Department of Information Technology School of Studies in Engineering and Technology B.Tech- VI Semester (Session 2021-22)

MINOR PROJECT REPORT

Project Title: - CRYPTOCURRENCY REACT APPLICATION

Submitted To:

1. Prof. Suhel Ahamed(Mentor)
2. Prof. Agnivesh Pandey(Project Incharge)

Submitted By:

1.Mithu Kumar Gupta(19107734)

2.Paramveer Kumar(19107743)

3.Akshay Kumar Sah(19107703)

GURU GHASIDAS VISHWAVIDYALAYA

CERTIFICATE

This is to certify that the project Report entitled “CRYPTOCURRENCY REACT APPLICATION” being submitted by (Mithu Kumar Gupta 19107734; Paramveer Kumar 19107743; Akshay Kumar Sah 19107703) in partial fulfillment for 6th Semester of Bachelor of Technology in Information Technology is a record of bonafide work carried out under my guidance and supervision. The results embodied in this project Report have not been submitted to any other University or Institute for the award of any Degree or any Diploma or any purpose whatsoever.

Head of the Department

Dr. Rohit Raja

Associate Professor & Head of Department of IT

GGV

Project Guide

Prof. Suhel Ahamed

Prof. Agnivesh Pandey

Department of IT

GGV

DECLARATION

We hereby declare that this main project entitled “CRYPTOCURRENCY REACT APPLICATION” is a bonafide work done by us and submitted to Department of Information Technology, Guru Ghasidas Vishwavidyalaya, in partial fulfillment for 6th semester of B. Tech in information technology is of our own and it is not submitted to any other university or has been published any time before.

Date:

Place:

Mithu Kumar Gupta (Roll.no: 19107734)

Paramveer Kumar (Roll.no: 19107743)

Akshay Kumar (Roll.no: 19107703)

ACKNOWLEDGEMENT

We would like to express our deep gratitude to our project guide **Prof. Suhel Ahamed**, Department of Information Technology, Guru Ghasidas University, for his guidance with unsurpassed knowledge and immense encouragement.

We are grateful to our project incharge **Prof. Agnivesh Pandey**, Department of Information Technology for providing us with the required facilities Time for the completion of the project work.

We are grateful to **Dr. Rohit Raja**, Head of Department of Information Technology For giving the Opportunity to make a Project in 6th Semester .

We are very much thankful to the All Faculty Members **Prof. Deepak kant Netam** , **Prof. Rajesh Mahule** ,**Prof Amit Kumar Khaskalam** , **Prof. Pankaj Chandra** , **Prof. Santosh Soni** , **Prof. Abhishek Jain** , **Prof. Sudha Satyen** , **Prof. Akanksha Gupta** , **Prof. Aradhana Soni** , **Prof. Amit Kumar Dewangan , Prof. Anand Prakash Rawal ,** for their encouragement and cooperation to carry out this work, their suggestions during reviews helped us in the accomplishment of our project. We would like to thank our Teammates for coordination Throughout the project period.

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Preface

The concept of cryptocurrency is a little hard to accept, but it is easy to use. It is considered difficult because it is entirely different from our conventional currencies that we people have been using since ages.Bitcoin was created in the wake of the 2008 global financial crisis to operate outside of governments, central banks and financial institutions.

This conceptual paper tries to study the different aspects of cryptocurrencies, starting with their history, types, its working, advantages and disadvantages, challenges and opportunities. The study also tries to analyze the legal status of Bitcoin in India.

Content of The Project

Overview : Chapter1 Explain Abstract of project, Brief Introduction About Cryptocurrency , Objective and expected outcome of the Application.

Requirement : Chapter 2 explains requirements of the hardware and software.

Tech Tools : Chapter 3 explains requirements of tech tools and its brief introduction.

Literature Review : Chapter 4 explains literature review about cryptocurrencies, types of cryptocurrency , about Bitcoin.

Proposed work : Chapter 5 explains Proposed work , what steps we have taken.

Result : Chapter 6 Shows Result of our Application.

Conclusion & Future Scope : Chapter 7 explains the conclusion of the project and future scope of the project.

Reference : On Chapter 8 will see reference of the project

CHAPTER 1

INTRODUCTION

1.1. ABSTRACT

The principal challenge was to develop the project on real-time data updates like the Live price of Cryptocurrency with the help of rapid APIs, blockchain Technology, and other technology. services like a news portal where users can see the latest popular news related to cryptocurrency and much more. From a few years onwards cryptocurrencies and Bitcoin grab a hot topic in the financial industry. Cryptocurrency is a digital or virtual or internet currency that uses cryptography for security. Cryptocurrency has created unmatched changes in the financial market having both positive and negative contributions. The concept of cryptocurrency is a little hard to accept, but it is easy to use. It is considered difficult because it is entirely different from our conventional currencies that we people have been using since ages.Bitcoin was created in the wake of the 2008 global financial crisis to operate outside of governments, central banks and financial institutions. Since then, Bitcoin's framework has challenged many regulators, as most of them struggled to find ways to bring it under control. This led to some countries banning it or making it illegal, while some others remained observant and the rest worked out ways to tax and regulate its operations. This conceptual paper tries to study the different aspects of cryptocurrencies, starting with their history, types, its working, advantages and disadvantages, challenges and opportunities. The study also tries to analyze the legal status of Bitcoin in India.

1.2. Brief Introduction About Cryptocurrency

Cryptocurrency is a digital or virtual or internet currency that uses cryptography for security. Cryptocurrency has created unmatched changes in the financial market having both positive and negative contributions.

The world of cryptocurrency is vast and exciting, but it can be a bit confusing or overwhelming when you are first getting started.A cryptocurrency is a digital asset or currency that is secured by cryptography, which makes it very difficult to counterfeit or double-spend. Bitcoin is the most well-known cryptocurrency, but there are over 10,000 on the market.

Many cryptocurrency assets are built on decentralized networks called blockchains, which are maintained by a network of computers around the world. A defining characteristic of a decentralized cryptocurrency is that it is usually not issued by a central authority, such as banks or governments, meaning that they are resistant, but not immune, to government manipulation and interference.

Bitcoin was the first cryptocurrency. Along with the innovative blockchain technology, Bitcoin paved the way for other cryptocurrencies, which aimed to provide services or solve specific problems.

Crypto is popular for a number of reasons, including the potential for huge returns on investment, low transaction fees, and being part of the future of technology.

The crypto market has a lot of inherent value, but it is also largely based on speculation, similar in some ways to the stock market and real estate.Nowadays there are many more cryptocurrencies in the market which we will see in later pages.

1.3. Objective

The Principal challenge was to develop the web Application through which People will Know The live price of Cryptocurrencies , daily changes , popular daily live news. This is feasible to Everyone those who is interested in cryptocurrencies and Cryptocoin trading. So Our Application Aware those people who want to know Cryptoworld.

1.4. Expected Outcome

The Expected Outcome of this Project is to Show Live Changes Regarding Cryptocurrency of Price of All Cryptocurrency , Daily Changes , Market Cap , Graph of Crypto according to Previous Day. This project Shows The Current Popular News , So that people would Update About Crypto market. More than hundred Cryptocoin Details will Showed . And all of cryptocoin have graphs with data**.**

CHAPTER 2

Hardware & Software Requirement

2.1. Hardware

P.C or Laptop and Good Speed of internet connectivity

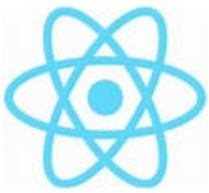
2.2. Software

- JavaScript (Programming Language)
- Node.js
- Typescript(Programming Language)
- React(JavaScript library)
- Rapid Api(Cryptocoin Api , crypto news Api)
- Redux, Redux-Saga , Jest, SVG,
- Ant Design(for UI design)
- Chart JS(for creating chart)
- VS code(Code Editor)

CHAPTER 3

Tech Stack






3.1. JavaScript

JavaScript (js) is a light-weight object-oriented programming language which is used by several websites for scripting the webpages. It is an interpreted, full-fledged programming language that enables dynamic interactivity on websites when applied to an HTML document. It was introduced in the year 1995 for adding programs to the webpages in the Netscape Navigator browser. Since then, it has been adopted by all other graphical web browsers. With JavaScript, users can build modern web applications to interact directly without reloading the page every time. The traditional website uses js to provide several forms of interactivity and simplicity.

Although, JavaScript has no connectivity with Java programming language. The name was suggested and provided in the times when Java was gaining popularity in the market. In addition to web browsers, databases such as CouchDB and MongoDB use JavaScript as their scripting and query language.

3.2. Node.Js

Node.js is a server-side platform built on Google Chrome's JavaScript Engine (V8 Engine). Node.js was developed by Ryan Dahl in 2009 and its latest version is v0.10.36.

Node.js is an open source, cross-platform runtime environment for developing server-side and networking applications. Node.js applications are written in JavaScript, and can be run within the Node.js runtime on OS X, Microsoft Windows, and Linux. Node.js also provides a rich library of various JavaScript modules which simplifies the development of web applications using Node.js to a great extent.

3.3. TypeScript

TypeScript is an open-source pure object-oriented programming language. It is a strongly typed superset of JavaScript which compiles to plain JavaScript. It contains all elements of JavaScript. It is a language designed for large-scale JavaScript application development, which can be executed on any browser, any Host, and any Operating System. TypeScript is a language as well as a set of tools. TypeScript is the ES6 version of JavaScript with some additional features.

3.4. React

React is a declarative, efficient, and flexible JavaScript library for building user interfaces. It lets you compose complex UIs from small and isolated pieces of code called “components”. It is an open source, JavaScript library for developing user interface (UI) in web applications. React is developed and released by Facebook. Facebook is continuously working on the *React* library and enhancing it by fixing bugs and introducing new features.

3.5. Ant Design

Ant Design is a React UI library that contains easy-to-use components that are useful for building interactive user interfaces. It is very easy to use as well as integrate. Ant Design is one of the smart options to design web applications using react. It provides us with high-quality components which can be used with ease.

3.6. Redux

Redux is a state managing library used in JavaScript apps. It simply manages the state of your application or in other words, it is used to manage the data of the application. It is used with a library like React.

3.7. Rapid API

RapidAPI is an API Hub that enables over 3 million developers to find, manage, and connect to APIs. RapidAPI lets developers manage all API integrations from one place and gives real-time performance metrics. RapidAPI was founded in 2014 and is headquartered in San Francisco, California.

3.8. Chart Js

Chart.js is an open source JavaScript library on Github that allows you to draw different types of charts by using the HTML5 canvas element. Since it uses canvas, you have to include a polyfill to support older browsers.

3.9. VS CODE

Visual Studio Code, also commonly referred to as VS Code, is a source-code editor made by Microsoft for Windows, Linux and macOS. Features include support for debugging, syntax highlighting, intelligent code completion, snippets, code refactoring, and embedded Git. Users can change the theme, keyboard shortcuts, preferences, and install extensions that add additional functionality.

CHAPTER 4

Literature Review

4.1. What is Cryptocurrency

A cryptocurrency is a digital asset or currency that is secured by cryptography, which makes it very difficult to counterfeit or double-spend. Bitcoin is the most well-known cryptocurrency, but there are over 10,000 on the market. A defining characteristic of a decentralized cryptocurrency is that it is usually not issued by a central authority, such as banks or governments, meaning that they are resistant, but not immune, to government manipulation and interference.

4.2. Types of Cryptocurrency

It is designed to work as a medium of exchange. The number of cryptocurrencies available over the internet is over 1600 and growing. A new cryptocurrency can be created at any time. By market capitalization, Bitcoin is currently the largest blockchain network, followed by Ripple, Ethereum and Litecoin .

4.2.1. Bitcoin (BTC)

One of the most commonly known currencies, Bitcoin is considered an original cryptocurrency. It was created in 2009 as an open-source software.Using Blockchain Technology,Bitcoin allows users to make transparent peer-to-peer transactions. All users can view these transactions; however, they are secured through the algorithm within the blockchain. While everyone can see the transaction, only the owner of that Bitcoin can decrypt it with a “private key” that is given to each owner. Unlike a bank, there is no central authority figure in Bitcoin. Bitcoin users control the sending and receiving of money, which allows for anonymous transactions to take place throughout the world.

4.2.2. Litecoin (LTC)

Litecoin was launched in October 2011 as an alternative to Bitcoin. Like other cryptocurrencies, Litecoin is a peer-to-peer cryptocurrency and open source-source software project released under the MIT/X11 license. Its creation and transfer is based on an open source cryptographic protocol and it is completely decentralized.Litecoin is different in some ways from Bitcoin. A few differences between these digital currencies are: The Litecoin network aims to process a block every 2.5 minutes but Bitcoin takes 10 minutes. This allows Litecoin to have faster transaction confirmation. The coin limit for Bitcoin is 21 million and Litecoin is 84 million. Experts say that Litecoin is more complicated to create and more expensive to produce because it uses a different algorithm called script and FPGA (Field Programmable Gate Array)and ASIC (Application Specific Integrated Circuit) devices made for mining .

4.2.3. Ethereum (ETH)

Ethereum is a type of cryptocurrency which was proposed in late 2013 by VitalikButerin, a crypto currency researcher and programmer. It was initially released in July 2015. It is an open source platform based on blockchain technology. While tracking ownership of digital currency transactions, Ethereum Blockchain also focuses on running the programming code of any decentralized application, allowing it to be used by application developers to pay for transaction fees and services on the Ethereum network.

4.2.4. Ripple (XRP)

Ripple is a real-time gross settlement system, currency exchange and remittance network created by Ripple Labs Incorporation, a US based company. Ripple was released in 2012 and acts as both a cryptocurrency and a digital payment network for financial transactions. It’s a global settlement network that is designed to create a fast, secure and low-cost method of transferring money. Ripple allows for any type of currency to be exchanged, from USD and Bitcoin to gold and EUR and connects to banks, unlike other currencies. Ripple also differs from other types of digital currencies.

4.2.5. Bitcoin Cash

Bitcoin Cash is a type of digital currency that was created to improve certain features of Bitcoin. Bitcoin Cash increased the size of blocks, allowing more transactions to be processed faster.

4.2.6. Ethereum Classic

Ethereum Classic is a version of the Ethereum Blockchain. It runs smart contracts on a similar decentralized platform. Smart contracts are applications that run exactly as programmed without any possibility of downtime, censorship, fraud or third-party interface. Like Ethereum, it provides a value token called “classic ether,” which is used to pay users for products or services.

4.3. Introduction to Bitcoin

One of the most popular cryptocurrency wallet using is Bitcoin which was invented by an unknown person or group of people using the name Satoshi Nakamoto in 2008.Bitcoin is a cryptocurrency, a form of electronic cash.It is a decentralized digital currency that can be sent from user to user on the peer-to-peer Bitcoin network without the need for intermediaries, where transactions happen through a public ledger called blockchain, handling users’ data anonymously. Ten years since its introduction, Bitcoin is today the most widely used and accepted digital currency.

4.3.1. Features of Bitcoin

The Bitcoin protocol is not just about sending money from one person to another. It has many features that distinguish it from other cryptocurrencies. Control against fraud: It provides users with top level of protection against most common frauds like chargebacks or unwanted charges. Because of the Security Users can encrypt their wallet and have complete control over their money. So there is no chance of any type of Fraud. Globally accessible:Bitcoin allows any bank, business or individual to securely send and receive payments anywhere at any time in a few minutes.

4.3.2. Advantages of Bitcoin

Ivaschenko(2016),provides the advantages and disadvantages of Bitcoin as stated below.

1. Anonymity. With a bank, the people must give their ID when applying for an account. With Bitcoin, anyone anywhere in the world can send money to each other. There is no KYC (KnowYour-Customer) process to open a Bitcoin wallet. It is completely anonymous and at the same time fully transparent. Any company can create an infinite number of Bitcoin addresses without reference to name, address or any other information.

2. Peer-to-peer cryptocurrency network – in such networks there is no master server, which is responsible for all operations. Exchange of information (in this case — money) is between 2-3 or more software clients. All installed by users program-wallets are part of a Bitcoin network. Each client stores a record of all committed transactions and the number of Bitcoins in each wallet. Transactions are made by hundreds of distributed servers. Neither banks or taxes, nor governments can control the exchange of money between.

3. No inflation – the maximum number of coins is strictly limited by 21 million Bitcoins. As there are neither political forces nor corporations able to change this order, there is no possibility for development of inflation in the system.

4. Open code for mining crypto currency – BTC applies the same algorithms that are used in online banking. The only difference of Internet banking is the disclosure of information about the users. All information about the transaction in the BTC network is shared (how, when), but there is no data about the recipient or the sender of the coins (there is no access to the personal information of the owner's wallet).

5. Unlimited possibilities of transaction – each of the wallet holders can pay to anyone, anywhere and any amount. The transaction cannot be controlled or prevented, so you can make transfers anywhere in the world wherever another user with a Bitcoin wallet is located.

6. No boundaries. Payments made in this system are impossible to cancel. The coins cannot be faked, copied or spent twice. These capabilities guarantee the integrity of the entire system. Every month the number of online shops, resources, and companies accepting BTC is expanding.

7. Low BTC operation cost. The BTC cryptocurrency works as physical cash, combining the functions of e-commerce. No need to pay commission and fees to banks and other organizations. The main part of such a process is mathematics, which does not need money. The commission fee in this system is lower than in any other. It amounts to 0.1% of the transaction amount. The operation interest charges go to BTC miner’s wallets.

8. Decentralization. There is no central control authority in the network, the network is distributed to all participants, each computer mining Bitcoins is a member of this system.

4.3.3. Disadvantages of Bitcoin

1. Bitcoin transactions are irreversible: Conventional payment methods such as a credit card charge, bank draft, personal check, or wire transfer all benefit from being insured and reversible by the banks involved. In the case of Bitcoins, every time Bitcoins change hands and change wallets, the result is final. Simultaneously, there is no insurance protection for your Bitcoin wallet. If you lose your wallet's hard drive data or even your wallet password, your wallet's contents are gone forever.

2. Cannot be Frozen or Audited :Bitcoin wallets cannot be seized or frozen or audited by banks and law enforcement. Bitcoin wallets cannot have spending and withdrawal limits imposed on them. Nobody but the owner of the Bitcoin wallet decides how the wealth is managed.

3. Bitcoin is not very easy to use : Private keys, public keys, opening and using a wallet etc. are not very easy for people who aren’t confident using computers. When we want to send a payment to someone, we have to type a long set of numbers and letters (their

public key) into the computer.Bitcoin needs to become easy to use so that everyone in the world can use it, just like browsing the internet

4. Technical weakness — time delay in confirmation: Bitcoins can be double-spent in some rare instances during the confirmation interval. Because Bitcoins travel peer-to-peer, it takes several seconds for a transaction to be confirmed across the P2P swarm of computers. During these few seconds, a dishonest person who employs fast clicking can submit a second payment of the same Bitcoins to a different recipient. While the system eventually catches the double-spending and negates the dishonest second transaction, if the second recipient transfers goods to the dishonest buyer before receiving confirmation of the dishonest transaction, then that second recipient loses both the payment and the goods.

4.3.4. OPPORTUNITIES OF BITCOIN IN INDIA

• Entrepreneurs within the country are seeing this as a natural opportunity for the proliferation of Bitcoin and other cryptocurrencies within the country. It’s reported that India currently has around 30,000 Bitcoin owners in the country, and that number is expected to grow.

• For consumers is a payment system which does not require to provide private credentials

• To marketers it is away to save transaction cost

• For emigrants it is an instrument to send remittances without charges.

4.3.5. CHALLENGES OF BITCOIN IN INDIA

GovernmentRegulation: The Indian government's stand towards Bitcoin is the prime challenge for its growth. The future of cryptocurrency is doubtful in India for now. Currently in 2019 RBI announced that cryptocurrency will not be considered as a legal tender. Because it is completely decentralized.

Security Threat : Hackers and malicious users can create as much as they want from virtual currency if they break the system and know the method of virtual currency creations. This will lead to the ability to create fake virtual currency or steal virtual currency by just changing the accounts balances.As per studies, the cryptocurrency adoption of the cryptocurrency market has increased by over 880% between June 2020 to June 2021 worldwide. If we talk about the statistics in India then you will be surprised to know that within a year the nation has experienced a growth of about 400%.

In India, around 15 million people have made an investment in private cryptocurrency holdings. There is a fascination in young people about cryptocurrency adoption. As per Finders, the young generation belongs to the age group of 18 to 34 that consists of more than 40% of users throughout the world.

CHAPTER 5
Proposed Work

1. First we make a Rough UI design Using Canva .
2. Implement React , JavaScript , Ant Design , CSS , HTML , To make UI Design to a Home Page Of Application which is shown below.

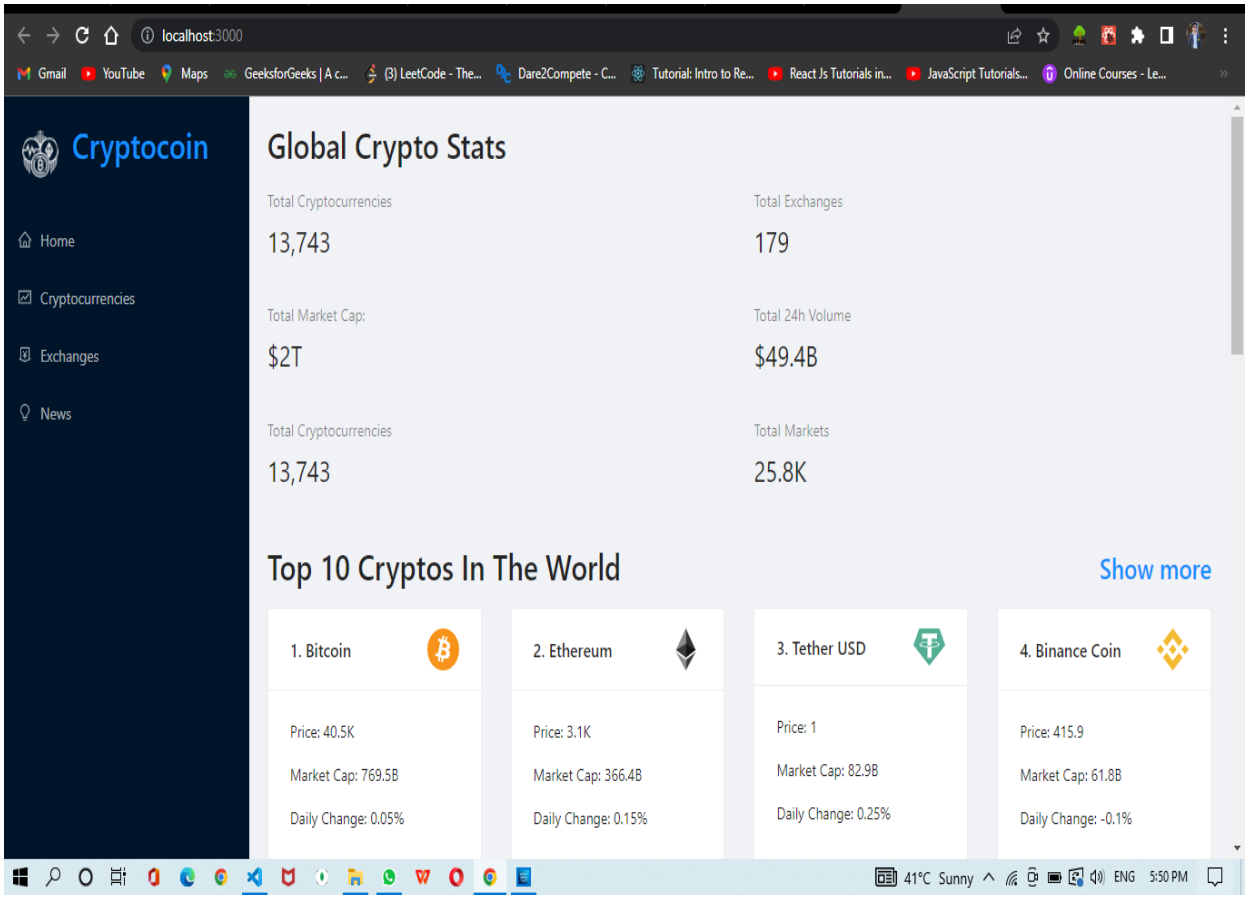


Fig.5.1. HomePage

This is the HomePage of Our Application. Where Four Components Home, Cryptocurrencies , Exchanges , News have Shown and also on the top , Total Cryptocurrencies , Total Exchanges , Total Market Cap , Top 10 Cryptos in the world.

3. I have created the Graph of Bitcoin Price using chart JS software which is shown below.

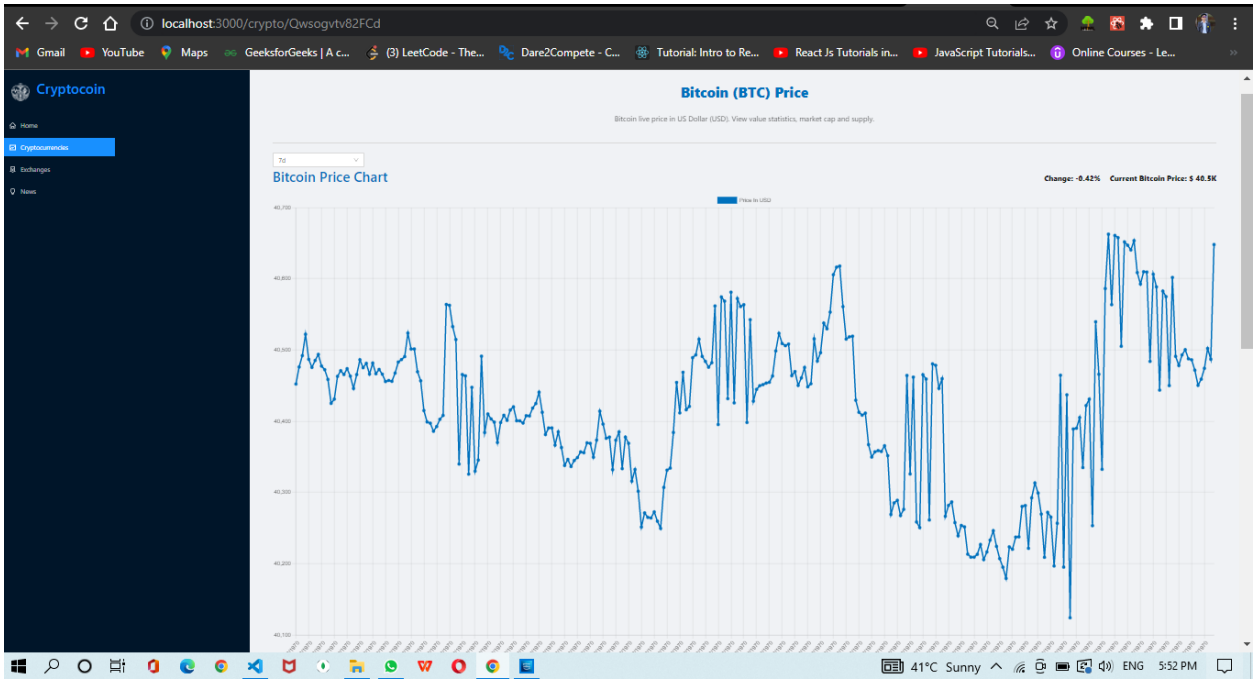


fig. 5.2. Bitcoin Price Graph

This is the Bitcoin Price Graph of our Application where we can see on the top we have to choose the time option(3h, 24h, 7d , 30d, 1y , 5y) then we will see the price graph of Bitcoin.

4. Fetch data of More than hundred of cryptocoin and crypto news using Rapid APIs

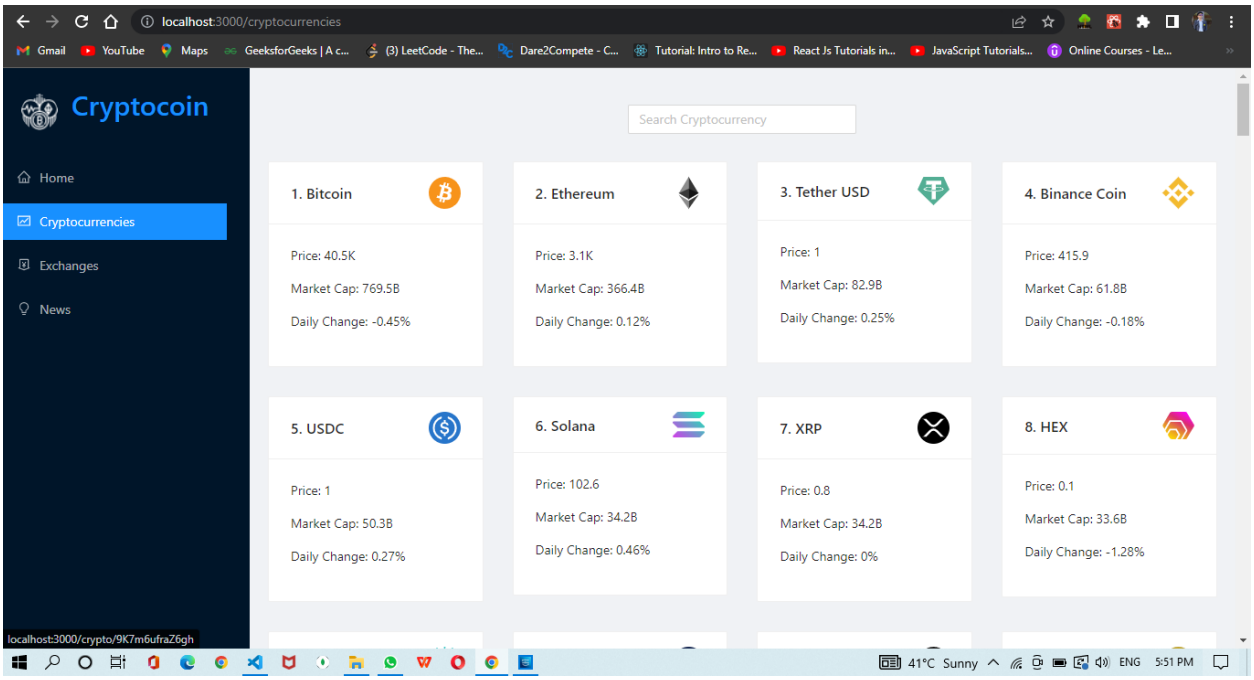


fig 5.3. Cryptocurrencies.

This is the cryptocurrencies Page of our Application where hundreds of Cryptocurrencies are shown. On the top we have a search option so that I can search any cryptocurrencies without scrolling the whole page. Also can see Price , Market Cap, and Daily Changes.

CHAPTER 6

Result

The Challenges Which I have Given to Solve the Problem of Cryptoworld people that is they haven't proper knowledge of Cryptocurrencies , current market price ,news.
This Application Solves those problems without any cost. Because it is free of cost.

Some Screenshots of Our Application is here

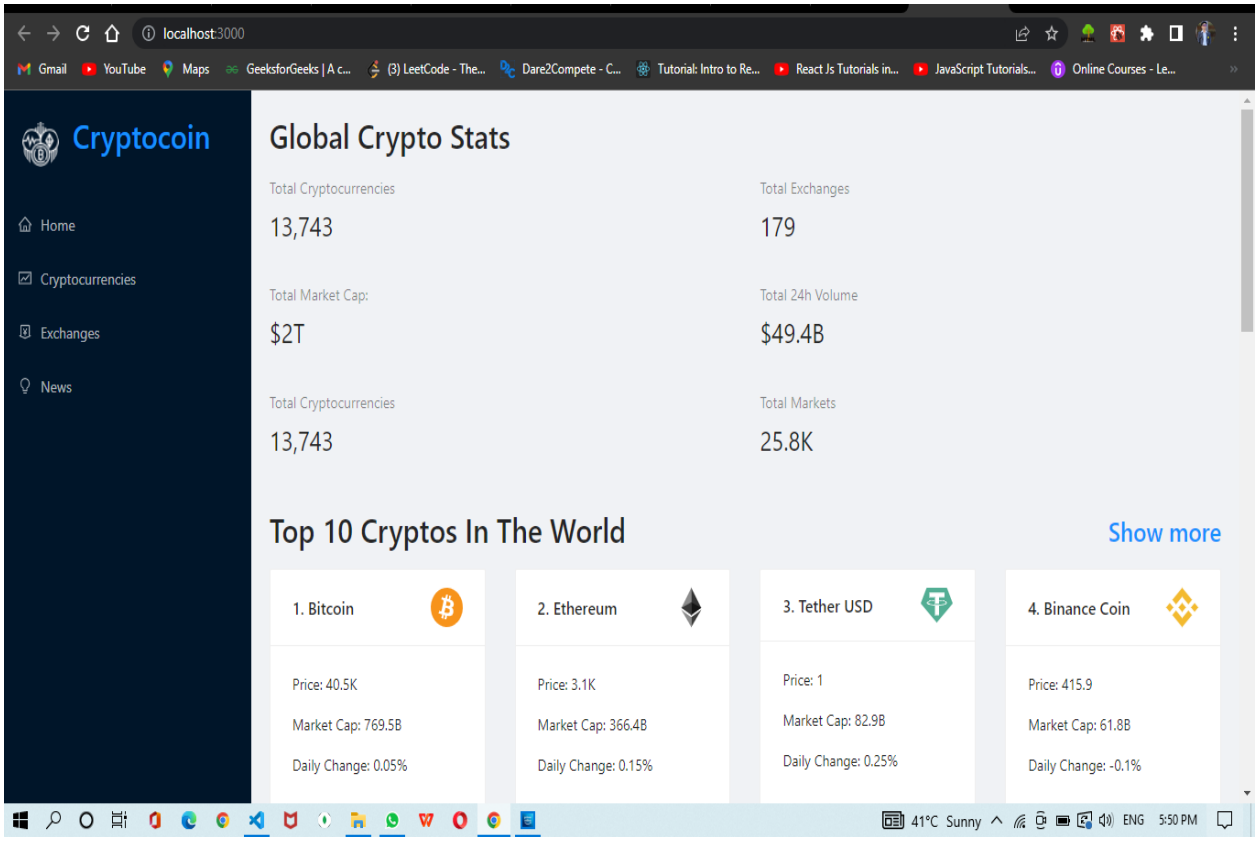


Fig 6.1. HomePage

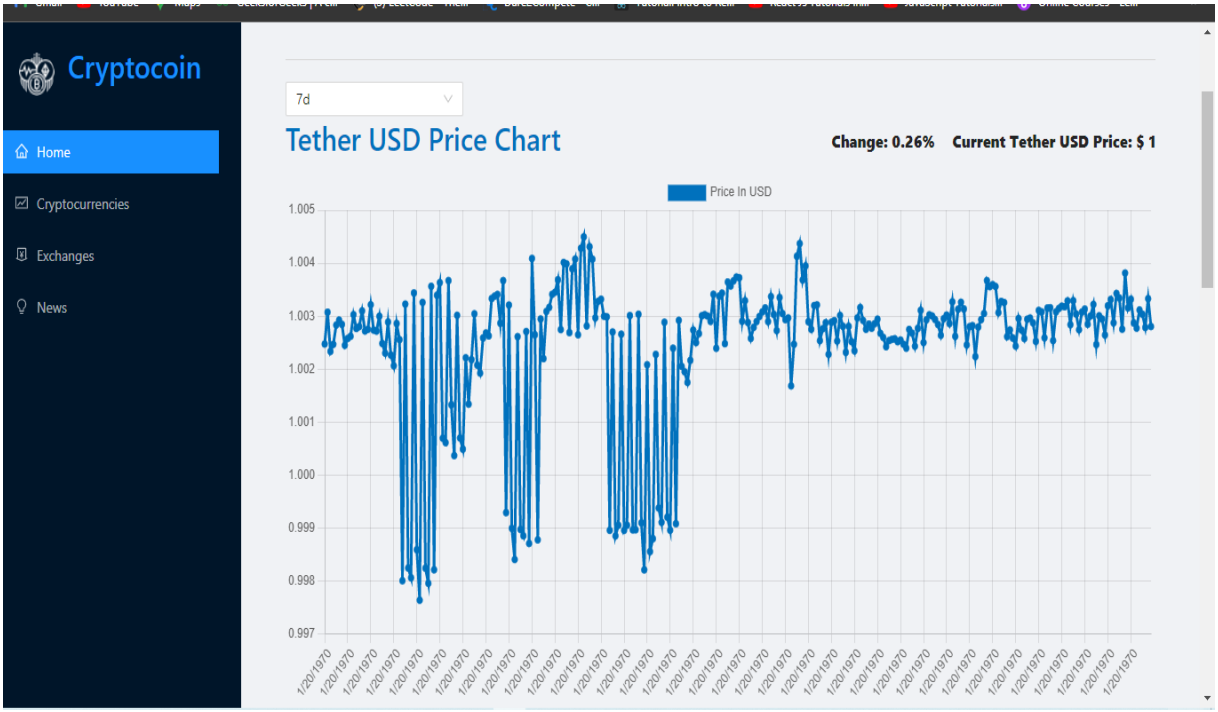


Fig 6.2. Tether USD Price Chart

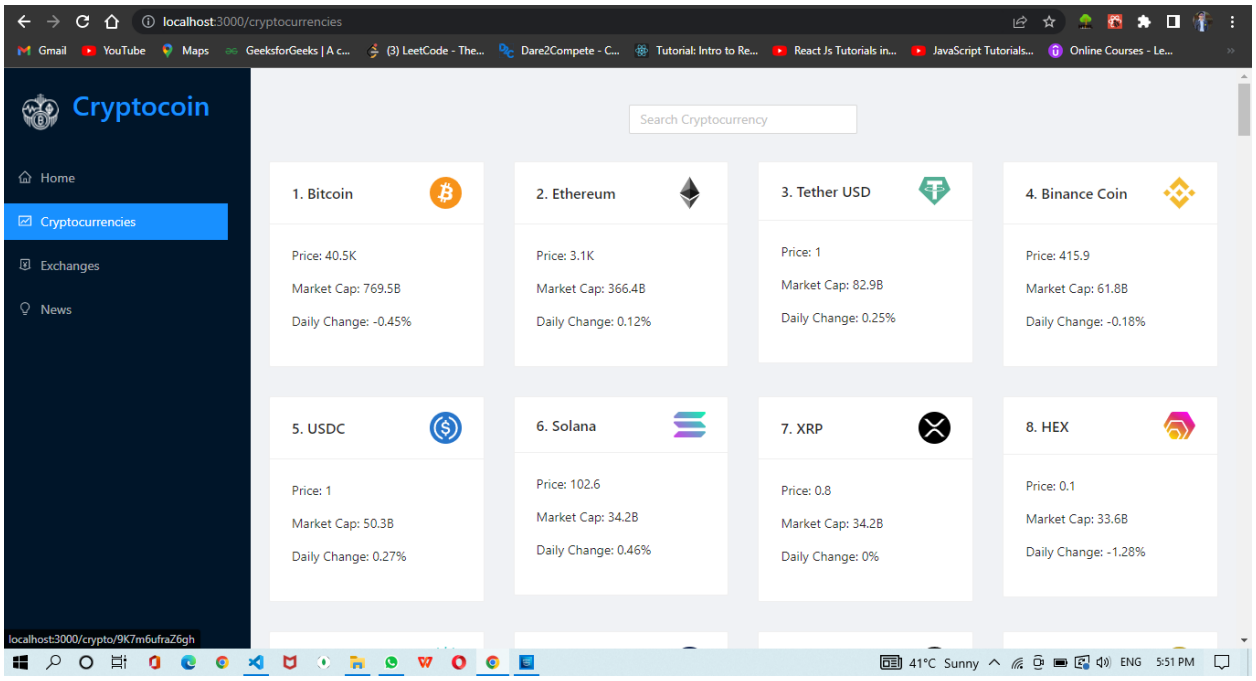


Fig 6.2. All Cryptocurrencies

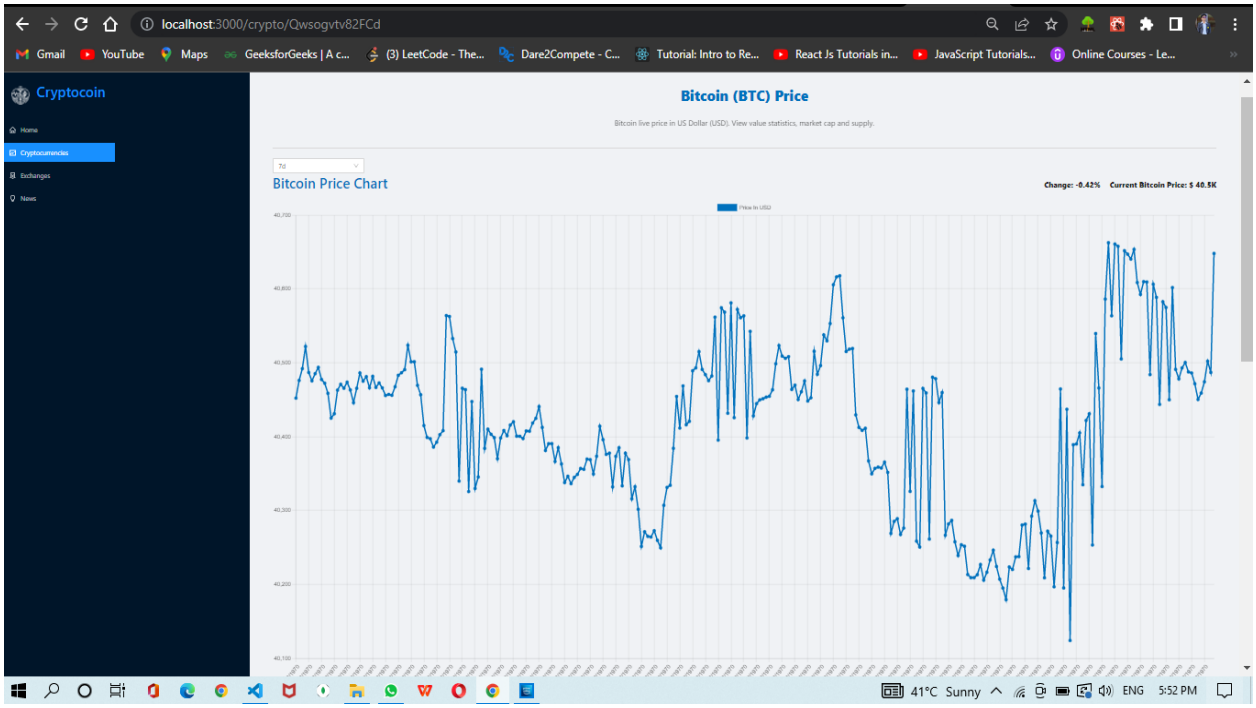


Fig 6.3. Bitcoin Price Graph

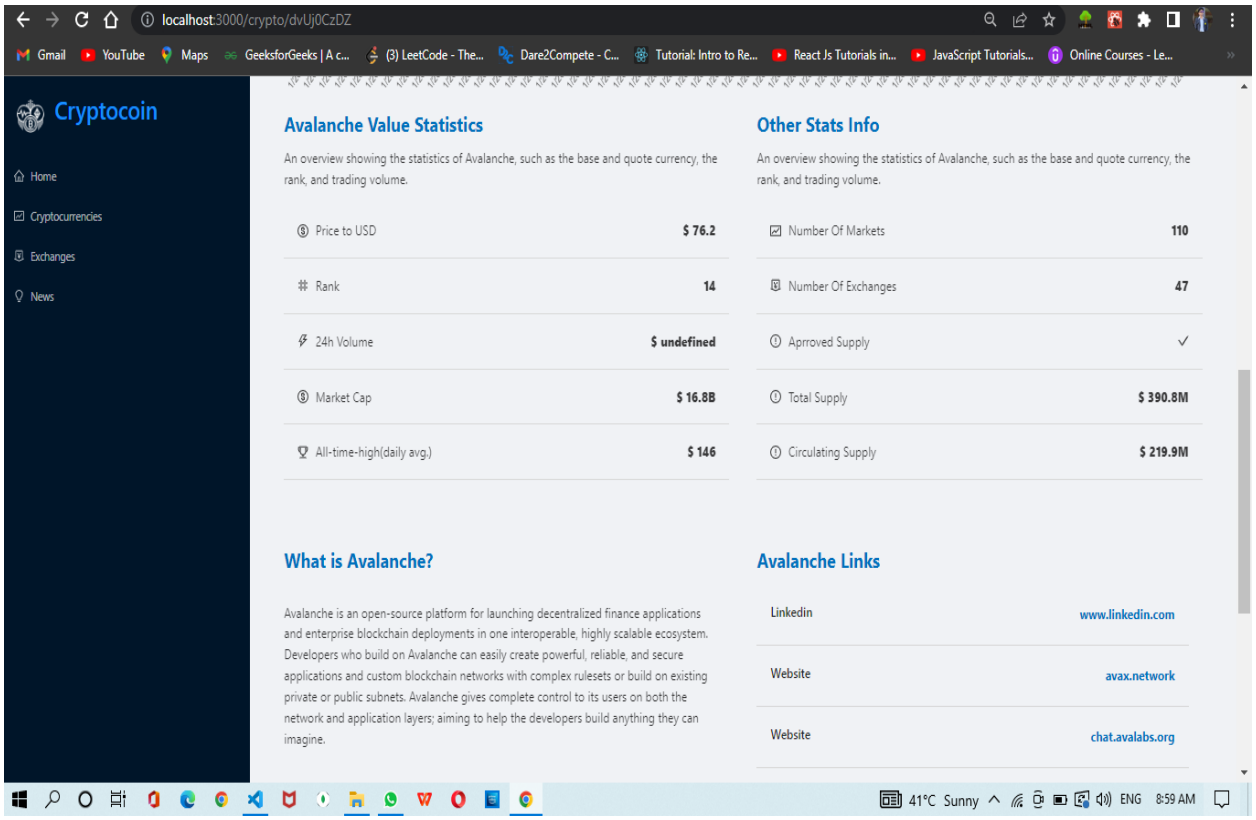


Fig 6.4. Avalanche Graph

Fig 6.5.

This Figure Explain the Price Graph of Ethereum Cryptocurrency. When we click on Ethereum . Also We can see the past few days or few months or few years graphs.

CHAPTER 7
Conclusion & Future Scope

7.1. Future Scope

Some economic analysts predict a big change in crypto is forthcoming as institutional money enters the market.3 Moreover, there is the possibility that crypto will be floated on the Nasdaq, which would further add credibility to blockchain and its uses as an alternative to conventional currencies.4 Some predict that all that crypto needs is a verified exchange traded fund (ETF).5 An ETF would definitely make it easier for people to invest in Bitcoin, but there still needs to be the demand to want to invest in crypto, which might not automatically be generated with a fund**.**

- We Can Use Blockchain Technology in our project .
- We can Add Cryptocurrency Transaction Facility to users.
- We will also implement a Database.

7.2. Conclusion

The Results of the Project are very useful for Crypto world People . So this is feasible for most people . This doesn’t require too much cost.

Cryptocurrency, especially Bitcoin, offers a new, effective and attractive model of payment methods that can boost companies and operators revenues. It also provides alternative methods of payment, apart from real money, that enable users to make financial activities such as buying, selling, transferring and exchanging easily. Cryptocurrency can bring more positive changes to the e-Business and e-Payment sector. However cryptocurrency doesn’t get that much of trust yet. Many concerns, challenges and issues are existing in many cryptocurrency platforms. Until cryptocurrency is being well regulated and controlled, users need to take extra precautions of using such virtual money. So the lack of legislation is considered as the main concern in cryptocurrency systems. The silence of the RBI on the regulatory status of Bitcoins may prove to be damaging. An industry has grown around Bitcoins in India- traders, exchanges and merchants who accept payments in Bitcoins. Bitcoins have already gained wide acceptance around the world- hence banning them would not be an option in India. Instead, this industry would need to be regulated. The sooner this is done, the better

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