VIT®

Vellore Institute of Technology

(Deemed to be University under section 3 of UGC Act, 1956)

CRYPTO TRACKER

A Real-Time and Predictive Cryptocurrency Platform

Submitted by:

21MID0163- Praveen S

22MID0025- Haritha R

22MID0181- Agnes Rachel E

22MID0334- Sowmiya K

For

Lean Start-up Management
MGT1022

Mtech-Integrated Computer Science
And Engineering(Data Science)

Under the guidance of
Prof Dr. Ashok K
Associate Professor Grade 2

TABLE OF CONTENTS

ABSTRACT

This project presents a real-time cryptocurrency tracking and AI-powered prediction platform designed to assist both casual and professional investors in making informed, data-driven decisions. Users can monitor live market data, receive customized alerts based on price thresholds, and access future price forecasts generated by machine learning models.

The platform integrates public APIs such as CoinGecko and Yahoo Finance to fetch both live and historical data across a wide range of cryptocurrencies. Users can select specific coins, view multi-day trends, and set personalized price alerts that trigger notifications via email, SMS, or browser push alerts. The system's responsive web interface, developed using React.js and Tailwind CSS, ensures compatibility across all devices and offers fast load times for an optimized user experience.

A standout feature of this platform is its premium AI-based price prediction capability. Using a Long Short-Term Memory (LSTM) model—a type of Recurrent Neural Network (RNN) adept at time-series forecasting—the system predicts the closing prices for the next 7–10 days. Historical data, collected via the yfinance library, is cleaned, scaled using MinMaxScaler, and used to train the model over 30 epochs for each cryptocurrency. Currently, predictions are available for six major coins: Bitcoin, Ethereum, Solana, Dogecoin, Litecoin, and Cardano.

These AI-driven insights are made available through an interactive dashboard built with Streamlit, allowing users to visualize historical trends alongside predicted price movements. By merging real-time tracking with intelligent forecasting, this platform offers a comprehensive solution for anyone looking to stay ahead in the fast-paced cryptocurrency market.

PROBLEM STATEMENT

In the fast-paced world of cryptocurrency trading, prices can fluctuate rapidly, and investors often miss critical opportunities to buy or sell. Existing platforms may not offer customizable alert systems or may overwhelm users with unnecessary information. Investors need a simple, efficient way to track their preferred cryptocurrencies and get notified when the price hits their target, without constantly monitoring charts. Many platforms lack real- time precision or user-friendly interfaces for setting price thresholds. There is also a need for a solution that can alert users across multiple channels. This platform addresses these gaps by providing a tailored, real-time crypto monitoring and alerting service.

SIGNIFICANCE OF THE STUDY

This study is significant as it addresses critical challenges faced by investors, traders, and enthusiasts in the dynamic and rapidly growing cryptocurrency market. By designing and implementing a robust cryptocurrency tracking dashboard, the study aims to:

Enhance Decision-Making:
Provide users with real-time data and actionable insights, enabling informed decisions in a highly volatile market. This is essential for maximizing profits and minimizing risks in cryptocurrency investments.

Streamline Portfolio Management:
Offer a centralized platform for monitoring and managing cryptocurrency portfolios, making it easier for users to track performance, identify trends, and optimize their holdings effectively.

BACKGROUND ANALYSIS

Blockchain technology and cryptocurrencies have transformed the financial landscape, offering decentralized alternatives to traditional banking and payment systems. However, extreme volatility and rapid fluctuations in crypto markets pose significant challenges for investors, particularly in tracking performance, interpreting trends, and making timely decisions. As the financial world progresses towards Web3 and Decentralized Finance (DeFi), there is a growing demand for smart platforms that offer analytics and foresight to help users stay ahead of the market.

In recent years, Artificial Intelligence (AI) and Machine Learning (ML) have proven effective in financial forecasting tasks, particularly Long Short-Term Memory (LSTM) models, which are highly suitable for predicting cryptocurrency price movements. This project builds on this innovation by integrating AI-based prediction models within a cryptocurrency tracking platform, which not only monitors live and historical data but also forecasts future price trends of major cryptocurrencies. The system's design emphasizes user accessibility, offering a clean and responsive web interface built using modern tools like React.js, Tailwind CSS, and Streamlit. The integration of a premium model-based prediction feature aligns with emerging trends in fintech services, driving user engagement and monetization.

OBJECTIVE

The Crypto Tracker platform is a comprehensive solution for tracking, analyzing, and predicting cryptocurrency market trends. It uses real-time market data and AI-powered forecasting to provide users with a data-driven investment decision. The platform uses machine learning models, specifically Long Short-Term Memory (LSTM) networks, to forecast the next 7-10 days of price movements for major cryptocurrencies. This predictive capability helps users identify potential opportunities and risks before they occur. The app supports customized price alerts, portfolio tracking, and interactive data visualizations, making it suitable for both novice and seasoned investors. A premium feature allows subscribers to access AI-generated price predictions for popular coins like Bitcoin, Ethereum, Solana, Dogecoin, Litecoin, and Cardano. The platform aims to bridge the gap between traditional crypto tracking tools and intelligent predictive systems, enhancing financial decisions, user engagement, and blockchain literacy adoption**.**

SCOPE

The study aims to create a real-time cryptocurrency tracking and prediction platform that offers market monitoring tools and AI-driven insights for informed investment decisions. The platform provides live and historical cryptocurrency data, customizable price alerts, and an intuitive web interface compatible across devices. The AI prediction feature is offered as a premium service, providing forecast graphs for major cryptocurrencies like Bitcoin, Ethereum, Solana, Dogecoin, Litecoin, and Cardano. The study also addresses data preprocessing, model training, and deployment using Streamlit, focusing on user experience and performance optimization. The platform aims to meet the needs of casual users and serious investors, and could be integrated with decentralized finance tools in future phases. The system maintains high standards for usability, flexibility, and security**.**

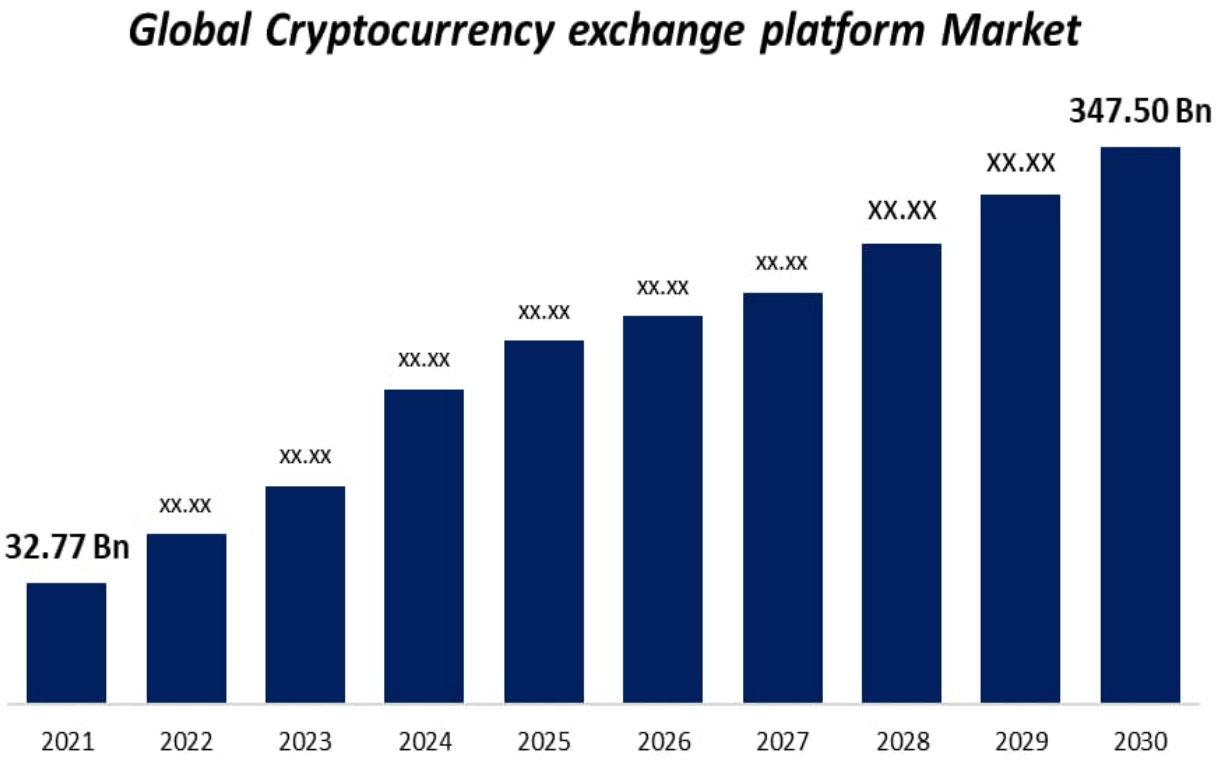
MARKERT RESEARCH

5.1 Competitors:

The cryptocurrency tracking and analytics space has grown rapidly in recent years, with several platforms dominating the market. Key competitors include:

- CoinMarketCap – A widely used tracker offering real-time price updates, market capitalization, charts, and historical data for thousands of cryptocurrencies.
- CoinGecko – Known for its open API and community-driven metrics, CoinGecko provides extensive data analysis, developer activity, and market depth.
- CryptoCompare – Offers portfolio tracking, exchange reviews, and aggregated data across exchanges.
- TradingView – Provides powerful charting tools and technical analysis, often used by advanced traders.
- Nomics – Focuses on transparent and normalized data with high API accuracy and speed.

While these platforms offer strong tracking features, most of them lack integrated AI-based prediction models, which gives our platform a unique edge in the market.



5.2 Competitive Strategies:

Cost leadership:

Our platform is designed to be freemium, offering essential real-time tracking features for free and reserving advanced AI prediction tools for premium users. This ensures accessibility for all while generating revenue through subscriptions.

Differentiation:

What sets our product apart is the AI-powered price prediction module using LSTM models, which is not currently available in leading tracking tools. We also emphasize a user-friendly, responsive interface and customizable alerts, catering to both novice and experienced investors.

Marketing:

Marketing strategies include:

Social media campaigns targeting crypto communities on Twitter, Reddit, and Telegram.

- **Influencer collaborations** with crypto educators and YouTubers.
- **SEO optimization** and educational blogs on AI in crypto trading.
- **Referral programs** to encourage user sign-ups.

Innovation:

Our platform focuses on innovation through:

- Integration of time-series forecasting models (LSTM).
- Future plans to incorporate sentiment analysis from news and tweets.
- Potential use of blockchain-based data validation to ensure accuracy and transparency.

Partnerships:

To increase reach and credibility, we plan to explore:

- **Affiliate partnerships** with crypto exchanges and wallet providers.
- **Academic collaborations** for research-based improvements in prediction accuracy.
- **API partnerships** with data providers like CoinGecko or Yahoo Finance for reliable data feeds.

5.3 Target audience and parking research:

Our platform targets the following segments:

- Retail Investors & Traders: Individuals who buy/sell cryptocurrencies and need real-time data and predictions.
- Beginner Crypto Enthusiasts: Users with limited experience who need simplified data and guidance.
- Crypto Analysts & Researchers: Individuals and students interested in studying patterns and trends in crypto prices.
- Premium Subscribers: Investors willing to pay for exclusive, AI-driven price predictions and visualizations.

Market Insights: According to Statista, the number of global crypto users crossed 400 million in 2024, and is expected to grow annually. With increased volatility and growing interest in predictive analytics, tools that offer AI-enhanced decision support are in demand.

5.4 Pricing Strategies:

Our pricing model follows a **Freemium + Subscription-based approach**:

- **Free Tier**: Access to basic features including real-time prices, alerts, portfolio tracking, and historical data.
- **Premium Tier (Paid)**: Unlocks AI prediction graphs, early trend alerts, and exclusive market insights for selected cryptocurrencies.

Possible pricing tiers:

- **Monthly Plan**: ₹299/month
- **Annual Plan**: ₹2499/year (with discount)
- **Student Offer**: Special discounted plans for verified college students

This pricing ensures affordability while monetizing advanced features to sustain platform growth and innovation.

MVP

The Minimum Viable Product (MVP) for the Crypto Tracker platform is a functional prototype that includes all the core features necessary to validate the idea with real users while keeping development time and cost minimal. The goal of the MVP is to test product-market fit, gather user feedback, and demonstrate the technical feasibility of integrating both real-time tracking and AI-based price prediction in one platform.

Core Features of the MVP:

1. **Real-Time Crypto Price Tracking:**
    - Live price updates for major cryptocurrencies using data from the yfinance API.
    - Display historical trends (last 30 days) with interactive graphs.
2. **Crypto Selection & Visualization:**
    - Dropdown or selection interface for users to choose from 6 major cryptocurrencies:
        - Bitcoin (BTC)
        - Ethereum (ETH)
        - Solana (SOL)
        - Dogecoin (DOGE)
        - Litecoin (LTC)
        - Cardano (ADA)
    - Visual display of selected coin's historical and predicted price using Streamlit.
3. **Basic Alerts:**
    - Users can define price thresholds to receive on-screen alerts when values are met.
4. **AI Price Prediction Module:**
    - Integration of LSTM models trained on historical data to forecast the next 7–10 days of closing prices.
    - Graphical output of forecasted trends (premium feature preview).
5. **Frontend Web Interface:**
    - Developed using Streamlit for rapid prototyping and easy user interaction.
    - Responsive layout that works on both desktop and mobile browsers**.**

MARKETING STRATEGRY

Tagline:

"Track, Predict, Invest Smarter."

1. Define Target Audience:

Our core users include:

- Retail crypto investors looking for daily insights and predictions.
- Beginner investors who need a simple UI and guided data visualization.
- Crypto traders seeking tools for short-term trading and signals.
- Students and tech enthusiasts interested in AI models and market analysis.

Understanding these personas allows us to design tailored messaging and features to suit each group.

2. Conduct Market Research:

- We studied leading platforms like CoinMarketCap, CoinGecko, and TradingView, analyzing their features, strengths, and user experience.
- Surveys and online discussions (e.g., Reddit, Telegram groups) helped us identify common pain points — such as lack of accurate predictions, complex UI, and lack of customized notifications.
- These insights guided our feature prioritization and value proposition, especially the inclusion of the LSTM-based AI prediction model.

3. Develop Your Brand:

Our branding focuses on:

- Trust and Transparency — through use of reliable data sources (like yfinance) and open model outputs.
- Simplicity and Accessibility — clean UI/UX using Streamlit, suitable for all skill levels.
- Innovation — integrating AI (LSTM models) for next-level prediction and insights.
- Our visual identity includes a modern color palette, crypto-inspired icons, and mobile-first responsiveness to appeal to today's digital-first users.

4. Use Digital Marketing:

- SEO: Optimize landing pages and blog posts with crypto-related keywords like "AI crypto prediction", "LSTM price forecast", etc.
- Content Marketing: Post educational content on Medium/LinkedIn about how AI can transform crypto investing.
- Social Media Campaigns: Run targeted campaigns on Twitter, Instagram, and Telegram crypto groups to showcase demo features and prediction samples.

- Influencer Collaborations: Partner with crypto YouTubers and Twitter influencers for reviews and walkthroughs.
- Email Campaigns: Send weekly market trend updates and premium feature teasers to drive subscriptions.

5. Use Traditional Marketing:

Though the crypto market is digital-first, we plan to:

- Distribute printed brochures and posters at crypto events, hackathons, and colleges.
- Host or sponsor tech webinars/seminars focused on AI in finance.
- Publish in university magazines and tech newsletters to reach academic audiences.

6. Partner with Other Businesses:

- Crypto Exchanges: Collaborate to offer bundled subscriptions or embed our tool as a widget.
- Wallet Providers: Integrate alerts and tracking inside commonly used crypto wallets.
- Educational Institutions: Partner with universities to provide student access for research/learning.

7. Measure the Results:

We will track the effectiveness of our marketing using:

- User engagement metrics (page views, session duration, bounce rate)
- Subscription conversion rates (free-to-premium upgrade ratios)
- Feedback loops from in-app surveys and beta testing
- Referral traffic sources to determine which campaigns are most successful

BUSINESS PLAN

1. Executive Summary:

Our project, Crypto Tracker AI, is a web-based platform that offers real-time cryptocurrency tracking and AI-powered price prediction for premium users. It integrates live data from public APIs (yfinance) and uses LSTM (Long Short-Term Memory) models to forecast the next 7–10 days of price trends for popular cryptocurrencies like Bitcoin, Ethereum, Solana, and more. The platform is built using Streamlit to offer a fast, responsive, and user-friendly interface, suitable for all types of investors.

2. Mission Statement:

To empower investors with reliable tools to track, predict, and make data-driven decisions in the volatile cryptocurrency market through cutting-edge AI and intuitive design.

3. Company Background:

The idea emerged from the need to simplify crypto investing and decision-making. With growing public interest in digital assets and the rise of AI, our student team designed this platform to bridge the gap between technical market data and user-friendly tools. Our academic background in Data Science and experience with technologies like Python, Colab, and Streamlit fuel this project.

4. Product Description:

- Live Crypto Tracker: Displays real-time and historical price trends for 6 major cryptocurrencies.

- AI Model Integration: Trained LSTM models predict closing prices for the next 7–10 days.
- Custom Alerts: Users can set alerts based on thresholds and receive email/browser notifications.
- Responsive UI: Works seamlessly on desktop, tablet, and mobile browsers.
- Premium Access: Prediction feature is available for subscribed users only

5. Marketing Plan:

Refer to the full Marketing Strategy section we discussed earlier, including:

- SEO & Social Media Marketing
- Influencer Collaboration
- Educational content marketing
- Event-based promotions

6. Competitor Analysis:

We analyzed platforms like CoinMarketCap, CoinGecko, and TradingView. While these offer detailed tracking, our AI-based prediction, custom alerts, and simplified dashboard UI are key differentiators.

7. SWOT Analysis:

Strengths: AI prediction, user-friendly interface, responsive design
Weaknesses: Limited coin support initially, requires premium access for full features
Opportunities: Integrating NFTs, wallet support, DeFi integration
Threats: Regulatory changes, high competition from larger platforms

8. Operations:

- Model Training: Done in Google Colab using LSTM for 6 cryptocurrencies.
- Deployment: Web app deployed via Streamlit with backend support for alert triggers.
- Data Source: Uses yfinance API for historical and real-time crypto data.
- Customer Support: Chatbot and FAQ planned for future iterations.

9. Financial Planning:

- Initial Budget: Mostly free tools (Colab, Streamlit), budget required for email alerts, hosting, domain.
- Revenue Model: Freemium model — free access to tracking; AI predictions behind a subscription paywall.
- Future Plans: Introduce tier-based subscriptions and partner with exchanges or DeFi platforms.

FUNDING SOURCES

1. Venture Capitalists (VCs)

The platform could seek investment from venture capital firms that specialize in early-stage fintech and AI-driven startups. These investors can provide the necessary capital for platform development, model refinement, and go-to-market efforts. Additionally, VCs often offer valuable mentorship, strategic connections, and access to large-scale distribution networks.

2. Angel Investors

Angel investors with a keen interest in blockchain, cryptocurrency, and AI technologies could be a great source of seed funding. These individuals often support disruptive tech ideas in their early stages and can help fund prototype development, team building, and initial deployment. Their guidance can also help shape the platform's growth strategy and market positioning.

3. Crowdfunding

Crowdfunding platforms such as Kickstarter or Indiegogo could be utilized to raise capital from a large pool of individual backers. This approach not only provides early funding but also helps validate the product concept, build a user community, and generate buzz within the crypto and investment spaces.

4. Government Grants and Tech Innovation Programs

Government-backed innovation programs and grants that support fintech, AI, and data analytics startups can be explored. These funds can help finance research and development, model training, cybersecurity measures, and early testing, all while reducing initial financial pressure.

5. Corporate Partnerships

The platform could also pursue partnerships with established players in the fintech, crypto exchange, or financial data analytics sectors. These partnerships could provide funding, technical resources, access to APIs or data sources, and an existing user base. Collaborations with crypto wallets, exchanges, or fintech accelerators could significantly speed up product development and market entry.

TECHNOLOGIES USED

1. Frontend Technologies

- **React.js**
  The app's user interface is built with React.js, a popular JavaScript library known for its component-based architecture and efficient rendering. React enables the creation of a responsive, dynamic, and interactive UI for real-time data updates without reloading the page.
- **Tailwind CSS**
  Tailwind CSS is employed for styling, allowing for the rapid development of a responsive and visually appealing design. Its utility- first approach ensures consistency and customizability across components.

2. API Integrations

- **CoinGecko API / CoinMarketCap API**
  These APIs provide real-time cryptocurrency data, including prices, market caps, trading volumes, and historical trends. The app integrates with these APIs to ensure accurate and up-to-date information.

3.Deployment and Hosting

- **Vercel / AWS Amplify**
  The app's frontend, built with Next.js, is deployed on platforms like Vercel or AWS Amplify for optimal performance and global content delivery.

4. Backend and AI Prediction Technologies

• Python

Used for writing the logic for fetching data, preprocessing, training, and making predictions using AI.

• yfinance

A Python library used to download historical price data of cryptocurrencies like Bitcoin from Yahoo Finance.

• Pandas & numpy

Used for data manipulation and numerical operations, especially in preparing and analyzing time-series data.

• **Matplotlib**

Used to plot graphs for:

- Actual vs predicted prices
- Moving averages
- 10-day future price forecasts

5. Machine Learning and Deep Learning

• **Scikit-learn (MinMaxScaler)**

Used to scale (normalize) the price data between 0 and 1, which improves LSTM model performance.

• **TensorFlow / Keras**

Used to build and train the LSTM (Long Short-Term Memory) model:

- LSTM is a type of Recurrent Neural Network (RNN) designed to work with time-series data like price movements.
- The model predicts the next 7–10 days' prices based on the past 100 days of data.

6. Streamlit (Web Interface for AI Models)

• **Streamlit**

Used to create an interactive Python-based web app where:

- Users select a coin.
- View its historical price.
- See predicted future prices with clear visualizations.

Streamlit is simple and fast, perfect for deploying ML models with UI components like dropdowns and charts.

7. Model Saving and Sharing

• **Keras Model Saving (.keras)**

After training, the model is saved in .keras format so it can be reused or deployed in the frontend.

• **Google Colab (for development)**

Used as a platform to train LSTM models using GPUs for faster processing.

IMPLEMENTATION

The technical implementation of the Cryptocurrency Tracking and Prediction Platform involves several core components, primarily focusing on software systems and data infrastructure. These components work together to provide users with real-time crypto price tracking, intelligent forecasting, and customizable alerts, all accessible through a responsive and user-friendly web platform.

The data integration component includes APIs that fetch live and historical market data from trusted sources such as CoinGecko and Yahoo Finance. This data is relayed to a cloud-based backend server, where it is processed, analyzed, and stored for both real-time display and AI model training. The APIs are connected through a secure network, using HTTPS protocols to ensure data integrity and user privacy.

The software component includes live market monitoring tools, an alert system, and an AI-driven price prediction engine. The monitoring system displays up-to-the-minute prices and trend data for various cryptocurrencies. The alert system allows users to set price thresholds and receive notifications via email, SMS, or browser push notifications. The AI prediction system uses machine learning models (LSTM) to analyze historical data and generate short-term price forecasts.

The technical implementation also involves developing a responsive web application for users to track prices, receive alerts, and view predicted trends. The application is designed to provide a seamless and informative experience across all devices, making it easy for users to stay connected with market movements and make informed decisions.

Software Components Used:

React.js:
Used to develop the web interface, providing a fast, dynamic, and responsive user experience across different devices.

Tailwind CSS:
A utility-first CSS framework used for styling the platform, ensuring clean design, consistency, and mobile responsiveness.

Node.js with Express.js:
Used to build the backend server, handle API requests, manage user authentication, and control alert triggers.

CoinGecko / Yahoo Finance API:
These public APIs provide real-time and historical price data for a wide range of cryptocurrencies, enabling live tracking and model training.

yFinance Library:
A Python library used to collect historical price data, which is preprocessed and fed into the AI models.

LSTM (Long Short-Term Memory):
A type of Recurrent Neural Network (RNN) used for time-series prediction. Trained using historical price data to forecast future prices over a 7–10 day period. Each model is optimized per coin, including Bitcoin, Ethereum, Solana, Dogecoin, Litecoin, and Cardano.

MinMaxScaler:
A preprocessing tool used to normalize the dataset, improving the performance and accuracy of the LSTM models.

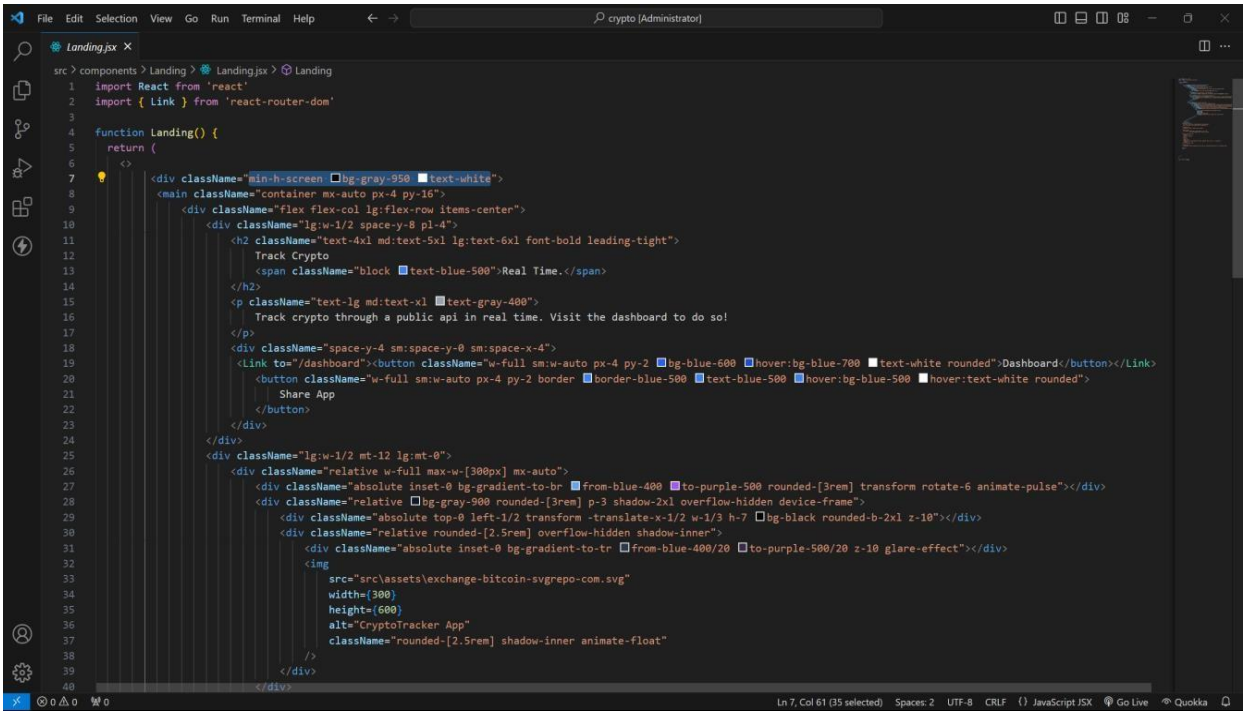
Streamlit:
Used to deploy the interactive dashboard where users can view historical trends and predicted prices through graphs and visualizations.

Overall the technical implementation of the Cryptocurrency Tracking and Prediction Platform requires a strong foundation in software development, data integration, and machine learning. It combines real-time data acquisition, responsive frontend design, and AI-driven insights to provide users with a powerful tool for tracking cryptocurrency markets and making data-informed investment decisions.

EXPERIMENT RESULT

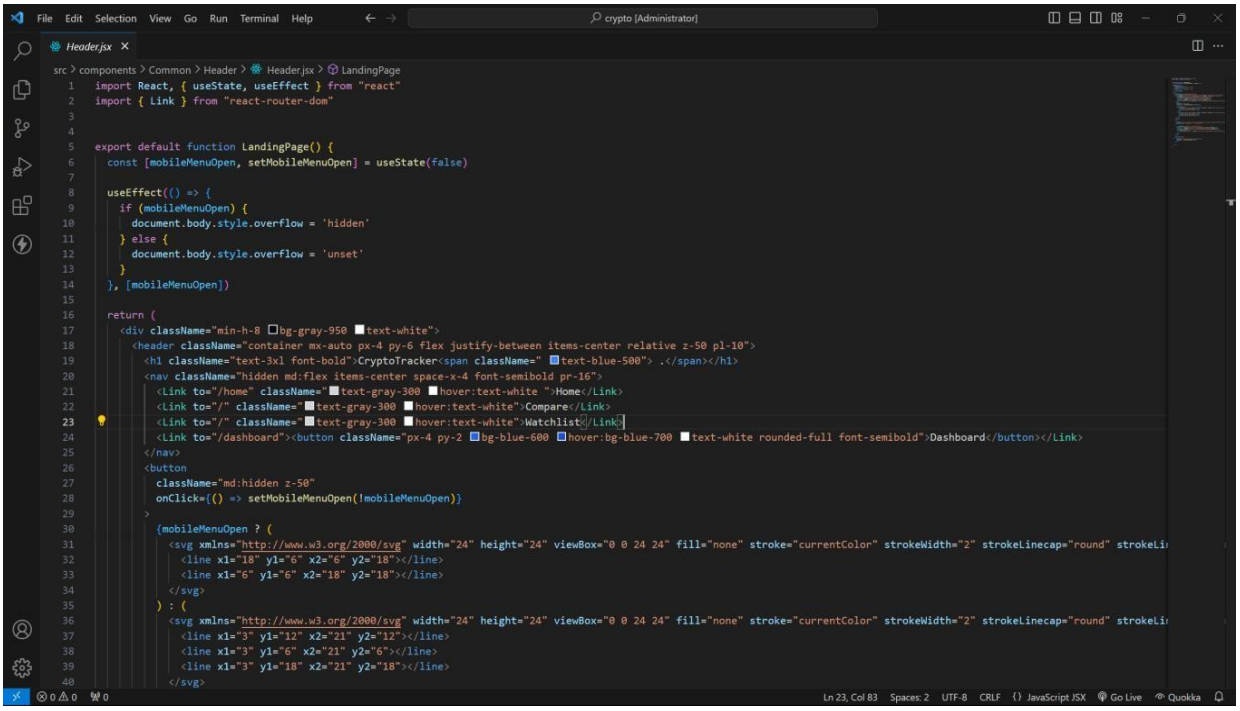
1.1 CODE

Landing Component:



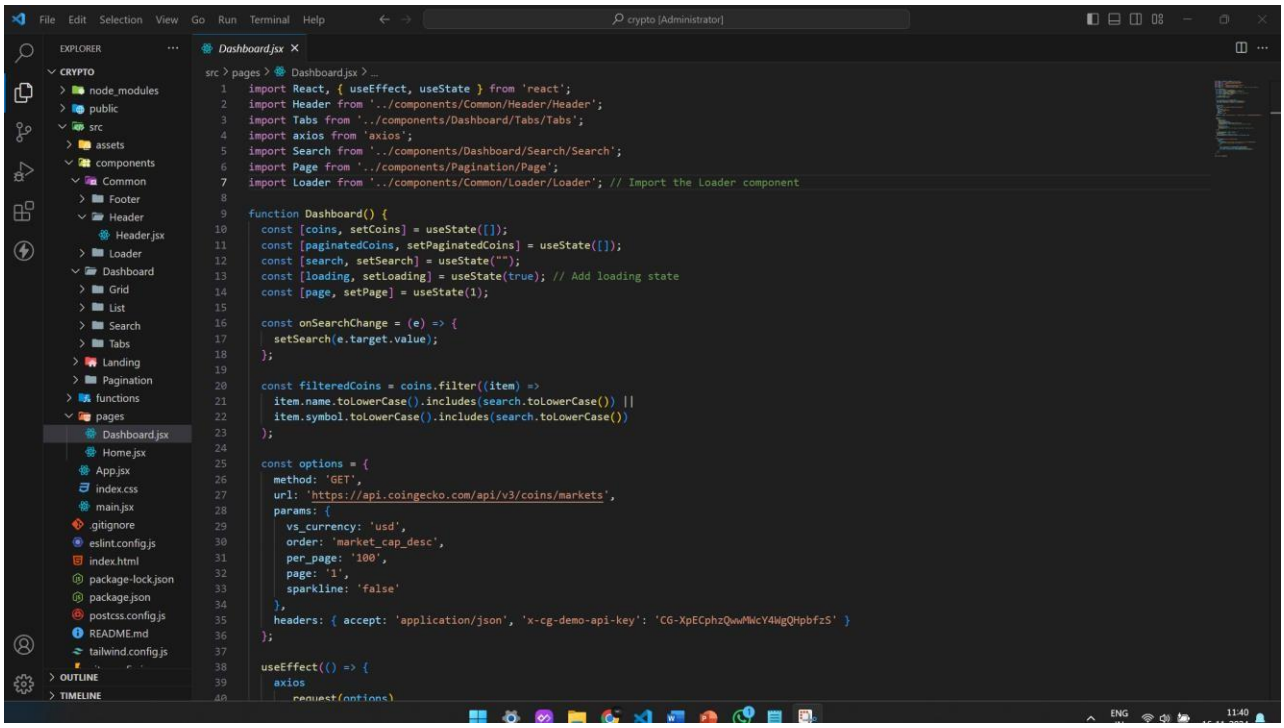
```jsx
import React from 'react'
import { Link } from 'react-router-dom'

function Landing() {
  return (
    <>
      <div className="min-h-screen bg-gray-950 text-white">
       <main className="container mx-auto px-4 py-16">
           <div className="flex flex-col lg:flex-row items-center">
              <div className="lg:w-1/2 space-y-8 pl-4">
                 <h2 className="text-4xl md:text-5xl lg:text-6xl font-bold leading-tight">
                    Track Crypto
                    <span className="block text-blue-500">Real Time.</span>
                 </h2>
                 <p className="text-lg md:text-xl text-gray-400">
                    Track crypto through a public api in real time. Visit the dashboard to do so!
                 </p>
                 <div className="space-y-4 sm:space-y-0 sm:space-x-4">
                  <Link to="/dashboard"><button className="w-full sm:w-auto px-4 py-2 bg-blue-600 hover:bg-blue-700 text-white rounded">Dashboard</button></Link>
                    <button className="w-full sm:w-auto px-4 py-2 border border-blue-500 text-blue-500 hover:bg-blue-500 hover:text-white rounded">
                       Share App
                    </button>
                 </div>
              </div>
              <div className="lg:w-1/2 mt-12 lg:mt-0">
                 <div className="relative w-full max-w-[300px] mx-auto">
                    <div className="absolute inset-0 bg-gradient-to-br from-blue-400 to-purple-500 rounded-[3rem] transform rotate-6 animate-pulse"></div>
                    <div className="relative bg-gray-900 rounded-[3rem] p-3 shadow-2xl overflow-hidden device-frame">
                       <div className="absolute top-0 left-1/2 transform -translate-x-1/2 w-1/3 h-7 bg-black rounded-b-2xl z-10"></div>
                       <div className="relative rounded-[2.5rem] overflow-hidden shadow-inner">
                          <div className="absolute inset-0 bg-gradient-to-tr from-blue-400/20 to-purple-500/20 z-10 glare-effect"></div>
                          <img
                             src="src\assets\exchange-bitcoin-svgrepo-com.svg"
                             width={300}
                             height={600}
                             alt="CryptoTracker App"
                             className="rounded-[2.5rem] shadow-inner animate-float"
                          />
                       </div>
                    </div>
```

Header Component:



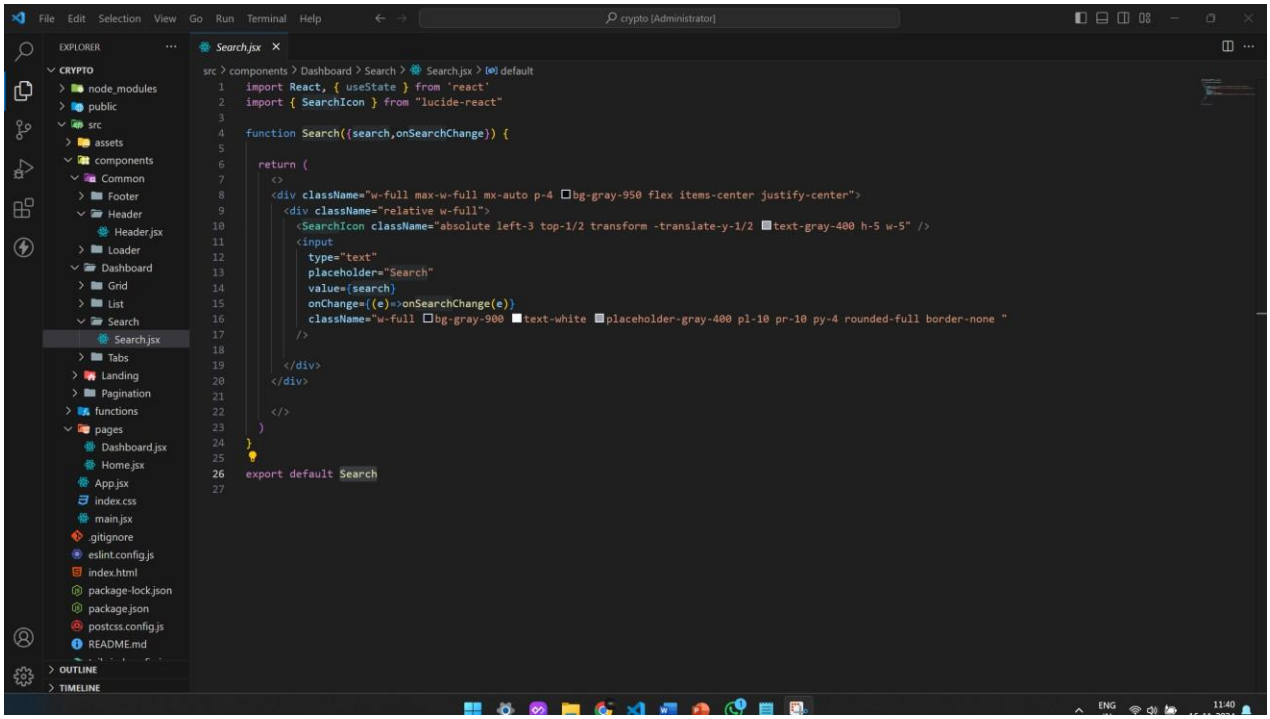
```jsx
import React, { useState, useEffect } from "react"
import { Link } from "react-router-dom"


export default function LandingPage() {
  const [mobileMenuOpen, setMobileMenuOpen] = useState(false)

  useEffect(() => {
    if (mobileMenuOpen) {
      document.body.style.overflow = 'hidden'
    } else {
      document.body.style.overflow = 'unset'
    }
  }, [mobileMenuOpen])

  return (
    <div className="min-h-8 bg-gray-950 text-white">
      <header className="container mx-auto px-4 py-6 flex justify-between items-center relative z-50 pl-10">
        <h1 className="text-3xl font-bold">CryptoTracker<span className=" text-blue-500"> .</span></h1>
        <nav className="hidden md:flex items-center space-x-4 font-semibold pr-16">
          <Link to="/home" className="text-gray-300 hover:text-white ">Home</Link>
          <Link to="/" className="text-gray-300 hover:text-white">Compare</Link>
          <Link to="/" className="text-gray-300 hover:text-white">Watchlist</Link>
          <Link to="/dashboard"><button className="px-4 py-2 bg-blue-600 hover:bg-blue-700 text-white rounded-full font-semibold">Dashboard</button></Link>
        </nav>
        <button
          className="md:hidden z-50"
          onClick={() => setMobileMenuOpen(!mobileMenuOpen)}
        >
          {mobileMenuOpen ? (
            <svg xmlns="http://www.w3.org/2000/svg" width="24" height="24" viewBox="0 0 24 24" fill="none" stroke="currentColor" strokeWidth="2" strokeLinecap="round" strokeLi
              <line x1="18" y1="6" x2="6" y2="18"></line>
              <line x1="6" y1="6" x2="18" y2="18"></line>
            </svg>
          ) : (
            <svg xmlns="http://www.w3.org/2000/svg" width="24" height="24" viewBox="0 0 24 24" fill="none" stroke="currentColor" strokeWidth="2" strokeLinecap="round" strokeLi
              <line x1="3" y1="12" x2="21" y2="12"></line>
              <line x1="3" y1="6" x2="21" y2="6"></line>
              <line x1="3" y1="18" x2="21" y2="18"></line>
            </svg>
```

Dashboard Component:



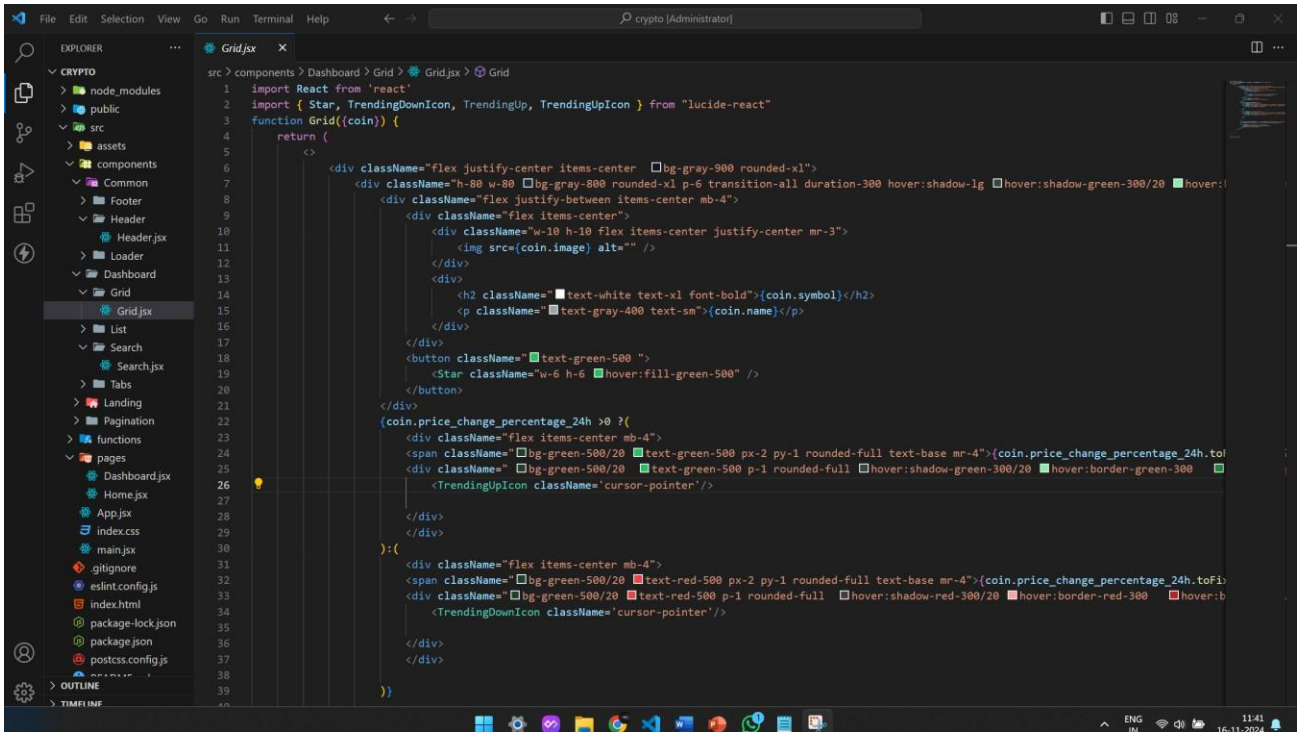
```jsx
import React, { useEffect, useState } from 'react';
import Header from '../components/Common/Header/Header';
import Tabs from '../components/Dashboard/Tabs/Tabs';
import axios from 'axios';
import Search from '../components/Dashboard/Search/Search';
import Page from '../components/Pagination/Page';
import Loader from '../components/Common/Loader/Loader'; // Import the Loader component

function Dashboard() {
  const [coins, setCoins] = useState([]);
  const [paginatedCoins, setPaginatedCoins] = useState([]);
  const [search, setSearch] = useState("");
  const [loading, setLoading] = useState(true); // Add loading state
  const [page, setPage] = useState(1);

  const onSearchChange = (e) => {
    setSearch(e.target.value);
  };

  const filteredCoins = coins.filter((item) =>
    item.name.toLowerCase().includes(search.toLowerCase()) ||
    item.symbol.toLowerCase().includes(search.toLowerCase())
  );

  const options = {
    method: 'GET',
    url: 'https://api.coingecko.com/api/v3/coins/markets',
    params: {
      vs_currency: 'usd',
      order: 'market_cap_desc',
      per_page: '100',
      page: '1',
      sparkline: 'false'
    },
    headers: { accept: 'application/json', 'x-cg-demo-api-key': 'CG-XpECphzQwwMWcY4WgQHpbfzS' }
  };

  useEffect(() => {
    axios
      request(options)
```

Search Component:



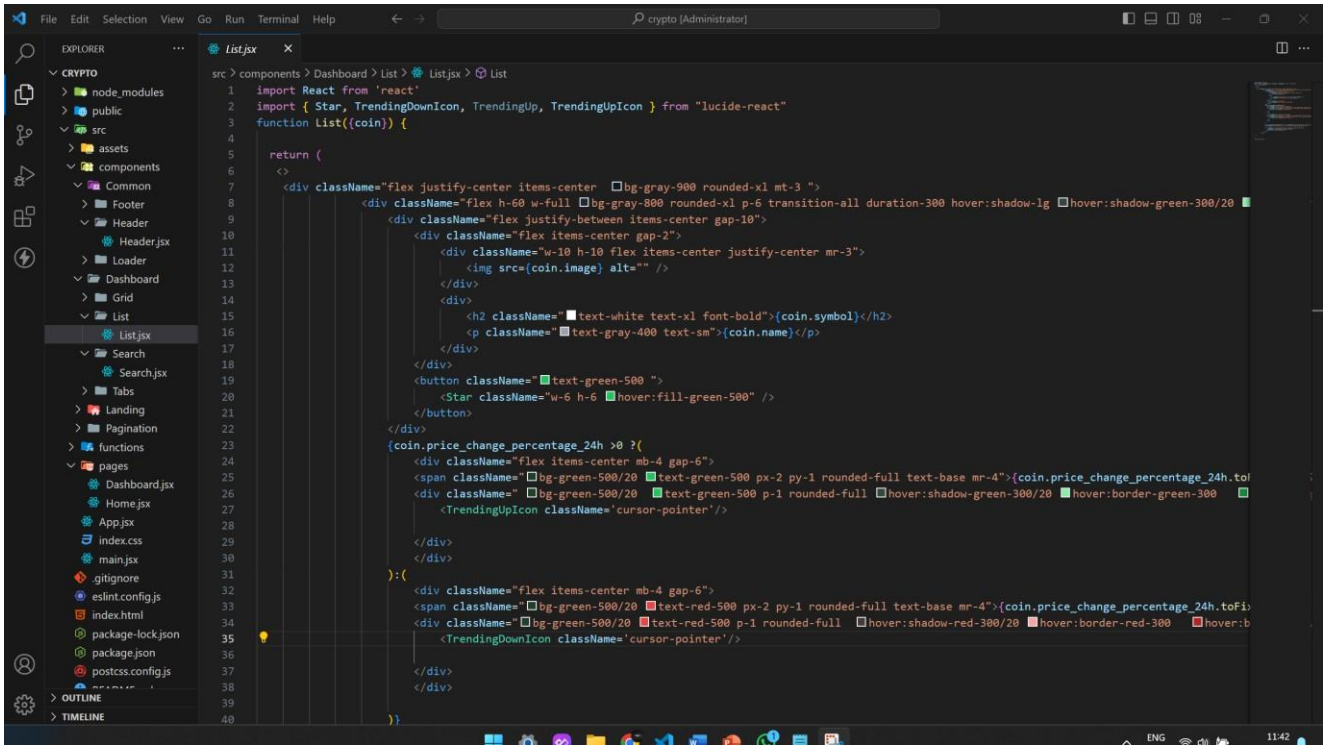
```jsx
import React, { useState } from 'react'
import { SearchIcon } from "lucide-react"

function Search({search,onSearchChange}) {

  return (
    <>
    <div className="w-full max-w-full mx-auto p-4 bg-gray-950 flex items-center justify-center">
      <div className="relative w-full">
        <SearchIcon className="absolute left-3 top-1/2 transform -translate-y-1/2 text-gray-400 h-5 w-5" />
        <input
          type="text"
          placeholder="Search"
          value={search}
          onChange={(e)=>onSearchChange(e)}
          className="w-full bg-gray-900 text-white placeholder-gray-400 pl-10 pr-10 py-4 rounded-full border-none "
        />

      </div>
    </div>

    </>
  )
}
export default Search
```

Grid Component:



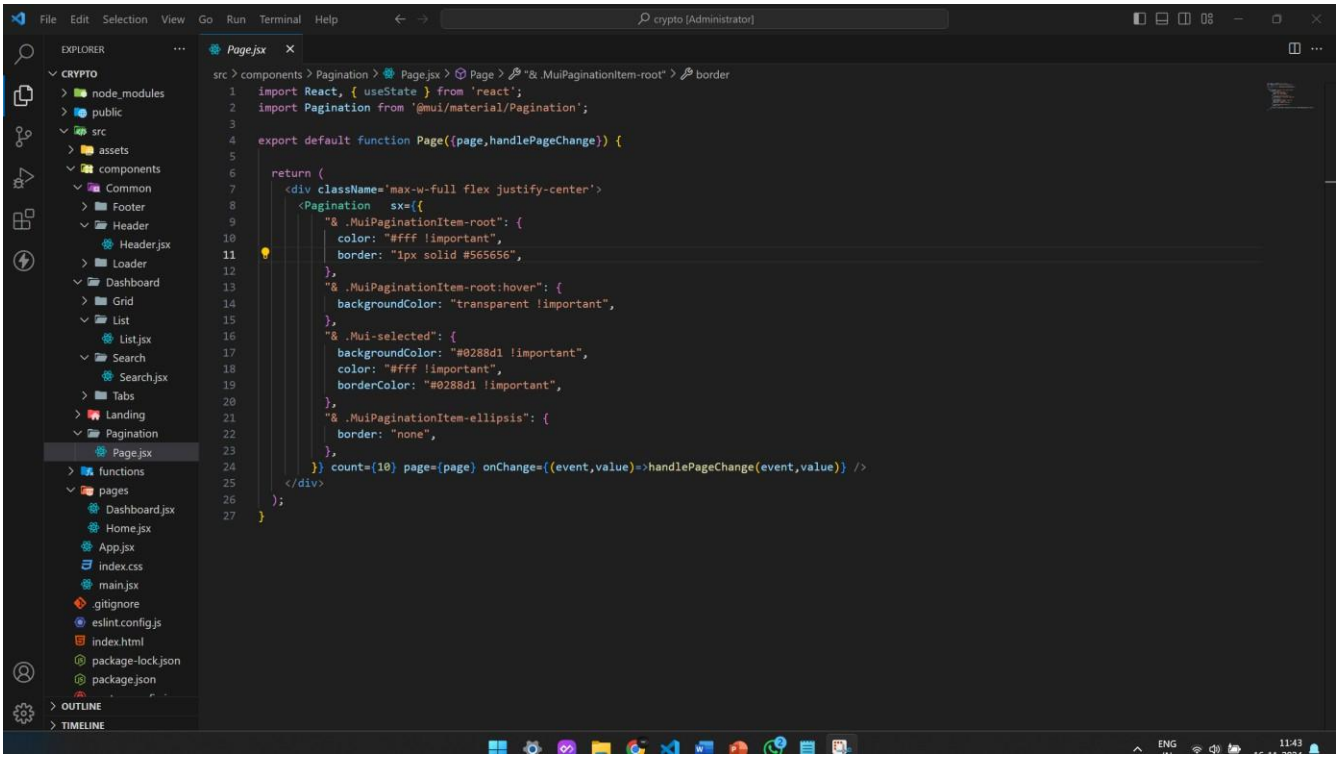
```jsx
import React from 'react'
import { Star, TrendingDownIcon, TrendingUp, TrendingUpIcon } from "lucide-react"
function Grid({coin}) {
    return (
        <>
            <div className="flex justify-center items-center  bg-gray-900 rounded-xl">
                <div className="h-80 w-80 bg-gray-800 rounded-xl p-6 transition-all duration-300 hover:shadow-lg hover:shadow-green-300/20 hover:
                    <div className="flex justify-between items-center mb-4">
                        <div className="flex items-center">
                            <div className="w-10 h-10 flex items-center justify-center mr-3">
                                <img src={coin.image} alt="" />
                            </div>
                            <div>
                                <h2 className="text-white text-xl font-bold">{coin.symbol}</h2>
                                <p className="text-gray-400 text-sm">{coin.name}</p>
                            </div>
                        </div>
                        <button className="text-green-500 ">
                            <Star className="w-6 h-6 hover:fill-green-500" />
                        </button>
                    </div>
                    {coin.price_change_percentage_24h >0 ?(
                        <div className="flex items-center mb-4">
                        <span className="bg-green-500/20 text-green-500 px-2 py-1 rounded-full text-base mr-4">{coin.price_change_percentage_24h.to
                        <div className=" bg-green-500/20  text-green-500 p-1 rounded-full hover:shadow-green-300/20 hover:border-green-300
                            <TrendingUpIcon className='cursor-pointer'/>

                        </div>
                        </div>
                    ):(
                        <div className="flex items-center mb-4">
                        <span className="bg-green-500/20 text-red-500 px-2 py-1 rounded-full text-base mr-4">{coin.price_change_percentage_24h.toFi
                        <div className="bg-green-500/20 text-red-500 p-1 rounded-full  hover:shadow-red-300/20 hover:border-red-300  hover:b
                            <TrendingDownIcon className='cursor-pointer'/>

                        </div>
                        </div>

                    )}
```

List Component:

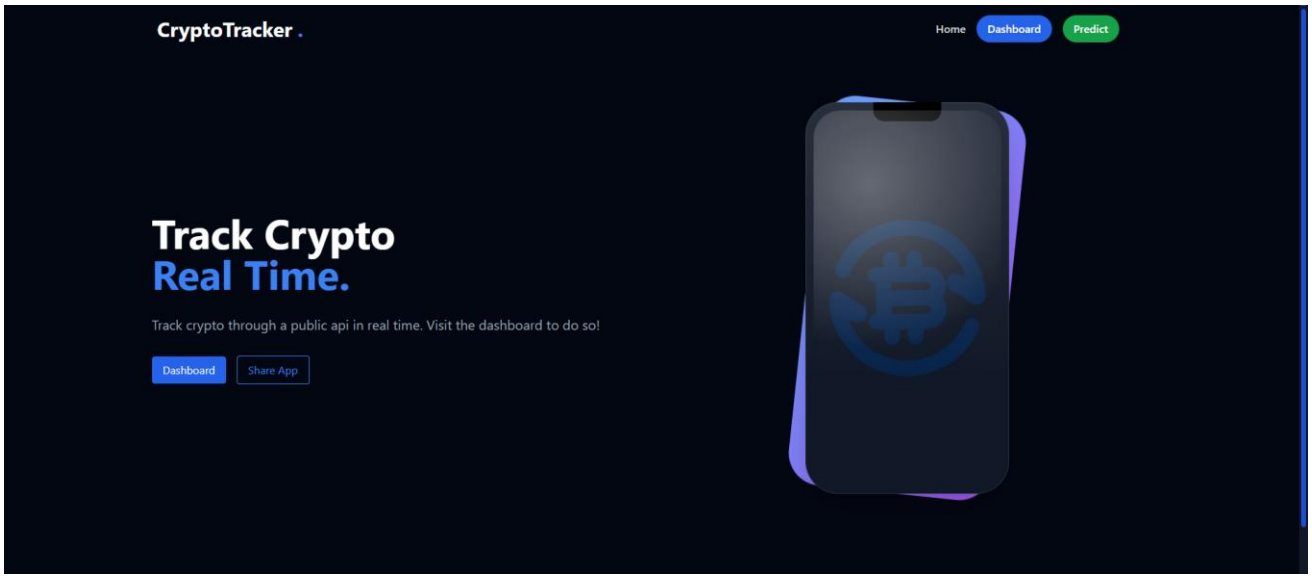


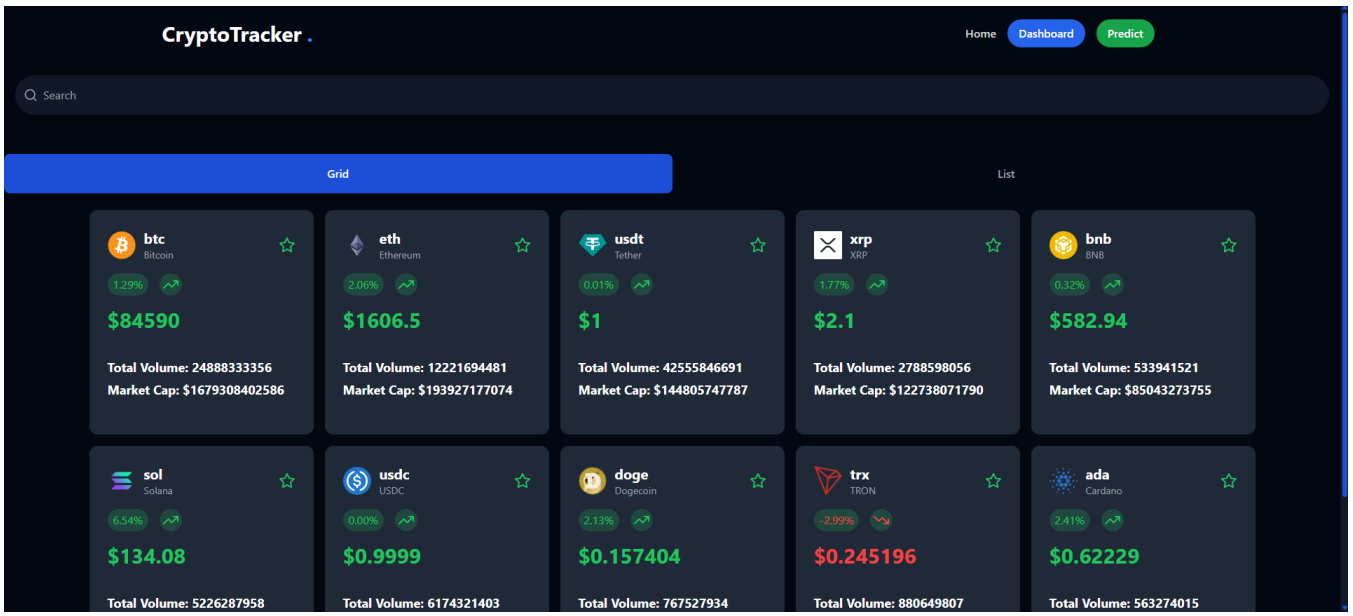
```jsx
import React from 'react'
import { Star, TrendingDownIcon, TrendingUp, TrendingUpIcon } from "lucide-react"
function List({coin}) {

  return (
   <>
    <div className="flex justify-center items-center  bg-gray-900 rounded-xl mt-3 ">
                <div className="flex h-60 w-full bg-gray-800 rounded-xl p-6 transition-all duration-300 hover:shadow-lg hover:shadow-green-300/20
                    <div className="flex justify-between items-center gap-10">
                        <div className="flex items-center gap-2">
                            <div className="w-10 h-10 flex items-center justify-center mr-3">
                                <img src={coin.image} alt="" />
                            </div>
                            <div>
                                <h2 className="text-white text-xl font-bold">{coin.symbol}</h2>
                                <p className="text-gray-400 text-sm">{coin.name}</p>
                            </div>
                        </div>
                        <button className="text-green-500 ">
                            <Star className="w-6 h-6 hover:fill-green-500" />
                        </button>
                    </div>
                    {coin.price_change_percentage_24h >0 ?(
                        <div className="flex items-center mb-4 gap-6">
                        <span className="bg-green-500/20 text-green-500 px-2 py-1 rounded-full text-base mr-4">{coin.price_change_percentage_24h.to
                        <div className=" bg-green-500/20  text-green-500 p-1 rounded-full hover:shadow-green-300/20 hover:border-green-300
                            <TrendingUpIcon className='cursor-pointer'/>

                        </div>
                        </div>
                    ):(
                        <div className="flex items-center mb-4 gap-6">
                        <span className="bg-green-500/20 text-red-500 px-2 py-1 rounded-full text-base mr-4">{coin.price_change_percentage_24h.toFi
                        <div className="bg-green-500/20 text-red-500 p-1 rounded-full  hover:shadow-red-300/20 hover:border-red-300  hover:b
                            <TrendingDownIcon className='cursor-pointer'/>

                        </div>
                        </div>

                    )}
```

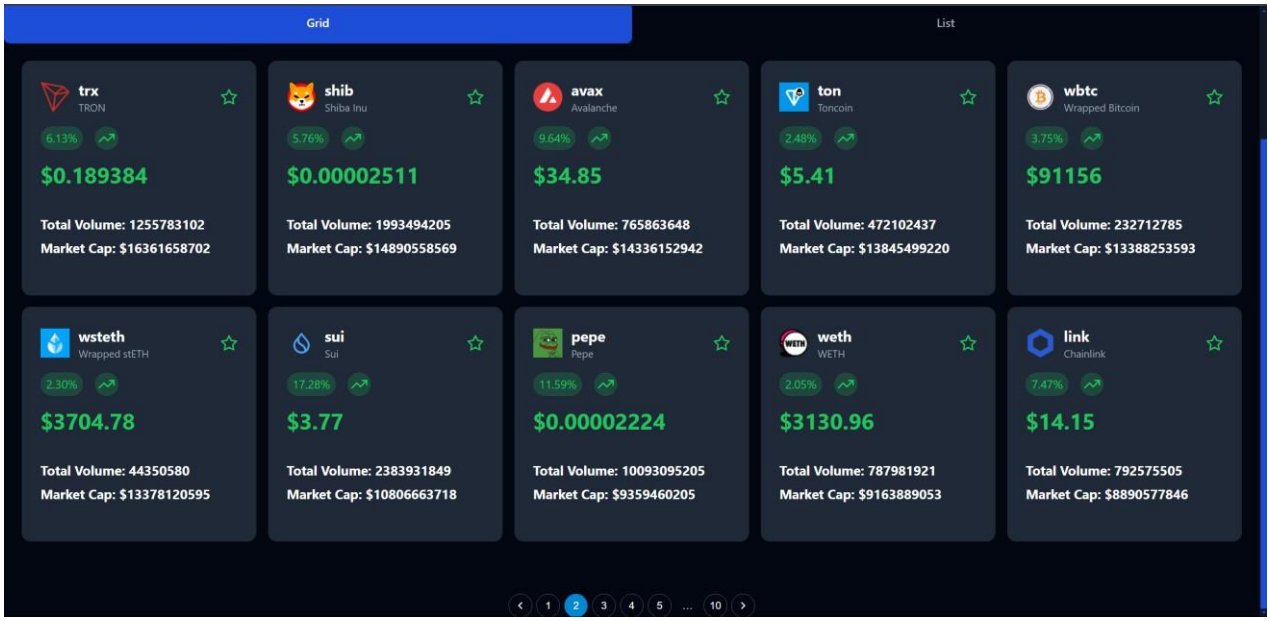
Pagination Component:

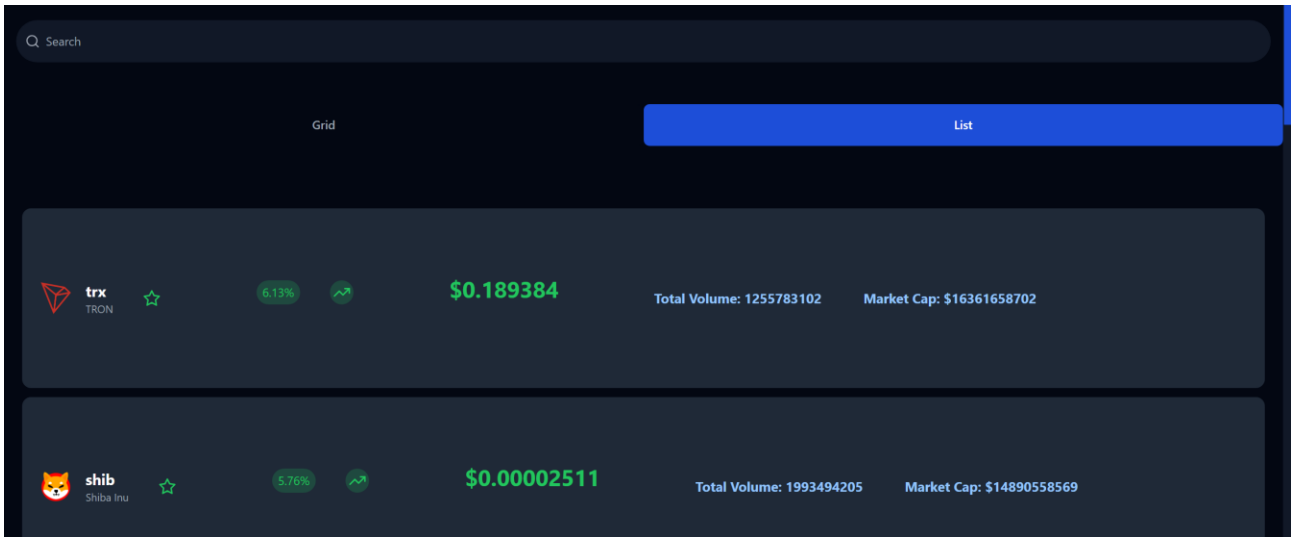


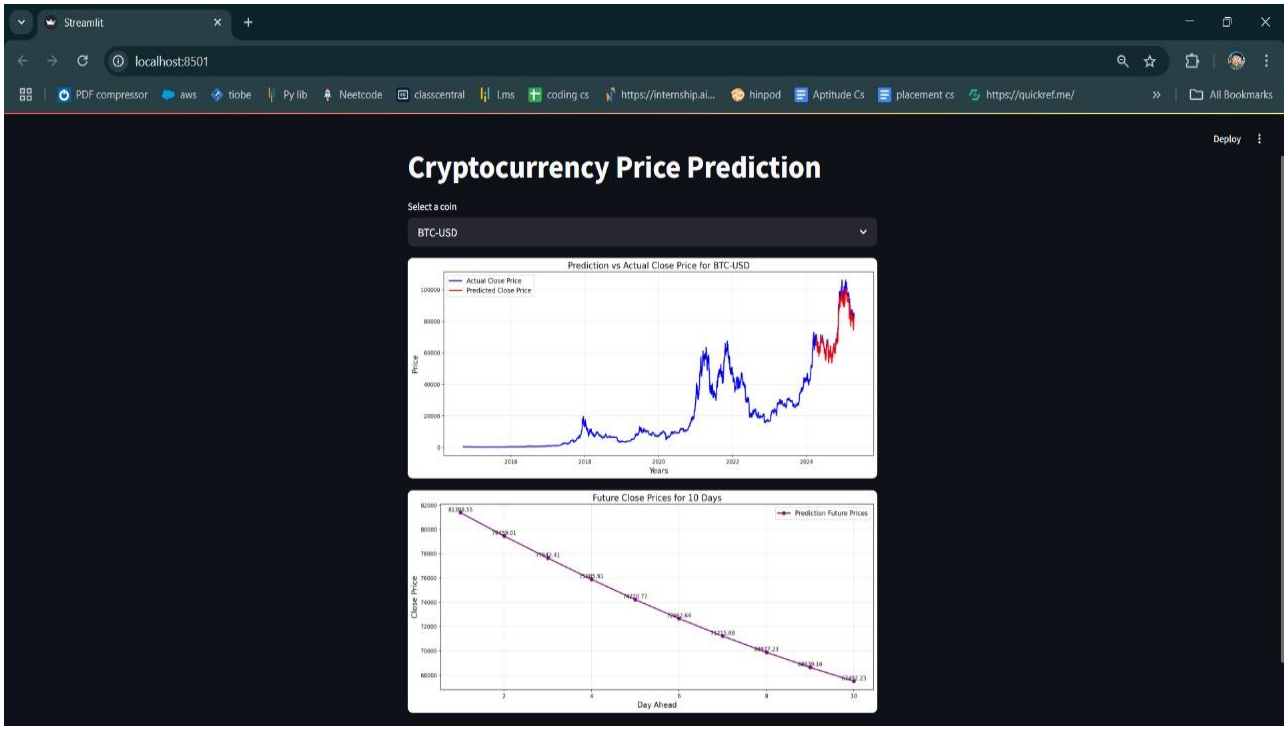
1.1 RESULT


CryptoTracker .
Home
Dashboard
Predict
Track Crypto
Real Time.
Track crypto through a public api in real time. Visit the dashboard to do so!
Dashboard
Share App

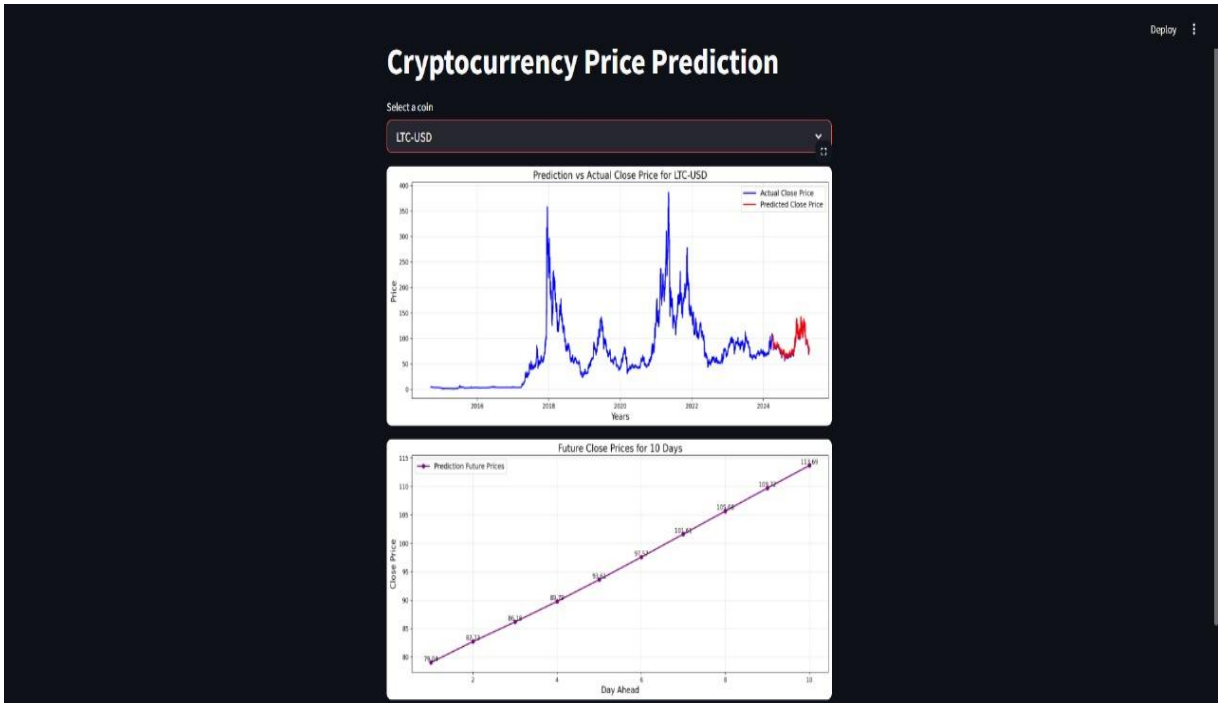

CryptoTracker .
Home
Dashboard
Predict
Search
Grid
List
btc
Bitcoin
1.29%
$84590
Total Volume: 24888333356
Market Cap: $1679308402586
eth
Ethereum
2.06%
$1606.5
Total Volume: 12221694481
Market Cap: $193927177074
usdt
Tether
0.01%
$1
Total Volume: 42555846691
Market Cap: $144805747787
xrp
XRP
1.77%
$2.1
Total Volume: 2788598056
Market Cap: $122738071790
bnb
BNB
0.32%
$582.94
Total Volume: 533941521
Market Cap: $85043273755
sol
Solana
6.54%
$134.08
Total Volume: 5226287958
usdc
USDC
0.00%
$0.9999
Total Volume: 6174321403
doge
Dogecoin
2.13%
$0.157404
Total Volume: 767527934
trx
TRON
-2.99%
$0.245196
Total Volume: 880649807
ada
Cardano
2.41%
$0.62229
Total Volume: 563274015

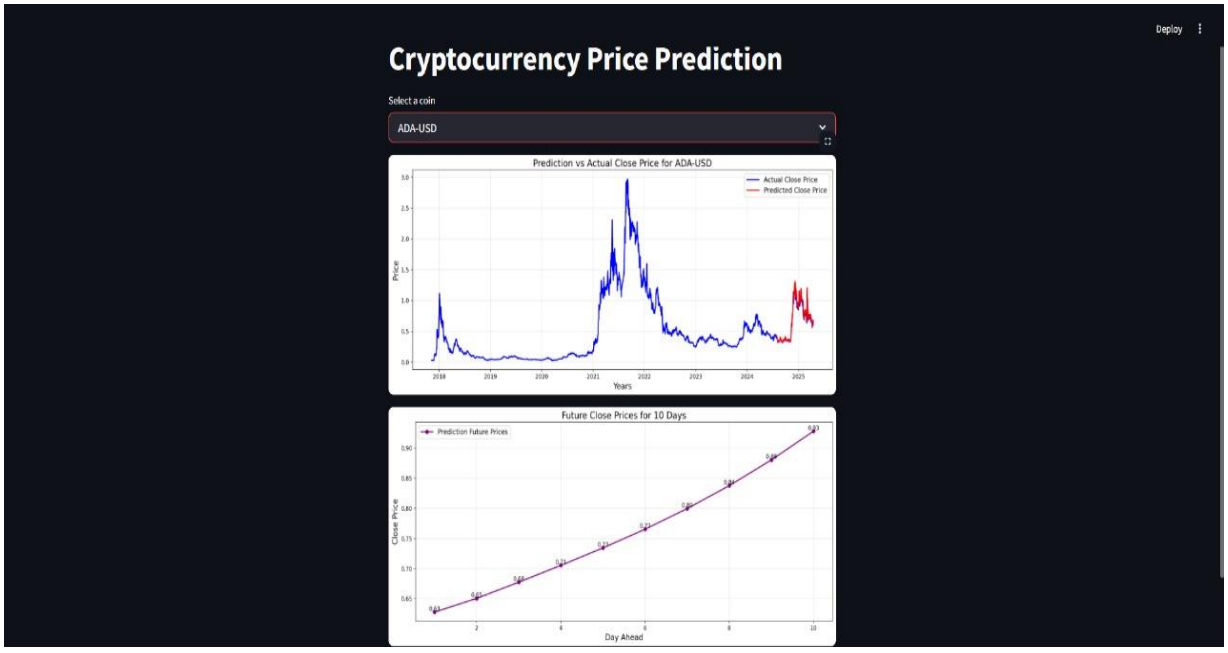

Grid
List
trx
TRON
6.13%
$0.189384
Total Volume: 1255783102
Market Cap: $16361658702
shib
Shiba Inu
5.76%
$0.00002511
Total Volume: 1993494205
Market Cap: $14890558569
avax
Avalanche
9.64%
$34.85
Total Volume: 765863648
Market Cap: $14336152942
ton
Toncoin
2.48%
$5.41
Total Volume: 472102437
Market Cap: $13845499220
wbtc
Wrapped Bitcoin
3.75%
$91156
Total Volume: 232712785
Market Cap: $13388253593
wsteth
Wrapped stETH
2.30%
$3704.78
Total Volume: 44350580
Market Cap: $13378120595
sui
Sui
17.28%
$3.77
Total Volume: 2383931849
Market Cap: $10806663718
pepe
Pepe
11.59%
$0.00002224
Total Volume: 10093095205
Market Cap: $9359460205
weth
WETH
2.05%
$3130.96
Total Volume: 787981921
Market Cap: $9163889053
link
Chainlink
7.47%
$14.15
Total Volume: 792575505
Market Cap: $8890577846
1 2 3 4 5 ... 10

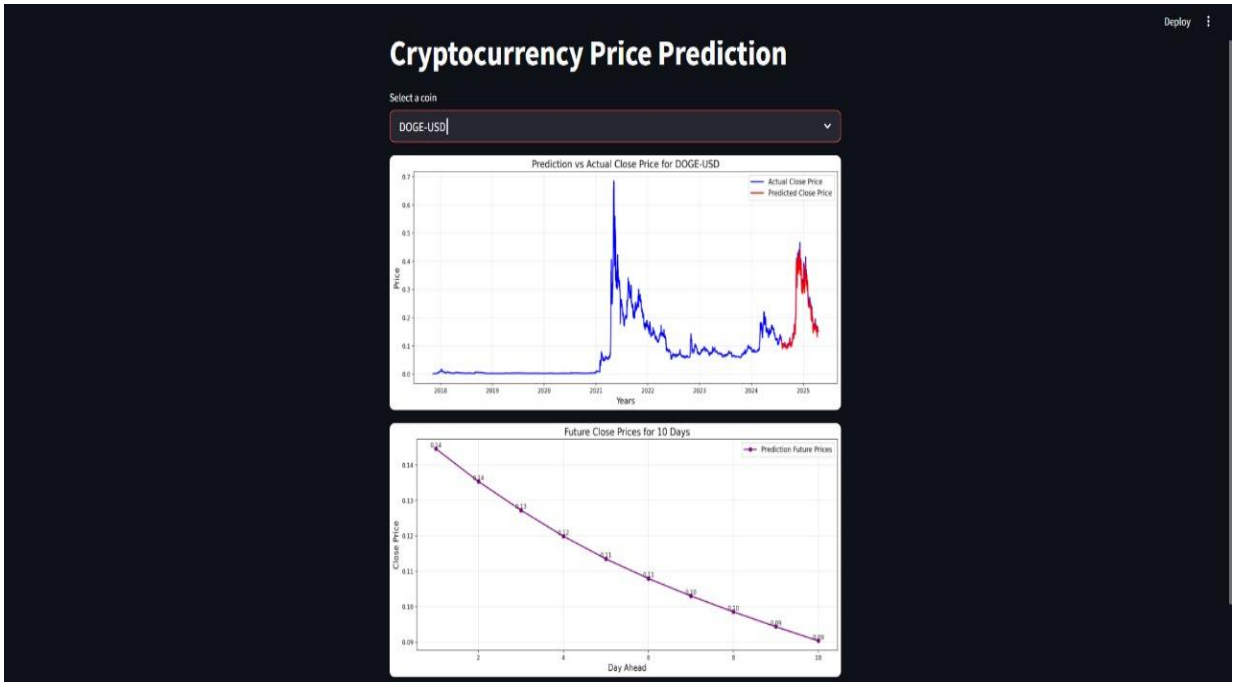

Search
Grid
List
trx
TRON
6.13%
$0.189384
Total Volume: 1255783102
Market Cap: $16361658702
shib
Shiba Inu
5.76%
$0.00002511
Total Volume: 1993494205
Market Cap: $14890558569


Streamlit
localhost:8501
Deploy
Cryptocurrency Price Prediction
Select a coin
BTC-USD
Prediction vs Actual Close Price for BTC-USD
Actual Close Price
Predicted Close Price
Price
Years
Future Close Prices for 10 Days
Prediction Future Prices
Close Price
Day Ahead


Deploy
Cryptocurrency Price Prediction
Select a coin
ETH-USD
Prediction vs Actual Close Price for ETH-USD
Actual Close Price
Predicted Close Price
Price
Years
Future Close Prices for 10 Days
Prediction Future Prices
Close Price
Day Ahead

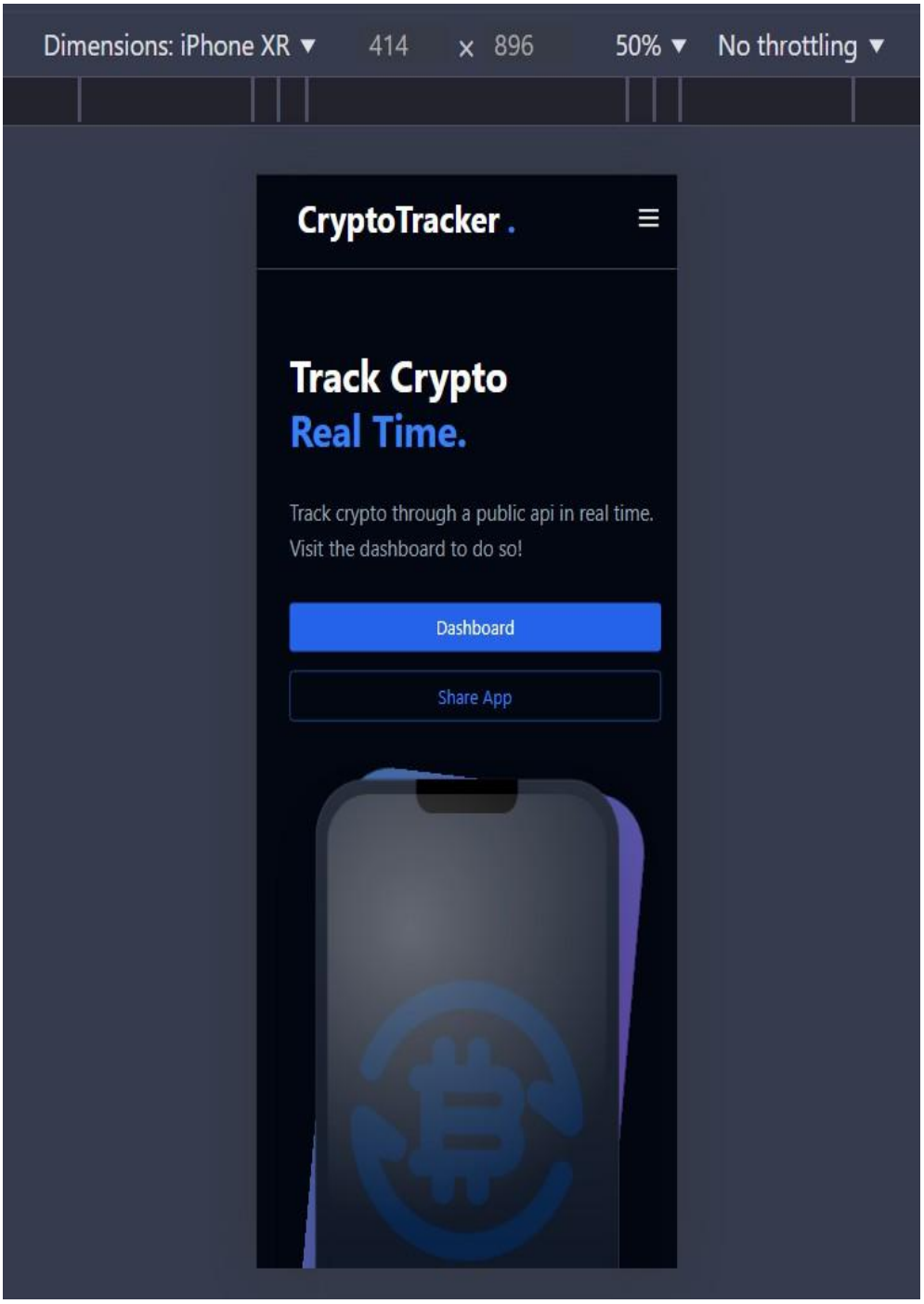

Deploy
Cryptocurrency Price Prediction
Select a coin
LTC-USD
Prediction vs Actual Close Price for LTC-USD
Actual Close Price
Predicted Close Price
Price
Years
Future Close Prices for 10 Days
Prediction Future Prices
Close Price
Day Ahead

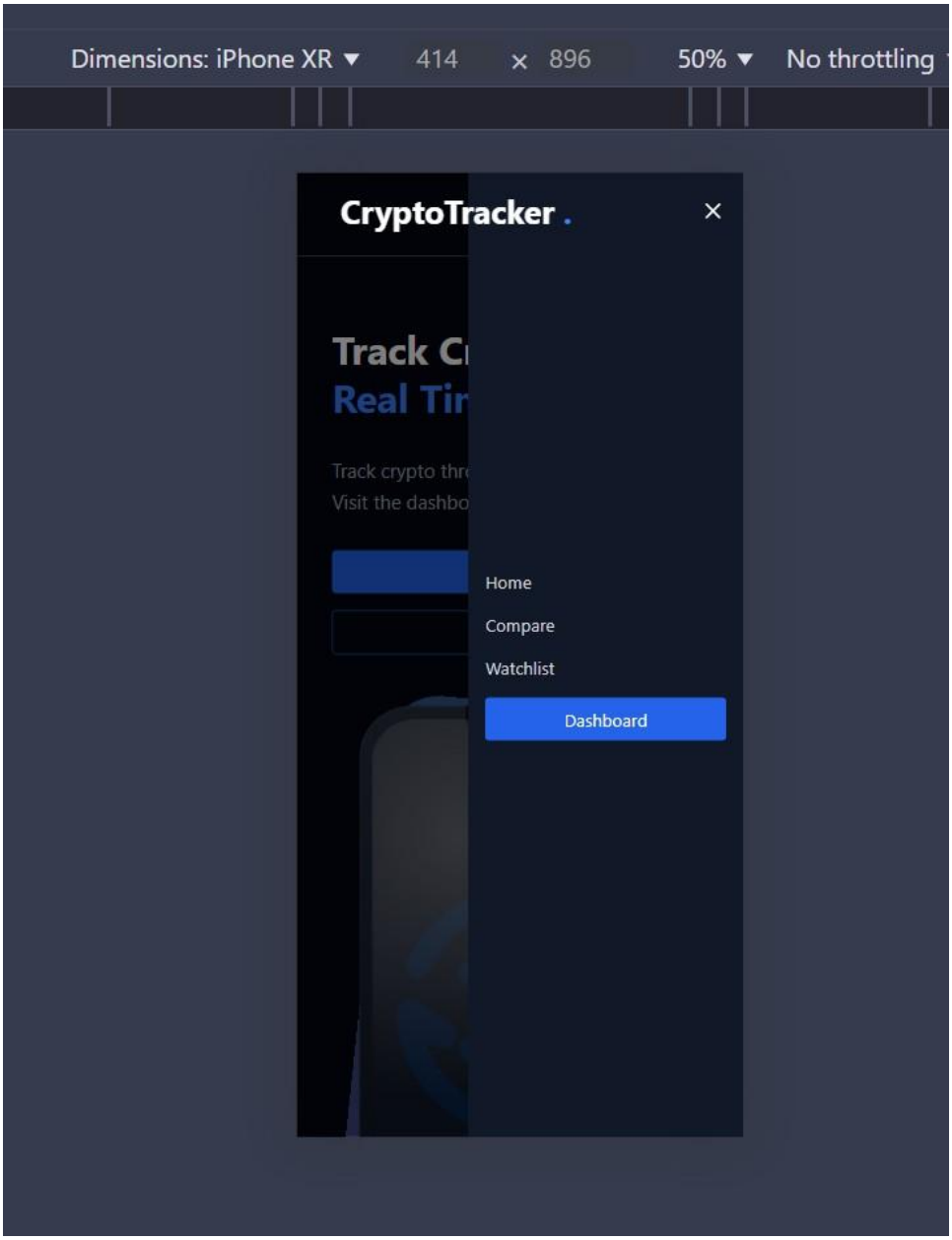

Deploy
Cryptocurrency Price Prediction
Select a coin
ADA-USD
Prediction vs Actual Close Price for ADA-USD
Actual Close Price
Predicted Close Price
Price
Years
Future Close Prices for 10 Days
Prediction Future Prices
Close Price
Day Ahead


Deploy
Cryptocurrency Price Prediction
Select a coin
DOGE-USD
Prediction vs Actual Close Price for DOGE-USD
Actual Close Price
Predicted Close Price
Price
Years
Future Close Prices for 10 Days
Prediction Future Prices
Close Price
Day Ahead


Deploy
Cryptocurrency Price Prediction
Select a coin
SOL-USD
Prediction vs Actual Close Price for SOL-USD
Actual Close Price
Predicted Close Price
Price
Years
Future Close Prices for 10 Days
Prediction Future Prices
Close Price
Day Ahead

Mobile View:


Dimensions: iPhone XR ▼ 414 x 896 50% ▼ No throttling ▼
CryptoTracker .
Track Crypto
Real Time.
Track crypto through a public api in real time.
Visit the dashboard to do so!
Dashboard
Share App


Dimensions: iPhone XR
414
x
896
50%
No throttling
CryptoTracker .
Home
Compare
Watchlist
Dashboard

TIMELINE

Phase	Timeline
Idea & Planning	Week 1
Model Development	Weeks 2–3
Frontend (Streamlit)	Week 4
Integration & Alerts	Week 5
Testing & Deployment	Week 6
Launch & Marketing	Week 7 onward

Planning and research phase: This would include market research, competitive analysis, and creating a detailed project plan. This phase could take 1–2 weeks.

Design phase: This would include designing the system layout, the user interface and user experience, and any associated mobile responsiveness. This phase could take 2–4 weeks.

Development phase: This would include developing the software components of the system, such as real-time data integration from public APIs, implementation of the alert system, and development of AI-based price prediction models using LSTM. This phase could take 4–8 weeks.

Testing phase: This would include testing the system to ensure it is working properly, such as testing live data updates, alert notifications, model prediction accuracy, and user interface responsiveness. This phase could take 1–2 weeks.

Deployment phase: This would include deploying the software components of the system to a cloud environment, integrating APIs and the prediction dashboard, and preparing the platform for public access. This phase could take 1–2 weeks.

Maintenance phase: This would include ongoing maintenance and updates to the system, such as troubleshooting and bug fixes, retraining AI models, and monitoring the system performance. This phase would continue indefinitely.

CONCLUSION

The Crypto Tracker AI platform successfully combines real-time cryptocurrency tracking with advanced AI-based price prediction to provide users with a powerful, user-friendly tool for monitoring and forecasting market trends. By leveraging live market data from reliable APIs and applying Long Short-Term Memory (LSTM) models, the platform not only displays historical and current prices but also forecasts the next 7–10 days of closing prices for major cryptocurrencies.

Our system offers an intuitive frontend built with React.js and styled using Tailwind CSS, while the Streamlit-based AI module provides visual predictions powered by models trained using Python, Keras, and yfinance data. With this hybrid approach, the platform caters to both casual users seeking real-time tracking and premium users interested in predictive insights, making it versatile and scalable.

By offering features like custom alerts, moving average visualizations, and future forecasts, the platform empowers investors to make data-driven decisions in the volatile crypto market. This project demonstrates the practical application of AI in financial technology and opens doors for future enhancements, such as integrating news-based sentiment analysis, supporting more coins, or even enabling DeFi analytics.

Overall, Crypto Tracker AI represents a promising step toward bridging the gap between traditional crypto dashboards and intelligent forecasting tools, helping users invest smarter, faster, and more confidently.