



# NFT Market Place

Project 3

# Team

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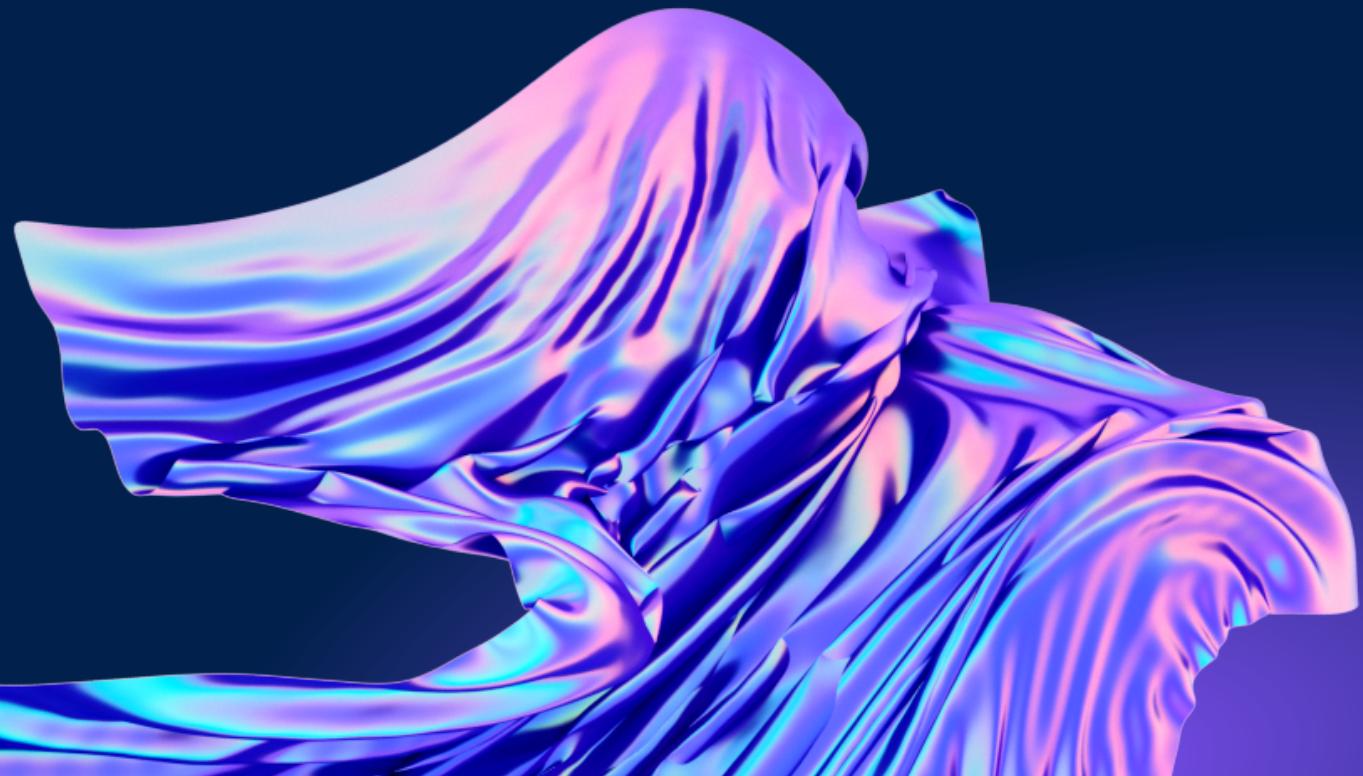
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# About us

Our Marketplace is an online application for users to register, trade and auction their collection of artwork.



# Agenda

01

Plan and discuss what type of marketplace to build.

02

Research and find inspiration from established projects.

03

Write the code and test the DApp on a test network.

04

Launch the final product on the blockchain for public use.

# Why NFT Marketplace development?

- NFT marketplace is a million-dollar revenue system where the early adopters of NFT started their revenue stream by unlocking the potential of NFT in a variety of industries.
- This marketplace acts as a huge revenue system for artists, musicians, and other unique creators.
- Its significance in art and games innovates multiple services with the integration of AR/VR.
- Land Infrastructure digitization in NFT introduces the industry of real estate and architecture in virtual environments.
- NFTs' significance in the marketplace allows it to innovate multiple services which are under research.

# Characteristics of NFT Marketplace

Tradability

Standardisation

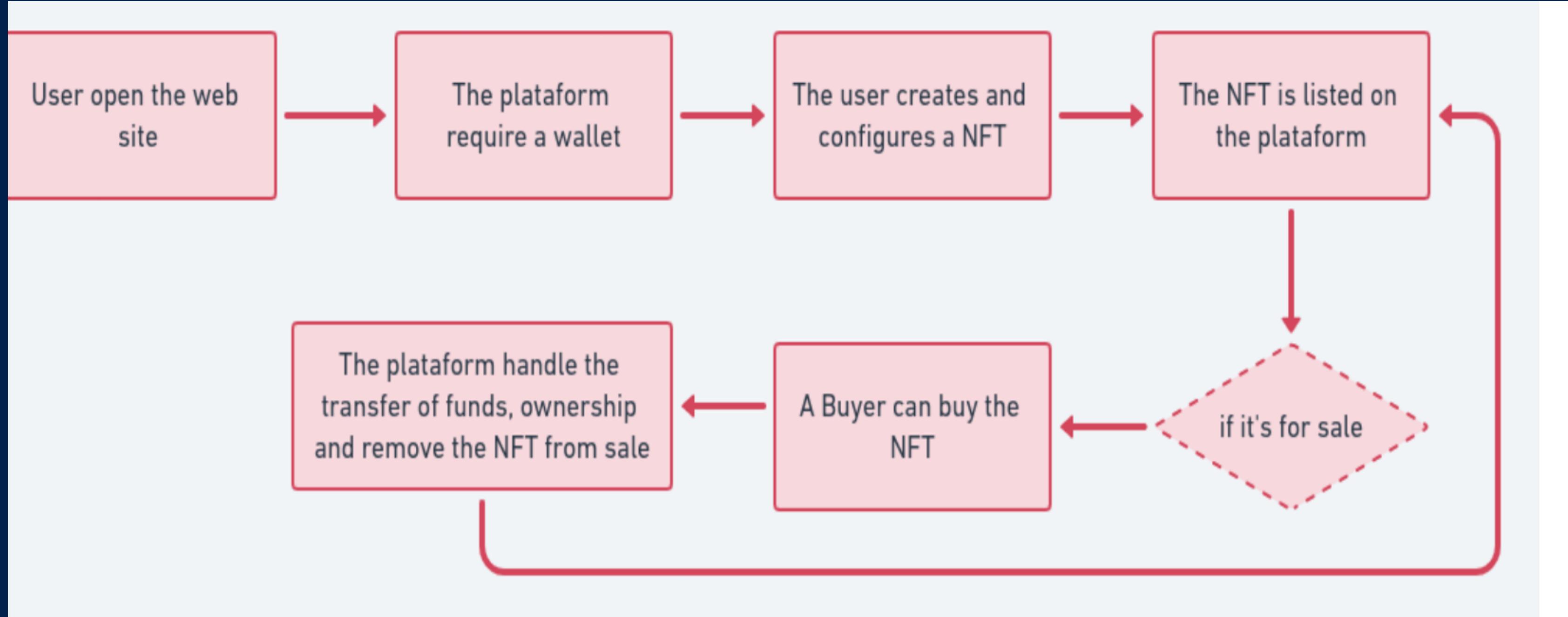
Liquidity

Interoperable

Controllability

Scarcity

# Client-Side Flow



# Marketplace Architecture



# Contract Deployment

The screenshot displays a web-based Ethereum development environment. On the left, a sidebar titled "DEPLOY & RUN TRANSACTIONS" lists "Transactions recorded" (9), "Deployed Contracts", and a specific contract entry for "ERC721 AT 0xD91...38138 (MEMORY)". This entry shows a list of functions: approve, mint, safeTransferFrom, safeTransferFrom, setApprovalForAll, setMarketplace, transferFrom, balanceOf, getApproved, isApprovedForAll, and Items. Each function has its parameters listed next to it. The main right-hand pane shows the Solidity source code for the ArtToken contract. The code imports various OpenZeppelin contracts and defines the ArtToken contract, which inherits from ERC721Enumerable. It includes a struct Item, a mapping of uint256 to Item, and several public functions like mint, safeMint, and approve. The code is annotated with line numbers and color-coded syntax highlighting.

```
// SPDX-License-Identifier: MIT
pragma solidity ^0.8.0;

import "@openzeppelin/contracts/token/ERC721/ERC721.sol";
import "@openzeppelin/contracts/token/ERC721/extensions/ERC721Enumerable.sol";
import "@openzeppelin/contracts/token/ERC721/extensions/ERC721URIStorage.sol";
import "@openzeppelin/contracts/utils/Counters.sol";

contract ArtToken is ERC721Enumerable{
    using Counters for Counters.Counter;

    Counters.Counter private _tokenIds;
    address public marketplace;

    struct Item {
        uint256 id;
        address creator;
        string uri;//metadata url
    }

    mapping(uint256 => Item) public Items; //id => Item

    constructor () ERC721("ArtToken", "ARTK") {}

    function mint(string memory uri) public returns (uint256){
        _tokenIds.increment();
        uint256 newItemId = _tokenIds.current();
        _safeMint(msg.sender, newItemId);
        approve(marketAddress, newItemId);

        Items[newItemId] = Item(
            newItemId
        );
    }
}
```

```
dallolmac@Mohameds-MacBook-Pro-2 ~ % npm list -g --depth=0  
/usr/local/lib  
└── corepack@0.10.0  
├── ethereumjs-testrpc@6.0.3  
└── npm@8.8.0  
└── truffle@5.5.12
```

# Technologies Used

## Frontend

React  
Axios  
Redux

Web3.js  
Material UI

## Backend

Express - A Web  
framework for  
Node.js

## Blockchain and Smart Contracts

Solidity  
Truffle  
Ganache

Launch the marketplace on the localhost:

1

Run Gancache-cli:  
Part of Truffle  
suite of Ethereum  
development

2

Run truffle  
migrate:To deploy  
the contracts on  
the blockchain

3

For Frontend /  
Backend  
Run Yarn, then  
Run Yarn Start

# Our NFT Collection



# Thirdweb Implementation

 **MD Project3 Marketplace** + New Listing

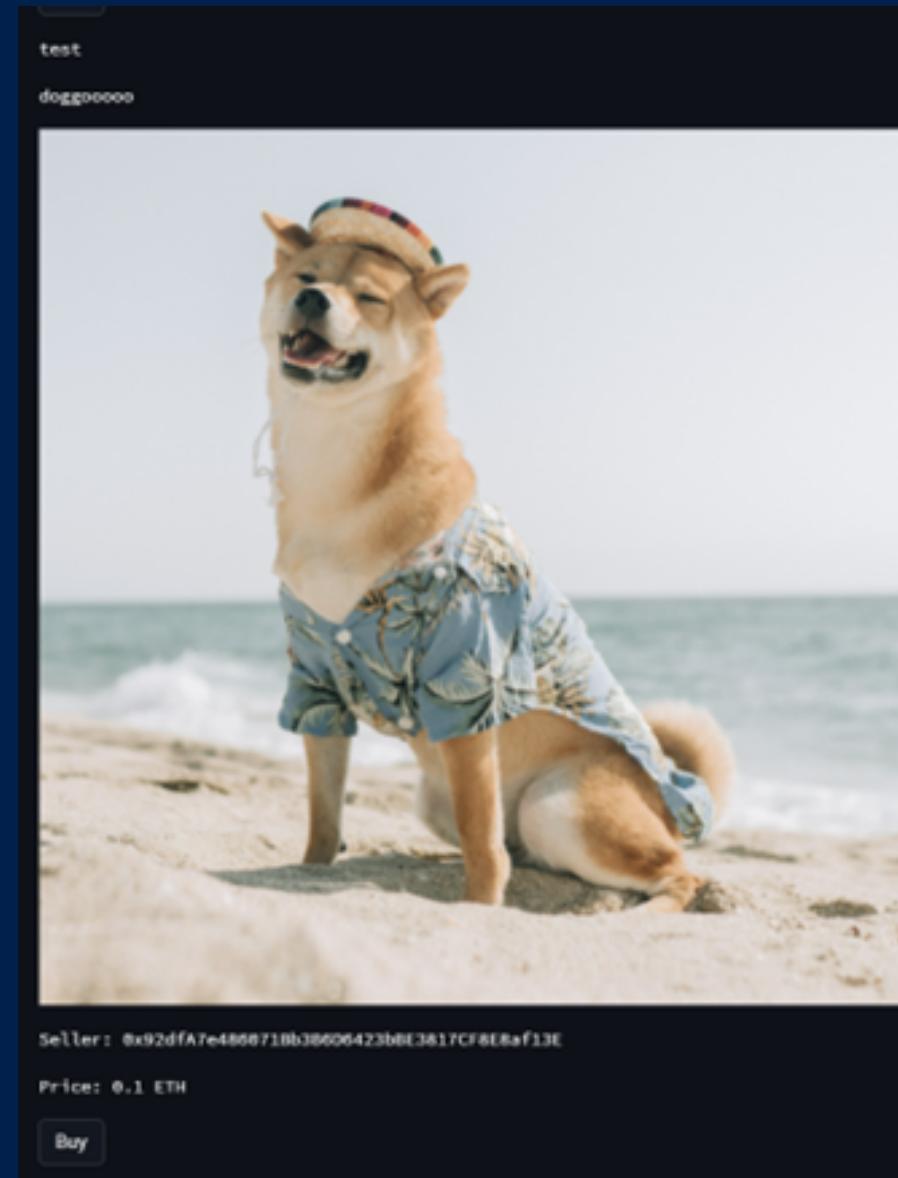
0xadce...e66E

Overview Permissions Embed Code Settings

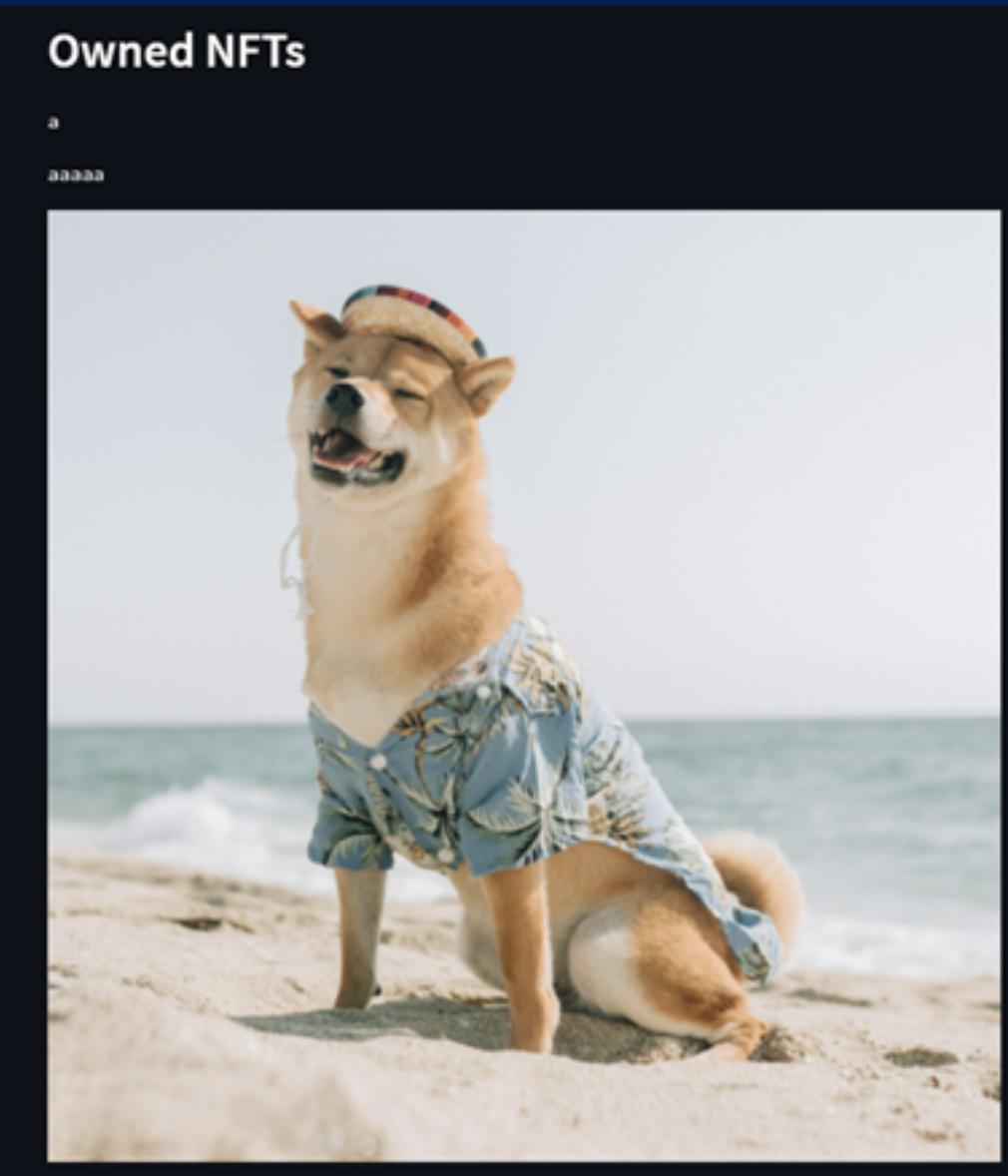
ID	MEDIA	NAME	SELLER	PRICE	TYPE	ACTIONS
0		One Minted NFT	0x4f2a...73CA	0.08 ETH	Direct Listing	

K < Page 1 of 1 > >I 50 ▾

# Another Approach



All Listings



Owned NFTs

Create NFT

Upload an image  
Drag and drop file here  
Limit 200MB per file  
Browse files

dog.jpg 1.44GB

Input Name: Doggo  
Input Description: dog  
Mint

Mint NFT

Listing NFTs

# Problems encountered

Methodology

Issues with networks

Learning curve

1

There are many ways to tackle this project. Each of us tried different guides and ways of coding and launching a marketplace.

2

Many problems coding with Yarn, Hardhart, Nodejs, which takes time to learn and solve.

3

Approaching this project as complete beginners to coding, blockchain and cryptocurrency has been challenging.

# Problems encountered cont.

Issues with the testnet

Time

4

Many issues trying to connect to various testnets with metamask.

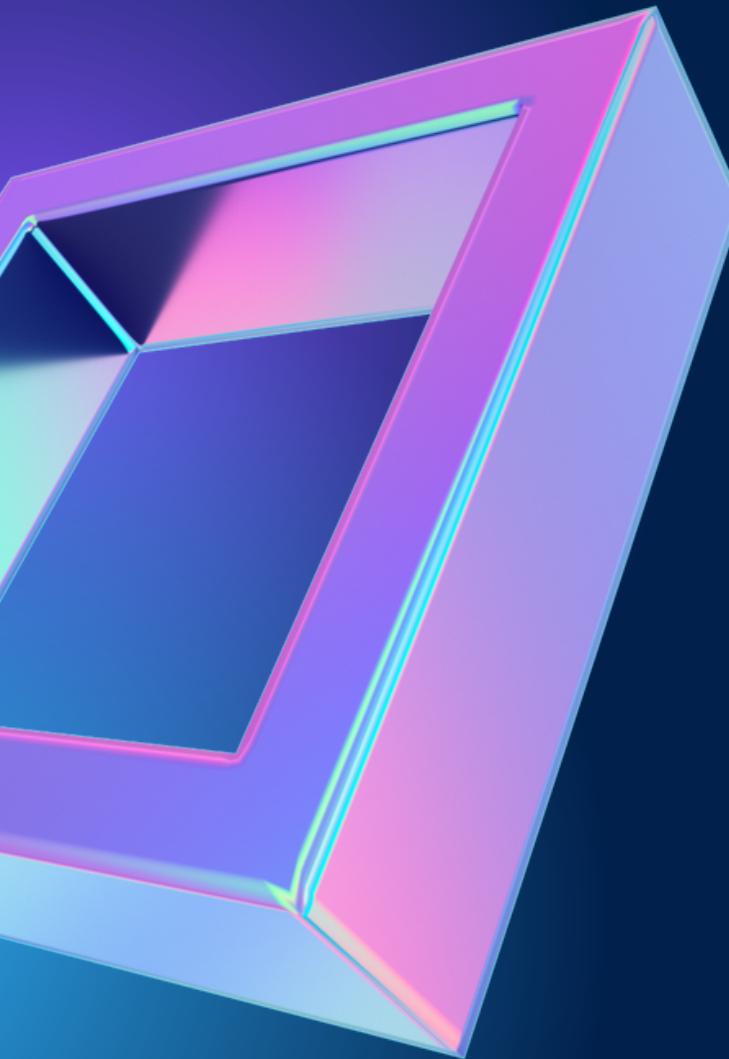
5

Not enough time to make a proper well functioning NFT marketplace. Although we have learned a considerable amount.

# Moving forward

Due to the time constraints and the learning curve, we were unable to complete the project in the way we envisioned. However, we can visualise how we would want the marketplace to function moving forward.

- Create a marketplace with a unique token that users can use to purchase NFTs.
- Create a function for users to stake their NFTs for rewards such as the aforementioned token.
- Create a parachain marketplace which users could mint, buy and sell Ethereum, Cardano, BNB, Polkadot NFTs all in the same place.
- Create a space for NFT holders can show off their collection virtually via online gallery and build their social network



Thank You &  
Questions