

Introduction to Computer Networks

Lab1 (Deadline: will be announced on ilms)

1. Description

Implement a simple transaction model.

The server should create a transaction server and allow users (clients) to create accounts, deposit/withdraw money in/from their accounts.

The client should be able to access the transaction server and update their account. Please use TCP socket and the programs should be implemented in C/C++.

2. Requirements

- Server program
 - File name of the server program: studentID_ser.c or studentID_ser.cpp
 - The server program is executed using the command line by typing “studentID_ser port” where “port” is a port number.
 - Functions of the server:
 - ◆ Allow client to access the server.
 - ◆ If client accesses the server successfully, server needs to show the client’s IP address and asks for the client’s account name. If the account name is already existed. Asks for the client’s password. If the account name is not existed. Asks for the client to create an account.
 - ◆ After a successful login, the server shows the remaining money of the user and waits for the user’s next command.
- Client program
 - File name of the client program: studentID_cli.c or studentID_cli.cpp ■

The client program is executed using the command line by typing “studentID_cli ip port” where “ip” is the IP address of the server and “port” is the port number for the server.
 - Functions of the client:
 - ◆ Should be able to connect the server.
 - ◆ Should be able to login to the server or create an account.
 - ◆ Should be able to withdraw money from their account.
 - ◆ Should be able to deposit money in their account.

- Note:
 - All the files **must be transmitted via socket**.
 - You need to **handle illegal-command exception**. (ex, multiple account names, invalid input from user)
 - Server needs to keep all the information of each user even if we shut the server down.
 - Please use **winsock** to implement your program, **or your program will not be scored**.

3. Evaluation:

- (80%) Programs
- (20%) Report

File name for report: studentID_report.pdf Your report should include:

 - Details of your implementation, including server-side and clientside.
 - Screenshot or the instruction of the executing process on each function.
 - Descriptions of difficulties you encounter and how you solve them.
- (0%) Readme

File name for readme: studentID_readme.txt

Please write a readme file to show how to execute and run your program.

4. Submission

- Please upload the following files to ilms.
 - studentID_ser.c
 - studentID_cli.c
 - studentID_report.pdf
 - studentID_readme.txt
- All the files should be included, otherwise no grade will be given for the programming lab.
- Deadline: will be announced on ilms.