Lab Session 4 (L4)

Blockchain Workshop

Objectives

The objectives of L4 are:

- Set up a local blockchain development environment
- Write, deploy, and interact with a smart contract locally
- Deploy your smart contract to a public Ethereum testnet

Statement

In this lab, we will follow step-by-step the instructions detailed in the following GitHub repo:

https://github.com/TheMatrix97/Workshop-Blockchain

In this repo, you will find a **detailed readme** that explains the procedure that you need to follow in order to carry out this lab. The readme.md file contains several sections containing instructions and commands to execute. Along the different sections of the readme, you will find the **questions that you need to answer** in the report **L4_D1** that you need to deliver in RACO.

For the sake of clarity, in this statement we detail the different sections that you will find in the readme, as well as the questions that need to be answered at each of the sections:

1. *Local environment setup*
2. *Write and compile the Smart Contract*
   - **P1- Try to understand what the contract does. Can you explain it?**
   - **P2- Why do you think is important to validate inputs (e.g value > 0)**
3. *Deploy locally*
4. *Interact with the Smart Contract*
   - **P3- Write down the block parameters you obtained.**
   - **P4- Explain what Gas is and why transactions in Ethereum consume Gas. Which type of attack does it help to mitigate?**
5. *Deploy to a public Testnet*
   - **P5- How much gas do you estimate will be used to deploy the contract? How much ETH will it cost?**
6. *Etherscan*

- **P6- Include the contract address in the Lab report**

7. *Interact with the Smart Contract with Etherscan and MetaMask*
    - **P7- How much SepoliaEth will the transaction cost? Explain how transaction cost is computed.**
    - **P8- Is the transaction persisted immediately? Why? Explain the consensus protocol currently used in Ethereum networks.**
    - **P9- Retrieve the transaction information associated to the Store function call. Also, write down the information of the block where the transaction is registered. Add some screenshots to the report.**
    - **P10- Do you think 51% attacks are possible in Ethereum mainnet today? Justify your answer.**

Delivery

Zip the document **L4_D1** containing the answers to the questions and the code of all the tasks in a compressed file with name **L4_[your_group_number].zip**. Submit the file to **RACO (Practicals/L4**).

Deadline: December 19th - 23:59h