

Front End Engineering-II

Project Report

Semester-III (Batch-2023)

CRYPTO WATCH



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Abstract

This project, called “Crypto Watch,” is intended to become a unique assistant for investors and traders in dealing with cryptocurrencies by addressing the shortcomings in existing tracking and analysis systems. Through the development of a complex web application, we aim to offer a solution that provides users with current and constantly updating price information, historical rates, and in-depth analysis features for numerous cryptocurrencies. Our software will use trustworthy feeds to provide clients with real-time market updates within one cohesive interface optimized for asset tracking and organization. Users can create multiple watchlists with custom screens, access historical charts and utilize various charting techniques like interval charts, candlestick charts, line charts, high-low-breakout charts, along with technical indicators and drawing tools to analyse the market and develop effective trading strategies. We have built the platform with a responsive design to provide a seamless user experience across desktop, tablet, and mobile devices, ensuring accessibility and consistency. Moreover, it offers tutorials and market knowledge to help users understand the various challenges of cryptocurrency trading. It also offers news section where we can get the information of each and every update on crypto. Recognizing the crucial role of security measures in protecting user data and privacy, we strive to return control to the user and provide an effective and comprehensive tool to enhance the accuracy of data, analytical capabilities, and the efficiency of trade operations in the ever-evolving field of cryptocurrency. This platform is designed to provide frequent and accurate price updates with detailed and extensive historical information, integrating many reliable data feeds to deliver the best real-time market data. Users will have access to an easy-to-navigate service that enables them to manage a wide range of cryptocurrencies, including options for creating watchlists, viewing historical charts, and conducting technical analysis.

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1.Introduction

1.1 Background

Recently, cryptocurrencies have found their place in the market, and investors and traders have received new opportunities and risks for operation. Tokens, coins, and thousands of others are cryptocurrencies like BTC, ETH, Doge and are essentially an emerging area in the financial markets. Because of the decentralized structure of these digital assets, the relative high volatility and the always on trading environment for those assets, advanced tools for the analysis of these markets and decision making is required.

Equity markets as a sub-type of traditional financial markets have been using recognized trading floors and methods of observing the value of instruments. However, the case of cryptocurrencies creates new challenges, as the market is rather decentralized, does not have a fixed centre, and offers numerous constituent elements. Especially, users cannot access timely and high-quality information and analytical tools frequently because the sources are scattered and the quality of information platforms differs.

Some of these difficulties are being countered by various platforms where trading is being conducted by developers, that offers additional tools for charting, real-time data, and social analysis. That being said, there is still a rather large scope for improving the services based exclusively on cryptocurrencies and filling the void that present tools have as regards data reliability, analytical tools, and user-friendliness. The problem of cryptocurrency market and CMC is linked with the dissemination of wide and fragmented sets of the data sources. Many investors and traders use more than one tool to obtain prices for contracts, thus having different and possibly incorrect data. The price of these cryptocurrencies is generally volatile mainly because of their nature of operation. Fluctuations in the price of the cryptocurrency over small intervals could also hold prospects for investors but also threats alike Due to the volatility of the market, new investors will be daunted by the difficulty of entering into the trading ring. Crypto Watch: The challenges mentioned above are going to be solved in “Crypto Watch” project that is to create a professional-oriented website for the given type of investors and traders.

Thus, through the provision of real-time data, efficient analytical tools and navigational simplicity of the offering, the platform seeks to boost the efficiency of trading, help with the decision-making processes of its users, and assist them in the management of the possible confusion within the crypto markets.

1.2 Objectives

The major idea of the “Crypto Watch” project is to eliminate the existing shortcomings of the existing cryptocurrency tracking system by creating a complex Web application meeting the demands of buyers and sellers in this sphere. The objectives are aimed to facilitate the users to get effective tool option to track, analyse and take decisions related to financial information in cryptocurrency market.

1. Real-Time Price Tracking

Objective: To effectively enable the users to gain access the actual and current price with reference to different categories of cryptocurrencies.

Details:

- **Integration with Multiple Data Sources:** The platform shall also pull real time price data from several trusted sources which are the exchanges as well as other market data vendors. This shall be adequate in making sure that the users are well informed based on the most updated information only.
- **Unified Dashboard:** Users will also be able to track real time prices of all the cryptocurrencies in a single window on their control panel. It will be a feature that will provide the users with an individual panel for tracking prices and charts, as well as data analysis within the same window without having to jump from application to application.
- **Live Price Updates:** The live price feed comes with extremely low latency and that will mean that the platform users will always have the most current information. This is especially important in a market where the price tends to change frequently and for the variations in price to be accurate, they need to be checked as often as possible.

2. Comprehensive Historical Data

Objective: To provide specific historical data and charts which may help the user to carry on market analysis and find trends.

Details:

- **Historical Price Charts:** There is a price charts representing the investment opportunities’ history of cryptocurrencies with different time intervals.

- **Data Granularity:** Historical data with the options of open, high, low, close prices, volume information and others will be available to the users. Such specific information is vital when carrying out comprehensive technical analysis and identifying multisectoral trends.
- **Customizable Time Frames:** One of the key features of the platform will be the ability of a user to control the time intervals displayed on the charting of historical data which would be expected to help the user focus only on the relevant period in his/her analysis or trade.

3. Adaptability and reliability when it come to the users.

Objective: To be able to continue the user's activity and give him the same user experience on any of the different platforms or devices.

Details:

- **Responsive Design:** The intended platform has functionality for design in laptops and pc, tablets, android and iPhone phones. This accommodation of the user-interface will allow the users of the application to navigate through it comfortably irrespective of the device that they are using.
- **User Interface (UI) and User Experience (UX):** Prioritizing of the internal UI/UX design improved ease of use of the platform and such layouts will create easy navigation. The structure of the features is reasonable and enable easy flow in the interactions to be developed.
- **Accessibility:** Accessibility features should also be considered while designing the platform, so that the users with different preferences and disabilities can also use the tools within this platform.

4. Education and Market Literature

Objective: To enable the users to better comprehend cryptocurrency trading and its analyses via articles and news.

Details:

- **Educational Content:** It has an educational section, that comprises tutorials, articles and Webinars, which will specifically be focused on different areas of crypto trading, training, charts and trends.
- **Market Insights:** Users are be enabled to get the market trends, general information and opinions of experts in the existing Cryptocurrency market. Such information improves trading decision making since users will have adequate information extracted from the web.
- **Learning Modules:** Users are able to gain knowledge step by step through the use of the different products which are in the form of learning models and guides. These modules will be a beginning trading module to basic trading for the first-time trader, an intermediate trading module for the more experienced trader and an advanced trading module for the professional trader.

5. Enhanced Security and Privacy

Objective: For the purpose of safe-guarding the users' data and to preserve safety and security of trading.

Details:

- **Privacy Policies:** Privacy policies regarding the handling of users' data is well stated and understandable to assuage users' worries on the matter. The platformers strictly follow all the standard procedures operating within the domain of protection of data as well as guaranteeing that all the details regarding the users of the platform will be handled responsibly.

6. Enable User Feedback and Comments:

Objective: Introduce an option for poll participants to leave comments or feedback.

Details:

- Added a comment section for each poll where participants can leave their thoughts and feedback.
- Implement moderation tools to manage and curate the comments, ensuring respectful and relevant discussions.

- Created a tagging system for comments to categorize feedback and identify common themes or issues raised by participants.

7. Implement Analytical Tools for In-Depth Analysis

Objective: Integrate analytical tools to break down poll results.

Details:

- Will develop demographic filters that allow poll organizers to segment responses by age, gender, location, and other relevant categories.
- Integrate statistical analysis tools to identify trends, correlations, and significant patterns within the poll data.
- Will Provide export options for poll results and analysis, enabling organizers to create comprehensive reports and presentations based on the data collected.

1.3 Significance

For that reason, the “Crypto Watch” project is highly valuable in the ever-growing field of cryptocurrencies because it provides solutions to the main issues and lacks in currently existing tracking and analysing systems. High market characteristics and market volatility cause a need for current and accurate information in the market. Original cryptocurrency investing has a problem of dispersed sources of information that is not updated at the same rate, thus, it creates mismatch and provides hints of inaccuracy. "Crypto Watch" aims to revolutionize this landscape by providing a centralized, unified dashboard that consolidates real-time price data from multiple reliable sources. This integration ensures that users are always updated with the correct information that prevails in the market avoiding the use of many sources and applications. Such consolidation is not to say a convenience but a necessity that brings positive changes to the ways of trading and investment.

Also, the tools of the “Crypto Watch” dashboard are dedicated both to newcomers and professional traders as they include sophisticated technical analysis instruments. This can be done with the help of numerous technical indicators, charting tools, and features that allow for customization of the analyses and the creation of proper trading strategies to evaluate the market. Focused analytical flexibility is the concept stating that it is possible to set up a particular analytical setup to be unique to every strategizing process in a market that is synonymous with constant change in trends. Not only does such high-level analysis enable users to find the indications of trends for trading signals and further themselves, but it also aids in creating trading strategies unique to one’s trading needs that can be adjusted according to current market trends.

Apart from the feature of analysis, the “Crypto Watch” will satisfy the demand for prompt and preventive trading with the help of the possibility of creating alerts and by providing news from time to time. This will enable the users to set prompts for the ideal price levels, occasions within the market, and other factors to warrant a notification to the users. This feature is most useful in a volatile market since timely responses to price changes as well as fluctuations in the market makes a huge difference in trading. Real time notification through push notifications and or email also aid in making the platform prompter and keep the user involve with the market activities.

Trade ideas and funding also remain intact at the centre the design also addresses an ability to provide a similar trading environment to clients and be equally accessible on desktops, tablets mobiles. Such high availability helps the users to conduct investment operations online and contributes to the overall ease of usage. Usability and user-friendly design enhance the level of enjoyment as well as make the application easier to use, this often enhances the effectiveness of the platform's functionalities.

Also, the “Crypto Watch” gives much importance to educational support and the real market statistics. To foster users' education and competence of trading in cryptocurrencies, the platform offers cohorts of tutorials, articles, and webinars. Indeed, this educational component is critical given the current state of affairs that is overloaded with informative and often potentially distressing data that might scare off new entrants to the cryptocurrency market. Retention of market trends, business news, and opinions from specialists assists in decision making and being up-to- date with current information.

Finally, our project will identify and solve some of the most important issues in the security and privacy fields. Given the fact that it is a sphere that is rather vulnerable to cyber threats and data breaches, strong security measures should be implemented in order to protect users' data and their funds. “Crypto Watch” complies with the best practices of information security, namely, protection of data with the help of encryption and secure authentication. One must have proper privacy policies, which guarantee responsible handling of users' information so that people can trust the site.

All in all, the concept behind the “Crypto Watch” project can be referred to as a breakthrough in the field of cryptocurrencies tracking and monitoring. Due to focusing on further development and the improvement of existing issues, the given platform offers a set of advanced necessary instruments for each client in order to protect them from adverse outcomes when interacting with cryptocurrencies. It therefore constitutes itself as a unique database and analysis tool for the trader and investors intending to maximize their performance in the market and in the selection of their strategies.

1.4 Scope

The “Crypto Watch” project proposes to increase productivity in superior cryptocurrency trading by developing a complex working environment that covers real-time price monitoring, advanced functional instruments such as charts and indicators, and customizable notifications. This integrated approach addresses a common issue where data from various sources is often dispersed and updated at different frequencies, leading to outdated and inconsistent information, even from trustworthy sources. The platform aims to help traders and investors gain a single-window interface for data and features without needing to interact with multiple services. The project will develop a system where users can get real time data by applying JavaScript and a real time notifications system too.

Designed for both newbies and advanced trading gurus, the platform incorporates diverse analysis methods, allowing clients to apply various methodologies according to their preferences and market circumstances. Additionally, “Crypto Watch” will include configurable audio and status updates that notify users of key changes and events such as substantial price fluctuations. This feature is especially useful for providing timely responses and facilitating proactive trading in an unpredictable market.

Another crucial element of the project is to provide an educational base for users, including lessons, articles, and webinars, to improve their knowledge of cryptocurrency trading and analysis. With these resources, “Crypto Watch” aims to fill knowledge gaps, helping users make well-informed decisions. In addition, the platform will ensure the security of user data and financial transactions through proper encryption, authentication methods, and clear privacy policies, demonstrating a commitment to protecting account owner data.

Altogether, the “Crypto Watch” project aims to create a complete, safe, and easy-to-use platform with essential tools for cryptocurrency trading and data analysis. The platform aims to improve traders' and investors' activities, decisions, and trading effectiveness by meeting their various requirements.

2. Problem Definition and Requirements

2.1 Problem Statement

Thus, the “Crypto Watch” project is aimed to solve several urgent problems in the sphere of cryptocurrency trading by offering a single and highly integrated platform to improve the overall trading process. It identifies one of the key problems the platform has to deal with as the distribution of out of date and scattered price data. Buyers and sellers of securities get information on prices from several sources and the data can be inaccurate and time inept. This is solved by the “Crypto Watch” app that accumulates updates on a few trustworthy exchanges and crypto data vendors all into one interface. This integration helps users to get the right and appropriate market data eliminating confusion coupled with the management of data sourced from different issues.

However, in parallel with the issues of real-time data, the functionality of “Crypto Watch” is designed to solve numerous problems associated with the management of multiple cryptocurrencies. When you are running an organization that has close to thousands of digital assets, then it can become tricky, time-consuming as well as tiresome to track each and every asset’s performance manner. It also has a full-fledged and packed web application that can be used to track the top and important cryptocurrencies all under one roof. Due to the watchlists the users may monitor their preferred assets, evaluate the changes in price, and compare the performance more effectively while being on one site.

Another important problem the platform tackles is that there is quite a low availability of historical data and trends. Most common platforms provide little more than historical values, which greatly limit the users’ capabilities to analyse past performance. To this, “Crypto Watch” pays adequate attention to historical prices including the daily, weekly and the monthly prices to facilitate the analysis.

The project also intervenes in the lack of proper technical analysis instruments’ issue. While seeking a charting platform, it is important to note that most trading platforms provide primary charting, which is inadequate to the traders’ needs subsequent to complex analysis. Some of the chart traits of “Crypto Watch” include Multiple line, charts, complex indicators. It also enables its users to be able to go for intensifying their analysis and also be able to adjust their charts depending

on the trading strategy they use hence supporting multiple analytical methods and improving on the chances of searching for trading opportunities.

Another feature that “Crypto Watch” will stand out on is the ability to set up automatic alerts and notifications. In the traditional platforms, while getting exposure to the market conditions and news events, real-time alerting mechanisms are usually missing and this involves a time-consuming and ineffective process. In this aspect, the opportunity to set up personalized alerts on certain price levels, trading signals as well as on market appreciable events is offered by the platform. These notifications are sent out as push notification, email and SMS so that user is informed on time and responds to the market change appropriately.

It also provides the solution for the problem of the application’s inhomogeneous user experience across the devices. Some platforms give a disrupted vision, where the utilization of this platform would not be fully functional on portable devices compared to a computer. This version of ‘Crypto Watch’ is built to be compatible with absolutely any type of screen be it a computer, tablet, or mobile phone screen. Through this, the users are able to conduct and monitor their trading activities, and also interact with all the features supported on the surface on the chosen device.

In addition, the platform agrees, indicating that there is a strong demand for quality educational materials necessary for both beginner or ordinary traders and advanced traders as well. Crypto Watch is designed to contain tutorial, articles, and videos that would assist the users in concept of cryptocurrency trading, technical indicators, or even the markets. These materials are also meant to create awareness on the various aspects concerning trading so that those in the trading fraternity are in a better place to make the right decisions.

The issue of security is also another important consideration when it comes to the “Crypto Watch” project, also the issue of privacy. It is critical to note that there have been rising concerns over the protection of users’ data in the Cryptocurrency market; hence, the platform has adopted the best security features that enhance the protection of financial information and assure the security of user data through the application of encryption and secure authentication procedures. This is because most of the users are often conscious of how their data is used by other parties and they are comfortable knowing that their data is secure.

Therefore, Crypto Watch' functions as a tool that tends to solve most of the problems encountered by using multiple different sources, time-consuming analysis, poor historical results, outdated methodologies, no real-time notifications, unstable interfaces, no educational content, and security issues. The utilization of actual time data feeding, extraordinary mechanical and graphical applications, adjustable alarm systems, instructive content and database, as well as outstanding security systems as a part of an individual multi-functional utility, Crypto Watch will guarantee to offer a favourable and efficient frontier for exchanging and storing of digital currencies.

2.2 Software Requirements

- Operating System: Windows/OSX Development or Linux Development, Production on any leading Operating Systems.
- Languages: HTML5, CSS3, Bootstrap, JavaScript, React (in future).
- Frameworks/Libraries: Bootstrap CSS for styling and D3.js/Chart.js for data visualization.
- APIs: Authentication using OAuth /JWT (in future).
- Tools: The tools that would generally be required include Visual Studio Code or any other Integrated Development Environment (IDE), Git for version control package management.
- Deployment: GitHub Actions.

2.3 Hardware Requirements

- Development: High performing's PC/Mac with at least 8 GB RAM with a storage of 256 GB SSD.
- Production: End user web hosting services provided on highly flexible virtualization platforms.
- Data Storage: Solutions such as managed databases for shared cloud-based environments with high data and users' demand.

2.4 Datasets

- Cryptocurrency Data: Quotes, such as the current and past ones that one can obtain from CoinGecko or CoinMarketCap.
- User Data: This includes securely storing users' profile data, which stocks, and operations they would like to be notified about.
- Historical Data: Large and detailed amount of price data and volume data with time series.
- Educational Content: Trading and analytical lessons and articles regarding cryptocurrencies.
- Security Data: Secure users' login and identification protocol as well as management of their sessions.

3. Proposed Design / Methodology

3.1 System Architecture and Design

The concept associated with the “Crypto Watch” project is proposed to be designed in such a way to provide an online, multifaceted and real-time cryptocurrency monitoring system. Scalability, security and usability of the architecture are considered satisfied by using the today’s web technologies and implementing the modern approaches to the software development.

Frontend Layer:

- Technologies: React. js, HTML5, CSS3, JavaScript (in future).
- Functionality: The frontend offers the navigation, the visualization of the real-time price, the graphical analysis, the watchlist, and the alarms.

Components:

- Dashboard: Includes the current prices of the shares, the graphs of the changes in the prices, and the list of the wanted stocks.

3.2 Algorithms and Data Flow

1. Data Fetching:

Live news tracking.

Employ API calls to get price quotation and other movement of cryptocurrencies from other APIs (in future)

Use of cache mechanisms which will minimize the use of APIs and enhance the applicative performance.

2. Data Processing:

Transform raw data received through APIs into the format that the application’s data structures would require.

Apply error handling and data validation to increase data quality of the information.

3. User Authentication (in future)

JWT Authentication: JSON Web Tokens (JWT) should be used for the user authentication and session control.

Use tokens for the secure storage and verification on the clients and the servers.

4. Alert Management (in future)

Custom Alerts: Integrate control techniques and mechanisms to examine user-defined alert conditions (in relation to prices, etc.). Employ the background tasks and cron jobs to perform checking and initiating the alerts at intervals.

5. Data Security

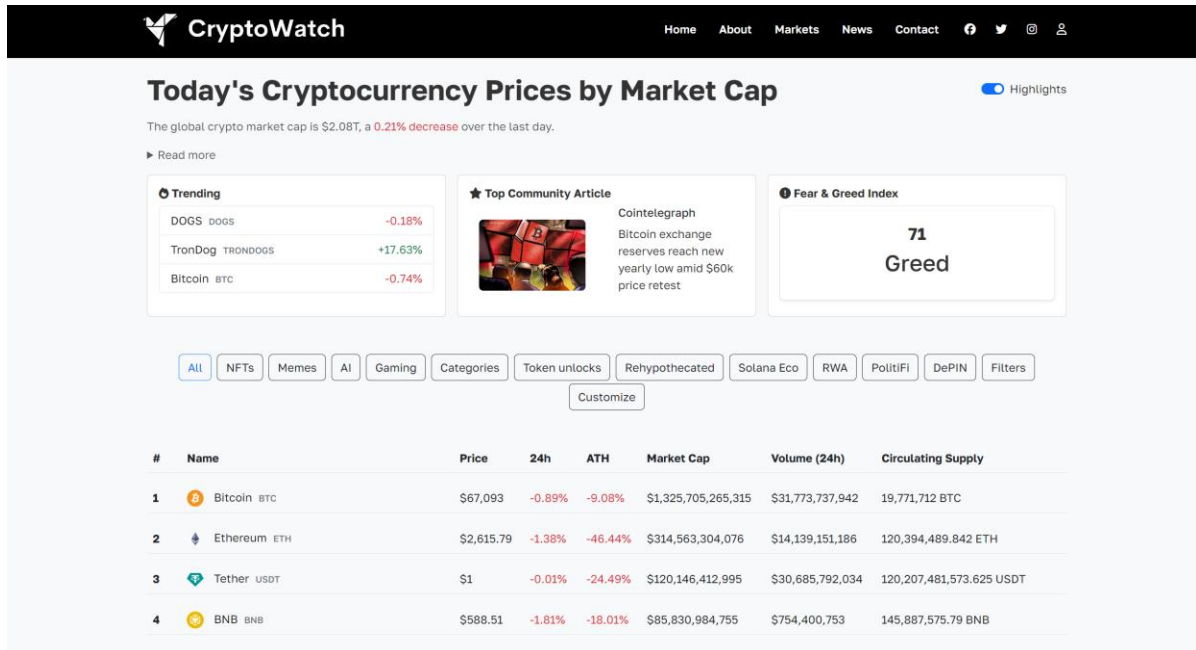
Encryption: Implement Secure Sockets Layer (SSL) or Transport Layer Security (TLS) for the client's sensitive information during transmission and database encryption for storage. It means it adheres to secure access controls and explore ways of changing it in the future to improve the security of the users' data.

In simple terms, the proposed design and the methodology for “Crypto Watch” are afraid of positive scalability, security, and usability of the cryptocurrency tracking application. It will develop an optimized solution for the enhancement of efficiency and effectiveness of cryptocurrency traders and investors through the proper use of modern web technologies, several data handling practices and file organization structures.

4. Contributions Done by me:

1. I, Naman Nayak as an active contributor of the Project “CRYPTO WATCH” have made several pages:

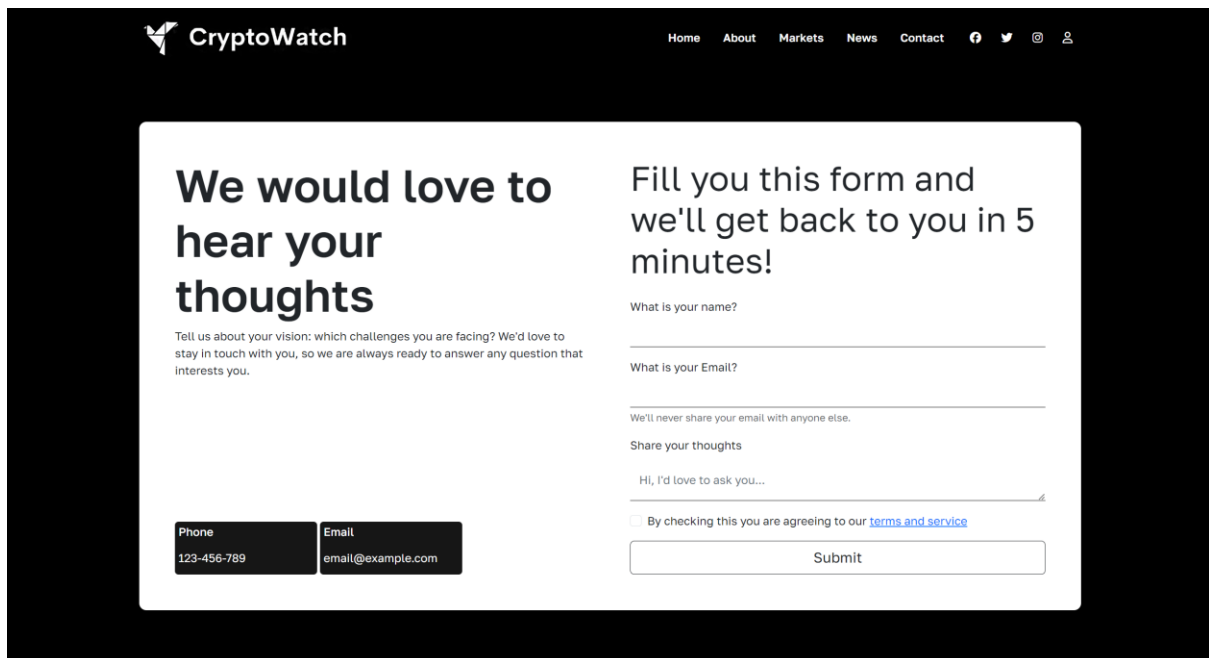
- **Market:**



The screenshot shows the CryptoWatch website's 'Today's Cryptocurrency Prices by Market Cap' page. The header includes the CryptoWatch logo and navigation links: Home, About, Markets, News, Contact, and social media icons. A sub-header states: 'Today's Cryptocurrency Prices by Market Cap' with a 'Highlights' toggle. Below this, a note mentions the global crypto market cap is \$2.08T, a 0.21% decrease over the last day. The page features several sections: 'Trending' with a list of DOGS, TronDog, and Bitcoin; 'Top Community Article' featuring a Cointelegraph article about Bitcoin exchange reserves; and a 'Fear & Greed Index' showing a score of 71 Greed. A filter bar includes categories like All, NFTs, Memes, AI, Gaming, etc. The main table lists the top 4 cryptocurrencies by market cap.

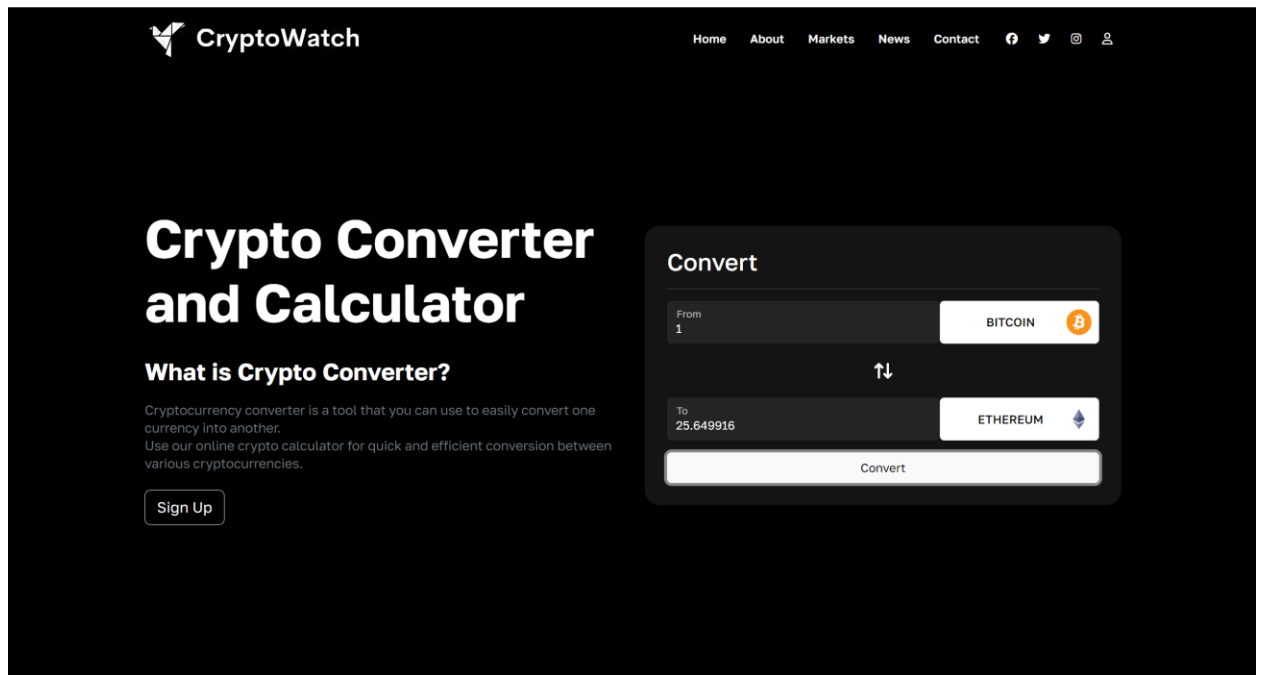
#	Name	Price	24h	ATH	Market Cap	Volume (24h)	Circulating Supply
1	Bitcoin BTC	\$67,093	-0.89%	-9.08%	\$1,325,705,265,315	\$31,773,737,942	19,771,712 BTC
2	Ethereum ETH	\$2,615.79	-1.38%	-46.44%	\$314,563,304,076	\$14,139,151,186	120,394,489.842 ETH
3	Tether USDT	\$1	-0.01%	-24.49%	\$120,146,412,995	\$30,685,792,034	120,207,481,573.625 USDT
4	BNB BNB	\$588.51	-1.81%	-18.01%	\$85,830,984,755	\$754,400,753	145,887,575.79 BNB

- **Feedback:**

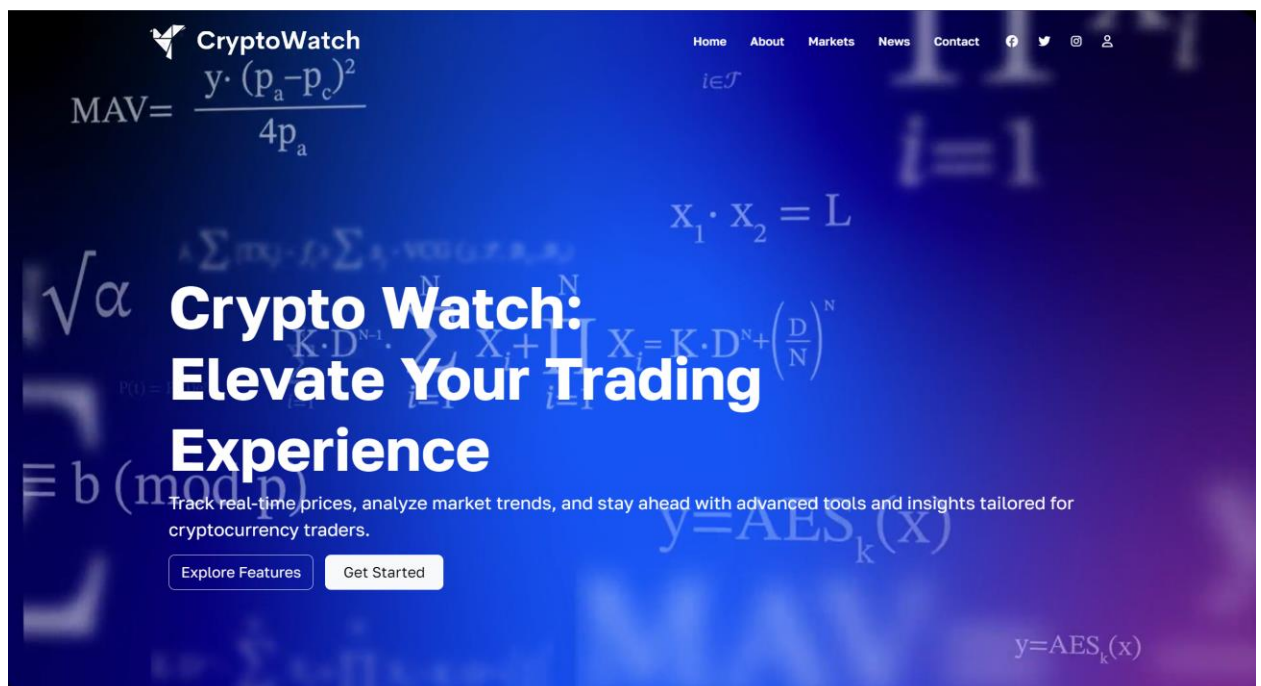


The screenshot shows the CryptoWatch website's feedback form. The header is identical to the previous screenshot. The main content area has a dark background with a white box containing the feedback form. The form includes a heading 'We would love to hear your thoughts', a sub-heading 'Fill you this form and we'll get back to you in 5 minutes!', and a text input field for 'What is your name?'. Below this is another text input field for 'What is your Email?'. A note states 'We'll never share your email with anyone else.' followed by a 'Share your thoughts' section with a text area for 'Hi, I'd love to ask you...'. At the bottom, there are checkboxes for 'By checking this you are agreeing to our terms and service' and a 'Submit' button. On the left side of the form, there are input fields for 'Phone' (123-456-789) and 'Email' (email@example.com).

- **Converter:**



- **Features:**



5. Results

5.1 Conclusion

Looking at the application plan and potential of the “Crypto Watch” project, the latter seemingly holds a potential to offer a flexible and powerful program for cryptocurrencies tracking and evaluations. With specific references to some of the challenges that the platform users face today including multiple data sources, updated prices in real-time, and fewer opportunities for analysis, it will possible to improve the trader’s options for both beginners and those who already have certain experience. Based on real-time feed and display of the graphical interface, the charting, the customizable alerts and educational content, the “Crypto Watch” offers a complete solution that can facilitate an efficient trading approach and portfolio management.

The main advantages of the project, which is a user-friendly design, personalized methods of safe data storage, and the possibility of the increasing number of users needed depending on the tendencies of the cryptocurrency market, are critical factors in the creation of an effective project. The use of up-to-date technologies and the adoption of the modern methods of software development make “Crypto Watch” tool of potential value in managing the volatile segment that is cryptocurrency trading. Thus, the platform is designed to not only satisfy the present tendencies in the market but also to predict the potential further development and users’ needs, which makes it progressive in the context of the cryptocurrency tracking field.

5.2 Results

The successful implementation of "Crypto Watch" is expected to yield several positive outcomes:

1. Enhanced User Experience:

- Unified Dashboard: It will be also easier to track and operate any cryptocurrencies through the platform owing to the fact that it will be having a centralized user interface.

2. Improved Analytical Capabilities:

- Advanced Charting: Users will be able to build various types of more complicated charts and apply numerous technical indicators to the chart and to the price itself to examine the real picture of the market.
- Historical Data: The security of comprehensive historical data and trends assessment instruments will contribute to the improvement of the decision-making process.

3. Efficient Alert Management:

- Customizable Alerts: The user will be alerted to price change and other notable market activities in real-time thus enhancing the users' effectiveness to opportunity and risk fluctuations in the market. (in futures)

4. Educational Support:

- Learning Resources: The educational content will enhance user's knowledge in cryptocurrency trading and analysis hence improved trading.

5. Security and Privacy:

- Data Protection: Security will also be strong to protect users' information and for compliance to privacy policies and act.

5.3 Metrics

To evaluate the success and performance of the "Crypto Watch" project, the following metrics will be used: To evaluate the success and performance of the "Crypto Watch" project, the following metrics will be used:

1. User Engagement:

- Active Users: Daily, weekly, and monthly active users which indicates how many people are actively using the platform.
- Session Duration: This metric would include the kind of activity the user indicates he or she is engaged and the average time consumers spend on the platform per time.
- Feature Usage: Usage rate of key features which includes real time update, charts, and alerts.

2. Performance Metrics:

- Data Update Latency: The time used in updating and posting the price rate information to correspond with the actual rate.
- System Uptime: The exact figure, which implies the proportion of time the platform is in a state of readiness and availability without failures.
- Response Time: Transaction through API call response index and user interface response index.

3. Accuracy and Reliability:

- Data Accuracy: Accuracy of the price data delivered adjusted to the information of primary sources.
- Alert Timeliness: The timeliness and effectiveness of the alert notification which is communicated to the users.

4. Security Measures:

- Incident Rate: This is the number of security incidents or breaches that was reported.
- Compliance: The following are the measures to be taken: Compliance with data protection laws and privacy policies.

Through these indicators, “Crypto Watch” will strive to make adjustments to the application and demonstrate that it achieves the intended satisfaction of users on a regular basis. With such approach it will be possible to consistently assess outcomes of the work relying at the same time both on qualitative/quantitative indicators and open long-term development of the platform, as well as raise its usage rate among users.

5.4 Future Scope

As "Crypto Watch" evolves, several enhancements are planned to bolster its functionality, user experience, and security. The future development will focus on integrating advanced technologies and features to deliver a comprehensive and effective cryptocurrency tracking platform. The following sections outline the intended future developments:

6.1. JavaScript Integration

In the upcoming phases, client-side functionalities within "Crypto Watch" will be enhanced using JavaScript, which will include:

- **Interactive User Interface:** Implement dynamic updates to the cryptocurrency charts and user dashboard. This includes real-time price updates, interactive chart elements, and dynamic data filtering options to enrich the user experience.
- **Client-side Data Handling:** Utilize JavaScript to handle data processing and visualization within the browser, ensuring responsive and efficient interactions with live cryptocurrency data.
- **Form Validation:** Improve the security and accuracy of user inputs by implementing robust form validation techniques for data entry points, such as custom alerts and error handling.

6.2. React.js Integration

The integration of React.js will bring several advancements to "Crypto Watch":

- **Component-Based Architecture:** Adopt React's component-based architecture to modularize the application into reusable components. This will enhance code maintainability and allow for easy updates to various parts of the user interface, such as cryptocurrency tickers, portfolio management, and historical data views.
- **Email Integration:** Develop React components to integrate email services for notifications related to significant market changes, account updates, and security alerts.

- **Real-time Communication:** Explore integrating WebSockets or similar technologies within the React framework to provide instant updates on cryptocurrency prices and news, enhancing the real-time capabilities of the platform.

6.3. Full System Integration

The final phase will integrate client-side JavaScript and React.js components into a cohesive and fully functional platform. This will involve:

- **Real-Time Data Integration:** Implement real-time data streaming and communication protocols to ensure up-to-the-minute updates on cryptocurrency prices and market trends.
- **Security Audits and Testing:** Conduct thorough security audits and testing to identify and address potential vulnerabilities, ensuring that "Crypto Watch" maintains high standards of data protection and user privacy.
- **User Authentication and Authorization:** Develop comprehensive user authentication and authorization mechanisms to safeguard user accounts and access to sensitive features.

EVALUATION -2

1. Overview

JavaScript is a high-level, interpreted programming language that plays a crucial role in web development by enhancing the interactivity and functionality of websites. Initially developed as a client-side scripting language by Netscape in the mid-1990s, JavaScript has grown significantly in scope and application. It is now a versatile language that operates seamlessly in web browsers and server-side environments, such as Node.js, allowing developers to build scalable and high-performance applications. One of JavaScript's key strengths is its ability to create dynamic content that responds to user interactions, such as clicks, form submissions, and animations, enabling a more engaging user experience.

Furthermore, JavaScript supports multiple programming paradigms, including object-oriented, imperative, and functional programming, giving developers the flexibility to choose the approach that best suits their project. Its event-driven architecture allows for the development of highly interactive web applications that can respond to real-time user inputs without requiring full page reloads. The language's cross-platform compatibility ensures consistent functionality across all modern web browsers, making it accessible to a wide audience.

JavaScript also boasts a rich ecosystem of libraries and frameworks, such as React, Angular, and Vue.js, which facilitate rapid development and enable the creation of complex, feature-rich applications with minimal effort. Additionally, its capability to easily integrate with various APIs allows developers to fetch, manipulate, and display data from external sources, significantly enhancing the functionality of web applications. With features like Promises and the `async/await` syntax, JavaScript supports asynchronous programming, enabling developers to write non-blocking code that improves the performance and responsiveness of applications.

As a result of these features and its widespread adoption, JavaScript has become an essential technology in the modern web development landscape, empowering developers to create interactive, user-friendly websites and applications that meet the evolving demands of users.

2. JavaScript Integration

API Integration:

Utilized various cryptocurrency APIs (such as CoinGecko) to fetch real-time data on cryptocurrency prices, market trends, and historical data.

This allows users to view live updates and gain insights into the cryptocurrency market. We have added news Apis, coin gecko Apis, twillo Apis.

DOM Manipulation:

Leveraged JavaScript to dynamically update the HTML content based on user interactions and API responses.

Enhanced user experience by allowing real-time updates without refreshing the page.

Form Validation:

Implemented form validation to ensure user inputs are correct before submission (e.g., in sign up, sign in or currency conversion).

This includes checks for valid email formats, required fields, and number ranges, improving overall data integrity.

Currency Converter:

Developed a currency converter feature that allows users to convert between different cryptocurrencies.

Utilizes the fetched API data to provide accurate conversion rates and instant results.

WhatsApp Notification Sender:

Integrated a WhatsApp notification feature that allows users to receive alerts about specific cryptocurrency price changes or market updates.

This feature enhances user engagement by keeping them informed in real-time through a familiar messaging platform.

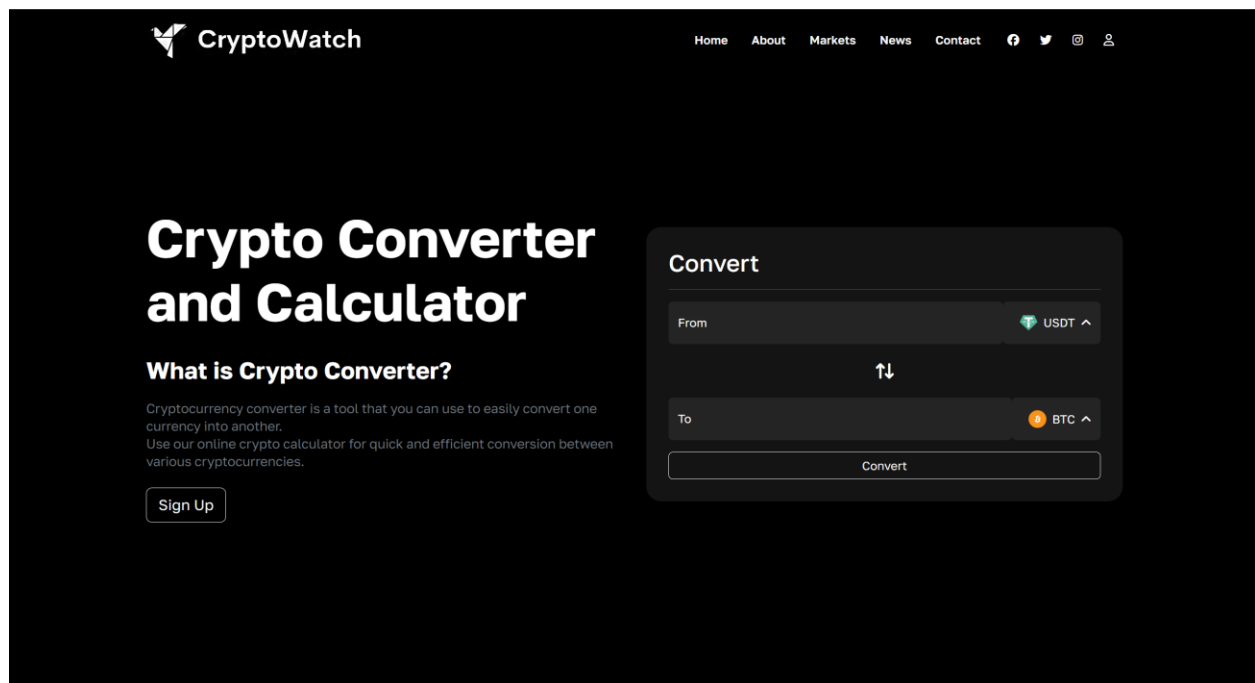
3. Contributions Done by Me

As the leader of our cryptocurrency project, I implemented several key features that greatly enhance its functionality. I developed a cryptocurrency converter that enables users to seamlessly exchange between different cryptocurrencies. Additionally, I built a marketplace page that displays real-time cryptocurrency prices and relevant data, offering users a comprehensive view of the market.

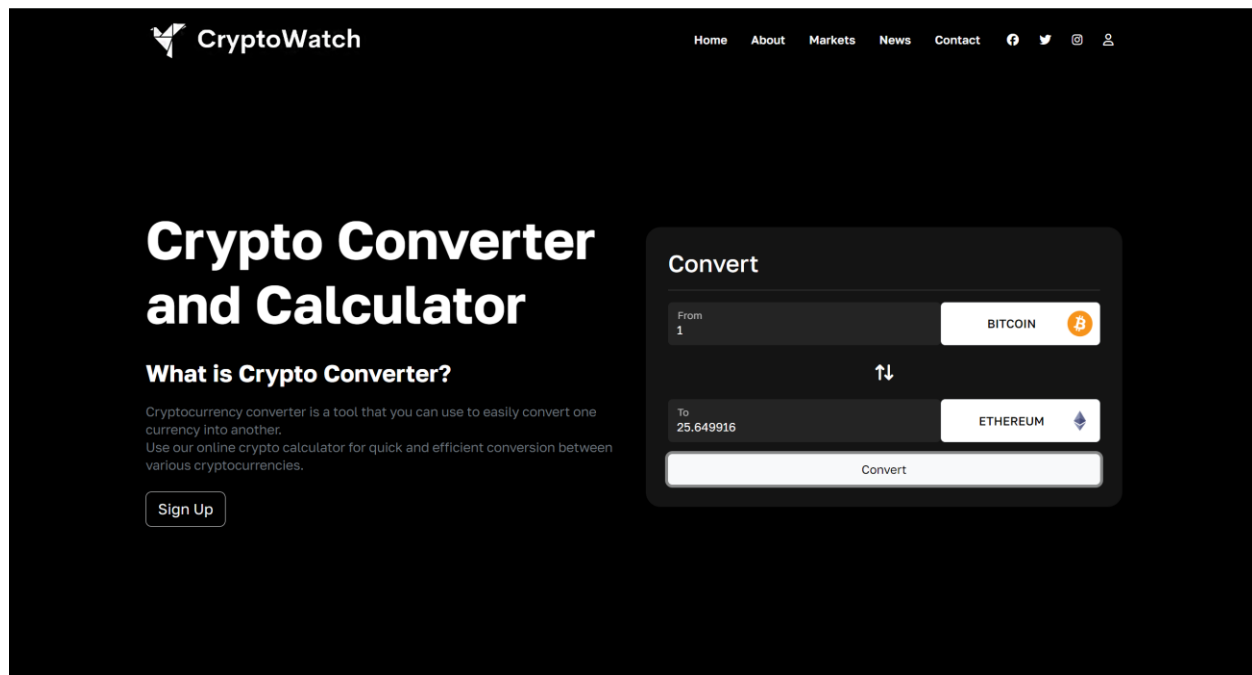
To further enhance user engagement, I integrated a WhatsApp notification sender using Twilio API, allowing users to receive the latest cryptocurrency news directly on their WhatsApp. I utilized multiple APIs, including CoinGecko for real-time crypto data and Twilio for communication services, ensuring that the platform delivers accurate, up-to-date information.

My work on API integration and back-end functionality has significantly contributed to the overall performance and user experience of the project, making it a comprehensive and interactive tool for cryptocurrency enthusiasts.

Before implementing JavaScript:

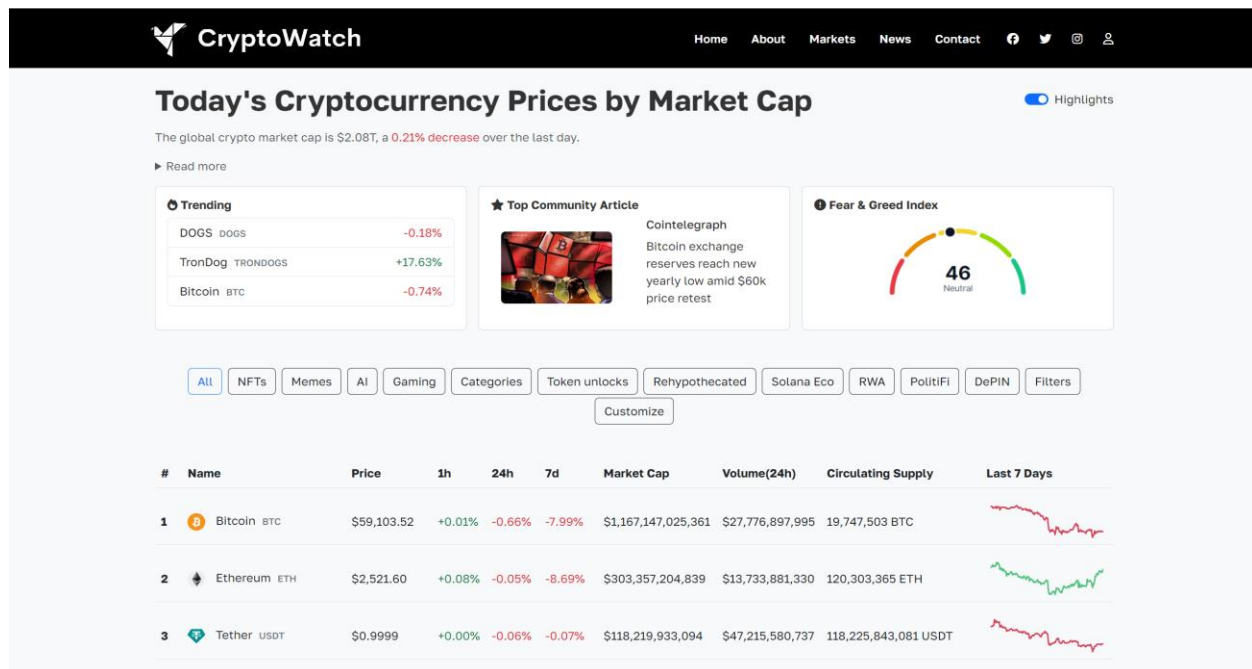


After implementing JavaScript:

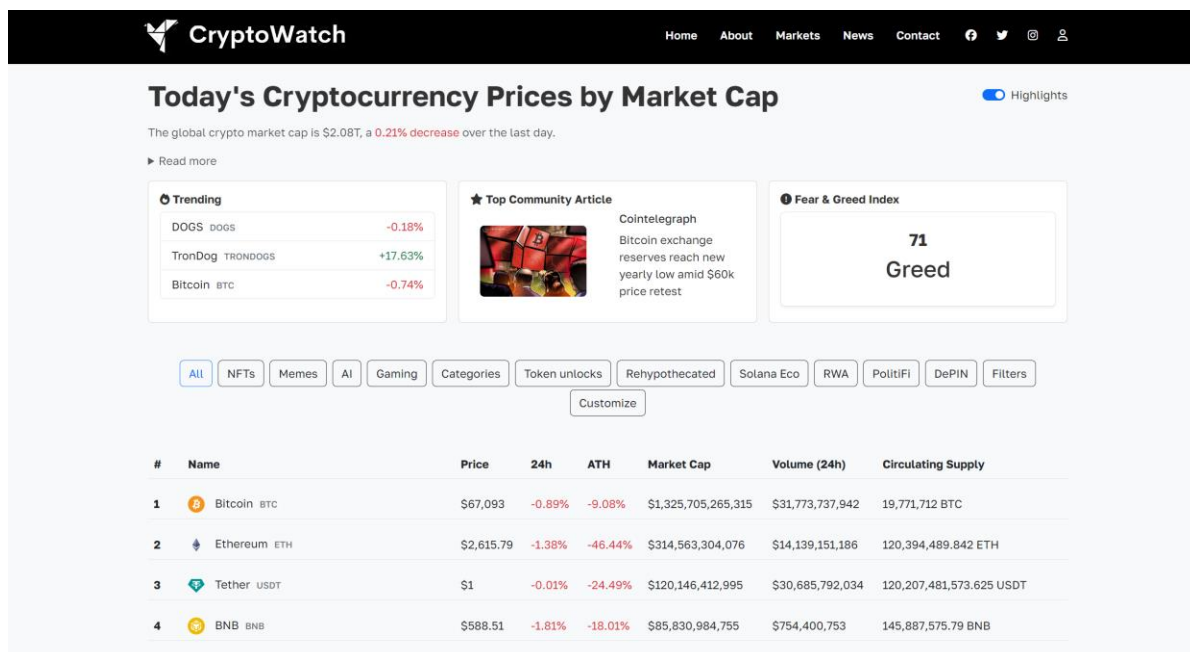


- Added functionality to fetch real-time data and display conversion results immediately.
- Utilized DOM manipulation to dynamically add cryptocurrency options for easy selection.
- Incorporated icons corresponding to each cryptocurrency to enhance the user interface and improve usability.

Before implementing JavaScript:



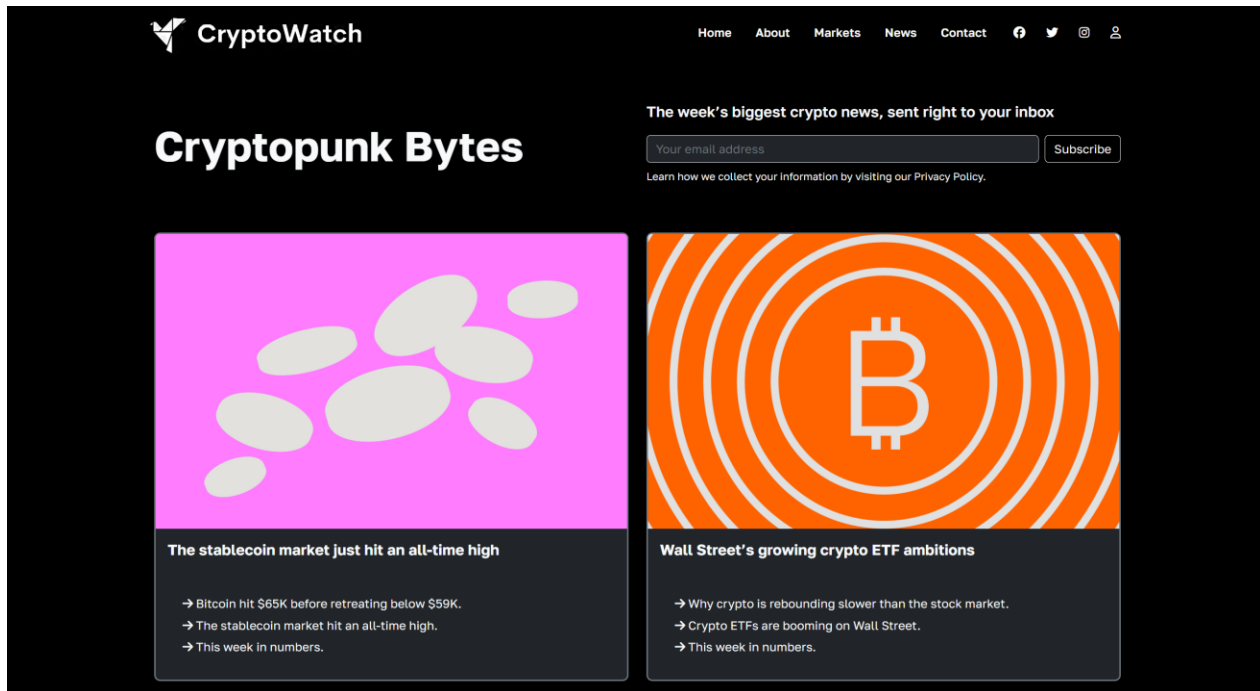
After implementing JavaScript:



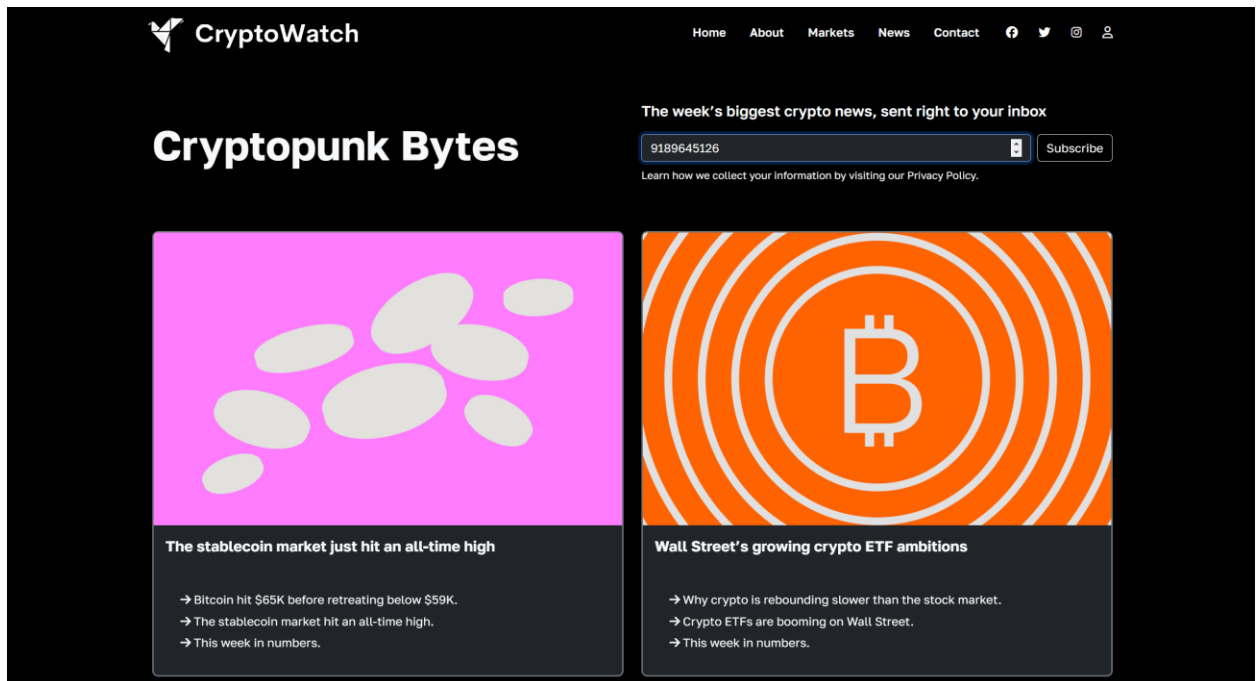
- Made the marketplace dynamic, fetching real-time data from the CoinGecko API.
- Added dynamic functionality for the Greed Index, using data from the Market Sentiment API.

- Removed the graphs section due to complexity, but I plan to add it in the next evaluation.

Before implementing JavaScript:



After implementing JavaScript:





Cryptocurrency News Updates:

1. Bitcoin traders position for 'seismic' shift under Trump
2. Cryptocurrency Surges Amid Election Jitters
3. Is it goodbye gold, hello bitcoin?
4. Billionaires Are Buying a BlackRock Index Fund That Could Soar Up to 73,000%, According to Wall Street Experts
5. Sam Altman's eyeball-scanning crypto project has a new Orb and a new name
6. 'We lost it all' - Irish men reeling after being conned out of €75k in sinister scam
7. Potential health hazards of cryptocurrency mines laid bare by scientists
8. Sam Altman's rebranded Worldcoin, expands its iris-scanning cryptocurrency project
9. North Korean Cybercriminal Gets Hired At A Firm, Hacks Company After Getting Fired
10. Tamannaah Bhatia questioned by ED in money laundering case linked to mobile app

10:25 am

- Added a newsletter subscription functionality.
- Integrated it to send messages on WhatsApp, ensuring users stay updated with the latest information.

4. Conclusion and Future Scope

Our cryptocurrency project has evolved into a robust and dynamic platform that leverages the latest web technologies to provide users with real-time data, interactive features, and an enhanced user experience. Through the integration of JavaScript, APIs, DOM manipulation, form validation, and innovative features such as currency converters and WhatsApp notifications, we have successfully created a comprehensive application that addresses the needs of cryptocurrency enthusiasts.

Looking ahead, we plan to fully integrate React to streamline the codebase and improve performance and scalability. By utilizing modern tools like `useState`, `useEffect`, hooks, and `React Router`, we aim to make the platform more efficient and future-ready. This project has been a valuable learning experience, giving our team practical knowledge in both front-end and back-end development. The result is a functional and engaging cryptocurrency platform with potential for expansion.

1. **Complete Integration of React:** Refactoring the project using React's component-based architecture for better scalability and reusable UI components.
2. **State Management with `useState`:** Using the `useState` hook to manage dynamic data and ensure real-time UI updates.
3. **Handling Side Effects with `useEffect`:** Implementing `useEffect` to handle side effects like API calls and DOM manipulation more efficiently.
4. **Use of Hooks:** Exploring custom hooks to encapsulate complex logic, making the code modular and easier to maintain.
5. **Routing with `React Router`:** Seamless navigation between sections without page reloads for a smoother user experience.
6. **Cleaner Codebase:** Organizing the code into clear, manageable components to simplify future development.

Final Evaluation

1. Overview

By embracing React and its modern tools, we anticipate a cleaner, maintainable codebase and a more dynamic user experience. React is a powerful, declarative JavaScript library developed by Facebook for building dynamic, component-based user interfaces, especially in single-page applications. It enhances the user experience by efficiently updating and rendering the right components in response to data changes, using a virtual DOM for optimized performance. React is widely adopted in modern web development due to its modularity, reusability, and compatibility with various other libraries and tools. It also supports a wide ecosystem, with popular frameworks like Next.js enabling server-side rendering and static site generation, ideal for fast, scalable applications.

React's component-based architecture allows developers to break down UIs into manageable parts, promoting reusable, isolated components. Additionally, React's support for functional programming and hooks, such as `useState` and `useEffect`, allows for the easy handling of state and side effects, making it both flexible and efficient for developers working with dynamic content. As a result, React is a highly favored technology for building fast, interactive, and engaging web applications.

2. React Integration

1. **API Integration:** React's component lifecycle makes it easy to fetch data from APIs like CoinGecko. For instance, using `useEffect`, developers can fetch real-time cryptocurrency data and display updates in a responsive UI. API calls for data like prices, trends, and news allow users to stay informed in real-time.
2. **DOM Manipulation:** With React's declarative nature, updates to UI elements happen based on changes in component state, eliminating manual DOM manipulation and allowing seamless content updates without page refreshes.
3. **Form Validation:** React forms can handle user input validation for login, sign-up, and other forms. Using libraries like Formik or React Hook Form, fields such as email and password can be validated efficiently, ensuring data integrity before submission.
4. **Currency Converter:** A custom component in React can handle conversions between cryptocurrencies by fetching conversion rates through APIs, offering instant results based on real-time data.
5. **WhatsApp Notifications:** With Twilio's API and React's component-based structure, alerts for price changes or updates can be implemented, giving users real-time notifications via WhatsApp for high engagement and convenience.

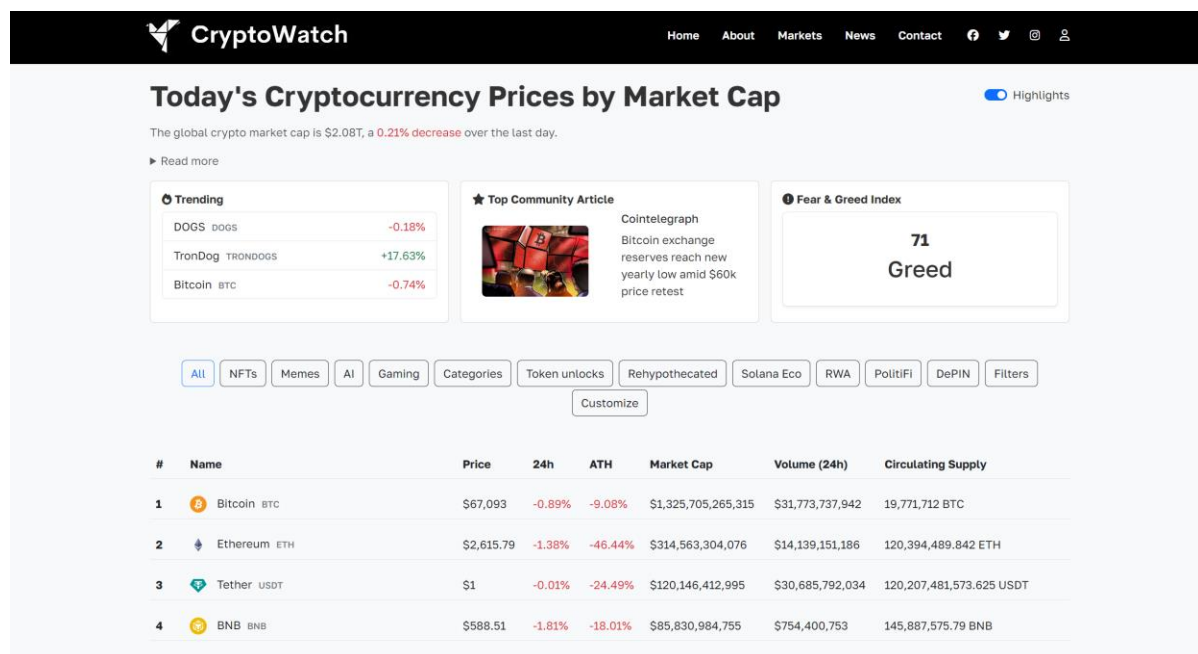
React's structure and third-party integrations make these features streamlined, modular, and easily maintainable, enhancing the application's scalability and responsiveness.

3. Contributions Done by me

In this project, Naman has developed a robust web application using HTML, CSS, JavaScript, React, and various APIs to deliver an intuitive and functional user experience. He started with the market page, which utilizes APIs to display up-to-date cryptocurrency market data, offering users insights into current trends and prices.

Next, Naman created a crypto converter tool, allowing users to convert between different cryptocurrencies or fiat currencies accurately, enhancing the application's practical value. He also crafted an informative about page, which provides users with an overview of the application and its purpose. Additionally, the features page showcases the app's unique capabilities, highlighting how users can benefit from it. Each of these pages is structured using React components for seamless functionality, styled with CSS for a professional look, and powered by JavaScript for interactive elements. By integrating APIs, Naman has enabled real-time data functionality, making the application a reliable and engaging resource for users interested in cryptocurrency and its dynamic market.

Market:



- **Feedback:**

The screenshot shows the CryptoWatch website with a feedback form. The form is titled "We would love to hear your thoughts" and includes a sub-header "Fill you this form and we'll get back to you in 5 minutes!". The form contains several input fields: "What is your name?", "What is your Email?", "Share your thoughts", and a checkbox for "By checking this you are agreeing to our terms and service". There are also two input fields for "Phone" and "Email" with placeholder text. A "Submit" button is at the bottom right of the form.

CryptoWatch Home About Markets News Contact

We would love to hear your thoughts

Tell us about your vision: which challenges you are facing? We'd love to stay in touch with you, so we are always ready to answer any question that interests you.

What is your name?

What is your Email?

We'll never share your email with anyone else.

Share your thoughts

Hi, I'd love to ask you...

☐ By checking this you are agreeing to our [terms and service](#)

Submit

Phone: 123-456-789, Email: email@example.com

- **Converter:**

The screenshot shows the CryptoWatch website with a "Crypto Converter and Calculator" section. The section includes a "Convert" form with "From" and "To" fields, a "Convert" button, and a "Sign Up" button. The "From" field is set to "1" and "BITCOIN", and the "To" field is set to "25.649916" and "ETHEREUM".

CryptoWatch Home About Markets News Contact

Crypto Converter and Calculator

What is Crypto Converter?

Cryptocurrency converter is a tool that you can use to easily convert one currency into another. Use our online crypto calculator for quick and efficient conversion between various cryptocurrencies.

Sign Up

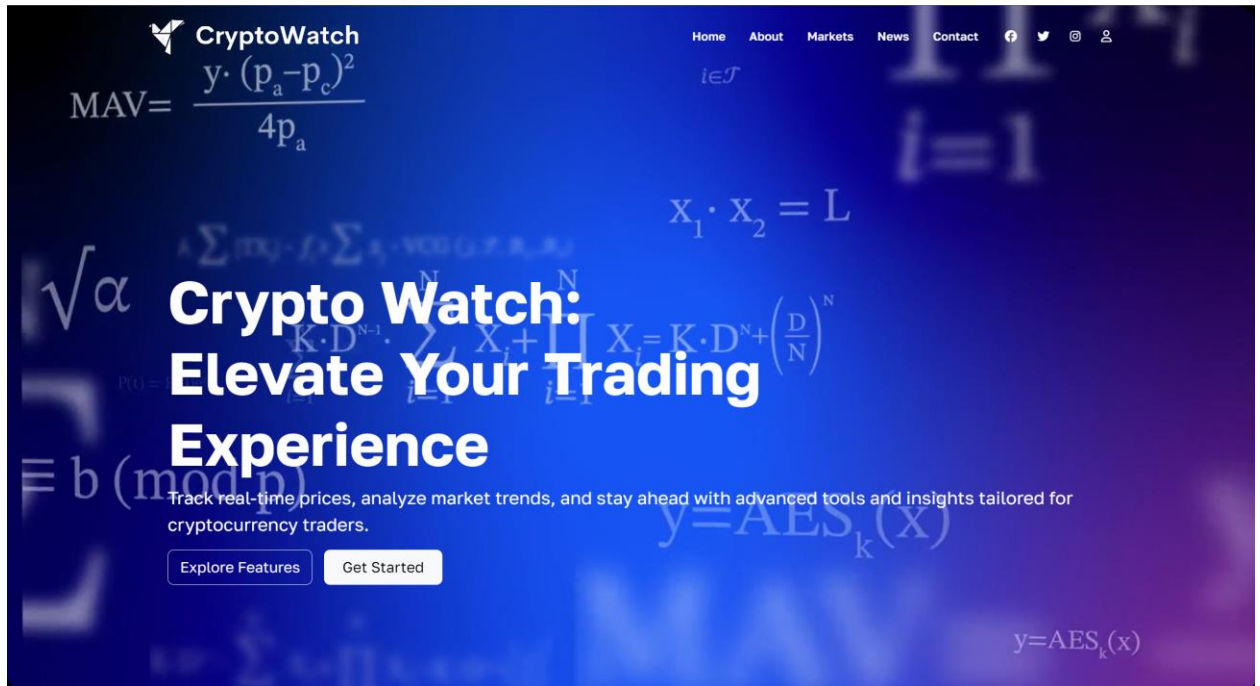
Convert

From: 1 BITCOIN

To: 25.649916 ETHEREUM

Convert

- **Features:**



4. Conclusion

In this collaborative project, Muskaan, Kritika, Kartik, and Naman have leveraged their skills in HTML, CSS, JavaScript, React, and APIs to create a comprehensive and user-centric web application. Each member has contributed unique elements that enhance the overall functionality and user experience of the platform. Kritika designed and implemented the news, learn, signup, signin, and pages, integrating APIs to provide real-time information, user resources, and secure access features.

Kartik developed the landing, features, contact, and terms and conditions pages, focusing on a welcoming interface and clear information that guides users effectively through the app. Naman added further depth by building the market, crypto converter, about, and features pages, using APIs to keep cryptocurrency data current and relevant for users.

This application brings together a blend of real-time data, interactive features, and seamless navigation, thanks to each team member's expertise in design and functionality. The use of React components across the pages ensures a unified and responsive interface, while the integration of CSS styles and JavaScript creates an attractive, interactive, and practical experience. Collectively, these efforts result in a polished platform that caters to the needs of users interested in cryptocurrency, finance, and general information. The project exemplifies a well-coordinated team effort that has successfully produced an engaging, informative, and user-friendly application.