

ERC721 Exercise 1

Intro

Your goal is to create an ERC721 token (NFT), based on OpenZeppelin `ERC721.sol` contract, deploy it to your local hardhat chain, and test it.

Accounts

- 0 - Deployer
- 1 - User1
- 2 - User2

Tasks

Task 1

Create your contract under the `./contracts/erc721-1` folder:

1. Import and inherit from OpenZeppelin `ERC721.sol` contract
2. Choose your token NAME and SYMBOL
3. Implement an external `mint()` function according the following properties:
 1. Max Supply = 10,000
 2. Mint Price = 0.1 ETH
4. Keep track of the current supply using a public state variable

Task 2

Testing:

1. Deploy your contract from the deployer account
2. Mint 5 tokens from `Deployer`
3. Mint 3 Tokens from `User1`
4. Test that every account has the right amount of tokens
5. Transfer 1 token from `User1` to `User2` (Token ID 6)
6. Make sure that the token that was transfered is now owned by `User2`
7. From `Deployer`: approve `User1` to spend one of the tokens (Token ID 3)
8. Test that `User1` has the right approval that was granted by the `Deployer`
9. From `User1`: transfer to yourself the token that was approved by the `Deployer`
10. Test that `User1` owns the transfered token
11. Test that every user has the right amount of tokens

Links that might be useful

1. ERC721 Standard on Ethereum Website <https://eips.ethereum.org/EIPS/eip-721>
2. ERC721 Source code on Github <https://github.com/OpenZeppelin/openzeppelin-contracts/blob/master/contracts/token/ERC721/ERC721.sol>
3. Hardhat Tests <https://hardhat.org/tutorial/testing-contracts>

