CS 426: Introduction to Blockchains
Assignment 2

Assignment Details

- **Assignment Given On:** 14th Feb 2025
- **Due Date:** 19th Feb 2025, on Google Classroom (10% penalty per 24-hour period after the due date).
- **Submission Format:**
  - Create a directory named `<Your Roll Number-Assignment-2>`.
  - Copy all output files into this folder.
  - Zip the directory and submit it on Google Classroom.
- DO NOT USE CHATGPT OR COPY FROM ANYWHERE IN THE INTERNET OR COPY FROM ANOTHER STUDENT. 100% penalty if the submitted source code is found to be copied.

Ethereum Private Blockchain Setup

Task Description

You will set up and interact with a private Ethereum blockchain by performing the following operations:

- Create nodes on a private Ethereum blockchain.
- Create accounts, unlock accounts, and perform transactions.
- Transfer Ethers between accounts and verify balances.

Project Implementation Details: What to Do?

In this project, you will deploy an Ethereum test blockchain with one node and transact between two accounts. We will do it in two steps:

- Setting up the environment.
- Working with the blockchain

Read all instructions below before you begin the project.

Step 1: Setting Up the Environment

1. **Setting up Remix and Creating MyContract.sol**
    - Install and configure Remix IDE to deploy smart contracts.
2. **Downloading and Installing Ganache**
    - Download and install Ganache, a personal Ethereum blockchain.

(Refer to the Environment Setup file in the Handbook for detailed instructions and troubleshooting tips. DO NOT miss this step.)

Step 2: Working with the Blockchain

You are creating a node, setting up accounts, checking balances, and performing transactions between accounts. You will also deploy a smart contract to interact with the blockchain.

1. **Downloading MyEtherWallet**
    - Install and configure MyEtherWallet (MEW) to manage Ethereum wallets.
2. **Creating a Wallet**
    - Generate a new wallet using MyEtherWallet.
    - Secure your private keys and access your wallet.
3. **Creating a Node and Attaching Wallet to Ganache Blockchain**
    - Connect MyEtherWallet to the local blockchain running on Ganache.
    - Add accounts from Ganache to your wallet.
4. **Deploying the Smart Contract**
    - Use Remix IDE to deploy `MyContract.sol` on Ganache.
    - Verify and interact with the deployed contract.
5. **Executing Transactions**
    - Unlock accounts before transacting.
    - Transfer Ethers between accounts and monitor transaction status (pending, completed, failed).

(Refer to the Environment Setup file in the Handbook for detailed instructions and troubleshooting tips. DO NOT miss this step.)

Important Notes

- Refer to the handbook to learn more about the assignment.
- Read the instructions and explanations at each step of the interface.
- Click the appropriate buttons in each step to execute operations.
- Execution time varies depending on system resources (RAM, CPU, etc.). Be patient and wait for notifications before proceeding.

Grading Criteria

Category	**Marks**
Setting up Remix and Ganache (4 screenshots + Demo)	20%
Creating and Managing Accounts (5 screenshots + Demo)	25%
Performing Transactions (6 screenshots + Demo)	30%
Deploying Smart Contracts (5 screenshots + Demo)	25%

Table 1: Grading Criteria for Assignment 2