Project Computer and Communication Networks

1. Using Python socket programming, create a chat application between server and multiple clients.
2. Implement a simple graphical user interface (GUI) for the client side of the chat application. The user will interact via a GUI. Users must be able to select the users they want to communicate with and then send them messages directly using the GUI. The user must be able to open multiple chat sessions. The information of any new user joining the chat room or leaving the chat room should be shared with all the users connected at that time.
3. Create a contact database to store user information, such as usernames and IP addresses of the clients for authentication when connecting to the server. The users type username and password when connecting to the server.
4. Implement functions to replace, update, and delete entries in the database.
5. Initiate chat between server and clients and between clients through the server.
6. Use Wireshark to examine the network traffic between the client and server.
7. Store multiple files at the server (assume fileserver) and the clients must be able to access and edit a file stored on a remote filesystem at the server. The client must be able to search file by name and then open and edit it remotely from the server.
8. The client is able to store/ upload a new file on the fileserver.
8. The Server can block a specific port for communication. The server has to report the error when the client uses that port. The client has to request server to unblock the port.