Ain Shams University
Faculty of Engineering
Computer and Systems Engineering Department

CSE 411: Distributed Computer Systems – 4th Year CSE – 1st Semester 2018/2019

P R O G R A M M I N G P R O J E C T

This assignment is a group programming assignment with a group of 4 to 6 students. In this assignment, you are going to apply the programming techniques related to socket and thread programming to build a online Banking System.

This system provides at least the following features to its client:

1. Create a new Bank Account providing Full Name , account password , initial amount of money to deposite. A unique Account ID must be generated for this user.
2. Login using the unique account ID and account password. You must handle invalid account ID or account password.
3. Check on Current Balance.
4. Deposit Cash to your account. You must handle depositing incorrect amount of money such as negative amounts.
5. Withdraw Cash from your account. You must handle withdrawing incorrect amount of money such as negative amounts, you must also handle withdrawing an amount of money larger than your balance.
6. Transfer Money to another account within the same bank.You must check if the other account already exists, you must handle transfering incorrect amount of money such as negative amounts, you must also handle transfering an amount of money larger than your balance.
7. Transfer Money to another account in another bank. You must check if the other account already exists, you must handle transfering incorrect amount of money such as negative amounts, you must also handle transfering an amount of money larger than your balance.
8. View Transaction History. You Should neglect any uncomplete transaction such as withdrawing an amount of money larger than current balance.

The program should be written in Java. Additionally, a detailed report and a demo session using multiple machines over a LAN are needed by the due date.

Extra Credit:

- Graphical user interface for the client side application (10%).
- Adding a Database to the system (20%).
- Applying Security techniques to the system, such as Encrypting/Decrypting sensitive data before storing to the data base (10%).

Project Deliverables:

All Project Deliverables must be sent to the corresponding Google forms.

1. Project proposal (pdf file)
    - Team members: full names in arabic and bench numbers.
    - If you are proposing another idea for the project then you should add a full description for your idea similar to that of the online Banking System.

    Deadline: Thursday 25/10/2018, 11:59 PM

    Google Form Link: https://goo.gl/forms/xNFSA8fZ4uBbHVCx1

2. System Design (pdf file)
    - System Architectural Model: showing the computational and communication tasks performed by every computational elements (Client/Server , P2P)
    - The Application Level Protocol adopted in the project.

    Deadline : Tuesday 30/10/2018 , 11:59 PM

    Google Form Link: https://goo.gl/forms/8G4zYNjIfSU01phz2

3. Final Delivery including:
    - Source Code
    - Executable files (Jar files)
    - Project Report:
        i. A brief description of your project.
        ii. Final System design (including any updates).
        iii. User Guide with snapshots demonstrating how to successfully perform all the required tasks of the project
        iv. Any additional documentation you might find useful (including code documentation, descriptions of difficulties encountered, etc.)

    Deadline : Thursday 8/11/2018 , 11:59 PM

    Google Form Link: https://goo.gl/forms/MFAemTZJasTlutl53