Concordia University
Department of Electrical & Computer Engineering

Telecommunication Networks
ELEC 366
**Lab 3: Multi-Client / Server Applications**

1. Assignment:

Implement a Chat Room application with one server and multiple clients. The server shown in the figure below will have a thread for every client connecting to it. Another thread for accepting connections, and another one to update the label with the current number of clients connecting.
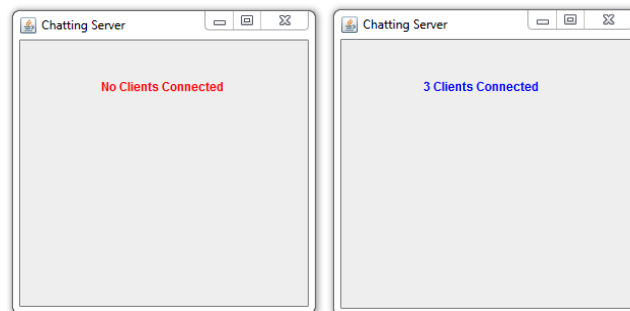

The Client shown in the following figure will have a thread to receive all messages from the server.
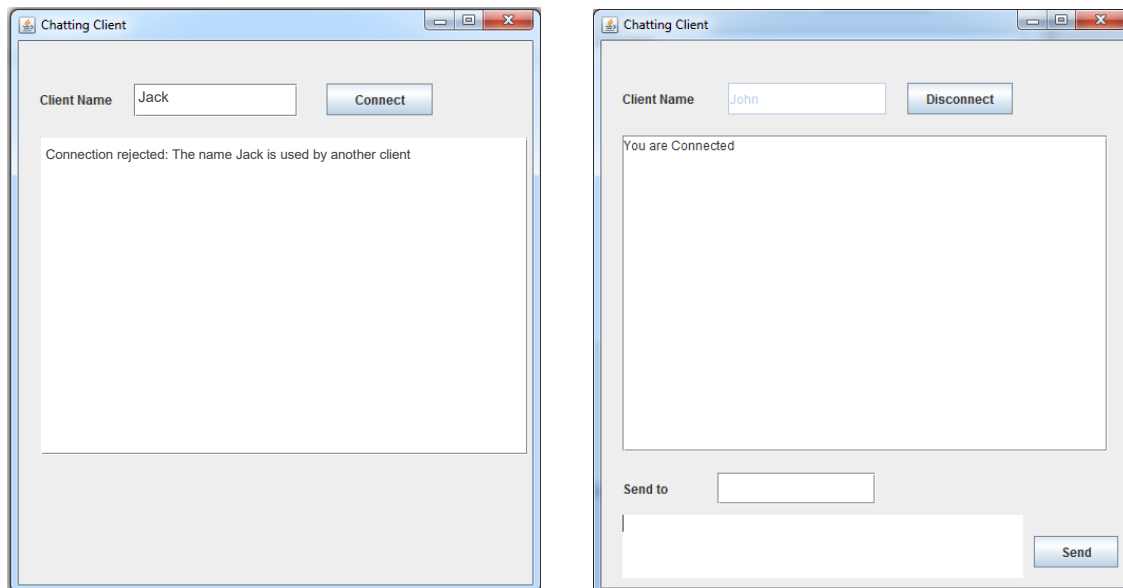
When any new client connects to the server, it must send its name and the server will check the name and refuse the connection if the name is used. the server will announce this to all the connecting clients as shown below.
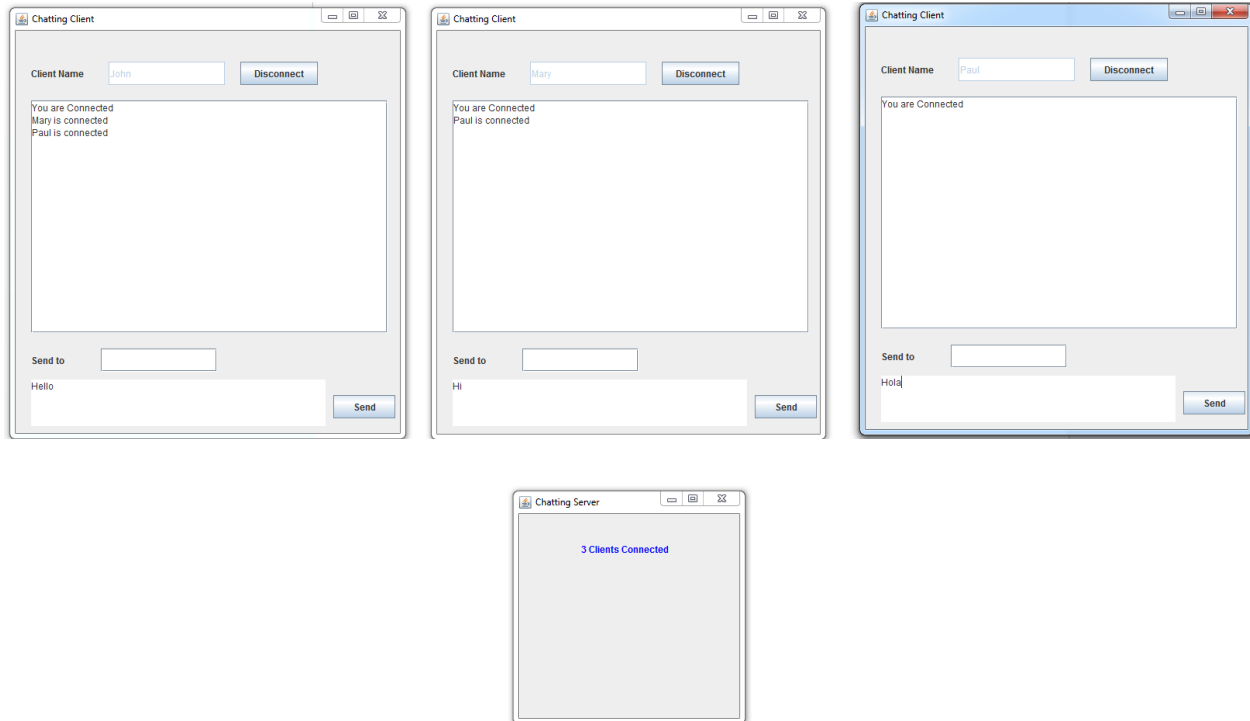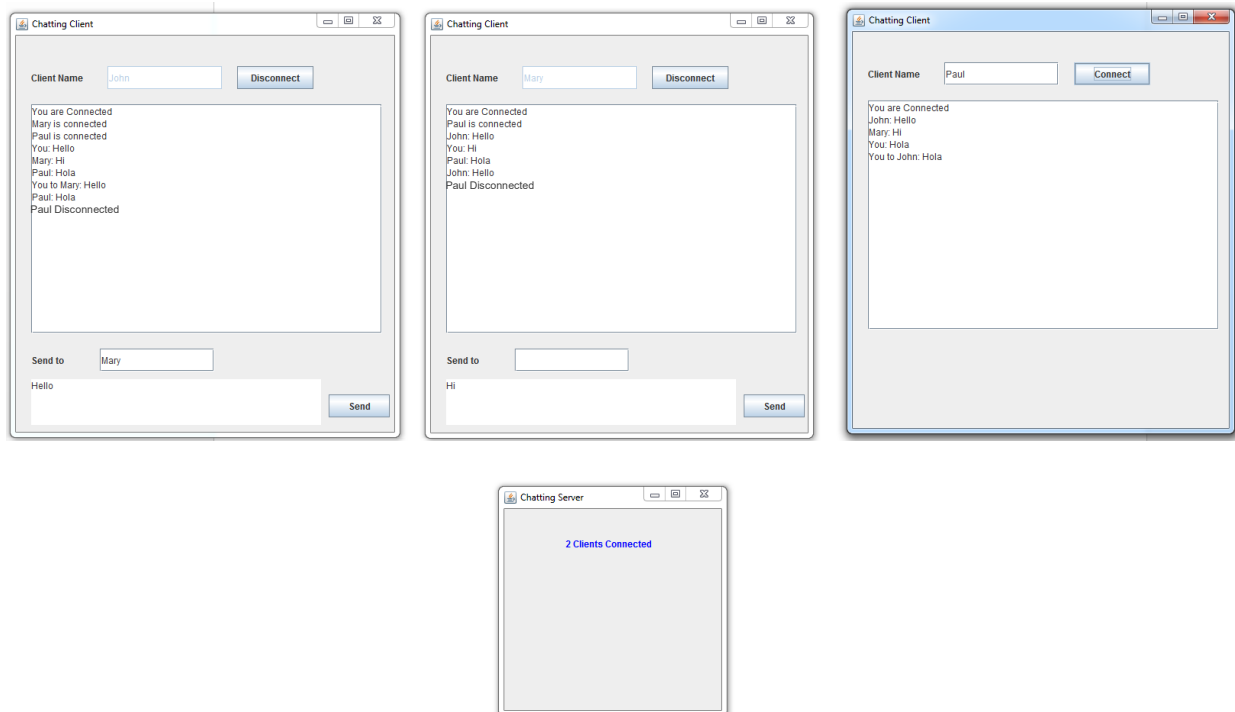
The Clients serving threads will forward the message sent by any client to all other clients if no specific client name was not entered in the "Send to" field.
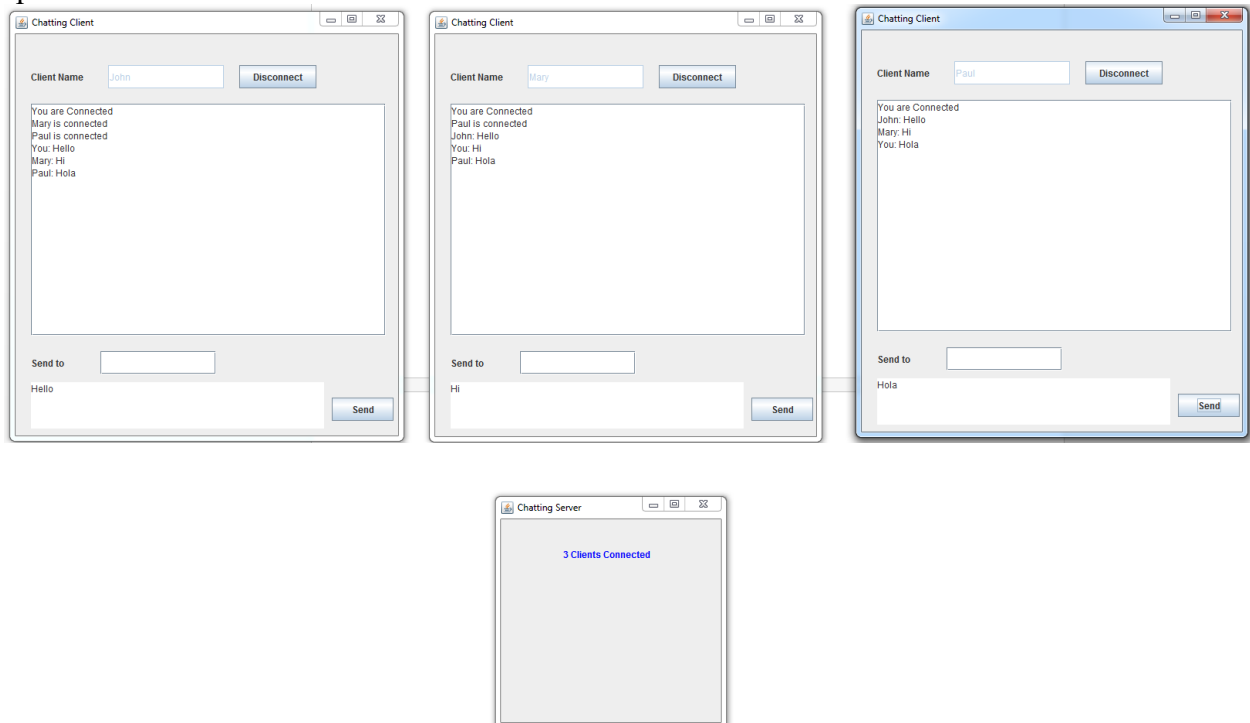
If a specific name was entered in the "Send to" filed, the server will forward this message to the specified client only. The server must send the specific message to one client only.
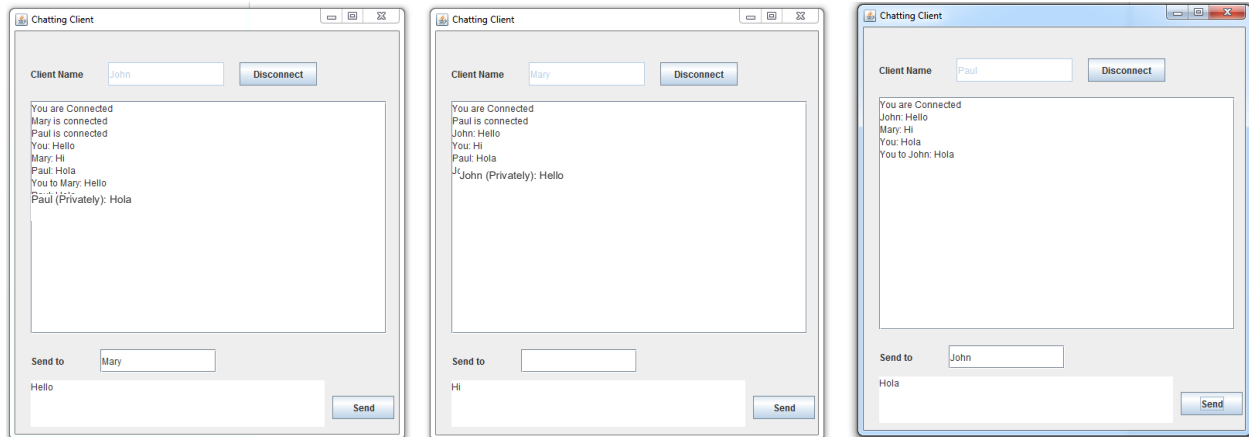
When a client disconnects, the connection with that client should be closed, the serving thread should be removed from the threads array, and the clients' number on the server's window should updated. An announcement must be sent to other connecting clients about the leaving client

Chatting Client — John | Connect

```
You are Connected
Mary is connected
Paul is connected
You: Hello
Mary: Hi
Paul: Hola
You to Mary: Hello
Paul: Hola
Paul Disconnected
Mary Disconnected
```

Chatting Client — Mary | Connect

```
You are Connected
Paul is connected
John: Hello
You: Hi
Paul: Hola
John: Hello
Paul Disconnected
```

Chatting Client — Paul | Connect

```
You are Connected
John: Hello
Mary: Hi
You: Hola
You to John: Hola
```

Chatting Server

No Clients Connected

Bonus:

Announce the names of previously connected clients to the new connecting clients. You can show the list of names in a separate text area, or it is better to use a combobox instead of the text field for the sendTo field, to show all names of clients and choose anyone or choose a public message.