FACULTY OF ENGINEERING AIN SHAMS UNIVERSITY

DISTRIBUTED SYSTEMS PROJECT

CHATROOM

Team: (Sec 2)

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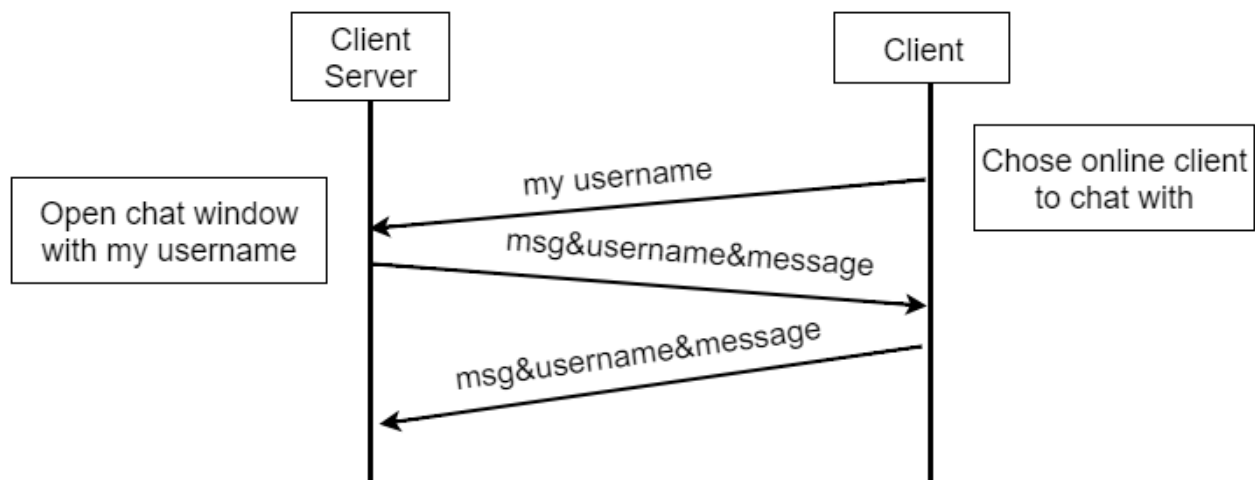Mark Magdy

Contents

CHATROOM

1. Problem Statement

It is required to build a chat system. This system provides the following features to its client:
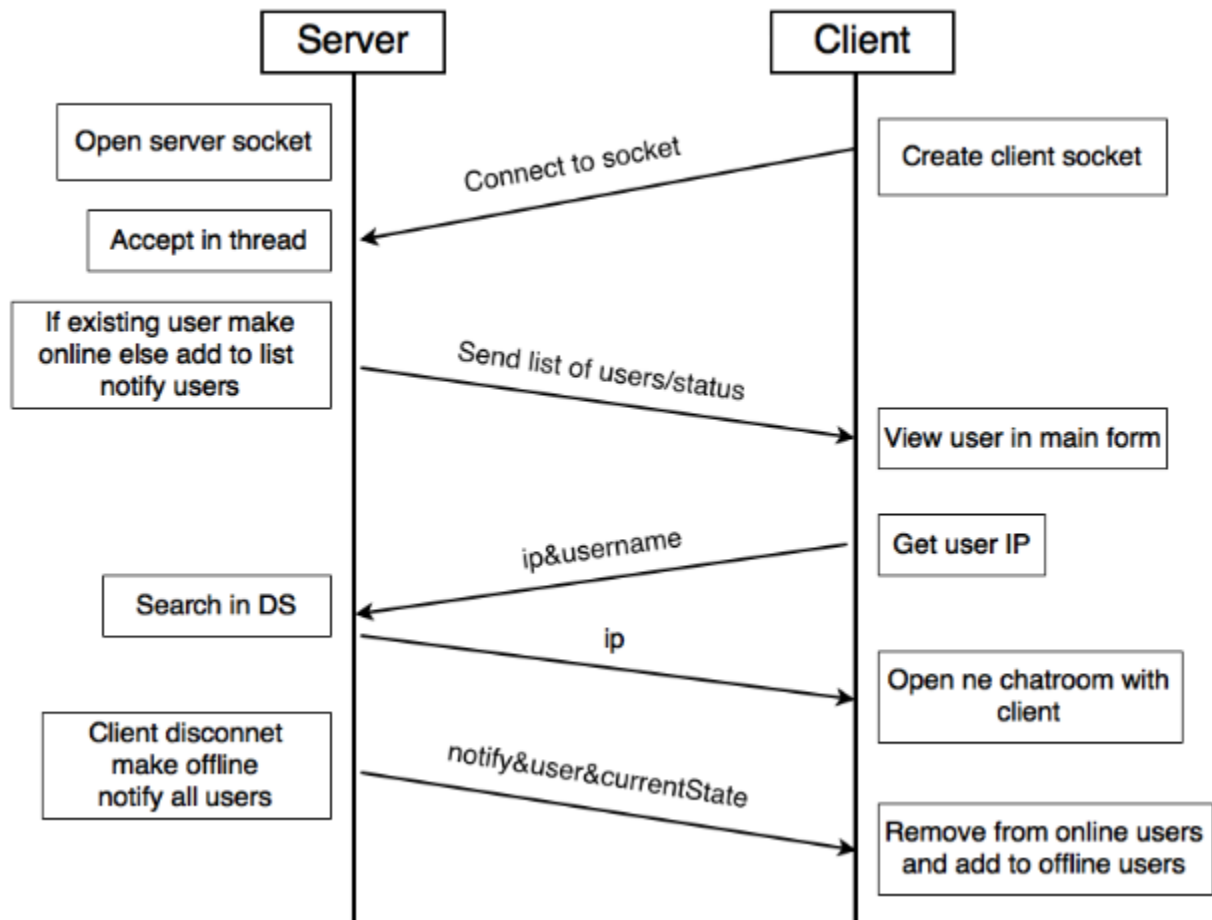
- Client can know the list of clients currently connected and the status of each of them.
- Client can chat with any other client using a P2P communication.
- Administrator can kick-off any client.
- Clients can communicate to each other in a group communication via the server.
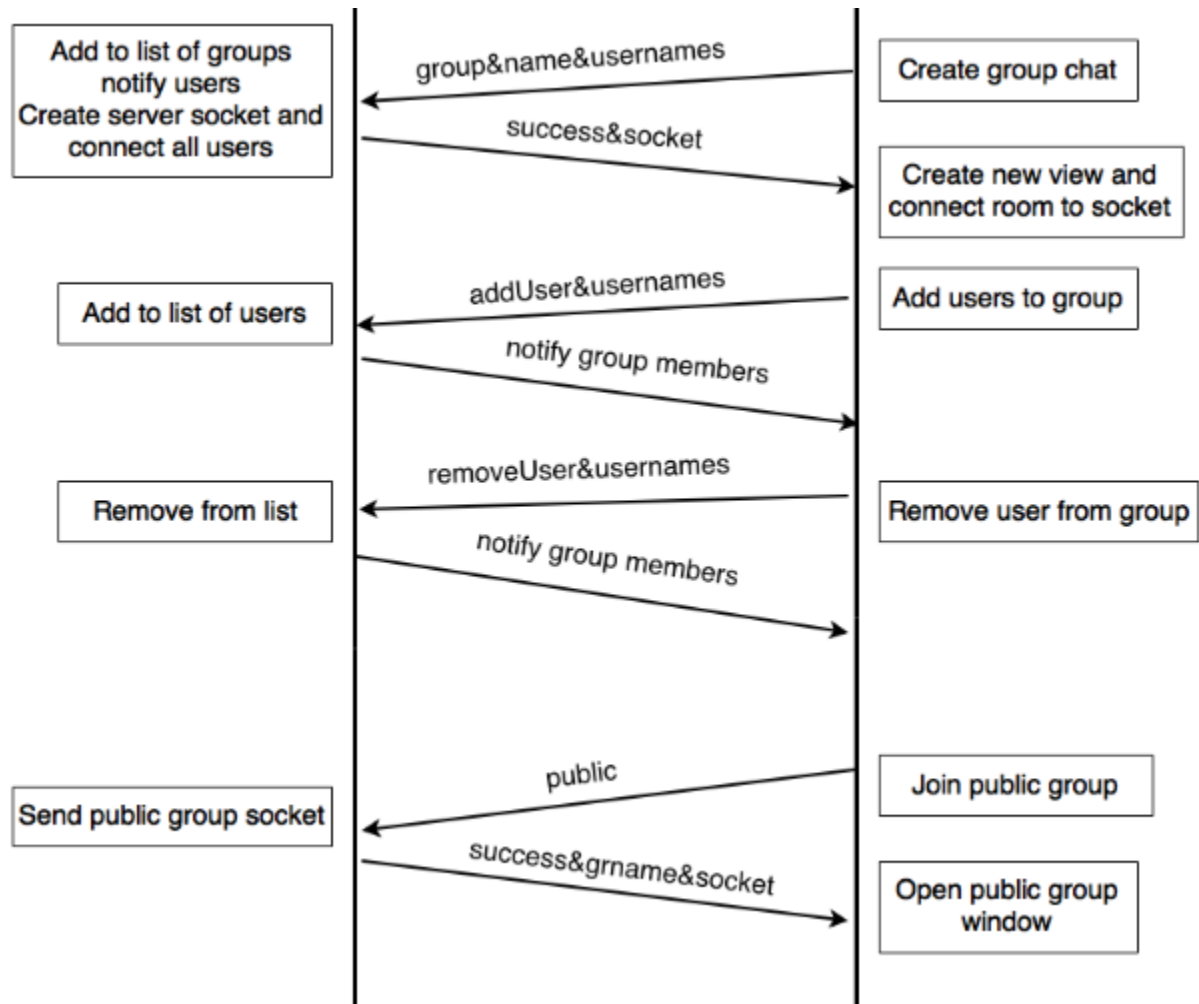- Client can enroll/unenroll to chat group.

2. Application Layer Protocol
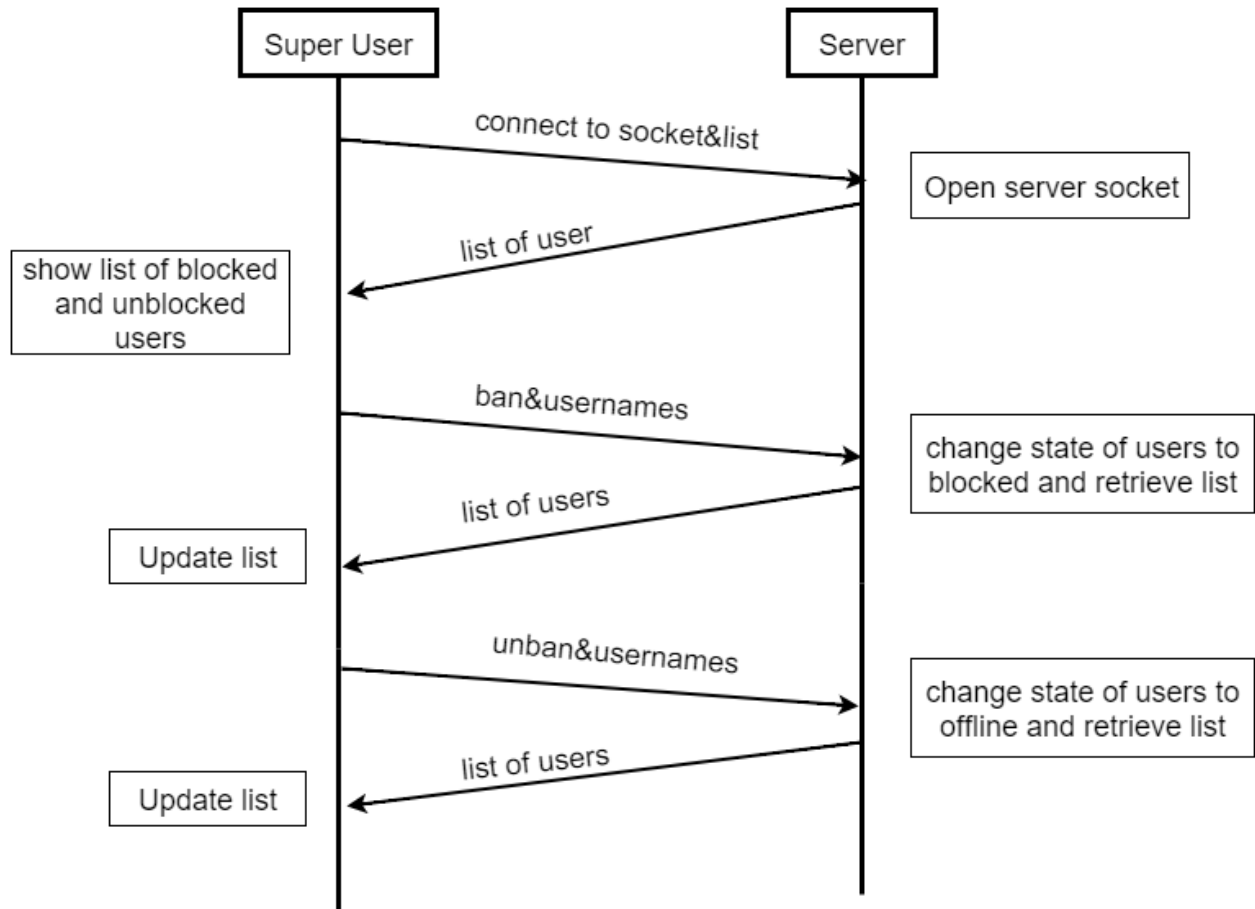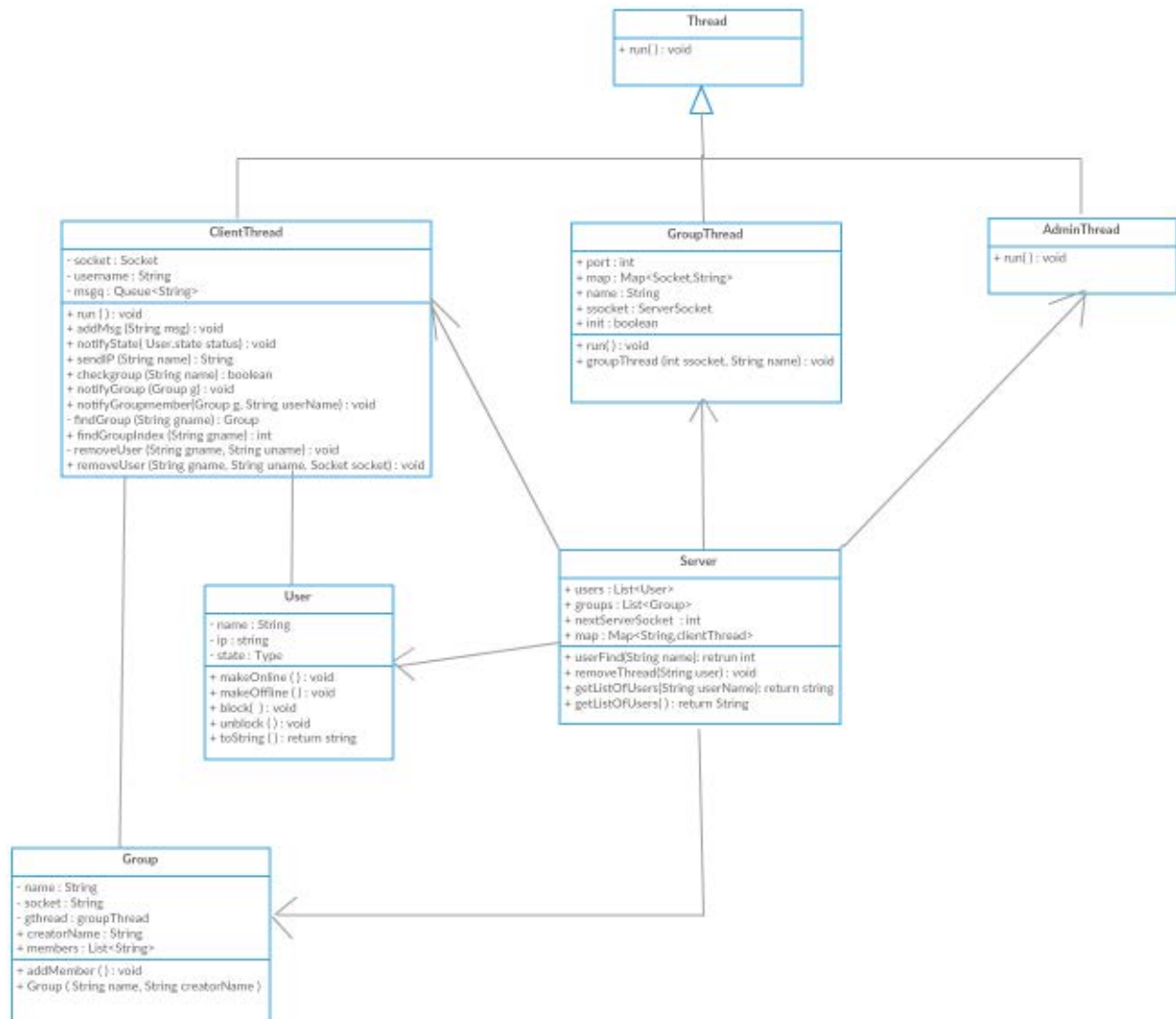
2.1 Peer to peer

2.2 Client server

```
          Server                          Client
         ┌────────┐                      ┌────────┐

┌──────────────────┐                         ┌──────────────────┐
│ Open server socket│      Connect to socket │ Create client socket│
└──────────────────┘                         └──────────────────┘

┌──────────────────┐   ◄────────────────
│  Accept in thread │
└──────────────────┘

┌──────────────────┐
│ If existing user make│    Send list of users/status
│ online else add to list│
│   notify users   │                      ┌──────────────────┐
└──────────────────┘   ────────────────►  │View user in main form│
                                           └──────────────────┘

                          ip&username      ┌──────────────────┐
                                           │   Get user IP    │
┌──────────────────┐   ◄────────────────  └──────────────────┘
│  Search in DS    │
└──────────────────┘            ip         ┌──────────────────┐
                       ────────────────►   │Open ne chatroom with│
                                           │     client       │
┌──────────────────┐                       └──────────────────┘
│ Client disconnet │  notify&user&currentState
│  make offline    │
│ notify all users │                       ┌──────────────────┐
└──────────────────┘   ────────────────►   │Remove from online users│
                                           │ and add to offline users│
                                           └──────────────────┘
```


3

Add to list of groups notify users Create server socket and connect all users	← group&name&usernames	Create group chat
	success&socket →	Create new view and connect room to socket
Add to list of users	← addUser&usernames	Add users to group
	notify group members →	
Remove from list	← removeUser&usernames	Remove user from group
	notify group members →	
Send public group socket	← public	Join public group
	success&grname&socket →	Open public group window

2.3 Super user

3. UML Diagram

3.1 Server UML

4. User Guide

4.1 Client

When you first open the program this window in (Figure 1) appears.
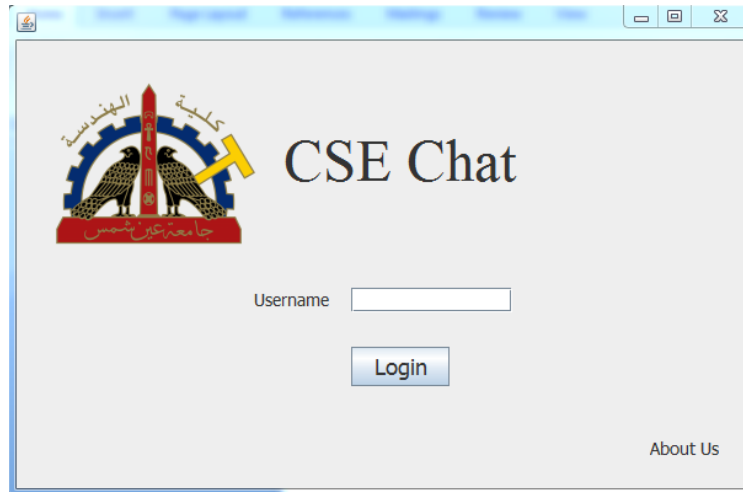
Figure 1

You enter your user name and press Login. If you leave the username field empty an error message will appear (Figure 2). You can enter any characters in the username including spaces except "&".
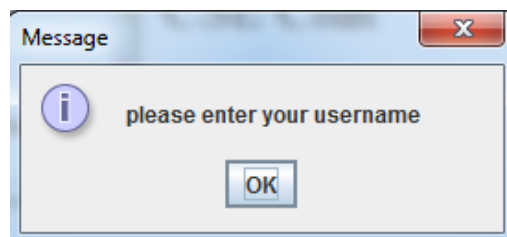
Figure 2

If you sign in with a user name that already exists, if you are offline you will successfully login and appear to other users as online but if this username is already online or blocked you will get an error message (Figure 3).

Figure 3

When you enter username and press "Login" you will see a list of all online and offline users (Figure 4).
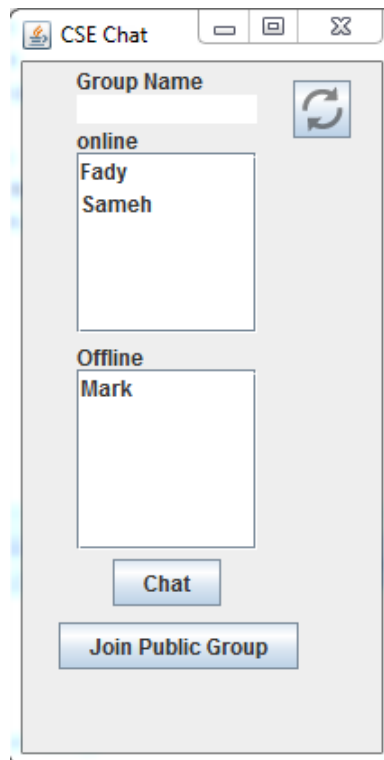
If you want to chat with one person you select the person from online users and press "Chat" .The window in (Figure 5) appears. You cannot chat with offline users.
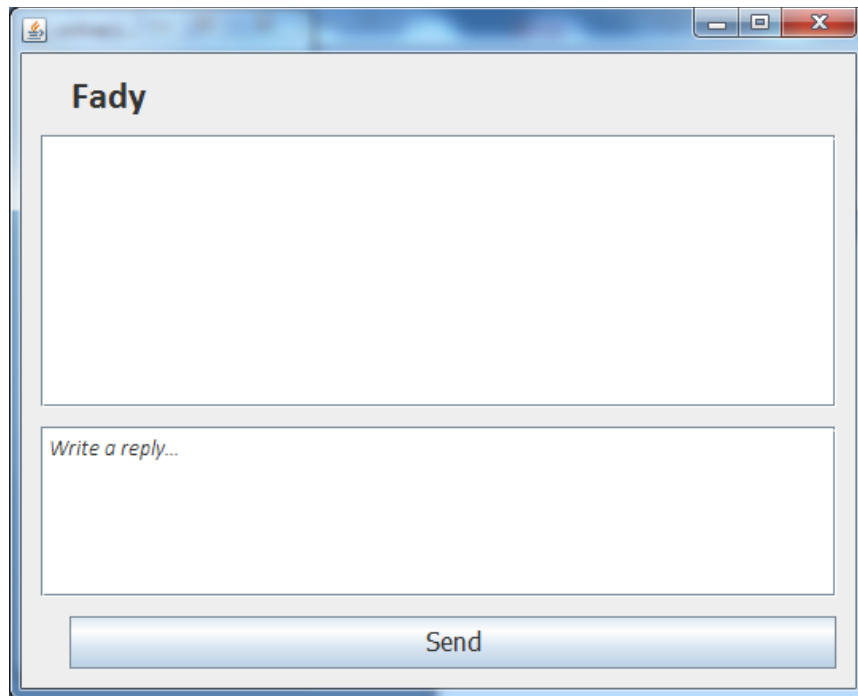
Figure 5

You type you message then press "Send" or "Enter".
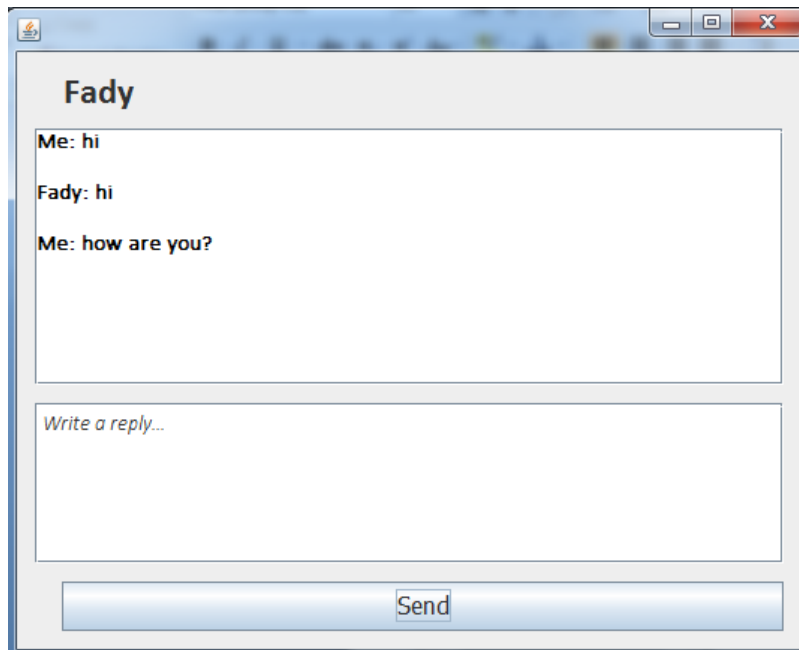
Figure 6

You can chat with multiple users at the same time.

If you want to create a group chat select the users you want to chat with by pressing "ctrl" while selecting them and enter the name of the group. If you don't enter a group name an error message will appear (Figure 7).
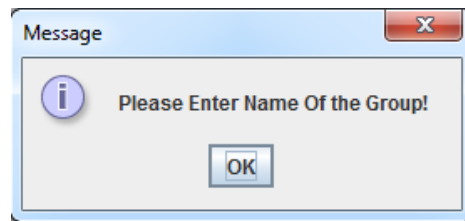
After you select the members of the group and enter a group name press "Chat" The group chat window in(Figure 8)appears.
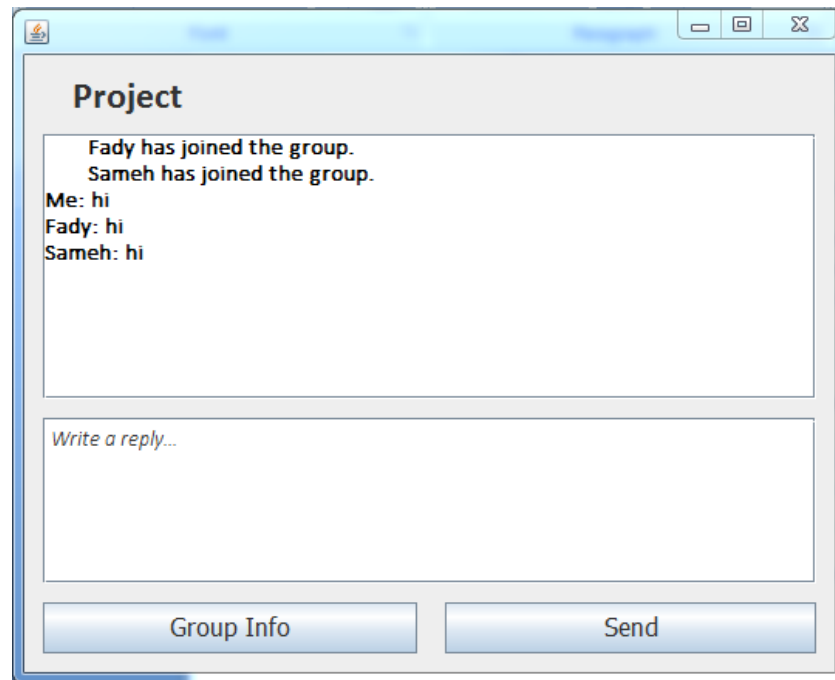
If you press "Group Info" you will see the members of the group and creator.
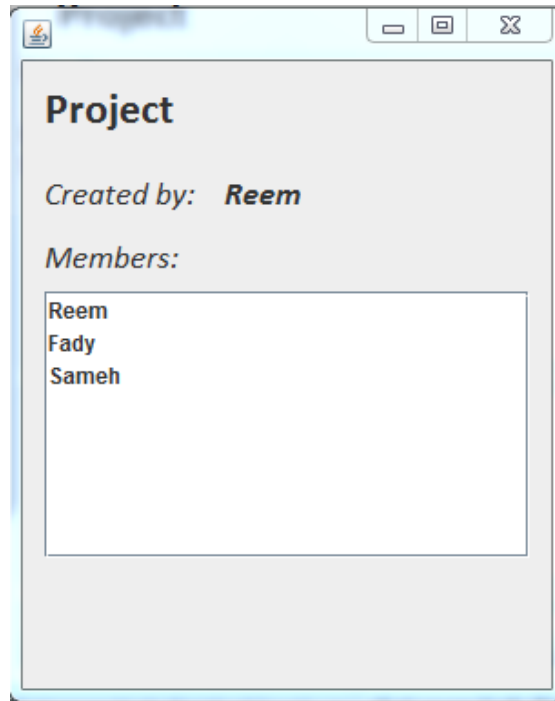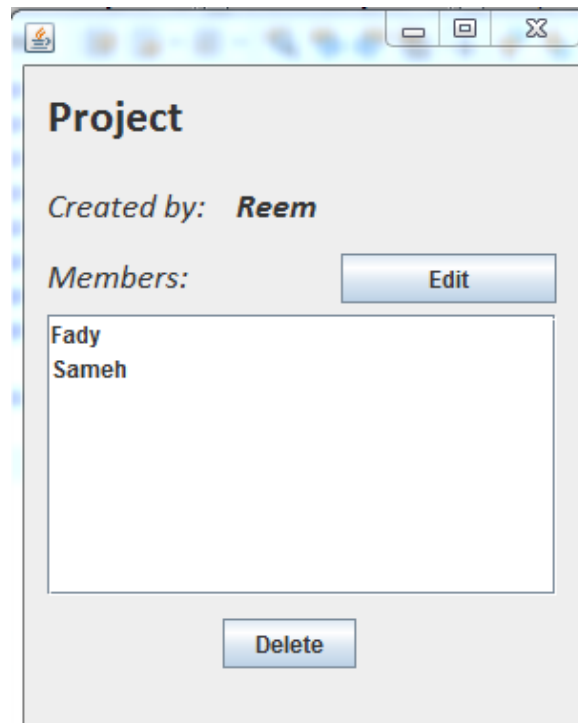
Figure 9

If you are the creator of the group you can add or delete any member

Figure 10

If you select a member and press delete the member will disappear from the group
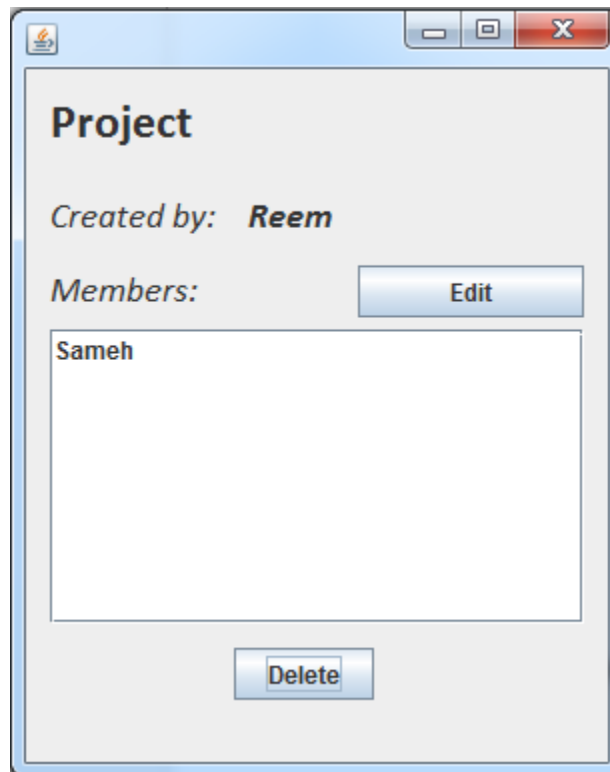
Figure 11

If you want to add a member press "Edit". You will see all the online members that you can add. Select the members you want to add then press "Add".
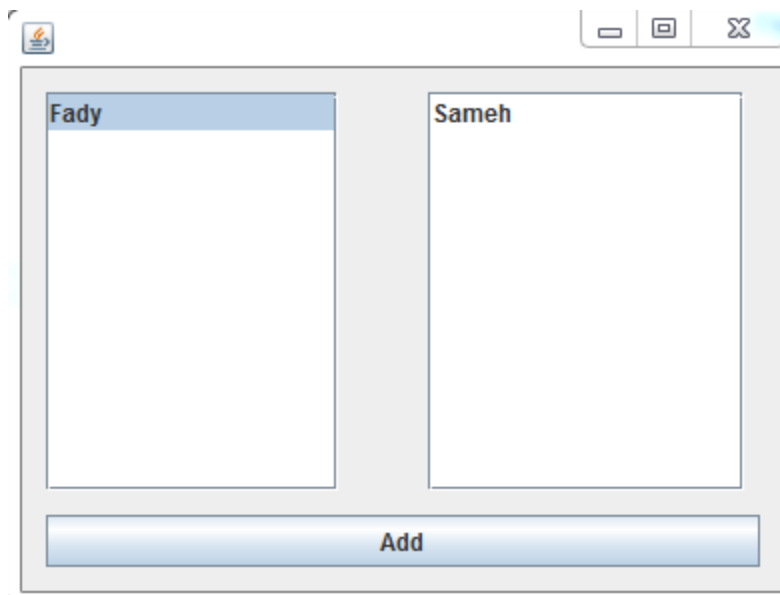

Figure 12

If you want to join the public group to chat with all online members press the button "Join Public Group". A chat window will open with the name "All". You can also see all the users that joined the group after you.
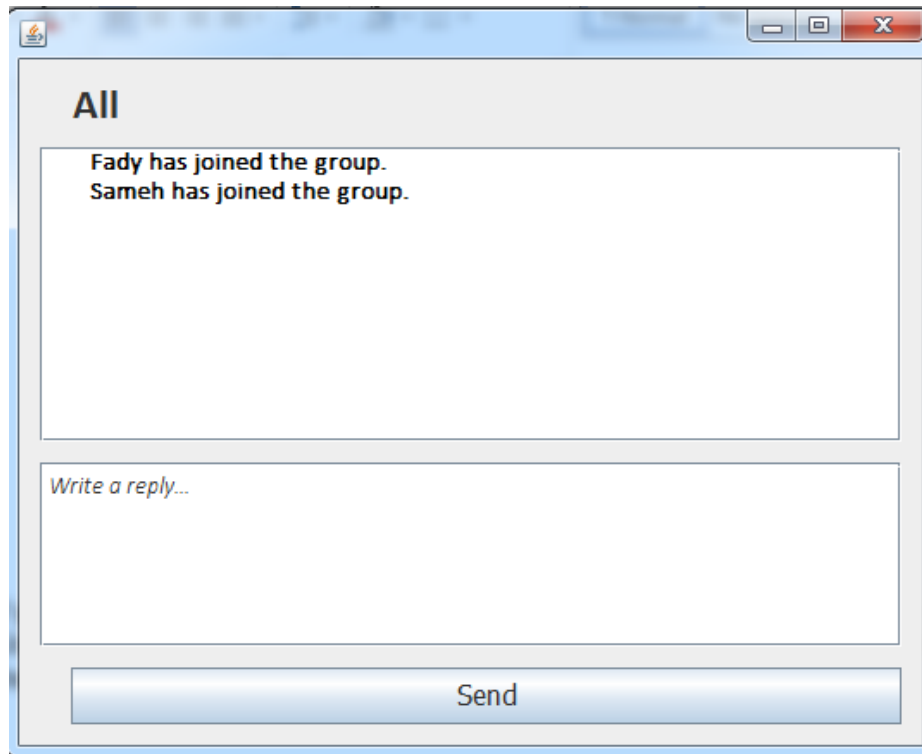

Figure 13

4.2 Super user

When you run the super user program you will see a list of all users (online & offline) and a list of blocked users. You can block or unblock any client. If a client is blocked he cannot login with the same username.
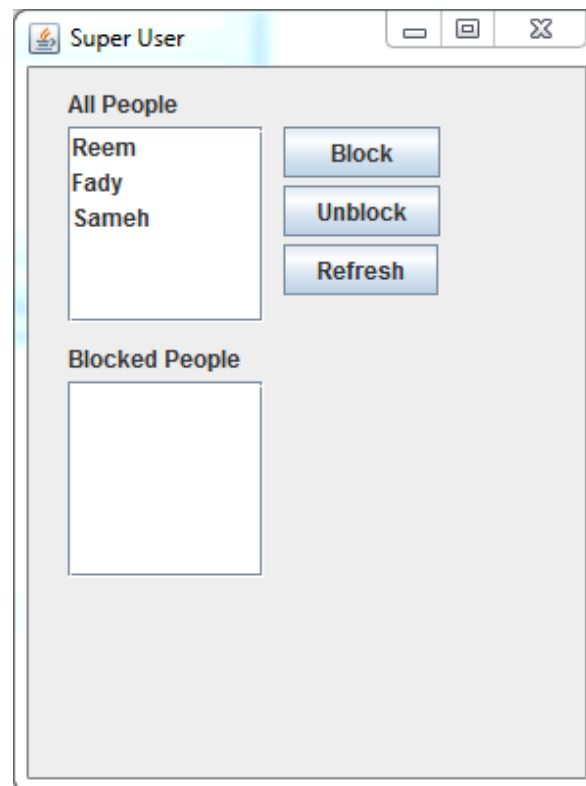
Figure 14