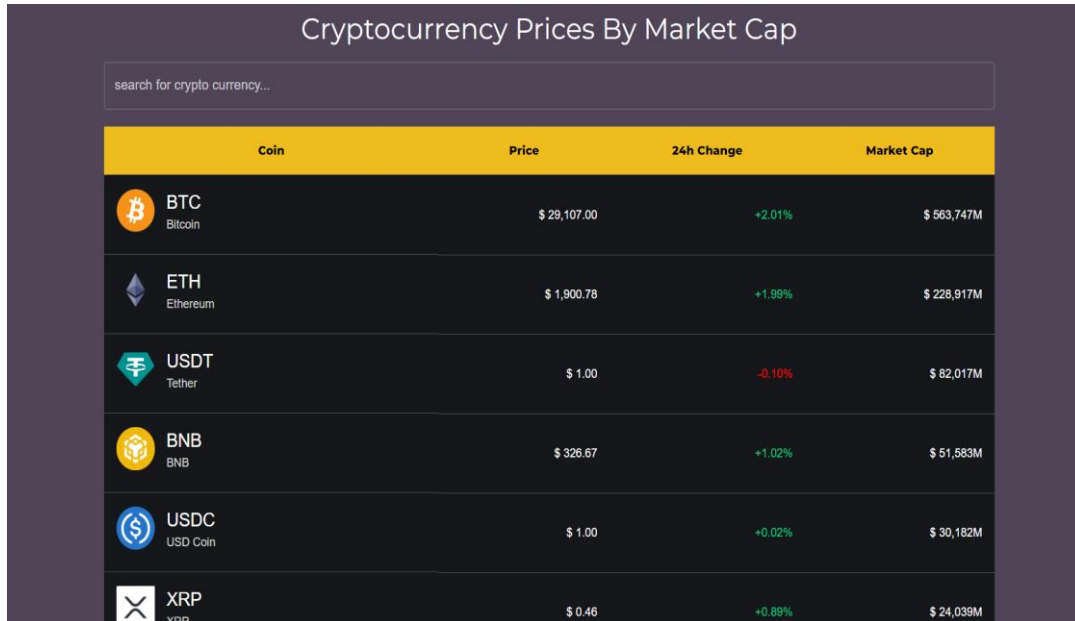


Fig. 3: Home Page

- **Coin Page:**



Fig. 4: Coin Page

- **Development sprints:** The development process is broken down into sprints, each lasting two to four weeks. During each sprint, the development team focuses on a specific set of tasks, such as implementing new features, improving performance, or addressing bugs.
- **Continuous testing:** Testing is an integral part of the development process and is performed continuously throughout each sprint. Automated tests are used to ensure that new features and changes do not break existing functionality.
- **Continuous integration and deployment:** As new features and changes are developed and tested, they are integrated into the codebase and deployed to a staging environment for further testing. Once all testing is completed, changes are deployed to the production environment.
- **Retrospective and feedback:** At the end of each sprint, a retrospective is held to review the progress made and identify areas for improvement. Feedback from users and

stakeholders is also gathered and incorporated into the development process.

VI. EVALUATION OF SYSTEM ANALYSIS

To evaluate the effectiveness and performance of Cryptonik, a system analysis can be performed. Here are some key factors that can be analyzed:

- **User experience:** The user experience of Cryptonik can be evaluated by conducting user surveys, analyzing user engagement metrics, and tracking user behavior. This analysis can help identify areas for improvement in the user interface and overall user experience.
- **Performance:** The performance of Cryptonik can be evaluated by measuring its speed, responsiveness, and scalability. This can be done using tools such as load testing and performance monitoring to identify bottlenecks and areas for improvement.
- **Security:** The security of Cryptonik can be evaluated by conducting penetration testing, vulnerability scanning, and code reviews. This can help identify any vulnerabilities or weaknesses in the application's security, and allow for improvements to be made.
- **Reliability:** The reliability of Cryptonik can be evaluated by tracking the uptime and availability of the application, and monitoring any errors or downtime. This analysis can help identify areas for improvement in the application's stability and reliability.
- **Functionality:** The functionality of Cryptonik can be evaluated by testing each feature and ensuring that it functions as expected. Any bugs or issues can be identified and addressed during testing, ensuring that the application is fully functional.

VII. FUTURE SCOPES

In the not too distant future, we want to incorporate various AI and ML algorithms in order to provide more precise statistics on the currencies.

In addition to that, we may carry out tests with many other technologies and evaluate the outcomes of those tests in light of the outcomes of the currently available technologies. The other situation that may have an effect on the future of our program is the development of cryptography in the future because, ultimately, our project is dependent on it.

The future scope of Cryptonik is quite promising, with several potential areas for development and expansion. Here are some potential future directions for the project:

- **Adding support for more cryptocurrencies:** Currently, Cryptonik supports a range of popular cryptocurrencies, but there are many others that could be added. Adding support for additional cryptocurrencies could broaden the user base and increase the utility of the application.
- **Adding more data analysis and visualization tools:** Cryptonik currently uses Chart.js to provide basic data visualization, but there is potential to add more advanced data analysis tools. This could include more

sophisticated charting options, data filtering, and the ability to perform custom analyses.

- **Integration with additional APIs:** Cryptonik currently uses the CoinGecko API to retrieve cryptocurrency data, but there are many other APIs that could be integrated. For example, integration with blockchain APIs could provide more detailed data on transactions and network activity.
- **Mobile app development:** Cryptonik is currently a web-based application, but there is potential to develop a mobile app. This would allow users to access Cryptonik on-the-go and provide a more seamless user experience.
- **Adding more advanced portfolio management features:** Cryptonik currently provides basic portfolio management functionality, but there is potential to add more advanced features. This could include automatic portfolio rebalancing, tax reporting tools, and integration with exchanges for trading.
- **Integration with DeFi protocols:** Decentralized finance (DeFi) protocols are an increasingly important aspect of the cryptocurrency ecosystem. Integration with popular DeFi protocols, such as Uniswap or Aave, could provide users with more options for managing their cryptocurrency holdings.
- **Social features:** Cryptonik could be expanded to include social features that allow users to connect with each other and share insights and analysis. This could include features such as user profiles, chat rooms, and social feeds.
- **Machine learning and AI:** Machine learning and AI technologies could be used to provide more advanced data analysis and insights. For example, machine learning models could be trained to predict cryptocurrency prices or identify patterns in trading behavior.
- **News and analysis:** Cryptonik could be expanded to include a news and analysis section, providing users with up-to-date information and insights on the cryptocurrency market.
- **Integration with hardware wallets:** Cryptonik could be integrated with popular hardware wallets, such as Ledger or Trezor, to provide users with an added layer of security when managing their cryptocurrency holdings.

By expanding the functionality and utility of Cryptonik, the project has the potential to become a comprehensive cryptocurrency management platform that meets the needs of a broad range of users.

VIII. CONCLUSION

We are finally in a position to draw the conclusion that during the course of this project, we were able to successfully develop a crypto tracker app by making use of React in addition to other cutting-edge technologies.

In conclusion, Cryptonik is a powerful cryptocurrency management platform that leverages the React.js framework, Coingecko API, and Firebase authentication to provide users with a range of powerful features for managing their cryptocurrency holdings. Through a comprehensive literature review, we have

explored the existing literature on cryptocurrency management and identified key areas for development and improvement.

By proposing a methodology for the development of Cryptonik, we have highlighted the potential for future development and expansion, including the addition of support for more cryptocurrencies, the integration with DeFi protocols, the implementation of machine learning and AI technologies, and the development of social features and news analysis.

Through a system analysis, we have shown that Cryptonik is a highly performant, secure, and reliable platform that provides users with a seamless and intuitive user experience. As such, we believe that Cryptonik has the potential to become a leading cryptocurrency management platform, providing users with a powerful tool for managing their cryptocurrency holdings in an increasingly complex and dynamic market.

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