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CSE 474 Programming / Peer-to-peer Chatting

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• Project Summary

The p2p application is a TCP application that is a member, membership creation and interaction between the two. The chatbox opens a socket for the thread user to use a new user. This program, which allows for both collective and individual speaking, also offers search opportunities and online contacts. Individual conversation allows for privacy, everyone can be involved in the group talk. If the person who searched is not online, he will not start talking. With the LOGOUT command, users can exit at any time.

• Our Solution Approach

We did this project by using socket programming, we connect client and server by using TCP protocol. We create a frame for chatting. And we used JOptionPane dialogs for the registration and the prompting the user. We keep our users name in a txt and their passwords in another txt. We control the log in part by reading those text files.

• Encountered Problems

- 1- For example, if a user try to register a name that already taken by another user, that is a problem that we need to solve!
- 2- And again if a user is online at the same time, same user try to log in again that is a violation problem.
- 3- If there is already a peer to peer connection between two user, another user try to connect p2p with one of the those two user, it cannot happen at the same time, we need to solve that too!
- 4- If a user searches for another user to create p2p chatting, then if the searched person is not online, then request must be rejected, and if the user is not in the registered user list, then it must be rejected with not found error, these must be divided into if and else ifs.

• How We Solved Problems?

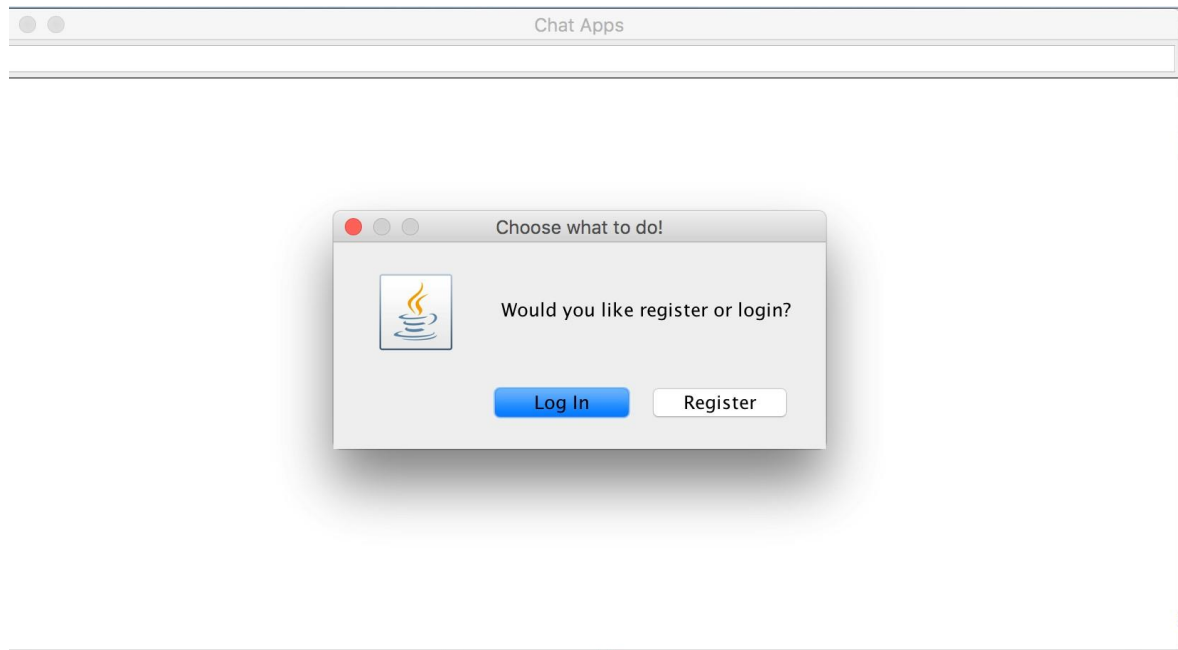
- 1- We solved problem 1, by reading the user names from the txt file and make them a list, then write a method called existence(name), and it looks for the the given name in the whole file and if it sees that name it returns true value as it exists, if not it send false value, it is a boolean method. And we can see that if it existed by the return value of this method, then try register again or log in your account.
- 2- We keep the online user names in the server as Hash list value, and we can control if new user logs in and this username is exist on the hashlist or not. Thats why we can reject its log in request, if it is already online.
- 3- This part is not involved for our project, thats why, we bound peer to peer connection with two users only, we keep the users in chatters value in the Server class, and we decide if chatters length overnumbered 1 that means more than two chatters, then we can reject its connection request to the p2p chat!
- 4- If the searched name is existed according to the existence method, then we can check for the online or offline, if user not existed, then prompt as not found, if user not online according to the names contains method return value, then we can say it is offline, reject the chat request, if user is online according to the names value and existed according to the existence return value, then we can accept the connection request.

• Unresolved Issues

- 1- The registry also listens to a UDP socket and every 60 seconds the user issues a 'HELLO' message to the UDP port of the registry. If the registry has not received a HELLO message from a user in 200 seconds, the user is removed from the list of online users.
- 2- Keep the Log files and IP address of each user.

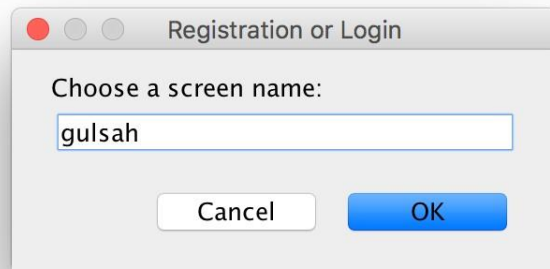
• Usage Explanation

We prepare this chat application with java, in this project we will explain how to coding and how to use this application by users.



1 - Register :

Chat Apps



A dialog box titled "Registration or Login" with a standard macOS-style title bar (red, yellow, and green buttons). The main text inside says "Choose a screen name:". Below this is a text input field containing the text "gulsah". At the bottom of the dialog are two buttons: "Cancel" and "OK".

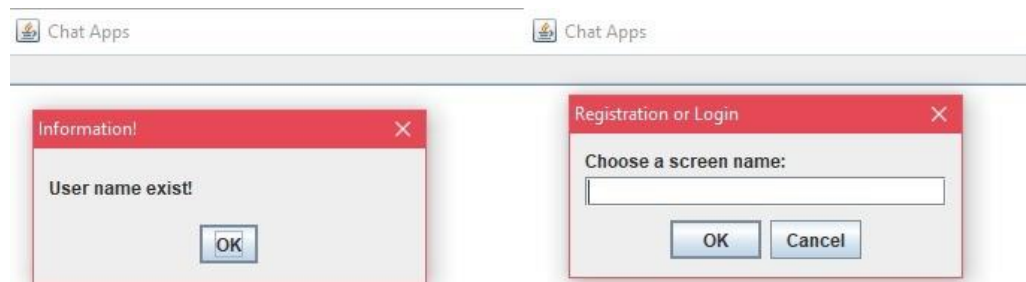
You shouldn't choose already used name. it
show error username is exist

If username is already used

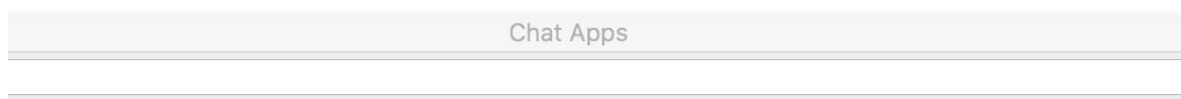


A dialog box with a red title bar that says "Choose what to do!". Inside, there is a green square icon with a white question mark. To the right of the icon, the text reads "This username exists, Would you like register for another username or login ?". At the bottom of the dialog are two buttons: "Register" and "Log In".

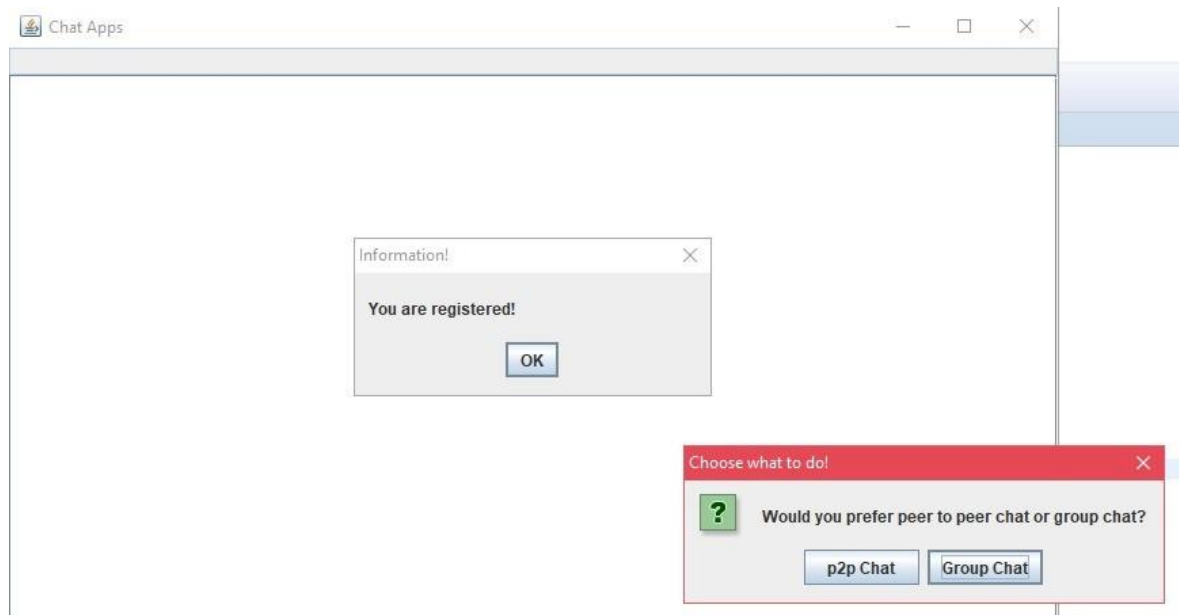
And if you choose again an already used name, it loops these two screens until you choose a not used name.



Choose password

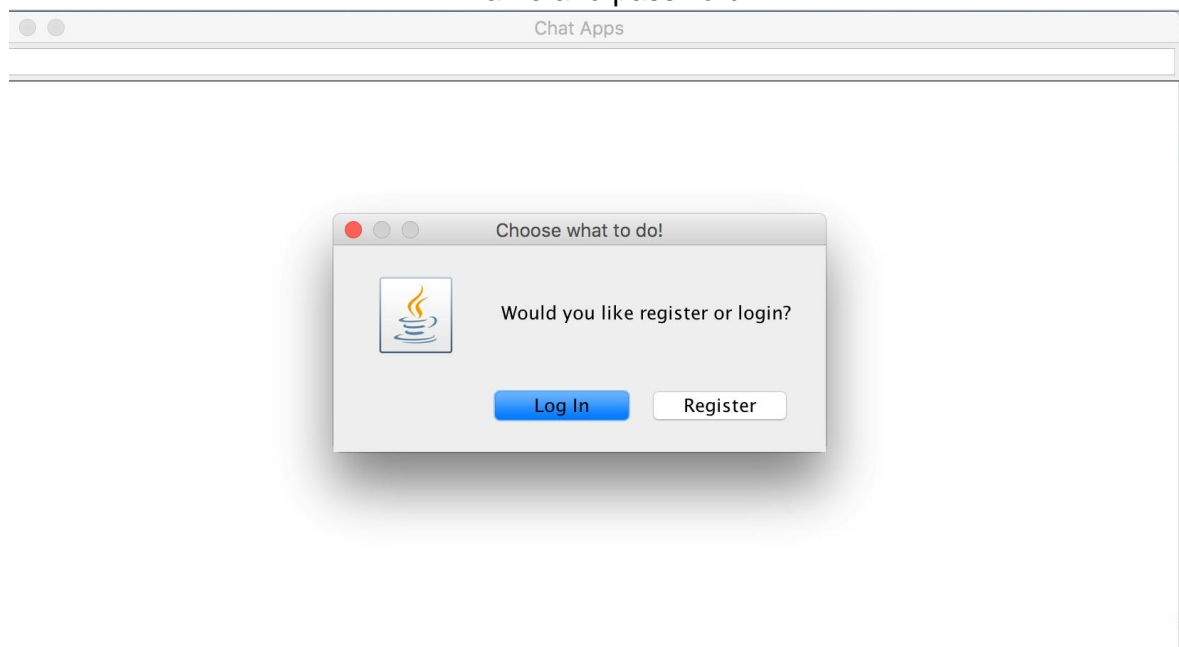


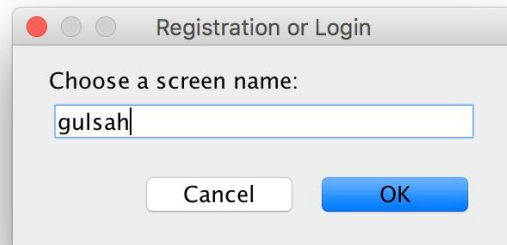
We connect in chat app and you good to chat.



2- Login

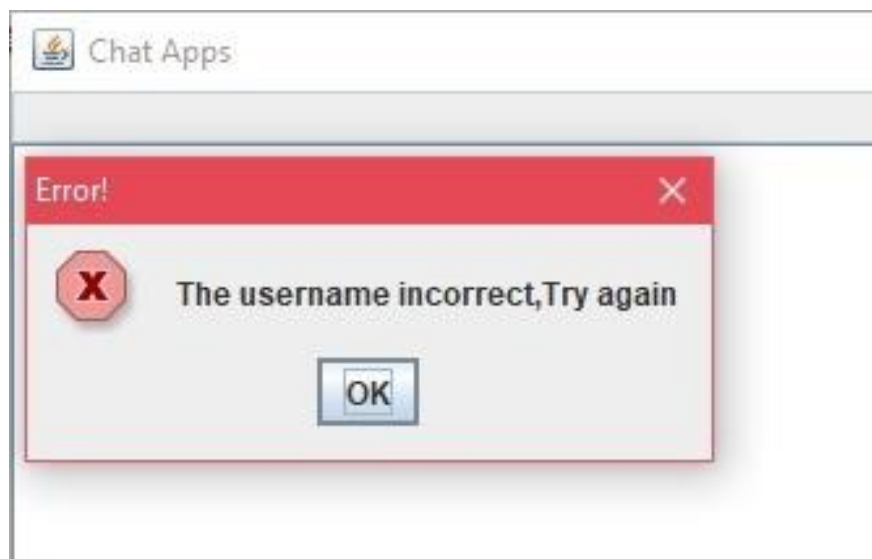
Then we registered and we will login this registered, our program remembers user name and password.





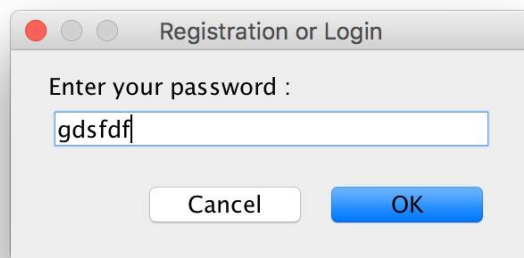
A dialog box titled "Registration or Login" with a standard macOS-style title bar (red, yellow, and green buttons). The text "Choose a screen name:" is displayed above a text input field. The input field contains the text "gulsah". Below the input field are two buttons: "Cancel" and "OK".

If username is entered wrong, or not exist.

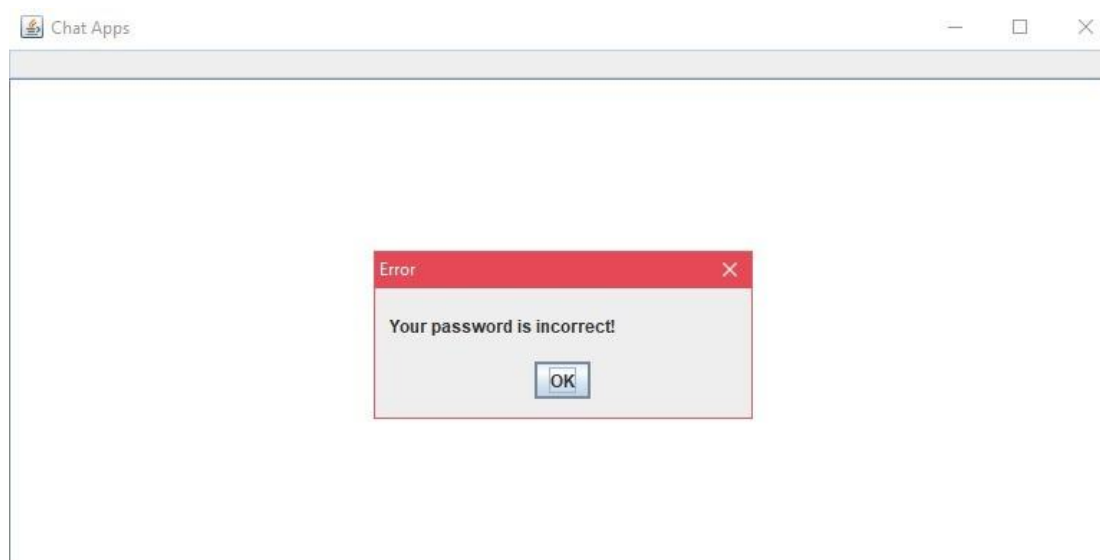


We chose a password then if we write it wrong then our program has right to error message and shut down program.

Chat Apps



If user enter wrong password then we will get your password incorrect message and force you out of practice.



If we write everything properly, we can connect with the program.



We have two type communication one is p2p connection another is grup chatting

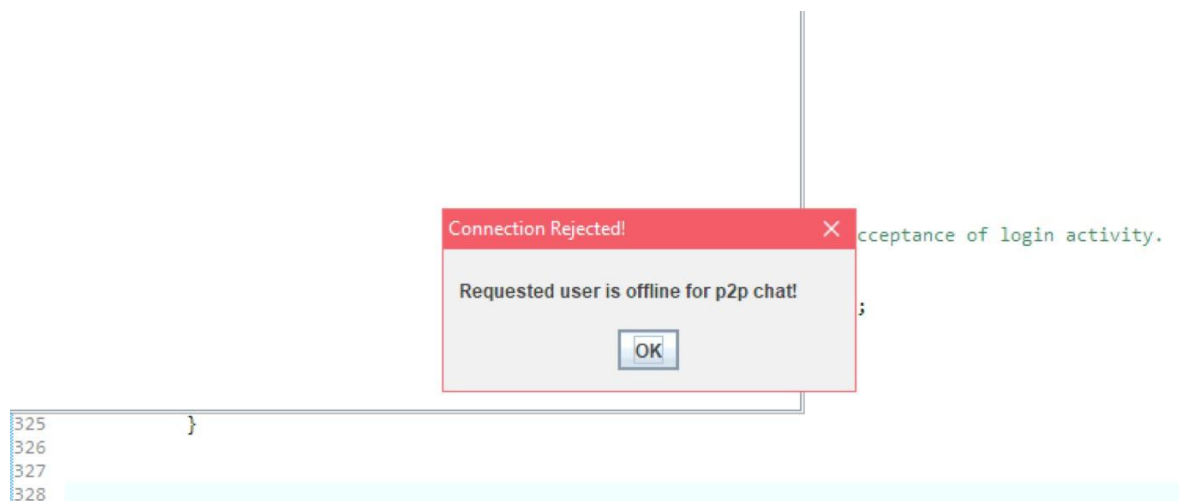


3- P2P Chat

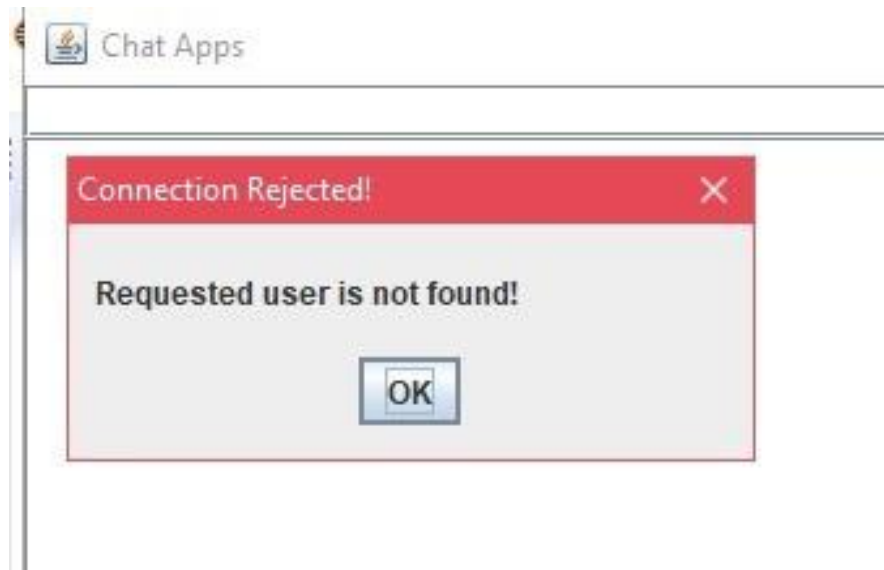
P2P chatting search, first pair choose name who he want to connect, as same as second pair should choose his pair name. ,(hale can choose gulsah if she is online and gulsah can choose hale if she is online)



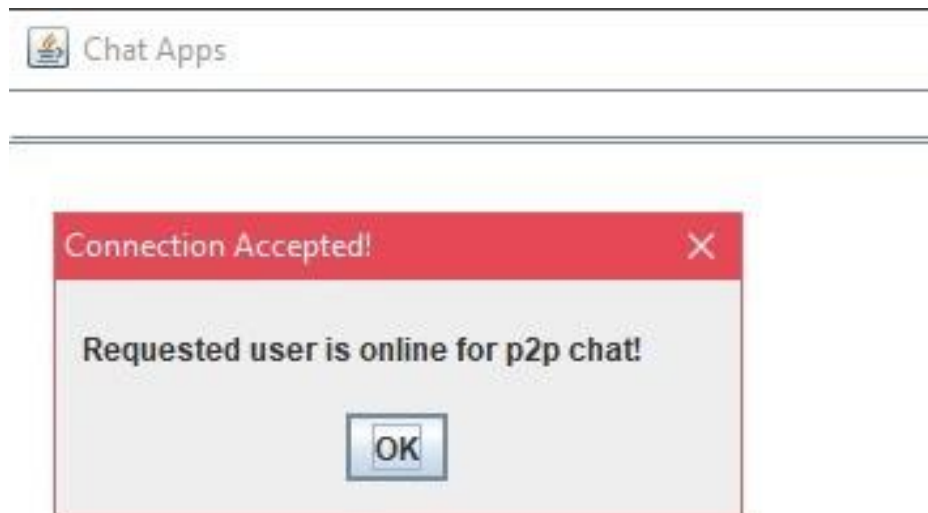
If user choose p2p chatting another user and another user is not online program show error message like this



If user not found in the registered users.



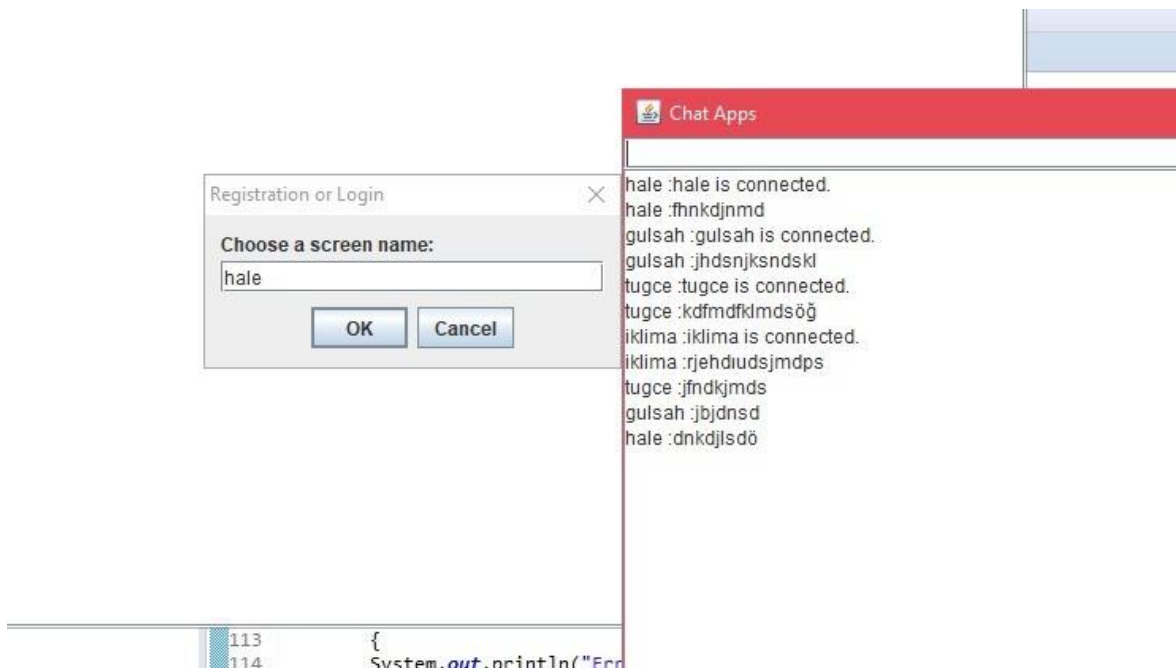
If user found and online



If you choose one you can not choosing another, When you choose P2P chatting then you search one person who should be registirated and online, when two peer appear , If another person want to connect with p2p connection server send an error message,



4- If you are already online and want to connect same username and password



the user already online



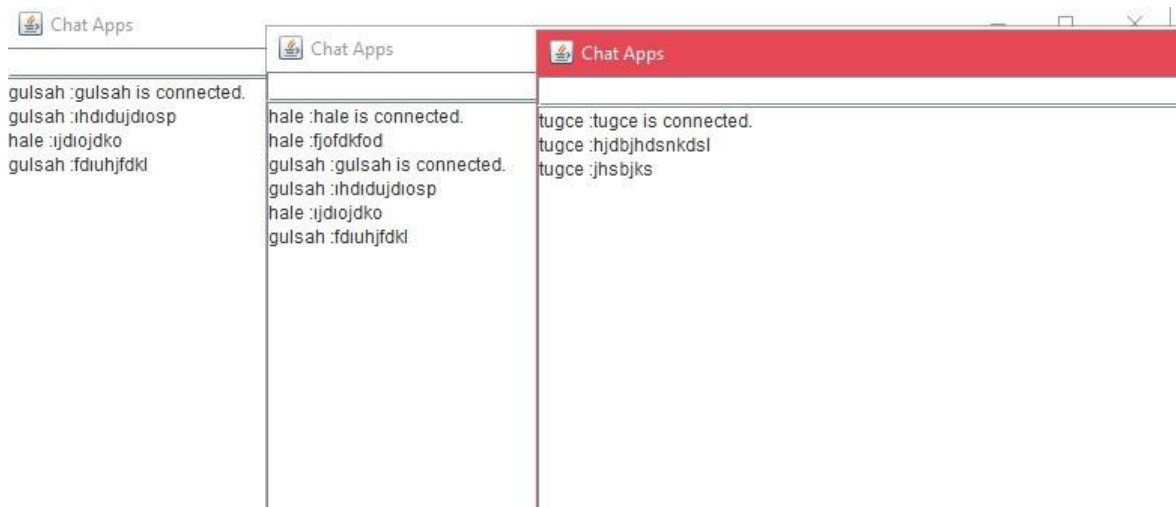
5- Group Chatting

But on the other hand if same person wants to connect group chatting he or she can involved chatting .

Chat Apps	Chat Apps	Chat Apps	Chat Apps
hale :hale is connected. hale :fhkndjnmd gulsah :gulsah is connected. gulsah :jhdsnjksndskl tugce :tugce is connected. tugce :kdfmdfkmdsöğ iklima :iklima is connected. iklima :rjehdiudsjmdps tugce :jfndkjmds gulsah :jbjdnsd hale :dnkdjlisdö	gulsah :gulsah is connected. gulsah :jhdsnjksndskl tugce :tugce is connected. tugce :kdfmdfkmdsöğ iklima :iklima is connected. iklima :rjehdiudsjmdps tugce :jfndkjmds gulsah :jbjdnsd hale :dnkdjlisdö	tugce :tugce is connected. tugce :kdfmdfkmdsöğ iklima :iklima is connected. iklima :rjehdiudsjmdps tugce :jfndkjmds gulsah :jbjdnsd hale :dnkdjlisdö	iklima :iklima is connected. iklima :rjehdiudsjmdps tugce :jfndkjmds gulsah :jbjdnsd hale :dnkdjlisdö

6-At the same time P2P and Group Chatting

In this scenario Hale and Gulsah P2P chatting on other hand Tugce is connected to group chat Tugce cannot connect with Hale or Gulsah, and they cannot see what tugce is writing.



7- Logout

If user send message "LOGOUT" then username remove from login list and log out by registry server.

Chat Apps	Chat Apps	Chat Apps
LOGOUT	ddddddddd	
gulsah :gulsah is connected.	gulsah :gulsah is connected.	gulsah :gulsah is connected.
gulsah :aaaaaa	gulsah :aaaaaa	gulsah :aaaaaa
gulsah :bbbbbbbbbbbb	gulsah :bbbbbbbbbbbb	gulsah :bbbbbbbbbbbb
gulsah :cccccccc	gulsah :cccccccc	gulsah :cccccccc