Department of Information Technology

Pimpri Chinchwad Education Trust's

Pimpri Chinchwad College of Engineering

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TOPIC**: Dialectos**

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Contents

1. Abstract

EthDaddy is a blockchain-based domain name service that provides unique, non-fungible token domain names stored on the Ethereum blockchain. These domain names are completely decentralized, allowing for uncensorable websites and secure cryptocurrency transactions. Our Application is dedicated to creating a more decentralized and censorship-resistant internet by leveraging the power of blockchain technology. Our Application services include creating domain names, hosting uncensorable websites, and providing a browser extension for accessing decentralized websites and sending cryptocurrency payments.

In addition, EthDaddy Domains offers a suite of tools for developers, including domain resolution APIs and domain name service (DNS) servers, allowing them to build decentralized applications (dApps) that can interact with blockchain-based domain names.

2. Introduction

EthDaddy Domains uses the Ethereum blockchain to provide users with domain names that are stored on the blockchain as non-fungible tokens (NFTs). This means that once a domain is purchased, it is permanently recorded on the Ethereum blockchain, and the owner has complete control over it. This makes it impossible for anyone, including the EthDaddy Domains application, to take down or transfer ownership of a domain without the owner's consent.

One of the key features of EthDaddy Domains is its ability to provide uncensorable websites. Since the domains are stored on a decentralized blockchain, they cannot be taken down by any centralized authority. This makes them ideal for individuals and organizations that want to create content without fear of censorship.

EthDaddy Domains also offers several other features, including integration with cryptocurrency wallets, easy website building tools, and the ability to use a domain as a decentralized identity. Overall, EthDaddy Domains is a pioneering service that offers a decentralized alternative to traditional domain name services, and aims to provide greater freedom and security to its users..

3. Aim

EthDaddy Domains is an applicatoin that aims to make blockchain technology more accessible and user-friendly for the general public. Specifically, EthDaddy Domains provides a decentralized domain name system (DNS) that allows users to create and manage their own blockchain-based domain names. The company's goal is to enable users to have full control over their online identity and data, while also ensuring that their domains are censorship-resistant and immune to domain seizures. EthDaddy Domains believes that blockchain-based DNS systems can help promote free speech, privacy, and security on the internet, and ultimately help to create a more decentralized and democratic online world.

4. Motivation

The motivation behind its development was to address several issues associated with traditional domain name registration systems, such as censorship, domain theft, and domain expiration.

One of the main motivations for the development of EthDaddy Domains was to provide a censorship-resistant domain name system. Traditional domain name systems rely on centralized authorities that can censor or block access to domains based on political or legal reasons. By contrast, EthDaddy Domains uses blockchain technology to create domain names that are not controlled by any central authority, making them resistant to censorship and domain seizure.

Another motivation for the development of EthDaddy Domains was to address the issue of domain theft. Traditional domain name systems can be vulnerable to domain theft, where a hacker gains control of a domain and sells it to a third party. With EthDaddy Domains, domain owners have complete control over their domain names and can transfer ownership securely using blockchain technology.

Finally, EthDaddy Domains was also developed to provide a more secure and reliable domain name system. Traditional domain name systems can be vulnerable to domain expiration, where a domain name is no longer valid if the owner forgets to renew it. With EthDaddy Domains, domain names are stored on a blockchain, making them permanent and impossible to expire or be deleted.

5. Literature Survey

Decentralized domain systems (DDS) are a type of internet infrastructure that allows users to register and manage their own domain names without relying on centralized authorities such as domain name registrars or certificate authorities. In this literature survey, we will explore some of the recent research and developments in the field of DDS.

- "Decentralized Domain Name Systems on the Blockchain" by Mehdi Zareei and Amirreza Bahrami. This paper proposes a DDS based on blockchain technology that allows users to register and manage their own domain names without relying on centralized authorities. The authors provide a detailed description of the system architecture and analyze its performance and security properties.

- "Namecoin: A Decentralized Name Registration System Based on Bitcoin" by Jeremy Rand. This paper presents Namecoin, a DDS based on the Bitcoin blockchain. The system allows users to register and manage their own domain names using a decentralized consensus mechanism. The author discusses the system's features, performance, and security properties.

- "A Secure and Efficient Decentralized Domain Name System" by Muhammad A. Arif et al. This paper proposes a DDS based on a hybrid blockchain architecture that combines proof-of-work and proof-of-stake consensus mechanisms. The system allows users to register and manage their own domain names and provides strong security guarantees against various types of attacks.

- "Blockstack: A Global Naming and Storage System Secured by Blockchain" by Muneeb Ali et al. This paper presents Blockstack, a DDS that uses a combination of blockchain and peer-to-peer networking technologies to provide a decentralized naming and storage system. The authors discuss the system's architecture, security properties, and performance.

- "Decentralized Domain Name Systems: A Comprehensive Survey" by Reza Rejaie et al. This paper provides a comprehensive survey of DDS technologies, including their design principles, system architectures, performance characteristics, and security

properties. The authors also discuss the challenges and opportunities of DDS and identify areas for future research.

Overall, these papers demonstrate the growing interest in DDS and the potential of blockchain and other decentralized technologies to revolutionize internet infrastructure. As DDS continues to evolve, it is likely that we will see new and innovative approaches to decentralized domain registration and management that offer even greater security, privacy, decentralized domain registration and management that offer even greater security, privacy, and user control

6. Problem Statement/Definition

EthDaddy Domains aims to address the problem of internet censorship and domain name seizures by creating decentralized domain names on the blockchain that cannot be censored or taken down by centralized authorities

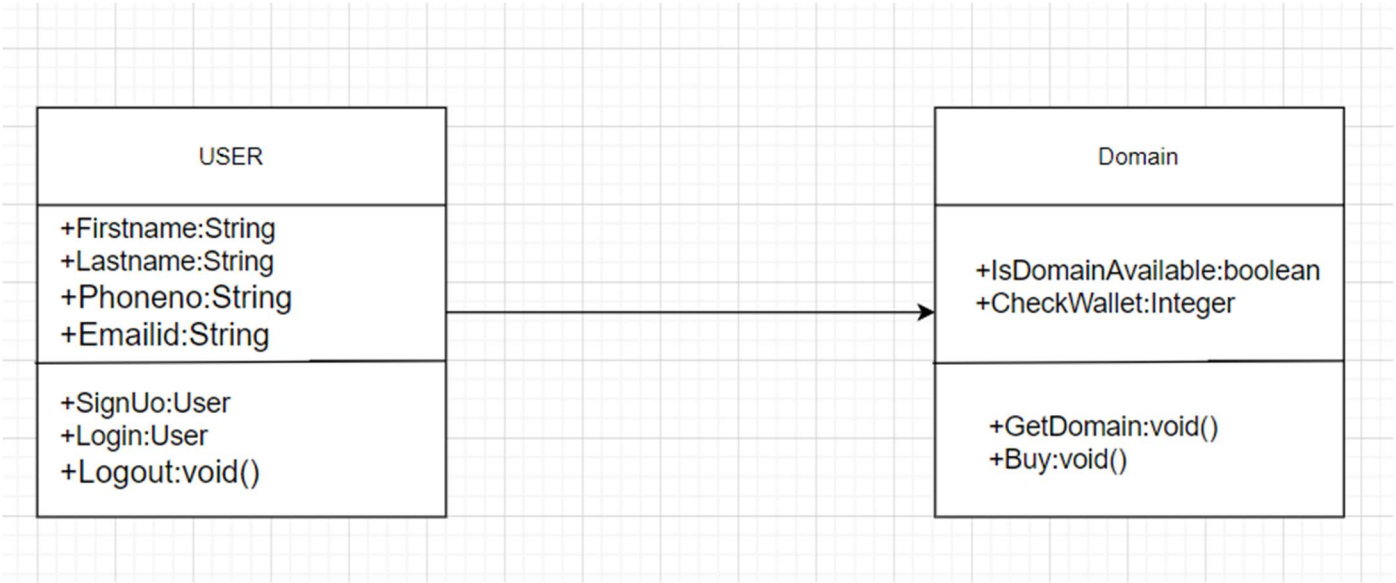
7. Software Requirement Specification

Class Diagram

A class diagram is a type of UML (Unified Modeling Language) diagram that depicts the structure of a system by showing the classes, their attributes, methods, and relationships.

A class is a blueprint or template for creating objects in a system. It defines the attributes (data) and behaviors (methods) of a particular type of object.

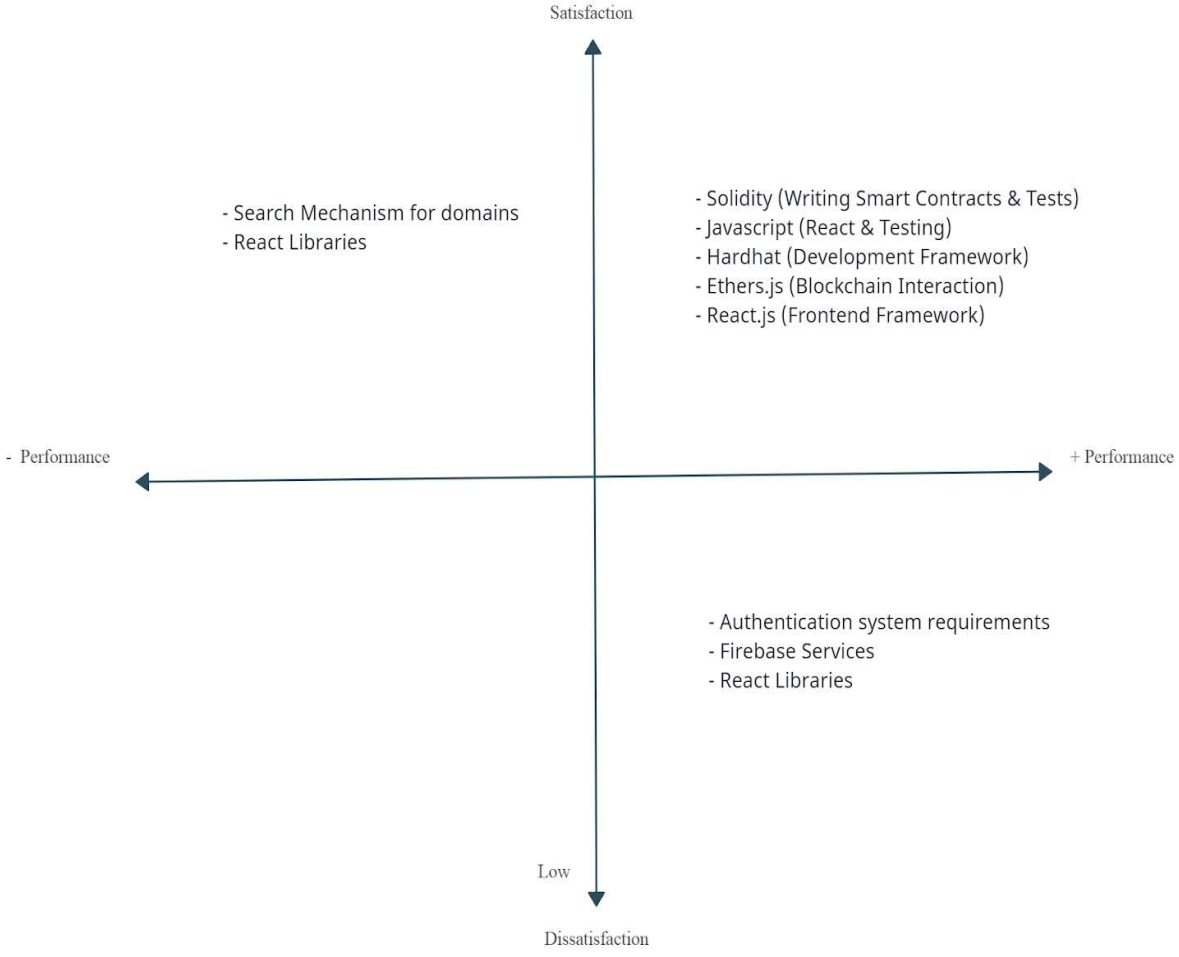
The attributes represent the state of the object, and the methods represent the behavior of the object. The relationships between the classes are represented by different types of associations such as inheritance, composition, aggregation, and dependency.



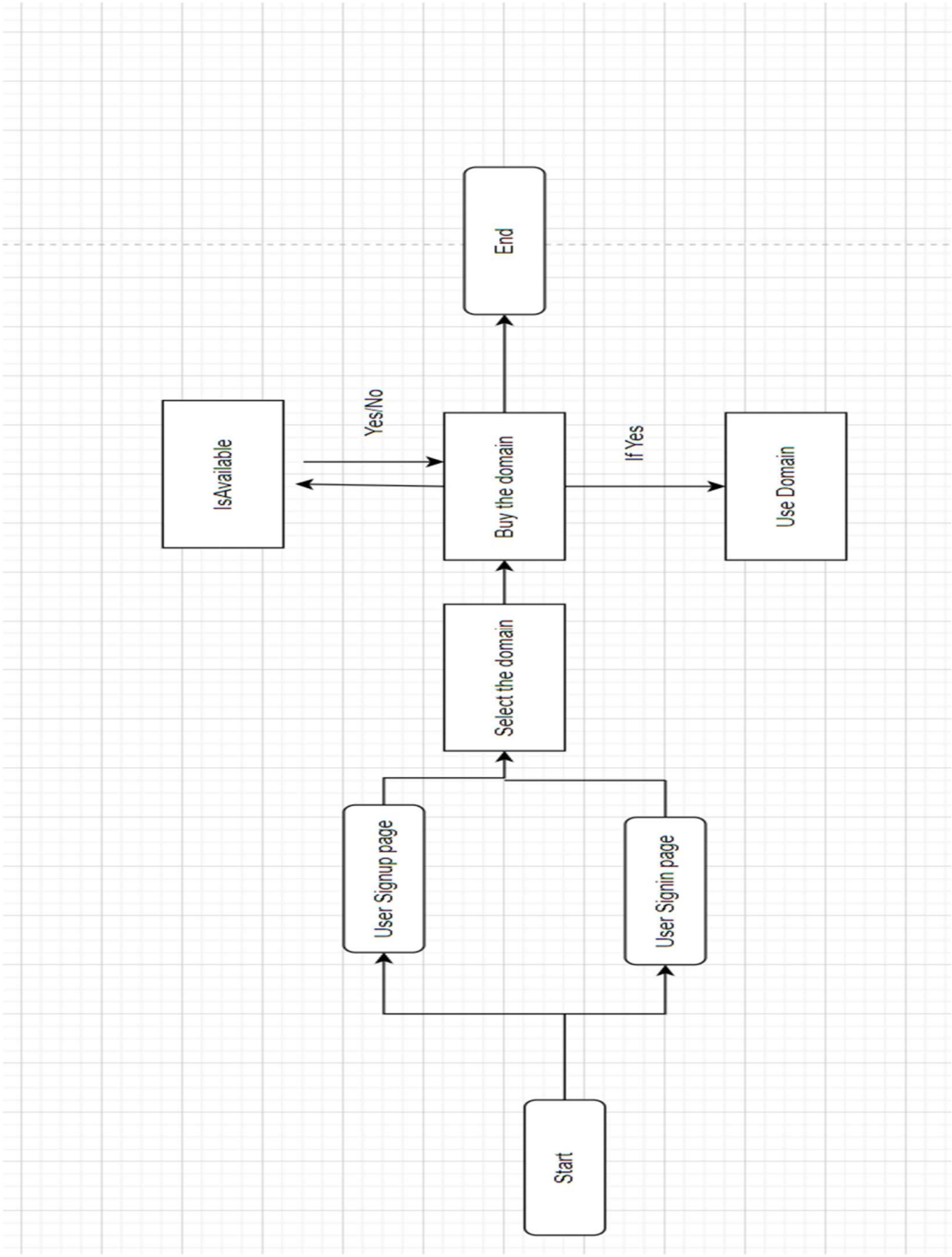
Kano Diagram

A Kano diagram is a tool used in product development and customer satisfaction analysis. It consists of a two-dimensional graph, with one axis representing customer satisfaction and the other axis representing the presence or absence of a particular feature or attribute in the product.

EthDaddy Software Requirements



8. Flowchart


End
IsAvailable
Yes/No
Buy the domain
If Yes
Use Domain
Select the domain
User Signup page
User Signin page
Start

9. Project Requirement Specification

EthDaddy Domains utilizes several technologies to provide its services. Here are some of the technologies it uses:

- Blockchain technology: EthDaddy Domains domains are built on top of the Ethereum blockchain. Ethereum is a decentralized, open-source blockchain platform that allows developers to build decentralized applications (dApps).

- InterPlanetary File System (IPFS): IPFS is a decentralized protocol that enables the creation of a peer-to-peer network for storing and sharing files. EthDaddy Domains uses IPFS to store website content associated with its domain names.

- Smart contracts: EthDaddy Domains uses smart contracts on the Ethereum blockchain to manage the registration and ownership of its domain names. Smart contracts are self-executing contracts with the terms of the agreement between buyer and seller being directly written into lines of code.

- Cryptocurrency wallets: EthDaddy Domains domains are managed through cryptocurrency wallets like MetaMask and Trust Wallet. These wallets enable users to interact with the Ethereum blockchain and manage their domain names.

- Decentralized Name Service (DNS) servers: EthDaddy Domains operates its own decentralized DNS servers, which allow users to access websites associated with its domain names. Unlike traditional DNS servers, which rely on centralized servers to resolve domain names, EthDaddy Domains' DNS servers are distributed across the network, making them resistant to censorship.

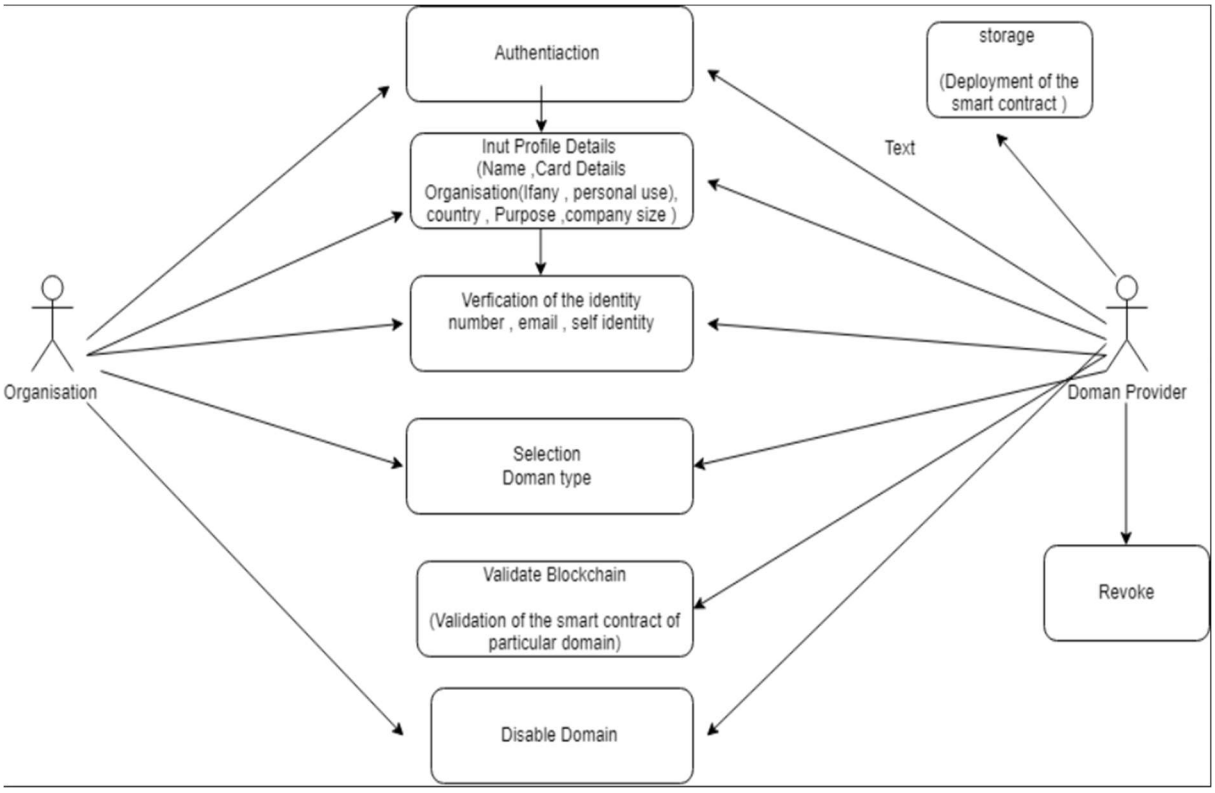
Overall, EthDaddy Domains leverages a combination of blockchain technology, decentralized protocols like IPFS, smart contracts, cryptocurrency wallets, and decentralized DNS servers to provide its services.

10. Proposed system architecture

A use case diagram is a type of UML (Unified Modeling Language) diagram that provides a high-level view of the system's functionality from the user's perspective. It is used to define and describe the different ways that a user or actor interacts with the system to achieve their goals or complete a specific task.

In a use case diagram, the system is represented by a box or rectangle, and the different actors or users are represented by stick figures or other shapes. The use cases are represented by ovals, and arrows connect the actors and use cases to indicate the interactions and relationships between them.

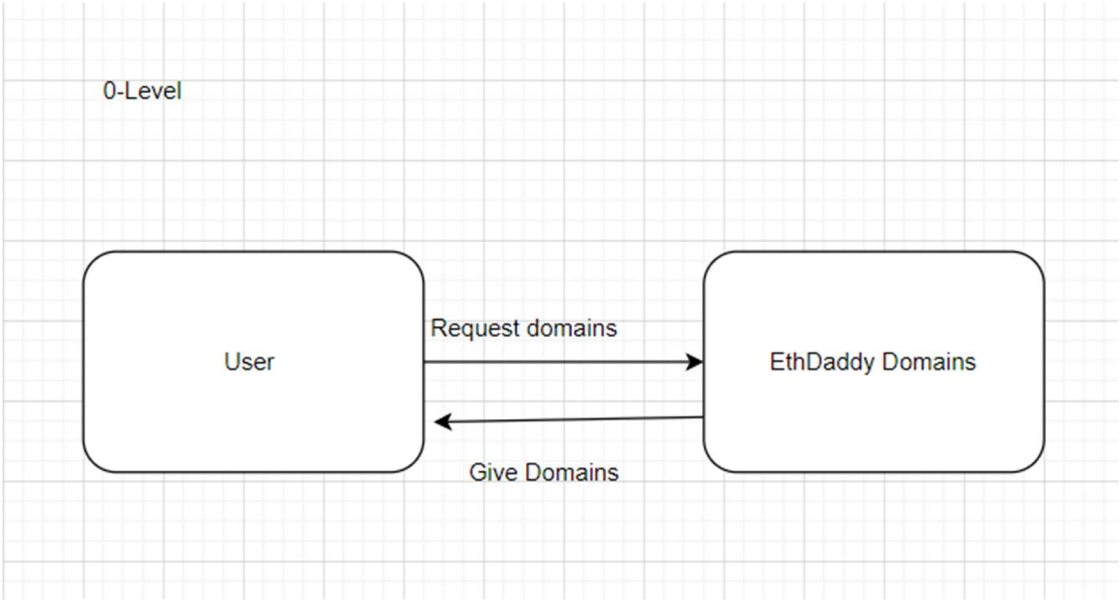
Use Case Diagram



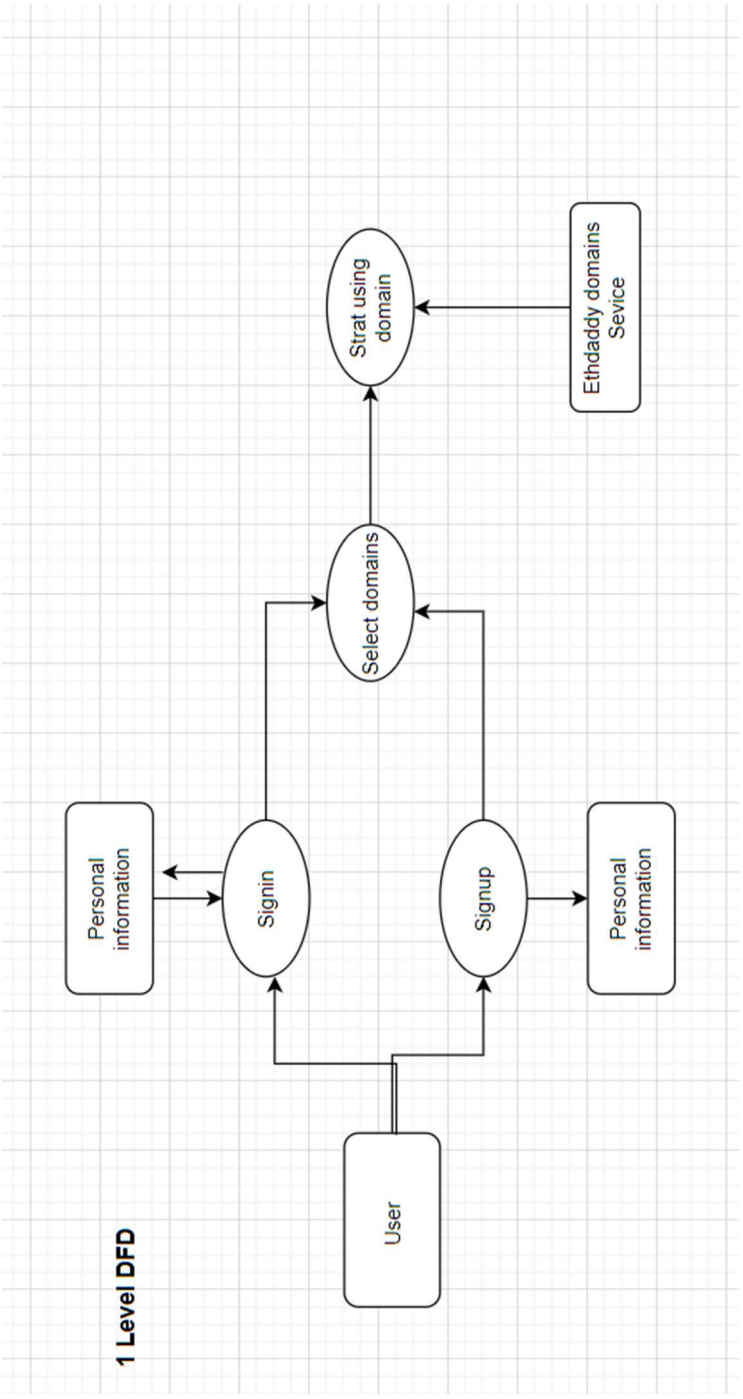
11. High-level design of the project

DFD

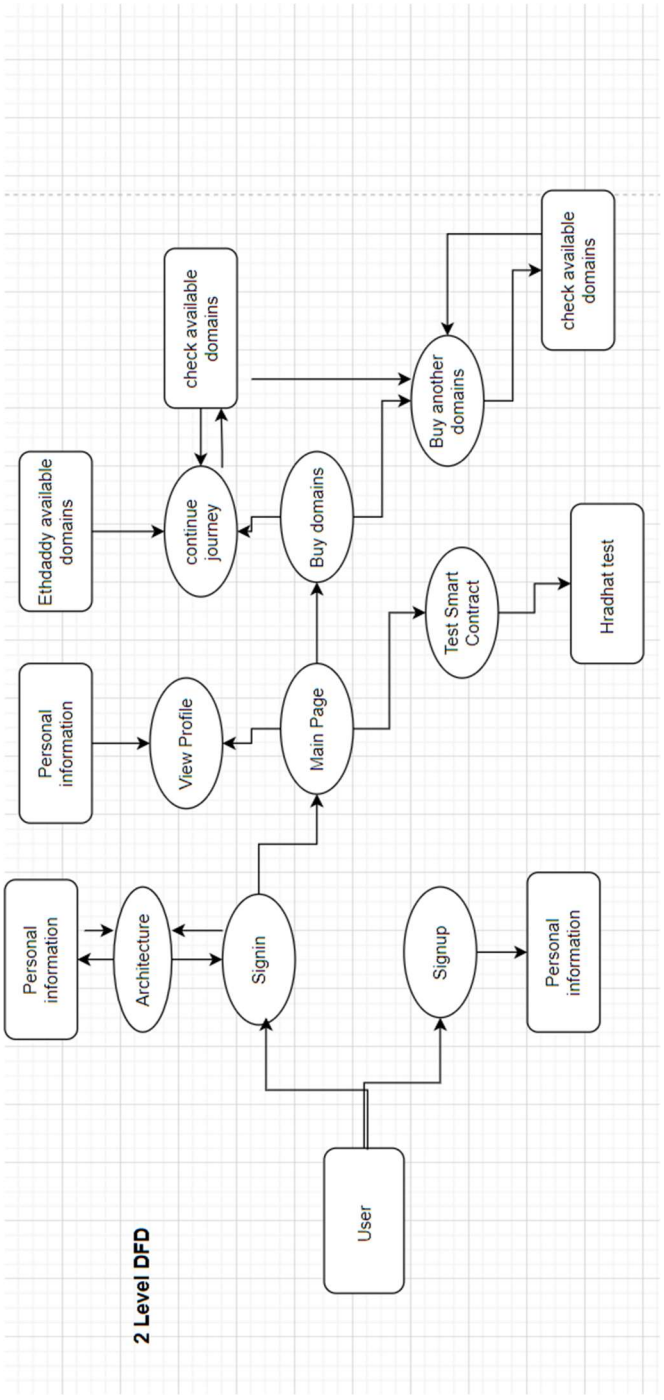
A 0-level Data Flow Diagram (DFD) represents the highest-level view of a system or process. It shows the overall flow of data in and out of the system but does not provide any detail about the processes or data stores involved. Instead, it simply shows the external entities that interact with the system and the data flows between them



A 1st-level DFD provides a more detailed view of the system than the 0-level DFD. It breaks down the processes identified in the 0-level DFD into sub-processes and shows the data flow between them. It also identifies any data stores involved in the system and shows how they are related to the processes.



A 2nd level DFD provides an even more detailed view of the system than the 1st-level DFD. It breaks down each sub-process identified in the 1st level DFD into even more detailed sub-processes and shows the data flow between them. It also identifies any data stores involved in the sub-processes and shows how they are related to the overall system.



12. System implementation-code documentation

Tech Stack:

idity (Writing Smart Contracts & Tests)
JavaSolscript (React & Testing)
Hardhat (Development Framework)
Ethers.js (Blockchain Interaction)
React.js (Frontend Framework)

Solidity is a programming language used to write smart contracts on the Ethereum blockchain. It is a contract-oriented, high-level programming language designed to enable developers to write smart contracts for decentralized applications (dApps) and tokens. Solidity contracts can be deployed on the Ethereum blockchain and can interact with other contracts or users, enabling the creation of decentralized applications and tokens.

Hardhat is an open-source development environment for building and testing smart contracts on the Ethereum blockchain. It provides a suite of tools that make it easier for developers to write, compile, deploy, and test their smart contracts. Hardhat is compatible with popular development frameworks like Truffle and can be easily integrated into existing development workflows.

Ethers.js is a popular JavaScript library for interacting with the Ethereum blockchain. It provides a simple and easy-to-use interface for developers to interact with the Ethereum network, including sending and receiving transactions, querying blockchain data, and interacting with smart contracts.

The Reactjs version used is 18, *Solidity* version used is 0.8.19*, Hardhat* version used is 2.13.1 , *Ethers.js* version used is 6.3.0

The flow of Decentralized Domains System:

EthDaddy is a web application that helps the user to buy various domains . To start with, we have implemented the intial setup search button and some listed

domain to select and have a hands on .User can search for any domain they want. The user can search and choose any domain if the domain is not available they can try for another domains .

Testing the Application:

We have use Hardhat for testing the smart contract and all the transactions. Hardhat is an open-source development environment for building and testing smart contracts on the Ethereum blockchain. It provides a suite of tools that make it easier to write, deploy, and test smart contracts.

Hardhat includes a built-in Ethereum node for local testing, a testing framework that supports popular testing libraries like Mocha and Chai, and a task runner that allows you to automate common development tasks.

One of the key features of Hardhat is its plugin system, which allows developers to extend its functionality with custom plugins. This makes it easy to add support for additional blockchains, testing frameworks, and other tools.

Tokens :

We have use ERC-721.It is a standard for non-fungible tokens (NFTs) on the Ethereum blockchain. Unlike fungible tokens, such as cryptocurrencies, NFTs are unique and indivisible assets that can represent a wide range of things, such as digital art, collectibles, in-game items, and more.

The ERC-721 standard provides a set of rules and guidelines for creating and managing NFTs on the Ethereum blockchain. This includes a set of functions that allow users to create, transfer, and track ownership of NFTs.

One of the key features of ERC-721 tokens is their ability to be owned and traded independently of any central authority or marketplace. This means that anyone can create and sell their own NFTs, and buyers can purchase and trade them on any compatible platform.

ERC-721 has been widely adopted by various industries, including art, gaming, and real estate, and has become an important tool for creators and collectors to monetize their digital assets.

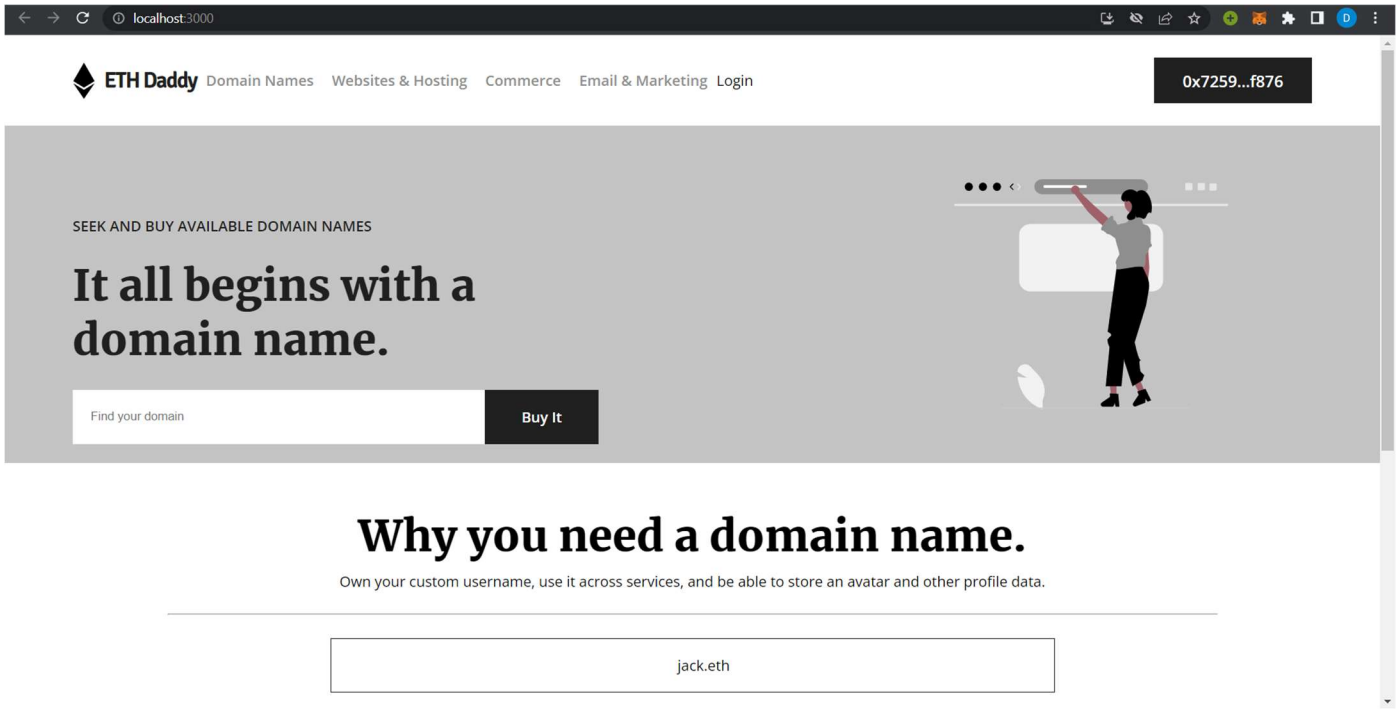
Smart Contract:

Later on we deployed the smart contract .It is a computer program that runs on a blockchain network and automates the execution of contracts between parties. It is a self-executing contract with the terms of the agreement directly written into code. Once the conditions specified in the code are met, the contract is automatically executed without the need for any intermediary.

Smart contracts are immutable, meaning that once they are deployed on the blockchain, they cannot be modified or deleted. This ensures that the terms of the contract are enforced as agreed upon by the parties involved. Smart contracts are transparent, as all parties on the network can view and verify the code and the terms of the contract.

Smart contracts are useful in a variety of scenarios, such as financial transactions, supply chain management, and even voting systems. They offer increased efficiency, security, and trust in business transactions by removing the need for intermediaries and reducing the possibility of fraud or human error.

Reactjs Implementation:



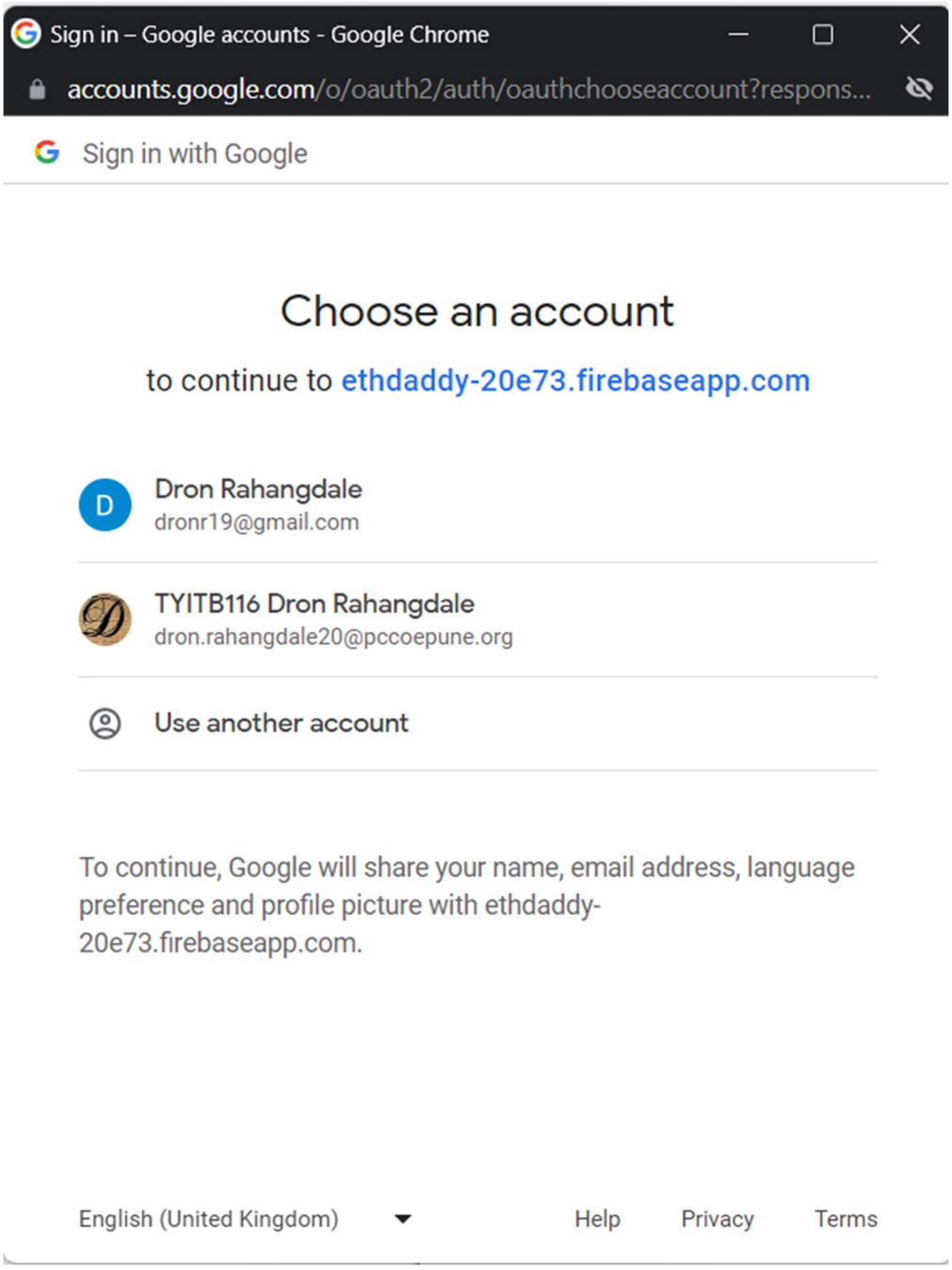
For the initial setup, we have used the following packages:

- *hardhat*: A hardhat in blockchain refers to a development environment for building and testing smart contracts and decentralized applications (DApps) on a blockchain network. It provides a set of tools and libraries that make it easier for developers to write, deploy, and test their code in a simulated blockchain environment, without incurring the cost of deploying it on the actual network.
- *Ether.js*: It is a JavaScript library for interacting with the Ethereum blockchain. It provides developers with a set of tools and utilities to send transactions, manage accounts, and interact with smart contracts on the Ethereum network.
- *Solidity*: Solidity is a high-level programming language used to write smart contracts on the Ethereum blockchain. Smart contracts are self-executing agreements with the terms of the contract directly written into code and stored on the blockchain. Solidity allows developers to create and deploy custom smart contracts for a wide range of applications, including decentralized finance (DeFi), non-fungible tokens (NFTs), and more.
- *Firebase*: Firebase is a mobile and web application development platform

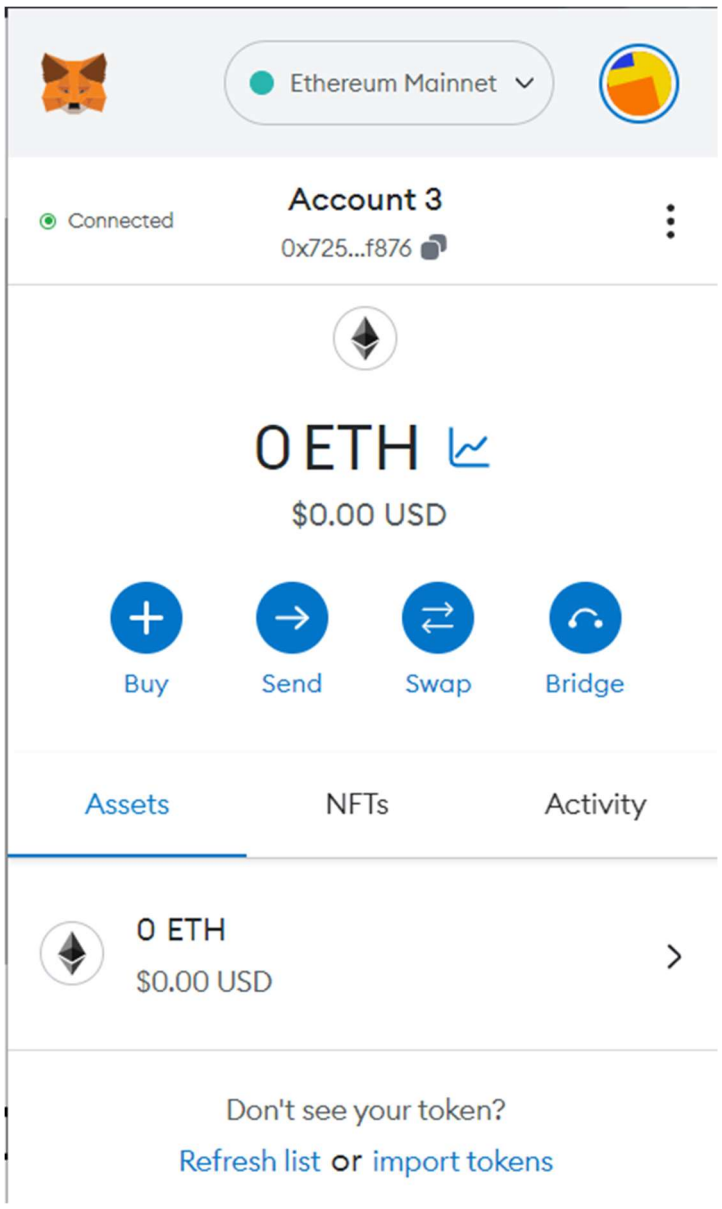
that provides services to help developers build high-quality applications quickly and easily. It includes a real-time database, authentication,storage, and other features that can be integrated into applications.

We first need to initialize the Firebase services, for which we use the *firebase_core* package. It is a Reactjs plugin that is used whenever we want to include any Firebase services in our application. We have the audio URLs of all the accents which are stored in Cloud Firestore, which is a cloud-hosted, No SQL database. The package used is *cloud_firestore*, it allows you to store and sync data in real-time and supports features like querying, sorting, and filtering data.

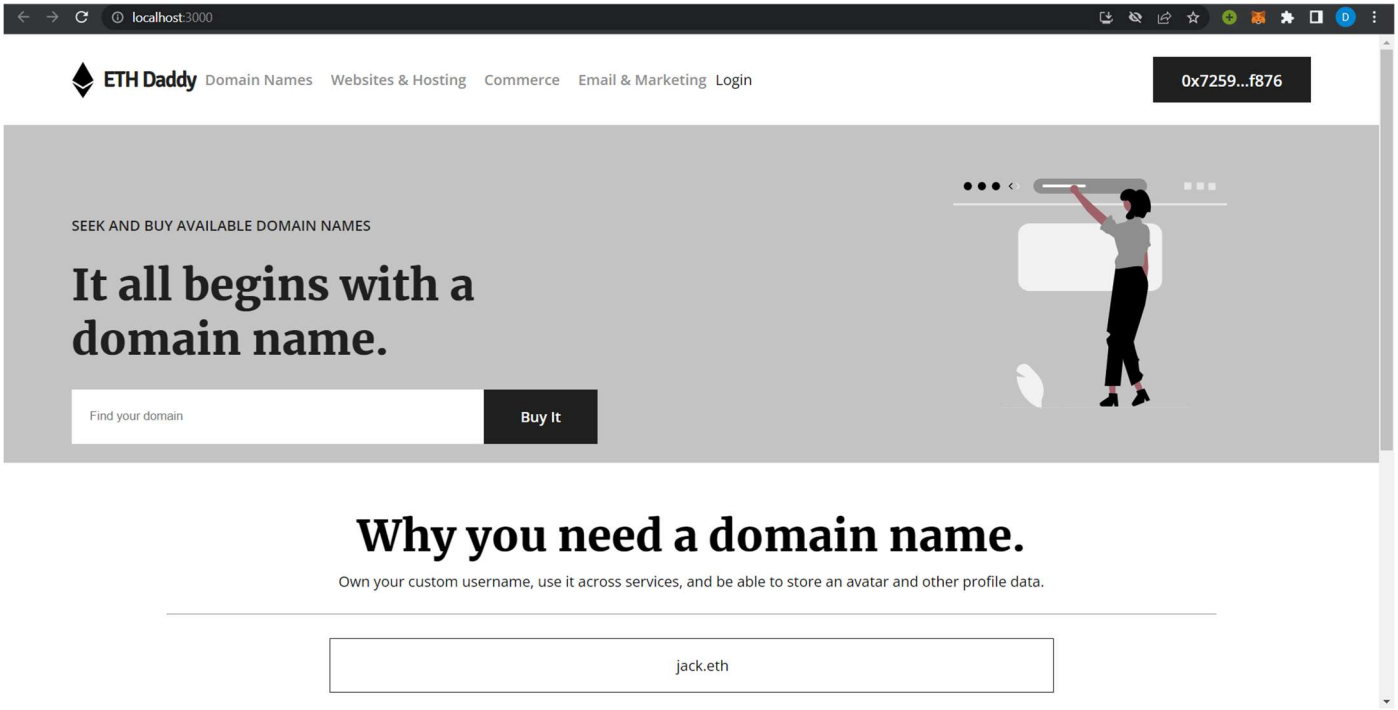
The user needs to sign in for a smooth experience. We use the *Firebase_auth* package for using Firebase Authentication, a service that provides easy-to-use authentication methods for your app. It supports authentication via email and password, Google Sign-In, Facebook Login, and more. We have specified the Google Sign-in for our application. For this, we use the *google_sign_in* package that provides a Flutter plugin for using Google Sign-In, a service that allows users to sign in to your app using their Google accounts.



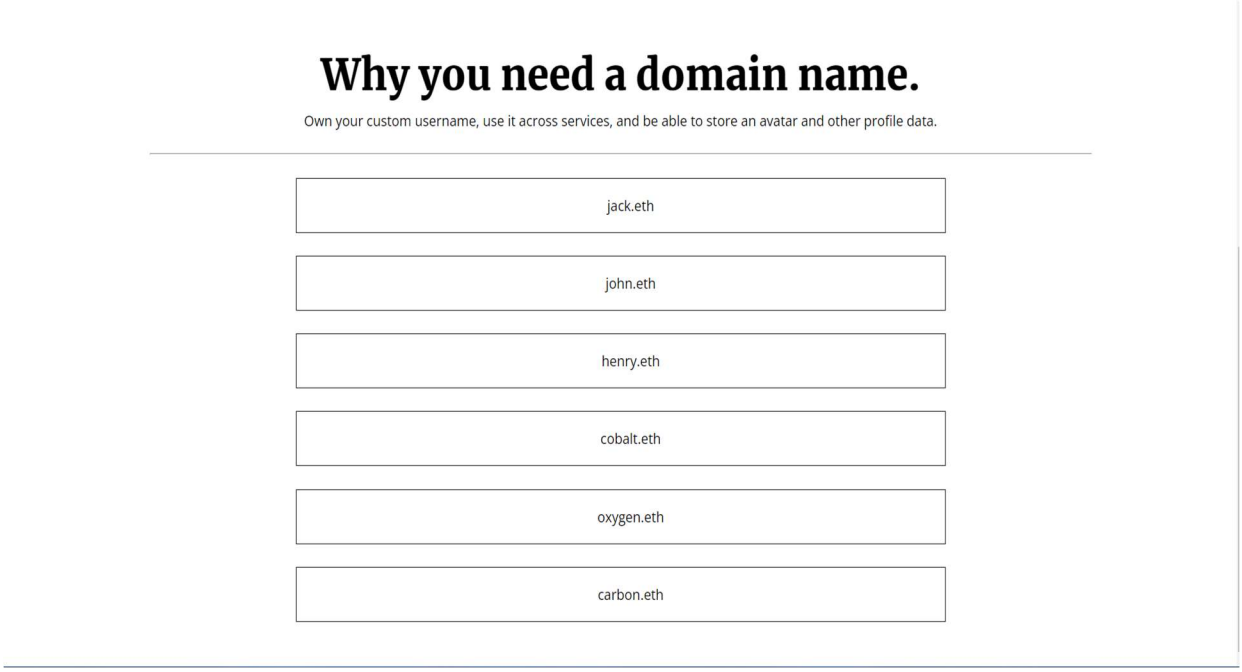
After signing in, then connect to your metmask account


Ethereum Mainnet
Connected
Account 3
0x725...f876
0 ETH
$0.00 USD
Buy
Send
Swap
Bridge
Assets
NFTs
Activity
0 ETH
$0.00 USD
Don't see your token?
Refresh list or import tokens

The domains listed to your wallet will list and you can also search for the other domains to buy .Search the domain you want if it it available it will be shown to you otherwise the domains is already registered by other.



The all the domains will be listed below :-



Here are some of the services that EthDaddy provides:

Blockchain Domain Names: EthDaddy Domains offers blockchain domain names ending in .eth . These domain names can be used to receive cryptocurrency payments, create decentralized websites, and store content on the blockchain.

Decentralized Websites: With EthDaddy Domains, you can create a decentralized website using your blockchain domain name. This allows you to create content that is stored on the blockchain, making it resistant to censorship and takedowns.

Crypto Payments: You can receive cryptocurrency payments directly to your blockchain domain name, without needing to share your complex wallet addresses. This makes it easier for users to pay you in cryptocurrency.

NFT Storage: EthDaddy Domains also provides NFT storage, allowing you to store your NFTs on the blockchain and associate them with your domain name.

Overall, EthDaddy Domains provides a range of blockchain-based services that allow users to truly own their digital assets and content, while also leveraging the benefits of blockchain technology.

13. Test cases

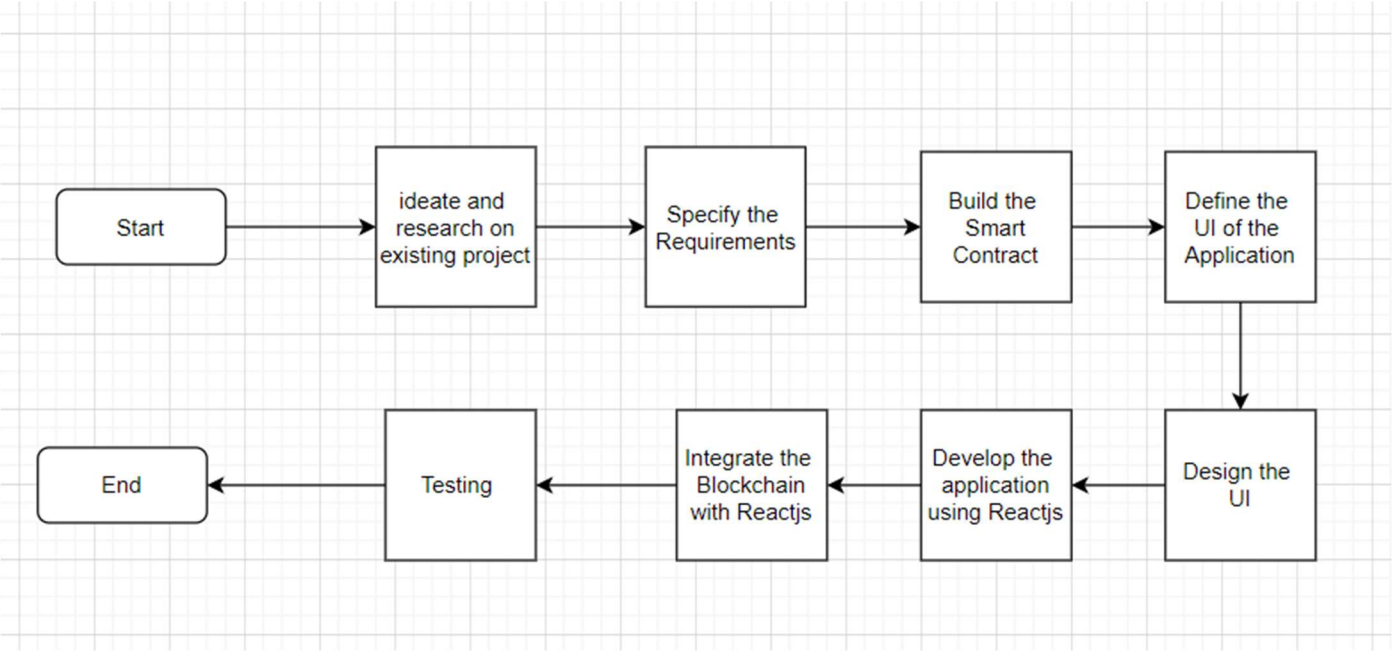
For Google SignIn authentication using Firebase:

1. Verify that the user is able to sign in using their Google account.
2. Verify that the user is redirected to the home page after successful sign-in.
3. Verify that the user is able to sign out of the application.
4. Verify that the user is unable to access the home page without being authenticated.

For testing the smart Contract:

1. Deployment
    - Sets the name
    - Sets the symbol
    - Sets the owner
    - Returns the max supply
    - Returns the total supply
2. Domain
    - Returns domain attributes
3. Minting
    - Updates the owner
    - Updates the domain status
    - Updates the contract balance
4. Withdrawing
    -
    - Updates the owner balance
    - Updates the contract balance

14. Project Plan



1. Ideation and Research on Existing Projects:
    - Conduct research on existing Domain System recognition projects andtechnologies
    - Identify the gaps and opportunities in the market
    - Brainstorm and ideate potential solutions to fill the gaps
2. Specify Requirements:
    - Define the functional and non-functional requirements of the application
    - Determine the target user groups and their needs
    - Identify the features and functionalities that will satisfy the user needs and requirements
3. Build the Smart Contract
    - Build the functions for the minting
    - Get domain to response the user to the request domain
    - Get balance to check the balance of the user wallet
    - Withdraw to buy the domain and take the domain fees from the wallet

4. Define UI for the Application:
    - Define the overall user interface of the application

- Determine the layout, design, and components of the user interface
- Create a wireframe and a prototype of the UI for user testing and feedback

5. Design UI:
    - Use the wireframe and prototype to create the final UI design
    - Ensure that the design is aesthetically pleasing, user-friendly, and intuitive
    - Test the UI design with users and incorporate feedback as necessary
6. Develop the Application using Reactjs:
    - Set up the development environment for Reactjs
    - Develop the application logic and functionality using Reactjs
    - Integrate the Firebase API into the application
    - Implement the domain facilitating functionality
    - Add features to recognize dialects and display them on the UI
    - Implement the search functionality for getting the domains
7. Test:
    - Perform unit and integration tests for the application
    - Conduct user testing to validate the functionality and usability of the application
    - Tesing the smart contract and all the functions functions related to it
    - Fix bugs and address user feedback as necessary

15. Conclusion

EthDaddy domains is a blockchain-based domain name service that offers censorship-resistant, decentralized domain names. These domain names are stored on a blockchain and are owned and controlled by the user, giving them complete control over their online identity and content.

The service also allows users to create and manage cryptocurrency wallets associated with their domain name, making it easy to receive and send digital currencies without needing to remember complex wallet addresses.

Overall, EthDaddy Domains provides a unique solution to the problem of online censorship and control, empowering individuals to take control of their online presence and communicate freely without the fear of being deplatformed or censored. As blockchain technology continues to evolve and gain mainstream adoption, Unstoppable Domains has the potential to become an increasingly important player in the digital identity and finance space.

16. Bibliography

[1] Leemann, A., Kolly, M.J., Goldman, J.P., Dellwo, V., Hove, I., Almajai, I., Grimm, S. and Robert, S., 2015. Voice Äpp: a mobile app for crowdsourcing Swiss German dialect data.

[2] Biadsy, F., 2011. *Automatic dialect and accent recognition and its application to speech recognition*. Columbia University.

[3] Leemann, A., Kolly, M.J. and Britain, D., 2018. The English Dialects App: The creation of a crowdsourced dialect corpus. *Ampersand*, *5*, pp.1-17.

[4] Ozkul, A., 2019. Accent Perfect: American English Pronunciation App. *Pronunciation in Second Language Learning and Teaching Proceedings*, *10*(1).

[5] Kumar, M.P. and Durga, M.S.S., 2018. The use of technological aids and tools in teaching/learning English. *Journal for Research Scholar professionals for English Language Teaching ISSN*, pp.2456-8104.