Smart Contract Integration on the UI Assignment

Blockchain Engineer Course
Created by Nehal Ahmed

Assignment 1: NFT Checker

Goal:

Create Dapp which checks the user has nfts of the contract you deployed and showcase it.

Description:

1. You need to create nft contract and deployed it on any testnet
2. Create frontend application
3. Integrate wallet in the UI
4. When user connect wallet to the dapp, you need to call the specific function on the contract in order to check this user has nfts of your smart contracts or not.
5. Make sure you write the script to mint the nfts for some addresses of your wallet so you can check your application easily.
6. To Show case the Nfts in your dapp you can you use **Alchemy NFT API** , which you can find on alchemy website.

Assignment 2: Decentralize Exchange (DEX)

Goal:

Create Decentralize Exchange using Uniswap contracts

User Stories:

As a user of the test app, I want to connect my metamask wallet on the Goerli ETH Testnet or Sepolia

- User can connect wallet
- User can see whether the wallet is connected and can see the token balances and wallet address when the wallet is connected.
- Before swapping, should calculate and show the quoted amount.
- [optional]: Metamask automatically switches to Goerli if on a different network when user tries to connect.

As a user of the test app, I want to swap a TEST TOKEN against ETH and vice versa

- Test token should be deployed on Goerli or sepolia
- Test LP should be created by Uniswap on Goerli or sepolia
- User can swap ETH from connected wallet into Test TOKEN
- User can swap TEST TOKEN from connected wallet into ETH
- User can approve the swap transaction with their connected Metamask account

Hint:

- You have to deposit your eth into wrapped eth contract to get wrappedEth and the use this WrappedEth to swap the token.
- You have to first create your own erc20 token then you have to go to the uniswap and make liquidity pool with eth and your token and when the transaction is done you have to carefully go to the transaction on etherscan and note the address of your pool and save it some where.

- **UniswapV3Pool:** https://goerli.etherscan.io/address/0x07A4f63f643fE39261140DF5E613b9469eccEC86#code

- **UniswapV3Factory:** **https://goerli.etherscan.io/address/0x1F98431c8aD98523631AE4a59f267346ea31F984#code**

- **UniswapV3Pool:** **https://goerli.etherscan.io/address/0x4d01493A51c149Fd5633A7f0f2af07570921F6d1#code**

- **Pool address:** your pool address

- **Quoter:** **https://goerli.etherscan.io/address/0xb27308f9f90d607463bb33ea1bebb41c27ce5ab6#code**

- **SwapRouter:** **https://goerli.etherscan.io/address/0xe592427a0aece92de3edee1f18e0157c05861564#code**

- **WETH:** **https://goerli.etherscan.io/address/0xB4FBF271143F4FBf7B91A5ded31805e42b2208d6#code**