

# **CSCE 5580**

## **Coding Assignment #1**

### **Messaging Server**

**Group Members:**

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## How to Run:

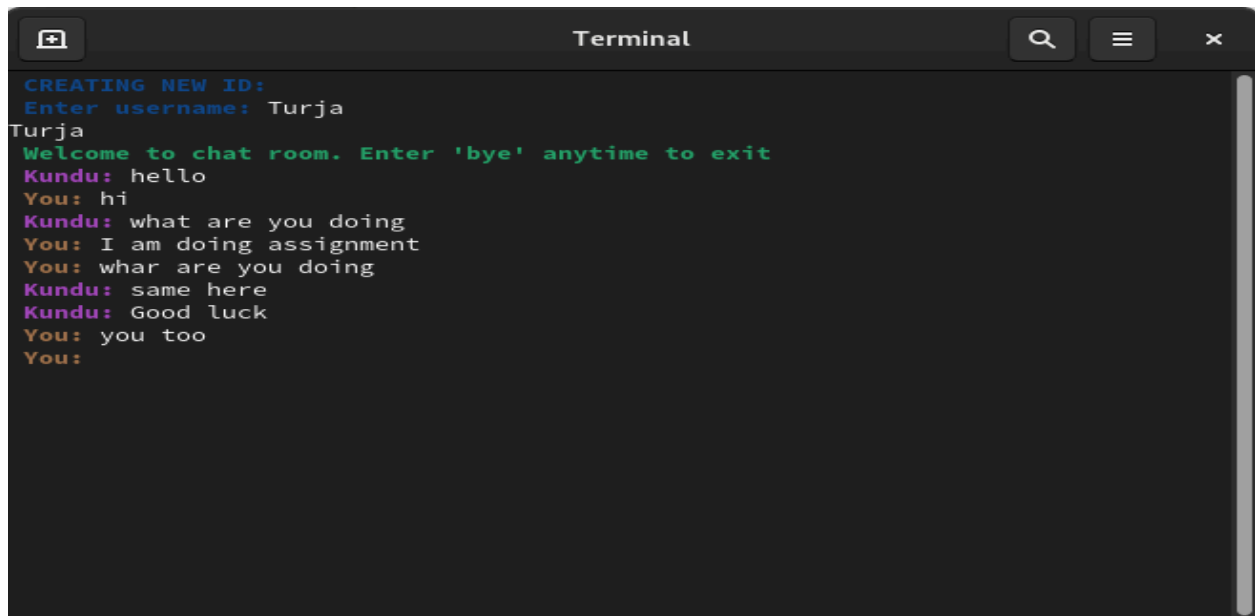
1. Go to the Folder and open terminal on that folder and run **sh run.sh** in terminal (It uses **gnome-terminal** to run clients). **So It works on Linux**. To run in Windows need to comment that line from code and run clients separately
  2. In shell script file Server ip, Port and the number of clients are **configurable**.  

```
#!/bin/sh  
python server.py localhost 8119 2
```
  3. After executing the shell script the server and clients will run.
- Server screenshot:** In the following screenshot two clients join the server and exit later

```
turja@localhost:~/python_chatServer-master/Final — sh run.sh
[turja@localhost Final]$ vim run.sh
[turja@localhost Final]$ sh run.sh
SERVER WORKING
send to all
Client (127.0.0.1, 38590) connected [ Turja ]
[NEW CONNECTION] ('127.0.0.1', 38590) connected.
2
Client (127.0.0.1, 38602) connected [ Kundu ]
[NEW CONNECTION] ('127.0.0.1', 38602) connected.
2
data received: bye
Client (127.0.0.1, 38602) is offline [ Kundu ]
data received: bye
Client (127.0.0.1, 38590) is offline [ Turja ]
█
```

**User screenshot:** In the following screenshot two users have been created and they chat between them

```
Terminal
CREATING NEW ID:
Enter username: Kundu
Kundu
Welcome to chat room. Enter 'bye' anytime to exit
Turja joined the conversation
You: hello
Turja: hi
You: what are you doing
Turja: I am doing assignment
Turja: whar are you doing
You: same here
You: Good luck
Turja: you too
You: █
```

A screenshot of a macOS Terminal window titled "Terminal". The window has a dark background with light-colored text. The text shows a chat room interface. It starts with "CREATING NEW ID:" followed by "Enter username: Turja". Then "Turja" is entered. A green message says "Welcome to chat room. Enter 'bye' anytime to exit". Then a series of messages follow: "Kundu: hello", "You: hi", "Kundu: what are you doing", "You: I am doing assignment", "You: whar are you doing", "Kundu: same here", "Kundu: Good luck", "You: you too", and "You:". The window has standard macOS window controls (red, yellow, green buttons) and a search icon in the title bar.

```
CREATING NEW ID:
Enter username: Turja
Turja
Welcome to chat room. Enter 'bye' anytime to exit
Kundu: hello
You: hi
Kundu: what are you doing
You: I am doing assignment
You: whar are you doing
Kundu: same here
Kundu: Good luck
You: you too
You:
```

## Implementation Details:

Our implementation has the following features

- Server class features:
  - Server listens to a port for accepting connections from users.
  - For each connection request, a new thread is generated to handle the user messaging
  - A Global buffer maintained to store the user message and relay to other users
  - To keep track of connected clients, a table is maintained.
  - Safely close socket when clients exit and keep track of the number of active users.
- Node class features:
  - Establish a connection with the server.
  - Transfer data via the server to other users.
  - Print every piece of information you have received.
- Main class features:
  - Take input from the command line: server address, port, and number of clients
  - Instantiate server class and client class