

NFTiecollective.io(NFT Marketplace)

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Problem

Crypto has become a booming tradable currency in the past couple years and continues to be on the rise. One of the major ways cryptocurrency is used is with NFT's. NFT(Non-Fungible Token) is a type of data which is stored to a specific Crypto's public blockchain and is stored as a unique asset. NFT's are digital items which users can create, buy and sell on NFT marketplaces. Some of the biggest problems with NFT marketplaces can be understanding what is actually going on when using them and depending on what NFT marketplace you use, the price. The NFTies Marketplace is user a friendly marketplace that will help assist in the creation of NFT's by making the process seamless and less expensive for the users who have created NFT's before and user who are only getting started.

Current System

The current system for our application is that it currently has user authentication, account verification, and password reset. Also with logging in there are different pages which show the baseline of what our marketplace looks like and the NFT's you can buy. We as Capstone 1 students worked in each part of the project. We were split up to work in Frontend, the Backend and Crypto. At the moment There is implementation of the backend and frontend. The crypto team's current system includes 2 different types of smart contracts for ETH, each with the ability to mint an NFT to a testnet. Both smart contracts are ERC721 though can be updated to ERC1155 for more accessibility and cheaper gas costs.

Requirements

What was worked on:

With the help of the Project Owner we designed a architecture for our NFT marketplace. To communicate with our marketplace, we helped with the development of an API which would allow the database to communicate with it and store important information from the users. We helped with the development of the frontend. We helped with understanding and identifying resources in implementing the ERC 721 smart contract.

System design:

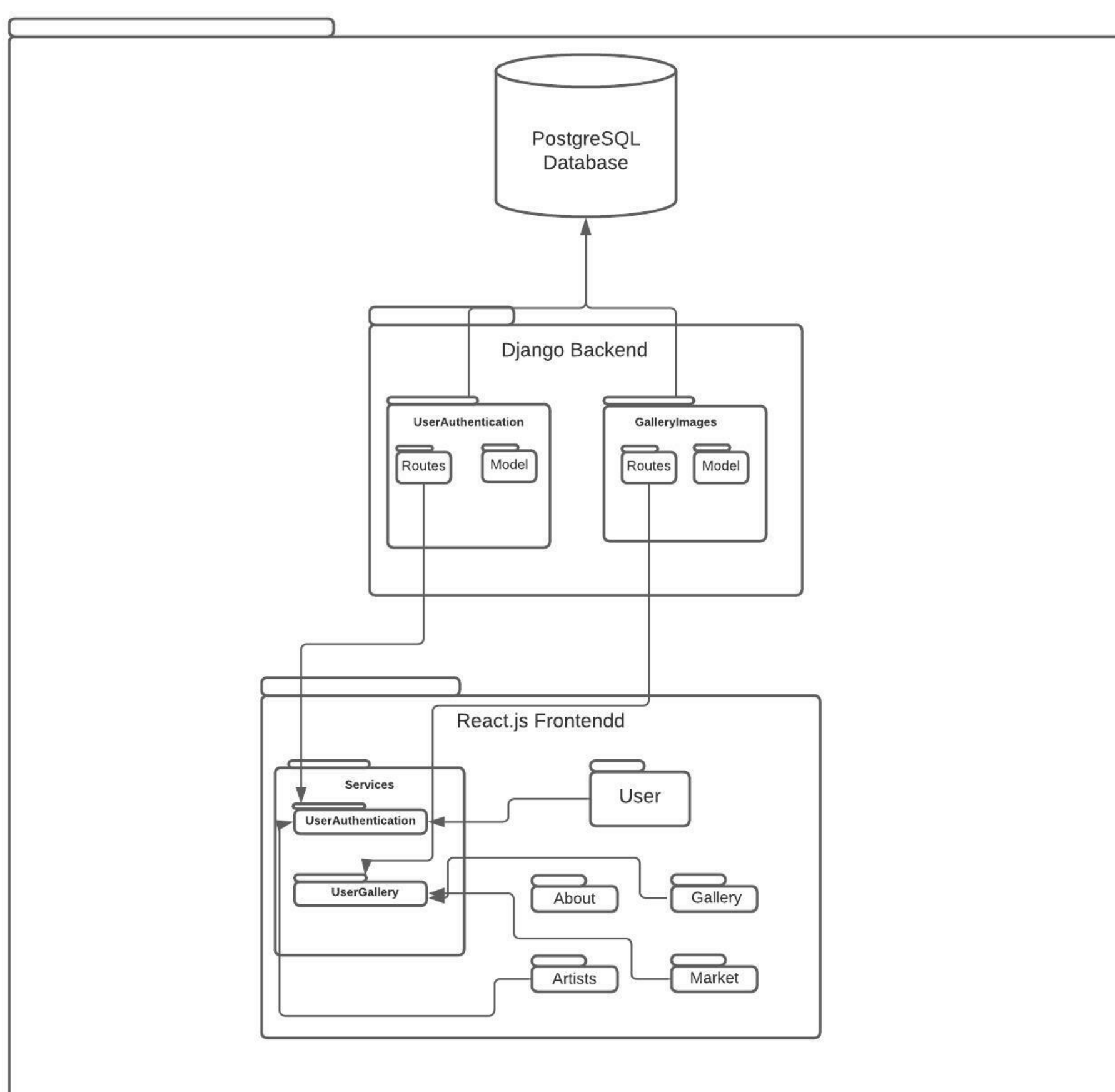
Front-End: React.js and Bootstrap

Back-End: Django w/ Django-Rest

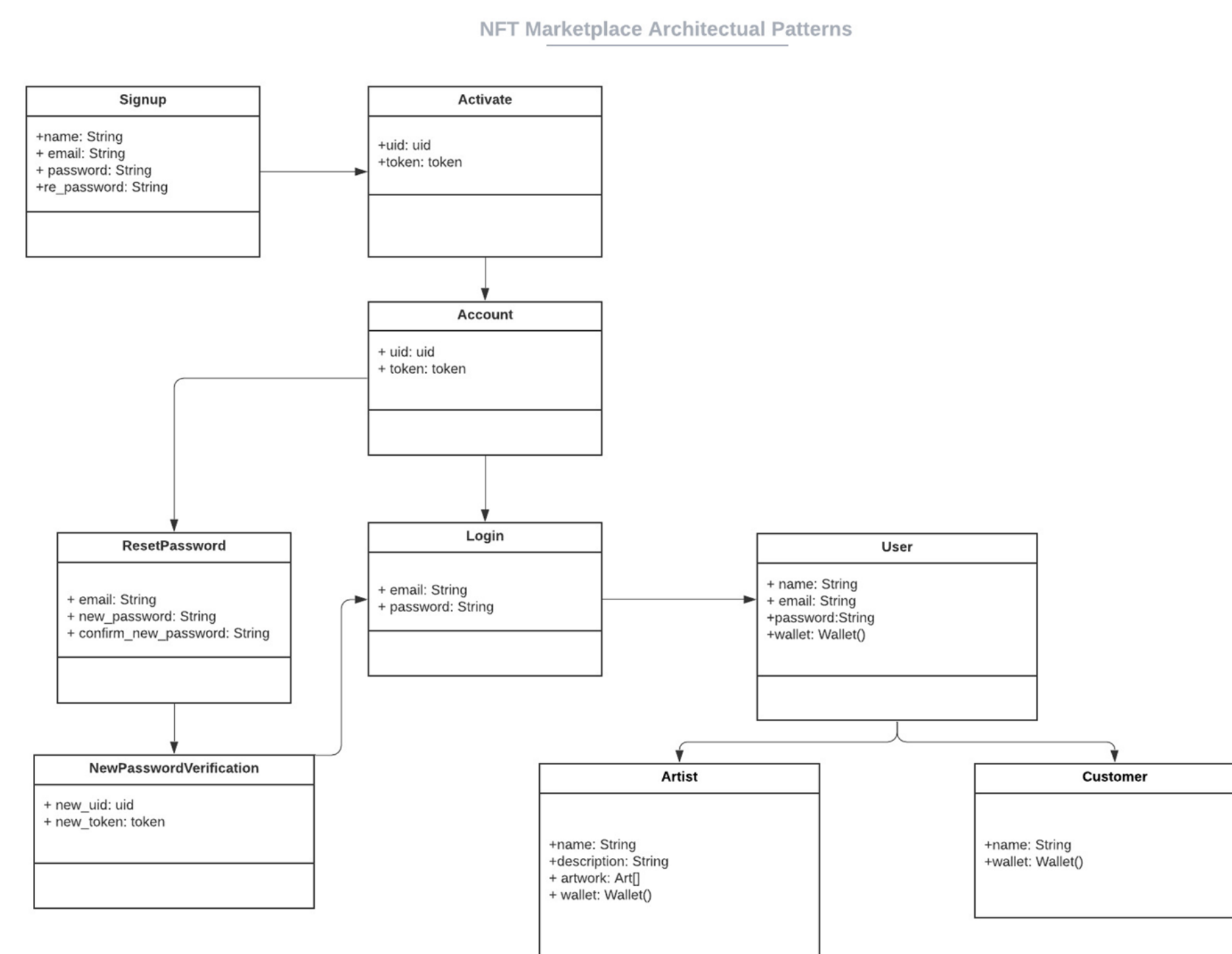
Database: PostgreSQL

Crypto: Ethereum, Solidity based smart contracts

System Design



Object Design



Implementation

- **Backend:** Implemented in Python and Django.
- **Frontend:** The frontend was development in React.js and also Bootstrap
- **Database:** The Database which we decided to use was PostgreSQL.
- **Crypto:** Solidity language is used for Ethereum smart contracts.

Verification

We used a web console and Visual Studio Code for debugging and testing during the entire semester during development. To develop the smart contract we used Remix, and its debugger. We also showed the PO progress during the semester to let him know where we are in development.

Screenshots

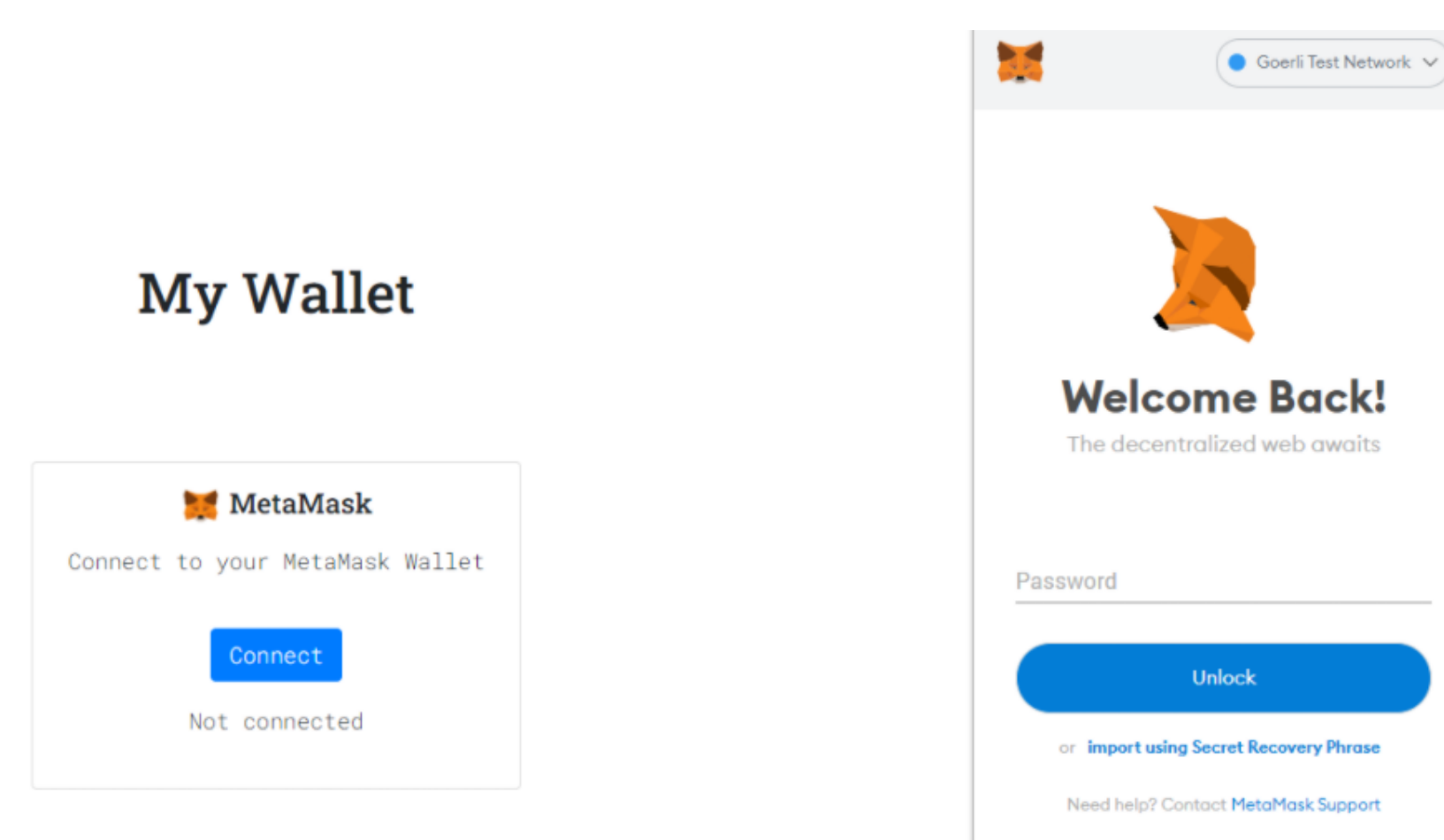
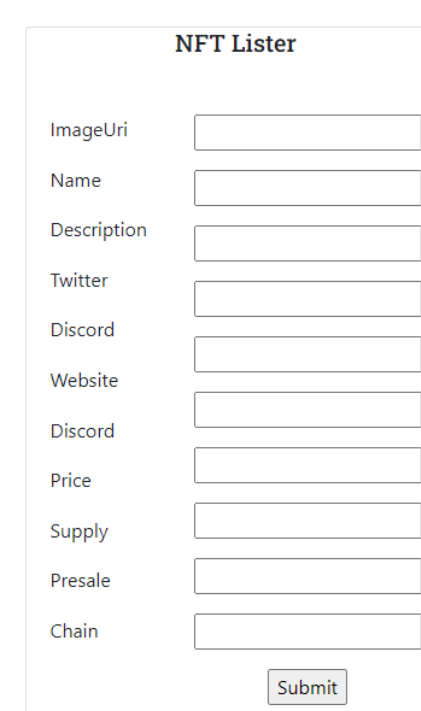


Image 1: this screen allows users to connect to our marketplace via their "wallet". The wallet is an external web extension.



The form is titled 'NFT Lister' and contains input fields for ImageURL, Name, Description, Twitter, Discord, Website, Price, Supply, Private, and Chain. A 'Submit' button is at the bottom.

Image 2: this screen allows users to "mint" their NFT's using a form. This form connects to the blockchain and creates a new nft using various parameters.

Summary

Our NFTie Marketplace is a place where an artist can let their imagination go wild without dealing with a complicated interface or the financial overhead of a smart contract. With our marketplace an artist will be able to post their art as an NFT and earn more money than from other marketplaces. Up and coming artists now have an easy and convenient way to create NFT's with our marketplace making creating buying and selling seamless and simple. For us, the Capstone 1 students, the framework which was created in conjunction with our Capstone 2 seniors, and will allow us to continue working and improving our marketplace if need be. For the upcoming semester, we'll do security checks on the site and contract. Once completed the site infrastructure can be decided, and finally be put online.

Acknowledgement

We thank Professor Masoud Sadjadi and the Capstone 2/Senior Project students: Thomas Hanna, Austin Boquet, Bryant Villareal, Joel Fontecilla, Rina Simcha, Kiara Farias as well as our PO Eddie Garcia for their assistance and mentorship that we received throughout the senior design project.