**Summary**:

Write an Instant Messenger server. Additionally, the server has files that’s the clients can ask to get from the server using reliable UDP port.

**Using language:**

Python.

Details:

The server initialize itself and listen for 10 ports at a time. The server run on a local machine, using port 50000. The server is using ports 50000-50015. After a client disconnect the port back to be available.

Every client can send a message to all other client or to a specific client, using TCP protocol.  
Whenever client connect or disconnect to the server, a message will be sent to all the online users.

The client can ask for a file from the server using TCP protocol. The file will be sent form the server to the client in UDP, with FAST Reliable UDP protocol implementation. (RDT implementation additionally to the congestion control). When finish, the server will print a statement, including the last byte that was sent to the client. Few clients can download files in the same time in parallel.

The client actions:

1. Connect to the server
2. Disconnect from the server
3. Send message to another client
4. Send a message to all online clients
5. Gets the names of the other clients that are currently online
6. Request list of the available files
7. Get a file from the server

The sever answers to the client:

* 1. When connect <you have been connected!> to all other <user “name” has connected>
  2. When disconnect <you have been disconnected!> to all other <user “name” has disconnected>
  3. Client messages <msg\_lst><num\_of\_msgs><”..”><”..”>…<end>
  4. List of online clients <users\_lst><num\_of\_users><”..”>…<”…”><end>
  5. List of available files <file\_lst><”..”>…<”…”><end>
  6. Client received a file: “User downloaded 100% out of file. Last byte is: yyy”