

Frontend Development with React.js

Project Documentation for cryptocurrency dashboard

1. Introduction

- **Project Title:** cryptocurrency
- **Team Members:**
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2. Project Overview

- **Purpose:**
- Cryptoverse is a sophisticated cryptocurrency dashboard designed to provide investors with comprehensive insights into market dynamics through detailed historical price data analysis spanning five years.
- **Features:**
 - The interface offers users a detailed historical perspective on the performance of various crypto currencies, enabling insightful analysis and informed decision making.
 - Through visually intuitive charts and graphs, the dashboard allows for effective comparisons of multiple crypto currencies, aiding in the identification of top performers and overall market trends.

3. Architecture

- **Component Structure:**

The application is built using React.js with a component-based architecture. Major components include:

- **Header:** Contains the navigation bar and search bar for finding cryptocurrencies.
- **Side bar:** display market categories, user portfolios, and quick link.
- **Dashboard:** shows an overview of market trends, top gainers/losers, and news updates.
- **Marketpage:** display real-time cryptocurrency prices, charts, and market statistics.
- **portfolio page:** Allows users to track their investment, holding, and profit/loss.
- **Searchpage:** Enables users to search for specific cryptocurrencies and view detailed information.
- **State Management:**
The application uses **Redux** for global state management. The Redux store manages user authentication, selected cryptocurrency details, portfolio data, Market trends and search results.
- **Routing:**
The application uses **React Router** for navigation. Routes include:
 - `/`: Home page
 - `/search`: Search page
 - `/market/:id`: cryptocurrency details page
 - `/login`: User login page

4. Setup Instructions

- **Prerequisites:**
 - Node.js (v16 or higher)
 - npm (v8 or higher)
 - Git
- **Installation:**

1. Clone the repository: git clone :
<https://github.com/Karthik17604/cryptocurrency-dashboard.git>
 2. Navigate to the client directory: cd crypto npm
 3. Install dependencies: npm install
 4. Configure environment variables: Create a .env file in the client directory and add the necessary variables (e.g., API keys).
 5. Start the development server: npm start
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5. Folder Structure

- **Client:**
 - **src/components:** # Reusable components (Header, sidebar, chat etc.)
 - **src/pages:** # Page components
Dashboardpage, marketpage, portfolio page, alertspage.
 - **src/assets:** # Images, icons, and other static files
 - **src/redux:** # Redux store, actions, and reducers
 - **src/utlis:** # Utility functions and helpers
 - **App.js:** # Main application component
 - **index.js:** # Entry point
 - **Utilities:**
 - **api.js:** Handles API requests to the backend.
 - **auth.js:** Manages user authentication and token storage.
 - **hooks/usePlayer.js:** Custom hook for fetching real-time cryptocurrency data
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6. Running the Application

Frontend:

- To start the frontend server, run the following command in the client directory:
npm start
 - npm install ○ npx json-server ./db/db.json ○ npm run dev
 - The application will be available at <http://localhost:5174>
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7. Component Documentation

- **Key Components:**

- **Header:** Displays the navigation bar and search bar.
 - ✦ Props: `onSearch` (function to handle search queries).
- **MarketCard:** Display a cryptocurrency with its name, price, and percentage

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Props:

`Crypto`(object containing cryptocurrency details).

`OnClick`(function to handle selection).

- **PriceCard:** display a chart for price history of a selected cryptocurrency.
 - ✦ Props: `data`(historical price data).
 - `Timeframe`(selected time range).

- **Reusable Components:**

- **Button:** A customizable button component.
 - ✦ Props: `text`, `onClick`, `disabled`.
- **loader:** display a loading spinner for API calls.
- **Alert:** a notification components for price alerts.

8. State Management

- **Global State:**

The Redux store manages the following global states:

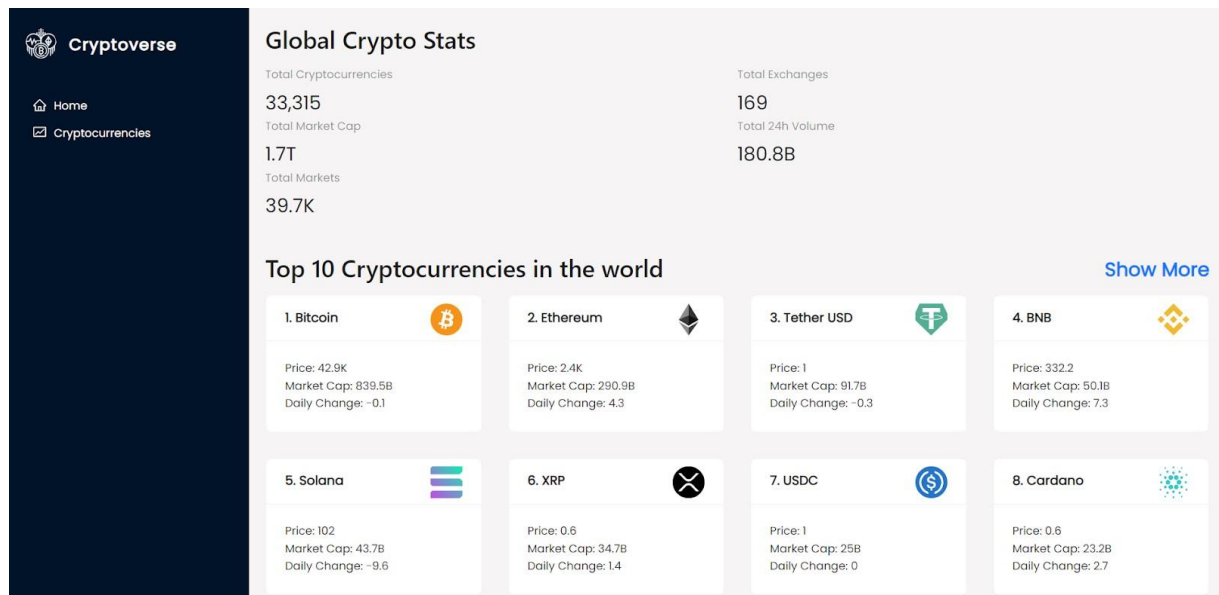
- **user:** Current authenticated user.
- **Portfolio:** user's cryptocurrency holdings, including coin quantity and values.
- **marketData:** live market prices, trading volume, and percentage changes for different cryptocurrencies.
- **transactions:** Records of buy/sell transactions performed by the user.

- **Local State:**

Local state is managed using React's `useState` hook within components. For example, the `SearchPage` component manages the search query input locally.

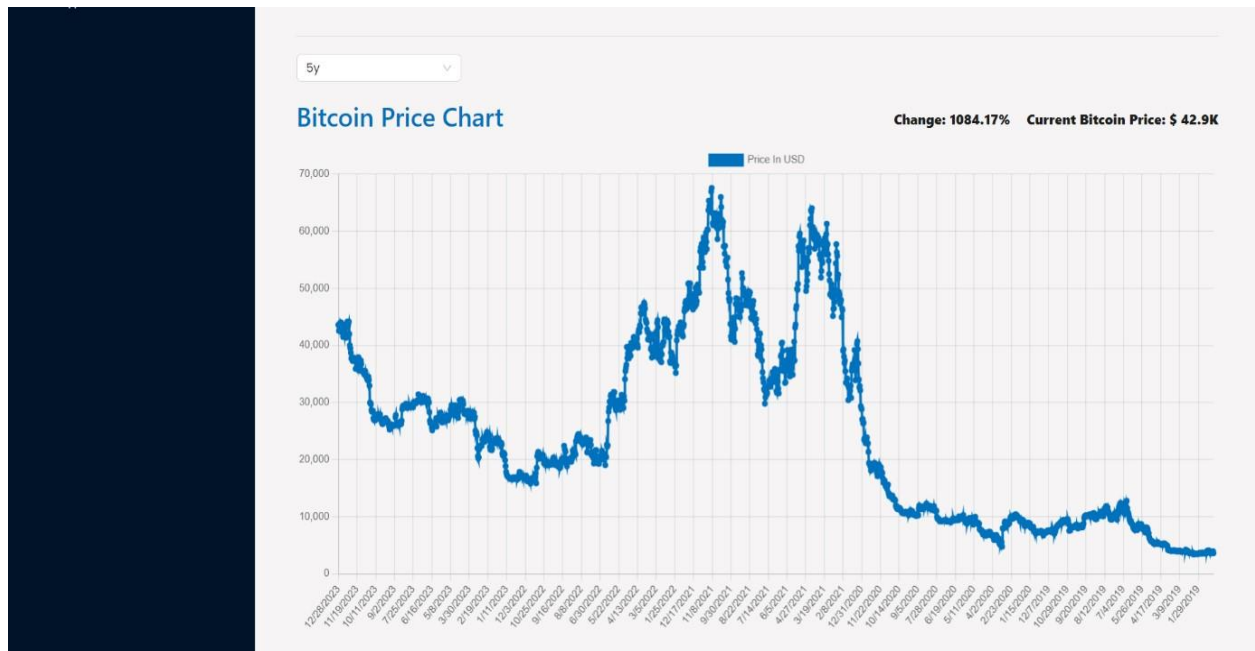
9. User Interface

Screenshots ○ **Home Page:** This page consists of stats of global crypto like total cryptocurrencies, total exchanges, market cap etc. Also consist of top 10



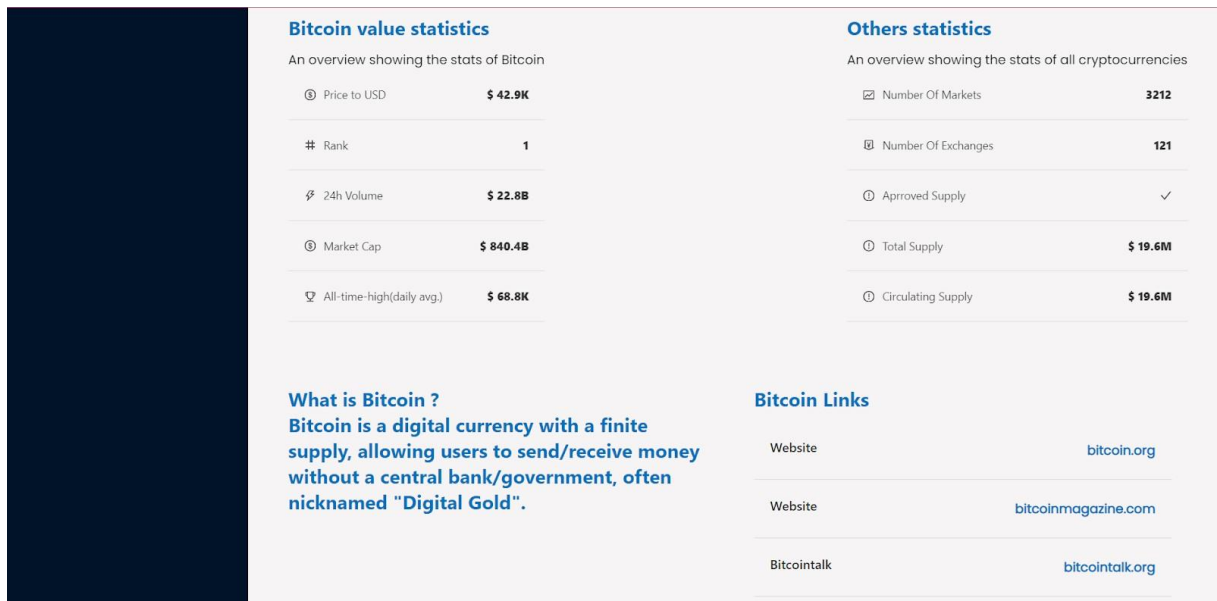
cryptocurrencies in the world.

Crypto currencies page : This page contains all cryptocurrencies which are currently in flow in the world. There is also a search feature where users can search and find out about their desired cryptocurrency.



Cryptoverse Home Cryptocurrencies		Search Cryptocurrency			
1. Bitcoin		2. Ethereum		3. Tether USD	
Price: 42.9K Market Cap: 839.7B Daily Change: -0.1		Price: 2.4K Market Cap: 291.5B Daily Change: 4.4		Price: 1 Market Cap: 91.6B Daily Change: -0.3	
5. Solana		6. XRP		7. USDC	
Price: 102.3 Market Cap: 43.8B Daily Change: -9.4		Price: 0.6 Market Cap: 34.8B Daily Change: 1.4		Price: 1 Market Cap: 24.9B Daily Change: -0	
9. Avalanche		10. Dogecoin		11. Polkadot	
Price: 41.1 Market Cap: 15B Daily Change: -7.7		Price: 0.1 Market Cap: 13.2B Daily Change: 0.4		Price: 8.6 Market Cap: 11.5B Daily Change: -3.2	
13. Chainlink		14. TRON		15. Wrapped liquid st	
				16. Wrapped Ether	

- **Crypto currency details page:** This page contains the line chart with data representation of price of cryptocurrencies. Also contains statistics and website links of cryptocurrencies.



- **CSS Frameworks/Libraries:**
The application uses **Styled-Components** for styling. This allows for modular and scoped CSS within components.
- **Theming:**
A custom theme is implemented using Styled-Components, with support for light and dark modes.

11. Testing

- **Testing Strategy:**
 - **Unit Testing:** Using **Jest** and **React Testing Library**.
 - **Integration Testing:** Is performed to ensure that components work together as expected.
 - **End-to-End Testing:** **Cypress** is used for end-to-end testing of user flows.
- **Code Coverage:**
 - Code coverage is monitored using Jest's built in coverage tool. The current coverage is 85%.

12. Screenshots or Demo

- **Demo Link:**
https://drive.google.com/file/d/1qAjZKAljBUvcUpd4G2icVotW8XRTJJYE/view?usp=drive_link
- **Screenshots:** See section 9 for UI screenshots.

13. Known Issues

- **Issue 1:** live prices updates may occasionally lag due to API rate limits.
- **Issue 2:** large historical data queries can slow down the performance of the analytics dashboard.

14. Future Enhancements

- **Future Features:**
 - Add support for user portfolios with multi-currency tracking.
 - Implement real-time websocket updates for live cryptocurrency price changes.
 - Add animations and transitions for a smoother user experience.

This documentation provides a comprehensive overview of the **cryptocurrency** dashboard project, including its architecture, setup instructions, and future plans.