

# README DOCUMENT

ID and Passwords hardcoded for this run:

- 1) ID: Akshay  
Password: qwerty
- 2) ID: John  
Password: password
- 3) ID: Sara  
Password: 12345

To run the program on Windows OS:

- Open the cmd and change the directory where client and server files exist
- Now type “py server.py”, this will initiate the server and it will be waiting for clients to connect
- Open another command prompt and set the directory same as above, now type “py client.py”
- A window will be opened asking for user credentials, enter any of the above mentioned ID and Password combination.
- The user will be verified and can send the message
- To make another user online, open another command prompt and set the directory as mentioned above and type “py client.py” and enter another pair of credentials for any user which is currently not connected
- Now you can send and receive messages from any online users

Note:

If the application displays a “Error occurred...Please check HOST address and PORT number are correct”, please double-check that the HOST address and PORT number are accurate. This usually signifies that your machine's IPv4 address differs from the one set in client.py. To fix this, open a command prompt on your system and run "ipconfig", then copy the IPv4 address displayed and replace it with the IPv4 address of your machine in the HOST variable in the main method of client.py.

## Analysis:

This program is very robust because it checks if the states are maintained according to the DFA. Fuzzing can result in showing minor errors for this program but no major issues can be occurred due to the statefulness of this protocol. I tried testing the robustness of this program by entering incorrect credentials by changing the ID and Password to uppercase and lowercase but the program never authenticated the user until exact combination of ID and password was entered with case sensitive credentials.