Lesson 6 - ERC20 and ERC721 Tokens

Quickstart with OpenZeppelin wizard

- Overview about Ethereum Improvement Proposals (EIPs)
- Overview about Application-level standards and conventions (ERCs)
- Explain about OpenZeppelin Contracts library
- Overview about ERC20
- Overview about ERC721
- Using OpenZeppelin wizard

References

https://eips.ethereum.org/

https://eips.ethereum.org/erc

https://docs.openzeppelin.com/contracts/4.x/

https://docs.openzeppelin.com/contracts/4.x/erc20

https://docs.openzeppelin.com/contracts/4.x/erc721

https://docs.openzeppelin.com/contracts/4.x/wizard

Plain ERC20 Code reference

```
// SPDX-License-Identifier: MIT
pragma solidity ^0.8.4;

import "@openzeppelin/contracts/token/ERC20/ERC20.sol";

contract MyToken is ERC20 {
    constructor() ERC20("MyToken", "MTK") {}
}
```

Plain ERC721 Code reference

```
// SPDX-License-Identifier: MIT
pragma solidity ^0.8.4;

import "@openzeppelin/contracts/token/ERC721/ERC721.sol";

contract MyToken is ERC721 {
    constructor() ERC721("MyToken", "MTK") {}
}
```

Contract structure

- Syntax about inheritance
- Overview about OpenZeppelin features for ERC20 and ERC721
- Overview about OpenZeppelin features for Access Control
- Overview about OpenZeppelin utilities and components
- Adding minting feature
- Adding RBAC feature

References

https://www.npmjs.com/package/@openzeppelin/contracts

https://docs.openzeppelin.com/contracts/4.x/extending-contracts

https://docs.openzeppelin.com/contracts/4.x/access-control

Operating the contracts with scripts

- (Review) Script operation
- (Review) Accounts and funding
- (Review) Providers
- (Review) Async operations
- (Review) Running scripts on test environment
- Running the scripts on chain
- Contract factory and json imports
- Transaction receipts and async complexities when running onchain

Homework

- Create Github Issues with your questions about this lesson
- Read the references
- Complete the operation scripts for ERC20 and ERC721
- (Optional) Study test structure for ERC20 contract from OpenZeppelin Contracts Library
- (Optional) Study test structure for ERC721 contract from OpenZeppelin Contracts Library
- (Optional) Study what is “supportsInterface” function and ERC165