Homework 4 Exercice 2 Specifications

Boonty upgrade technical specifications

I.Introduction

In order to improve the user experience on the Boonty platform, this upgrade plan will integrate the EIP-4337 feature to achieve account abstraction to simplify the NFT transaction process.This document will provide Boonty and its investors with a detailed explanation of the steps required to implement this upgrade and the benefits it will bring.

II.Upgrade target

By introducing EIP-4337, smart contracts are allowed to pay transaction fees on behalf of users. This can simplify the process for users to mint, buy, sell and interact with NFTs on the Boonty platform.

III.Technical overview

EIP-4337 is an Ethereum improvement proposal that implements a transaction model that does not require users to directly pay Gas fees by introducing a new contract, the EntryPoint contract, and the concept of User Operation.

IV.Key components

1. User Operation: it represents the user's transaction intention and does not directly include Gas fees.
2. EntryPoint contract: As the central node for processing user operations, it is responsible for executing transactions and paying Gas fees.
3. Sponsorship mechanism: it is implemented in the entry point contract and it can allow specific addresses to sponsor the Gas fees for user operations.
4. Validator Contracts: it is used for additional verification before executing user operations.

V.Implementation steps

1.Develop and deploy the entry point contract on the Ethereum network.
2.Modify the smart contract of the Boonty platform to generate user operations.
3.Implement the sponsorship mechanism in the entry point contract and specify the address that sponsors users to operate Gas fees.

4.Develop and deploy an optional validator contract to increase the security of user operations.

5.Update the front-end of the Boonty platform to interact with the entry point contract.

6.Deploy the changes to the main network after thorough testing on the test network.

VI.Benefits

For users:

-It can improve user experience. In this case, users do not need to worry about gas fees.The process of minting, buying and selling NFT is simpler.

-It can enhance transaction security with optional validator contracts.

For Boonty:

-It can lower the user threshold and attract more users to be active on the platform.

-Implementing EIP-4337 will put Boonty in a leading position in the adoption of advanced blockchain technology.

For investors:

-It can improve user experience and platform security will help increase platform value.

-As a pioneer in technological innovation, it helps enhance Boonty's competitiveness in the market.

VII.Conclusion

By implementing EIP-4337, Boonty will significantly improve the platform user experience, simplify the NFT transaction process, and enhance the market competitiveness of the platform.This upgrade will bring significant benefits to Boonty users, the platform and its investors.