Solidity with React Best Practices

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Simple Code changes that help improve code and interaction.

- Small Gas Optimization Techniques.

- Proper Event Management and Declaration

- Using Hooks correctly for Smart Contracts.

- Benefits of SPA Structure to avoid constant MetaMask Sign In.

Solidity Best Practices

- Place most likely Output result first inside an If Statement.

- Using Require(), Assert() to catch events on UI.

- Use Proper
  Function Declarations.
  - Pure, View, Fallback.

- Public vs External

- Only import used functions of Interface.

Pure: Do not read nor modifies State.
View: Will not modify state. Can Read.

React Best Practices

- **useContract vs useEffect Hook.**
  - UseContract makes code re-usability easier.

- **Watching Events.**
  - Inside UseEffect

- **Placing useEagerConnect at the Highest Level**
  - Prevents having to SignIn on every page. Consumes less resources.

- **Benefits of SPA Structure.**
  - Less Loading and having to sign in.

```
18
11    // GOOD
12    const bestPracticeAccessContract = useContract(process.env.NEXT_PUBLIC_BEST_PRACTICE_ACCESS_ADDRESS as string, BestPracticeAccessABI)
13    const bestPracticeContract = useContract(process.env.NEXT_PUBLIC_BEST_PRACTICE_ADDRESS as string, BestPracticeABI)
14
15
16    // BAD
17    const [badContract, setBadContract] = useState()
18
19    useEffect( effect: () => {
20        // Requires MetaMask installed
21        if (typeof window !== "undefined") {
22            // Figure out the signer or provider.
23            const result = new ethers.Contract(process.env.NEXT_PUBLIC_BEST_PRACTICE_ACCESS_ADDRESS as string, BestPracticeAccessABI, signerOrProvider: {})
24            setBadContract(result)
25        }
26    }, deps: [])
27
```

Typechain and ABI

- Create a contracts folder in UI.

- Import ABI's.

- Install TypeChain.

- Create command: "compile-contract-types": "typechain --target ethers-v5 --out-dir './contracts/types' './contracts/*.json'"

- Yarn compile-contract-types

Reference Links

- https://dev.to/tawseef/require-vs-assert-in-solidity-5e9d
- https://www.tutorialspoint.com/solidity/solidity_function_modifiers.htm
- https://ethereum.stackexchange.com/questions/19380/external-vs-public-best-practices
- https://docs.ethers.org/v5/api/contract/contract/#Contract--creating
- ProjectRepo: https://github.com/TimothyMendezFeliciano/HolbertonPresentation

Thanks for Watching