

Introduction to Computer Networks

Assignment 1: a multi-party chat program

1. Goal

- Develop a multi-party chat program using socket programming.

2. Development environments

- You can use both C and Python (3.x) on Linux and Windows
- You have to describe your development environment information in detail in the report.

3. Functionalities to implement

- Server
 - After running a server, receive a port number from a user.
 - Accept multiple clients to be connected.
 - Receive requests from clients, and handle their requests.
- Client
 - After running a client, receives the server IP address, port number, and UserID from a user.
 - When a client is connected to the server, let the existing clients know that the new client joins.
 - If a user types `"/who"`, retrieve the UserID list of current connected users.
 - If a user types `"/m user_ID message"`, deliver the message to **user_ID**. (or show '**user_ID** does not exist.')
 - If a user types `"/b message"`, broadcast the message to all the users.
 - If a user types `"/q"`, terminate the client program, and let all the other users know that who leaves out.

4. Submission

- The deadline is 10.15(Sun) 23:59.
 - For delayed submissions, a penalty of -15 points applies every 24 hours. After 72 hours, you get zero points.

- In the case of plagiarism, you will receive 0 points for the first time and **F** for the second.
- Submit a zip file including a **report** and two (client and server) program sources to iCampus
- Name the Report file as follows StudentID_Name.pdf (ex: 2017001_홍길동.pdf)
 - 1) Describe your development environment information in detail
(versions of operating systems, languages, compilers/interpreter versions)
 - 2) Explain how to run both server and client programs including individual functionalities.
Show the screen capture per functionality.
* TA will only test functionalities which are mentioned in your report.
 - 3) Present how to design this assignment such as data structures and algorithms for your proposed application protocol.
- The server and client program sources:
If TA cannot compile/run your code, you will get penalty (-10 points).

5. 채점 기준

- Total 100 points
 - 10 points : Report
 - 20 points : at least two clients are connected to the server, and communicate each other
 - 20 points : UserID of a new client is notified to the existing users
 - 10 points : for the functionality of “/who”
 - 10 points : for the functionality of “/m”
 - 10 points : for the functionality of “/b”
 - 10 points : for the functionality of “/q”
 - 10 points : when terminating a client, error/strange messages should not be printed.

6. Q&A

- Write your questions in the class google sheet