Comp3331 assignment document:

Assignment design:

Server will waiting for TCP connection, and handle different client in different thread, each one client in one thread, when user logout, Its thread will be terminated

Client have one TCP connection with server. Client is always listening to the port for UDP file send. Once the TCP connection is close, UDP listening will be also close.

Tradeoff:

For file send part, the client who listen to a port cannot identity whether the information is valid or not valid, if bad guy now that port, this bad guy can send rubbish to this client.

Possible improvement:

If client do not logout by command 'OUT', the server cannot remove its login status. To address this, I think we can monitor the TCP connection, once the connection close for some reason, server will remove the login status for that client.

For file send part, If client can make choice about whether receive this file, It will make file send more secure. We can read the IP and port number of sender, if this sender's information is in server, client will receive this file. Otherwise reject this file send.

Please prepare a credentials.txt for server to identify client.
Please start server first, then start client.
Server tips:

1. Start server as **$ python3 server.py server_port number_of_consecutive_failed_attempts**
   Like "$python3 Server.py 12000 3"
2. User cannot login if they already login.
3. User cannot login when they are blocked
4. If invalid argument was typed, Server will promote some error message to notify the client what is the error
5. Server will print log message in server terminal if client type valid command
6. Every time start server, Server will clean the userlog.txt and messagelog.txt to empty.
7. The command server will use is as same as the command in assignment instruction.

Client tips

1. Start client as **$python3 client.py server_IP server_port client_udp_server_port**
   Like "$python3 Client.py localhost 12000 8000
2. Once user login, they must use OUT command to remove their login status
3. **During UPD file transmission, there is chance that file broken.**
4. Client cannot start if the server do not start
5. For the valid use, please logout use 'OUT' if you want quit.
6. You can only delete or edit the message send by yourself

Command list for client:

MSG: Post Message
Format: MSG message
Sample: MSG hello, this is first message
Result: post a message which is 'hello, this is first message' to server

DLT: Delete Message
Format: DLT messagenumber timestamp (please add #before the messagenumber)
Sample: DLT #1 17 Apr 2021 15:18:03
Result: delete a message which messagenumber is 1 and post or edit time is 17 Apr 2021 15:18:03 from server

EDT: Edit Message
Format: EDT messagenumber timestamp message
Sample: EDT #1 17 Apr 2021 15:18:03 Now everything change
Result: Edit a message which messagenumber is 1 and post or edit time is 17 Apr 2021 15:18:03 from server to 'Now everything change'

RDM: Read Messages
Format: RDM timestamp
Sample: RDM 17 Apr 2021 15:18:00
Result: Get message which post or edit after 17 Apr 2021 15:18:00

ATU: Download Active Users
Format: ATU
Sample: ATU
Result: The server check if there are any other active users apart from the client that sends the ATU command, give their information to you for UPD file upload.

OUT: Log out
Format: OUT
Sample: ATU
Result: remove user from userlog.txt and close the client

UPD: Upload file
UPD username filename
Sample: UPD Hans exmaple2.mp4
Result: send exmaple2.mp4 to Hans. (This command can only valid after you use ATU command that you find Hans is active.)