NFT collection

1. Objective

NFTs were booming in 2021, be it in a good way and/or a bad way. Most people think about NFT arts were celebrities spent hundreds of thousands of dollars to own one digital art that anyone could easily replicate for free on their own machine.

NFT means Non-Fungible Token, it's a token like any cryptocurrency (Bitcoin, Ethereum, …) but, as the term "Non-Fungible" suggest, this token is unique and cannot be split into fractions of tokens.

Owning a NFT means owning the one and only token of this kind, and since a token is very abstract, it can be literally anything you want: a picture, a game item, a house, etc…

Your objective is to create a NFT collection on top of your blockchain.

2. Features

The following must be implemented in your system:

- You need to create a collection of N tokens that all have a distinguishable identifier. We need to be able to know at any time who is owning which of those tokens.
- At the beginning, there is no token.
- Users can "mint" tokens under certain conditions (detailed in the next features). We call "minting" the process of generating a new token through a call to the function "mint", like if you were mining the token.
- Once the limit of N has been reached, there is no minting allowed anymore.
- There should be a "mint" period. The owner of the collection can open the collection to minting, and the minting would be over **automatically after a set amount of time**.
- Users can exchange ownership of their tokens.
- Each token must be linked with a unique image (which you can pick anywhere on the internet) or a description of a game item (weapon, land parcel, …).

3. Hints

- You can either do everything on a single contract or split the workload between a smart contract and the blockchain itself.

- Think carefully about how you can implement time constraints in your smart contract. Don't hesitate to modify the way smart contract are implemented on your blockchain.

- The more is handled procedurally on your contract, the better

- Who owns the contract? Who can transfer ownership of a NFT to another user? There is a broad subject for permissions.

- How can you handle unauthorized minting programmatically ?