CRYPTO CURRENCY TRACKER

Mini Project submitted in partial fulfillment of the requirement for the award of the degree of

BACHELOR OF TECHNOLOGY
IN
COMPUTER SCIENCE AND ENGINEERING

Under the esteemed guidance of

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Department of Computer Science and Engineering
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Geethanjali College of Engineering and Technology
(UGC Autonomous)
(Affiliated to J.N.T.U.H, Approved by AICTE, New Delhi)
Cheeryal (V), Keesara (M), Medchal.Dist.-501 301.

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CERTIFICATE

This is to certify that the B.Tech Main Project report entitled **" CRYPTO CURRENCY TRACKER "** is a bonafide work done by BATHULA SREENU **(19R11A0598)**, BETHI VISHWAMBHAR **(19R11A0599)**, BHOOPALAM KUSHAL **(19R11A05A0)**, in partial fulfillment of the requirement of the award for the degree of Bachelor of Technology in **"Computer Science and Engineering"** from Jawaharlal Nehru Technological University, Hyderabad during the year 2022-2023.

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DECLARATION BY THE CANDIDATE

We, **BATHULA SREENU , BETHI VISHWAMBHAR , BHOOPALAM KUSHAL ,** bearing Roll Nos. **19R11A0598**, **19R11A0599**, **19R11A05A0**, hereby declare that the project report entitled **"CRYPTO CURRENCY TRACKER"** is done under the guidance of **Miss A. Abhilasha** , **Assistant Professor**, Department of Computer Science and Engineering, Geethanjali College of Engineering and Technology, is submitted in partial fulfillment of the requirements for the award of the degree of **Bachelor of Technology in Computer Science and Engineering**.

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With regards,

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ABSTRACT

Crypto currency is typically decentralized digital currency designed to be used over the internet (digitally). Crypto Currency Tracker is a beginner friendly where we can find all the trending coins such as (ETH, HUR, BTC, DOGE, BNB, SOL, XRP, ADA, etc.) and also the there is a list of coins which are sorted according to the Market Capital. We can see the Bit coin price either to Indian Rupees (INR) or to US Dollars (USD). If we want to know about a particular coin just a click on it then we can get the details such as (Rank, Current Price, Market Capital) and with the help of graph we can know the price of a particular coin in last 24 hours or last 30 days or last 3 months.

LIST OF FIGURES

LIST OF ABBREVIATIONS

S. No	Abbreviations	Full Form
1	UML	Unified Modelling Language
2	CT	Crypto Tracker

LIST OF IMAGES

TABLE OF CONTENTS

1.INTRODUCTION

1.1 ABOUT THE PROJECT:

Cryptocurrency is a currency and hence it is an asset. Therefore, cryptocurrency transactions are subject to tax like any other asset or currency. Cryptocurrency transaction may attract capital gain tax, income tax, transaction tax, and wealth tax. Even if cryptocurrency transaction is void and illegal, the tax law is empowered to charge taxes on such transactions.

Cryptocurrency may be considered as medium of exchange, negotiable instrument, property, and subject of the contract. Depending upon the transaction and power of legislation to tax such transaction, tax incidences are pertinent for cryptocurrency.

Crypto currency is typically decentralized digital currency designed to be used over the internet (digitally). Crypto Currency Tracker is a beginner friendly where we can find all the trending coins such as (ETH, HUR, BTC, DOGE, BNB, SOL, XRP, ADA, etc.) and also the there is a list of coins which are sorted according to the Market Capital. We can see the Bit coin price either to Indian Rupees (INR) or to US Dollars (USD). If we want to know about a particular coin just a click on it then we can get the details such as (Rank, Current Price, Market Capital) and with the help of graph we can know the price of a particular coin in last 24 hours or last 30 days or last 3 months.

1.2 OBJECTIVES

1.2.1 Admin

1.2.2. User

1.2.1 Admin Module

Admin is the super user of the website who can manage everything on the website. Admin can log in through the login page

a. Dashboard: In this section, the admin can see all detail in brief like the total, assigned and the sample collected and completed tests.

b. List of Coins: In this section, the user can see all the coins like BTC, ADA, ETH, DOGE, HUR, SOL,etc.

c. Rank: In this section, the user can see the Rank of that particular Crypto coin.

d. Current Price: In this section, the user can see the Current Price of that particular Crypto coin.

e. Market Capital: In this section, the user can see the Market Capital of that particular Crypto coin.

User Module

a.User can visit the application through a URL.

b.Watchlist: In this section, the user can add the coins into his account.

c.Login/Signup: In this section, the user can create an account and can login through the web application.

d.Search Box: Here the user can search for the crypto coins which are trending all around the world.

2.SYSTEM ANALYSIS

2.1 Existing System

No doubt in most of the apps there are different trending bit coins where we can see the details of a particular coin in the form of its Rank, Current Price, Market Capital and we can see the growth of a particular coin in the form of a graph.

DISADVANTAGES

a.The only INR here is FIAT currency and no other currencies are available on the site.

b.Customers would need verification to get higher FIAT values.

2.2 Proposed System

Here, we are also going to provide all the trending bit coins all around the globe where the coins will be sorted according to the Market Capital. And if we want to know about a particular coin in detail simply just click on it then it shows (rank, price, Market Capital) along with that there will be a graph where we can see the growth of a coins in last 24hrs, last 30 days and last 3 months. Apart from this we are using firebase has a backend as it is most secure and reliable which is owned by google and the data will be stored in the provided Google servers.

ADVANTAGES

a.Availability of a wide range of coins for trading.

b.24-hour support, users from different countries do not have to worry about the time zone.

2.2.1 Details

Cryptocurrency, sometimes called crypto-currency or crypto, is any form of currency that exists digitally or virtually and uses cryptography to secure transactions. Cryptocurrencies don't have a central issuing or regulating authority, instead using a decentralized system to record transactions and issue new units. Unlike traditional fiat currencies controlled by national governments, cryptocurrencies can circulate without a monetary authority such as a central bank.

2.2.2 Ethics

a.Cryptocurrencies are not accountable to a central authority.

b.The lack of regulation and an accountable central authority is arguably one of the most significant ethical concerns for governments and scholars on cryptocurrencies.

c.Comply with laws and regulations.

d.Keep important information confidential.

e.Professional and responsible management.

f.Measure more than just price or cost.

g.Serve the public by having their interests and well-being in mind.

2.3 Scope of the Project

No doubt in most of the apps there are different trending bit coins where we can see the details of a particular coin in the form of its Rank, Current Price, Market Capital and we can see the growth of a particular coin in the form of a graph. Here, we are also going to provide all the trending bit coins all around the globe where the coins will be sorted according to the Market Capital. And if we want to know about a particular coin in detail simply just click on it then it shows (rank, price, Market Capital) along with that there will be a graph where we can see the growth of a coins in last 24hrs, last 30 days and last 3 months.

Advantages:

a.Easy, user friendly GUI.
b.Allows for faster service.
c.Easy retrieval or data.
d.Graphical Historical chart.

2.4 System Configuration

2.4.1 HARDWARE REQUIREMENTS:

a.PROCESSOR: Any Quadcore Processor

b.RAM: 8GB

2.4.2 SOFTWARE REQUIREMENTS:

a.Operating System: Windows 7 or later, macOS and Linux.

b.Front End: CSS, JavaScript, ReactJS, Material UI Theming.

c.Back End: FireBase(by GOOGLE)

2.5 Client Side:

Web Browser	Any browser
Operating System	Any operating system

2.6 Server Side:

Web Server	ReactJS
Server-side language	JavaScript
Database server	FireBase
Web browser	Any Browser
Operating system	Any Operating System

3.LITERATURE OVERVIEW

3.1 PROJECT LITERATURE

Literature survey is the most important step in software development process. Before developing the tool, it is necessary to determine the time factor, economy and company strength. Once these things are satisfied, then next step is to determine which operating system and language can be used for developing the tool. Once the programmers start building the tool the programmers need lot of external support. This support can be obtained from senior programmers, from book or from websites.

In some of the applications like CoinDcx, WazirX, Binance, PayPal and CoinSwitch the user has to login into that particular application to know the information about all the trending Cryptocurrencies and also information like Rank of the coin, Current price of the coin, Market Capital of the coin, to track the growth of the coin with the help of graph. So, for that we have developed a user-friendly web application where user need not login to know the above-mentioned information.

As Technology is growing rapidly, we are also moving to a technical world where everything we want to be online. So, with the help of this project, we are bringing the use of technology in the field of Digital currencies where users can avail all the coin's information at one destination.

3.2.1 ReactJS

ReactJS is a declarative, efficient, and flexible JavaScript library for building reusable UI components. It is an open-source, component-based front-end library responsible only for the view layer of the application. A ReactJS application is made up of multiple components, each component responsible for outputting a small, reusable piece of HTML code.

3.2.2 JavaScript

JavaScript helps the users to build modern web applications to interact directly without reloading the page every time. JavaScript is commonly used to dynamically modify HTML and CSS to update a user interface by the DOM API. It is mainly used in web applications. JavaScript helps us to execute complex actions and also enables the interaction of websites with visitors. Using JavaScript, it is also possible to load the content in a document without reloading the webpage.

3.2.2 FireBase

Google Firebase is a Google-backed application development software that enables developers to develop iOS, Android and Web apps. Firebase provides tools for tracking analytics, reporting and fixing app crashes, creating marketing and product experiment. Firebase is a product of Google which helps developers to build, manage, and grow their apps easily. It helps developers to build their apps faster and in a more secure way. No programming is required on the firebase side which makes it easy to use its features more efficiently. It provides services to android, iOS, web, and unity. It provides cloud storage. It uses NoSQL for the database for the storage of data. Firebase Authentication service provides easy to use UI libraries and SDKs to authenticate users to your app. It reduces the manpower and effort required to develop and maintain the user authentication service. It even handles tasks like merging accounts, which if done manually can be hectic.

4.SYSTEM DESIGN

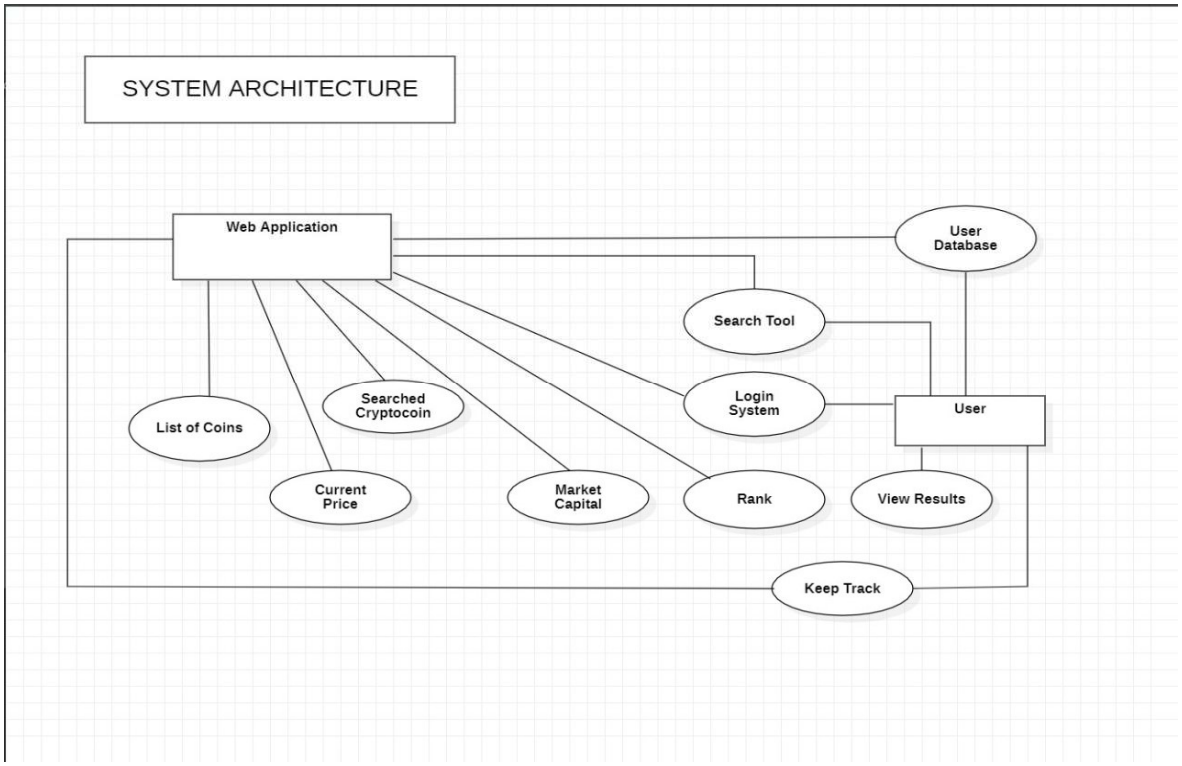

Figure: SYSTEM ARCHITECTURE 4.1

A system architecture is the conceptual model that defines the structure, behavior, and more views of a system. An architecture description is a formal description and representation of a system, organized in a way that supports reasoning about the structures and behaviors of the system.

4.1UML Diagrams:

a.Actor: A coherent set of roles that users of use cases play when interacting with the use cases.

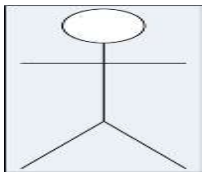

Figure:a

b.Use case: A description of sequence of actions, including variants, that a system performs that yields an observable result of value of an actor.

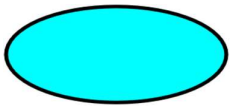

Figure:b

UML stands for Unified Modeling Language. UML is a language for specifying, visualizing and documenting the system. This is the step while developing any product after analysis. The goal from this is to produce a model of the entities involved in the project which later need to be built. The representation of the entities that are to be used in the product being developed need to be designed.

4.2 USECASE DIAGRAMS:

Use case diagrams model behavior within a system and helps the developers understand of what the user require. The stick man represents what's called an actor. Use case diagram can be useful for getting an overall view of the system and clarifying that can do and more importantly what they can't do. Use case diagram consists of use cases and actors and shows the interaction between the use case and actors.

a.The purpose is to show the interactions between the use case and actor.

b.To represent the system requirements from user's perspective.

c.An actor could be the end-user of the system or an external system.

4.2.1 USECASE DIAGRAM:

A Use case is a description of set of sequence of actions. Graphically it is rendered as an ellipse with solid line including only its name. Use case diagram is a behavioral diagram that shows a set of use cases and actors and their relationship. It is an association between the use cases and actors. An actor represents a real-world object. Primary Actor – Sender, Secondary Actor Receiver.

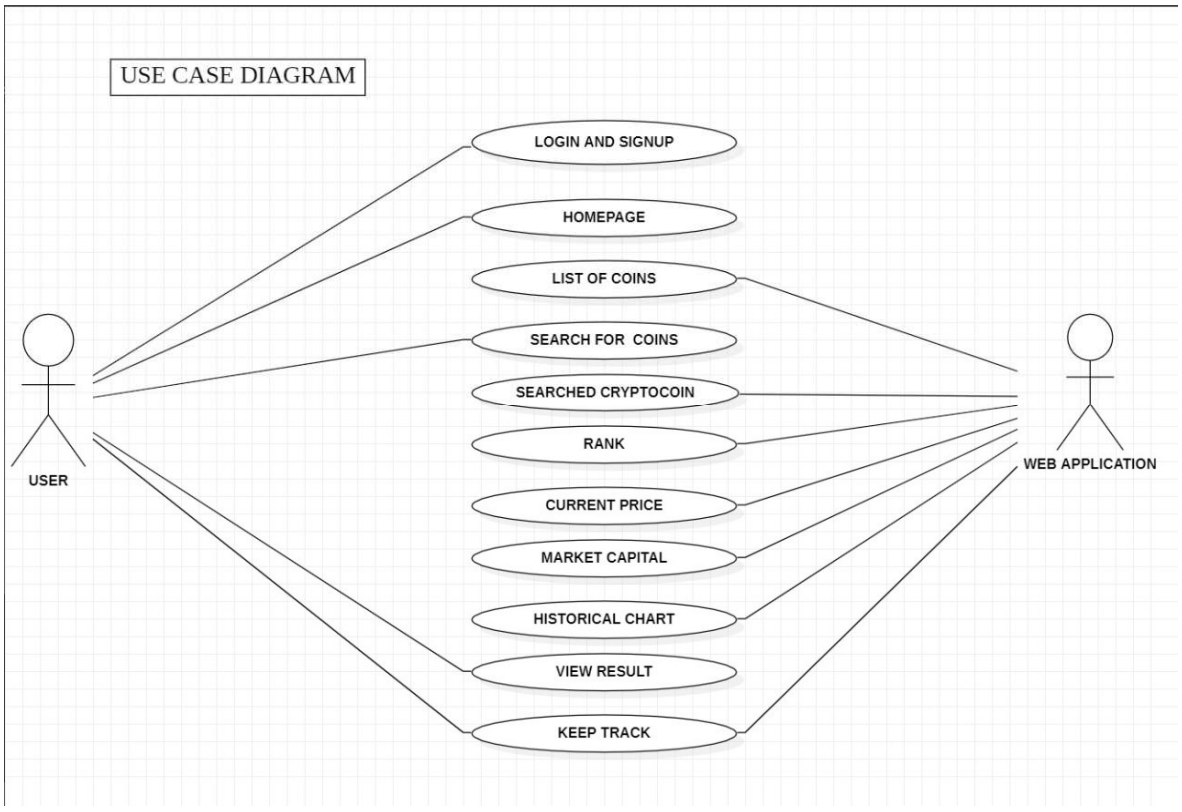

Figure: 4.2 Use Case Diagram

4.3 Class Diagram:

A description of set of objects that share the same attributes operations, relationships, and semantics.

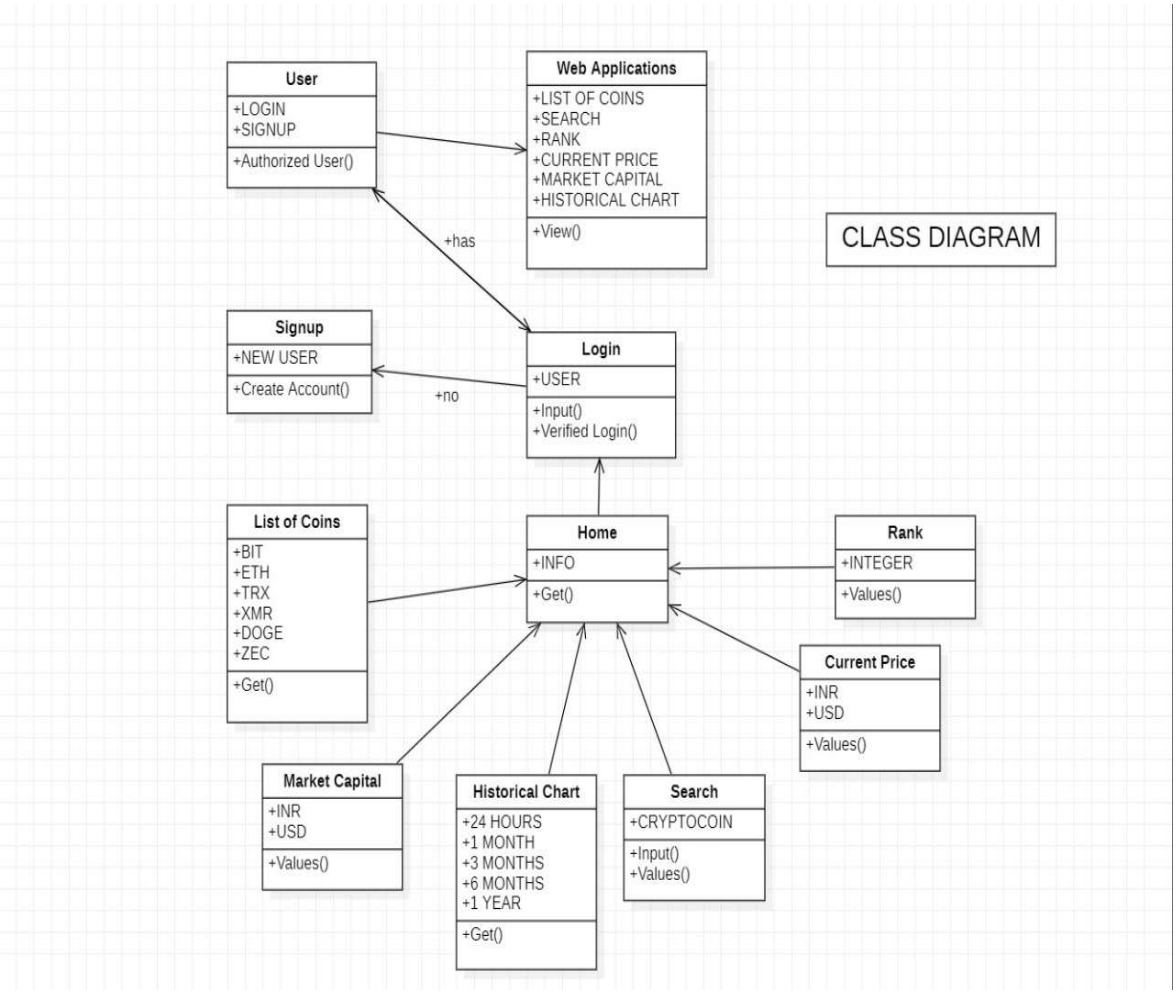

Figure: 4.3 Class Diagram

5.CODING

5.1 Login.js:-

```
import { Box, Button, TextField } from "@material-ui/core";
import { useState } from "react";
import { CryptoState } from "../../CryptoContext";
import { auth } from "../../firebase";
import { signInWithEmailAndPassword } from "firebase/auth";

const Login = ({ handleClose }) => {
 const [email, setEmail] = useState("");
  const [password, setPassword] = useState("");
  const { setAlert } = CryptoState();

  const handleSubmit = async () => {
    if (!email || !password) {
      setAlert({
        open: true,
        message: "Please fill all the Fields",
        type: "error",
      });
      return;
    }

    try {
      const result = await signInWithEmailAndPassword(auth, email, password);
      setAlert({
        open: true,
```

```
      message: `Sign Up Successful. Welcome ${result.user.email}`,
      type: "success",
    });

    handleClose();
  } catch (error) {
    setAlert({
      open: true,
      message: error.message,
      type: "error",
    });
    return;
  }
};

return (
  <Box
    p={3}
    style={{
      display: "flex",
      flexDirection: "column",
      gap: "20px",
    }}
  >
    <TextField
      variant="outlined"
      type="email"
      label="Enter Email"
```

```
        value={email}
        onChange={(e) => setEmail(e.target.value)}
        fullWidth
      />
      <TextField
        variant="outlined"
        label="Enter Password"
        type="password"
        value={password}
        onChange={(e) => setPassword(e.target.value)}
        fullWidth
      />
      <Button
        variant="contained"
        size="large"
        onClick={handleSubmit}
        style={{ backgroundColor: "gold" }}
      >
        Login
      </Button>
    </Box>
  );
};
export default Login;
```

5.2 Header.js:

```
import {
```

```
  AppBar,
  Container,
  MenuItem,
  Select,
  Toolbar,
  Typography,
} from "@material-ui/core";
import {
  createTheme,
  makeStyles,
  ThemeProvider,
} from "@material-ui/core/styles";
import { useHistory } from "react-router-dom";
import { CryptoState } from "../CryptoContext";
import AuthModal from "./Authentication/AuthModal";
import UserSidebar from "./Authentication/UserSidebar";

const useStyles = makeStyles((theme) => ({
  title: {
    flex: 1,
    color: "gold",
    fontFamily: "Montserrat",
    fontWeight: "bold",
    cursor: "pointer",
  },
}));

const darkTheme = createTheme({
```

```
  palette: {
    primary: {
      main: "#fff",
    },
    type: "dark",
  },
});

function Header() {
  const classes = useStyles();
  const { currency, setCurrency, user } = CryptoState();

  const history = useHistory();

  return (
    <ThemeProvider theme={darkTheme}>
      <AppBar color="transparent" position="static">
        <Container>
          <Toolbar>
            <Typography
              onClick={() => history.push(`/`)}
              variant="h6"
              className={classes.title}
            >
              Crypto Tracker
            </Typography>
            <Select
              variant="outlined"
```

```
            labelId="demo-simple-select-label"
            id="demo-simple-select"
            value={currency}
            style={{ width: 85, height: 40 }}
            onChange={(e) => setCurrency(e.target.value)}
          >
            <MenuItem value={"USD"}>USD</MenuItem>
            <MenuItem value={"INR"}>INR</MenuItem>
            <MenuItem value={"EUR"}>EUR</MenuItem>
            <MenuItem value={"JPY"}>JPY</MenuItem>
            <MenuItem value={"BRL"}>BRL</MenuItem>
            <MenuItem value={"AED"}>AED</MenuItem>
          </Select>

          {user ? <UserSidebar /> : <AuthModal />}
        </Toolbar>
      </Container>
    </AppBar>
  </ThemeProvider>
 );
}
export default Header;
```

5.3 Firebase.js:

```
const firebaseConfig = {
 apiKey: "AIzaSyBPk8JNDbqOThOLOWIm5EBmnyQxgd3kX4A",
```

```
  authDomain: "crypto-tracker-971e4.firebaseapp.com",
  projectId: "crypto-tracker-971e4",
  storageBucket: "crypto-tracker-971e4.appspot.com",
  messagingSenderId: "576317907394",
  appId: "1:576317907394:web:d5b9656a050ede102e365b"
};
export default firebaseConfig;
```

5.4 App.js:

```
import { makeStyles } from "@material-ui/core";
import Homepage from "./Pages/HomePage";
import "./App.css";
import { BrowserRouter, Route } from "react-router-dom";
import CoinPage from "./Pages/CoinPage";
import Header from "./components/Header";
import Alert from "./components/Alert";

const useStyles = makeStyles(() => ({
  App: {
    backgroundColor: "#14161a",
    color: "white",
    minHeight: "100vh",
  },
}));
function App() {
  const classes = useStyles();
  return (
```

```
    <BrowserRouter>
      <div className={classes.App}>
        <Header />
        <Route path="/" component={Homepage} exact />
        <Route path="/coins/:id" component={CoinPage} exact />
      </div>
      <Alert />
    </BrowserRouter>
  );
}
export default App;
```

6.TESTING

6.1 System Testing

The goal of the system testing process was to determine all faults in our project .The program was subjected to a set of test inputs and many explanations were made and based on these explanations it will be decided whether the program behaves as expected or not. Our Project went through two levels of testing

6.1.1 Unit testing

6.1.2 Integration testing

6.1.1 UNIT TESTING

Unit testing is commenced when a unit has been created and effectively reviewed.In order to test a single module we need to provide a complete environment i.e. besides the section we would require.

a.The procedures belonging to other units that the unit under test calls

b.Non local data structures that module accesses

c.A procedure to call the functions of the unit under test with appropriate parameters

6.1.1.1.Test for the admin module

a.Testing admin login form-This form is used for log in of administrator of the system. In this form we enter the username and password if both are correct administration page will open otherwise if any of data is wrong it will get redirected back to the login page and again, ask the details.

b.Report Generation: admin can generate report from the main database.

6.1.2 INTEGRATION TESTING

In the Integration testing we test various combination of the project module by providing the input. The primary objective is to test the module interfaces in order to confirm that no errors are occurring when one module invokes the other module.

6.2 Test Cases

Code testing, Output testing were implemented and executed for this project and the test cases are shown below.

Test Case 1	
Test Case Name	User Registration
Description	User must register before signing in the website
Output	User Registration Successful

Test Case 2	
Test Case Name	User Login
Description	User must login with the credentials
Output	User Login Successful

Test Case 3	
Test Case Name	Add To Watchlist
Description	User should add coins to watchlist
Output	Coins Added Successfully

Test Case 4	
Test Case Name	Opening Coins Page
Description	User can open coin pages
Output	Coins Pages Opens Successfully

Test Case 5	
Test Case Name	Using Search Engine
Description	User can search coins
Output	Coins searched Successfully

7.OUTPUT SCREENS

7.1 Home page:

It displays all the trending crypto coins present around the globe.

Figure: 7.1

7.2 Currency Drop Down:

It shows the currencies of countries like Indian Rupees, US dollors, Europe Euros.

Figure: 7.2

7.3 User Login:

User can login into website by using Email Id and Password

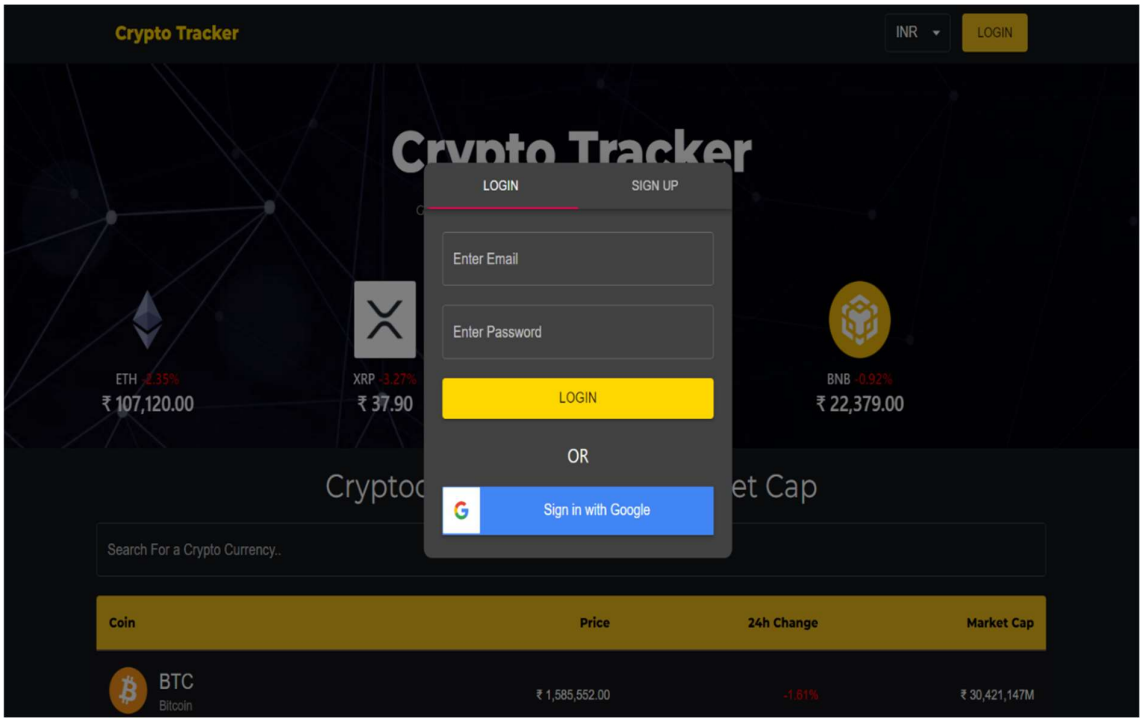

Figure:7.3

7.4 User SignUp:

Here, User can create an account using Email Id or using Google.

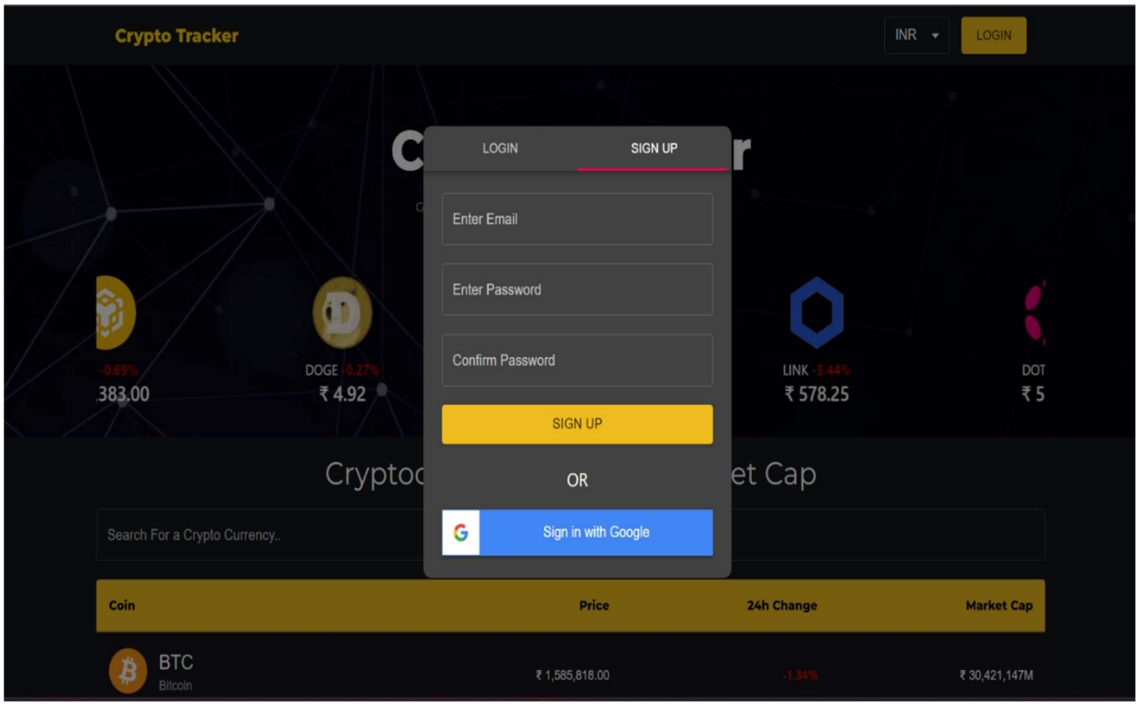

Figure:7.4

7.5 Coins Table:

It displays all the coins according to their market capital.

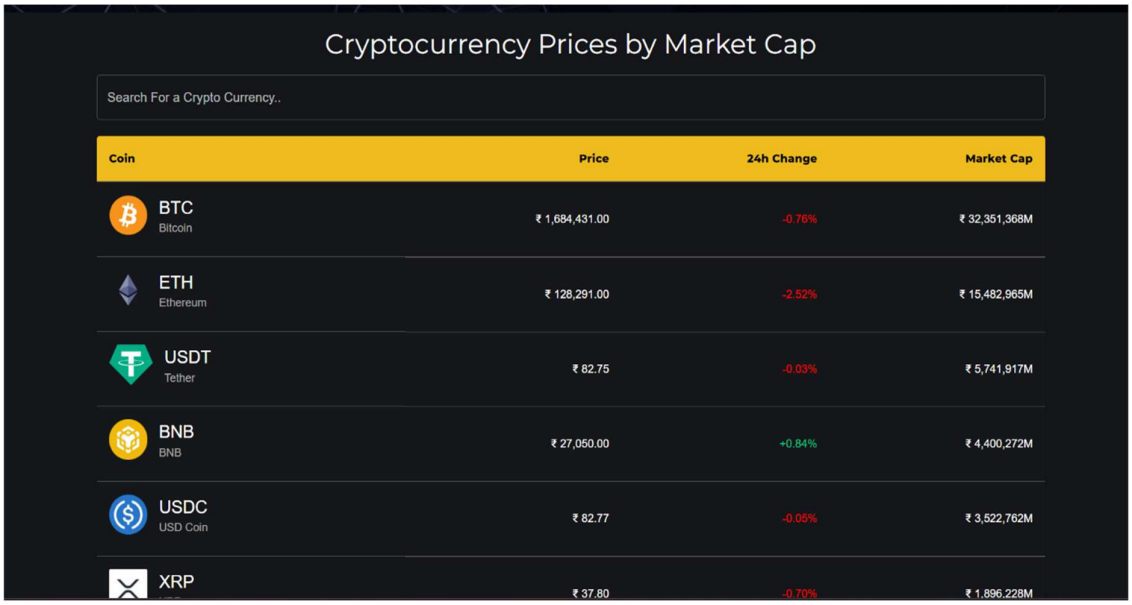

Figure:7.5

7.6 Search Engine:

User can search for any desired coin using search engine.

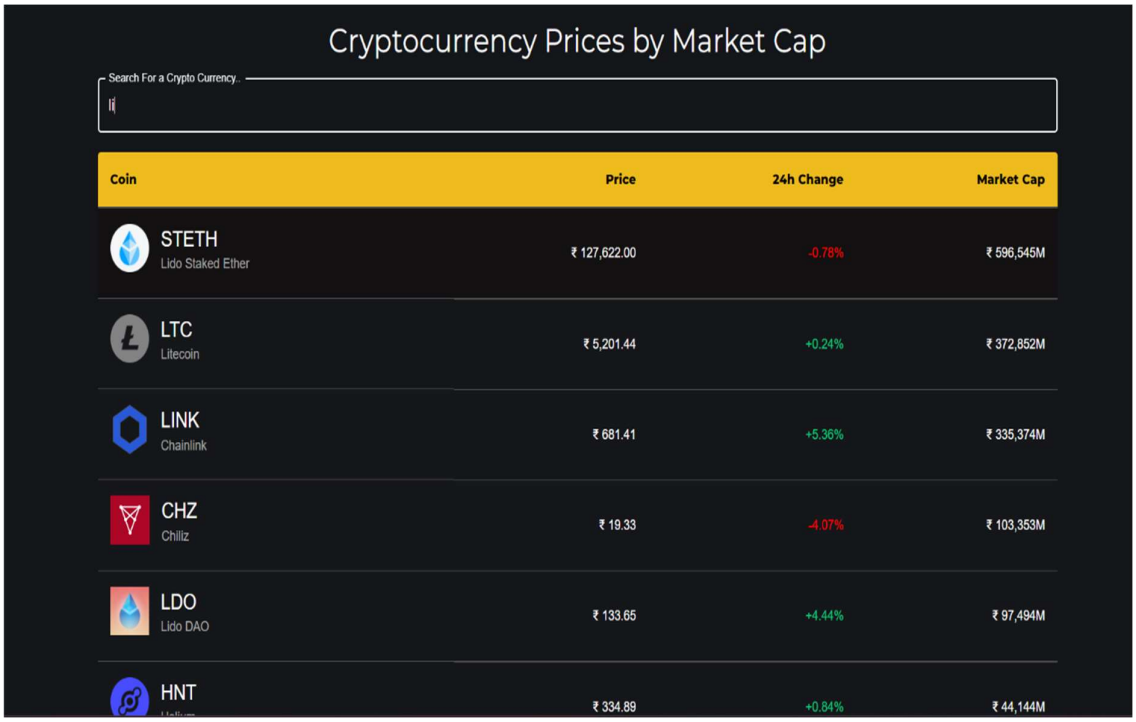

Figure:7.6

7.7 Coin Info and Historical Chart:

It gives information about the coins such as its rank, current price, market capital and it shows price of the coin in the form of historical chart.

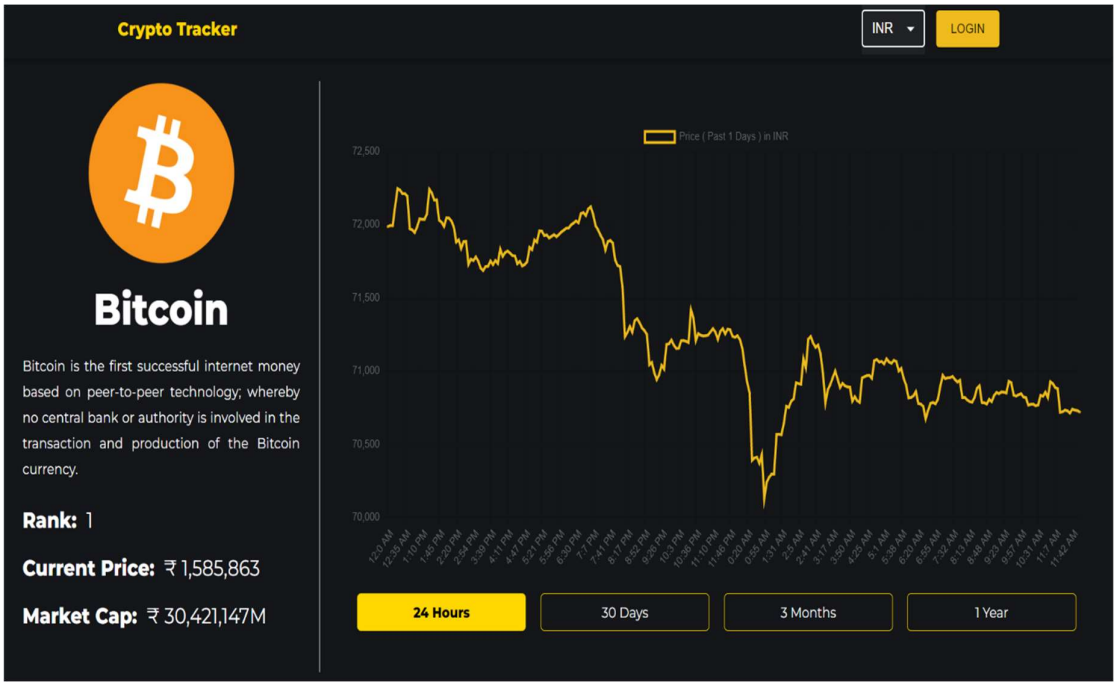

Figure:7.7

7.8 User Dashboard:

User can add the selected coins into their watchlist.

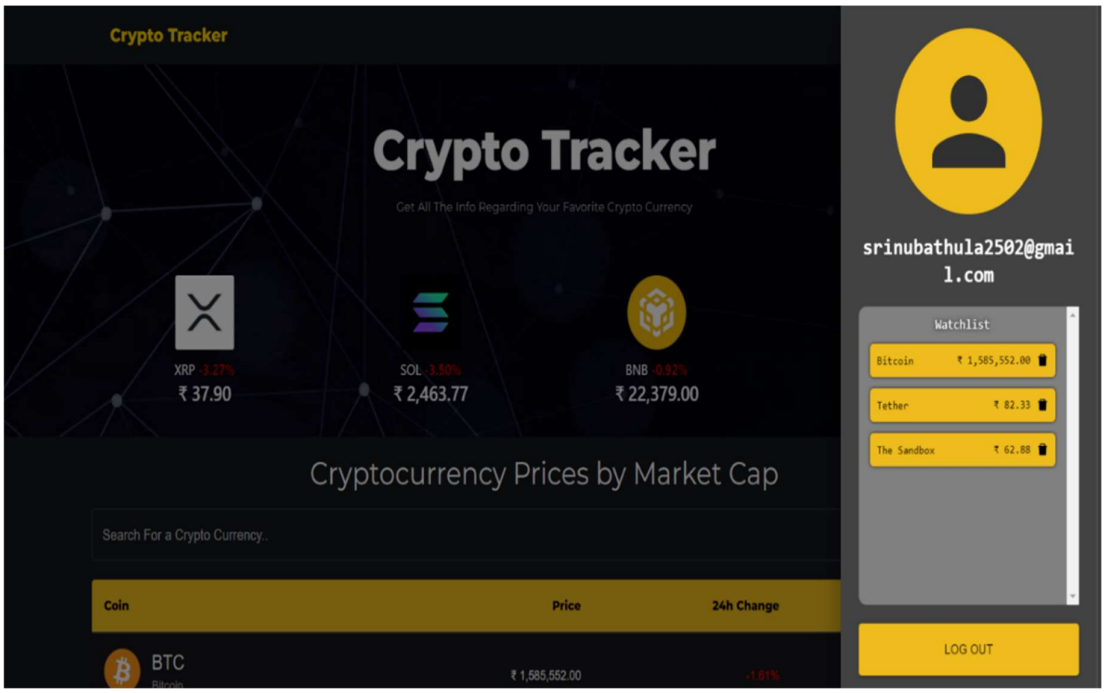

Figure:7.8

8.CONCLUSION

8.1 Conclusion

The cryptocurrencies are a hot topic in the global financial system. There is great volatility of cryptocurrencies exchange rates. With this, there is a high risk of trading these cryptocurrencies. Their growth has been able to gain the attention of many speculators. They are easily portable in addition to battling the current economic system, cryptocurrencies have some internal challenges to overcome. Attempting to convert the entire world financial system to the Bitcoin model, for example, could cause such a massive growth in blockchain size that the distributed ledger model would become impractical.

8.2 Further Enhancements

We can further enhance this project by using block chain technology where we could implement transaction techniques, so that the users can fund into their account and could start trading and invest in any of the platforms blockchain is a decentralized ledger of all transactions across a peer-to-peer network. Using this technology, participants can confirm transactions without a need for a central clearing authority. In addition to this the user can withdraw the amount of the invested currency to their respective bank account.

9.BIBLOGRAPHY

9.1 Book References

a.Web Developer's Reference Guide

b.The Road To React

c.FireBase(By Google): Official Website

9.2 Website References

9.2.1 For ReactJS

https://www.javatpoint.com/reactjs-tutorial

9.2.2For FireBase

https://www.javatpoint.com/firebase

10.APPENDICES

10.1 Software Used

10.1.1 FireBase

Google Firebase is a Google-backed application development software that enables developers to develop iOS, Android and Web apps. Firebase provides tools for tracking analytics, reporting and fixing app crashes, creating marketing and product experiment. Firebase is a product of Google which helps developers to build, manage, and grow their apps easily. No programming is required on the firebase side which makes it easy to use its features more efficiently. It provides cloud storage. It uses NoSQL for the database for the storage of data. Firebase Authentication service provides easy to use UI libraries and SDKs to authenticate users to your app.

10.1.2 ReactJS

ReactJS is a declarative, efficient, and flexible JavaScript library for building reusable UI components. It is an open-source, component-based front-end library responsible only for the view layer of the application. A ReactJS application is made up of multiple components, each component responsible for outputting.

10.2 Testing Methods

10.2.1 Keyboard/Mouse

Using the keyboard and mouse commands are given by the user and the user can access the website after a successful login. The user can basically use mouse to take the resources, view the list of resources and also view the history. The user can navigate different tabs available in the website.

11.Plagiarism Report