

3 – Implement a multi user chat server using TCP as transport layer protocol (fully automated)

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48 S6 CSE

The program shows a multi client – server communication using TCP.

Compiling

Compile the four files, Client1.java, Client2.java, Client3.java and Server.java using javac command.

```
$ javac Client1.java
```

```
$ javac Client2.java
```

```
$ javac Client3.java
```

```
$ javac Server.java
```

Executing

Use four terminals, three for the clients and the other for the Server. Since it is TCP, the server should be running before the client starts running.

```
$ java Server
```

Then run the client file in the other terminals,

```
$ java Client1
```

```
$ java Client2
```

```
$ java Client3
```

Now it is possible to communicate between each client and server. The server automatically replies to select messages from the client. The supported messages are:

1. "hi", "hello" and "hello server"
2. "number of users"
3. "Exit"

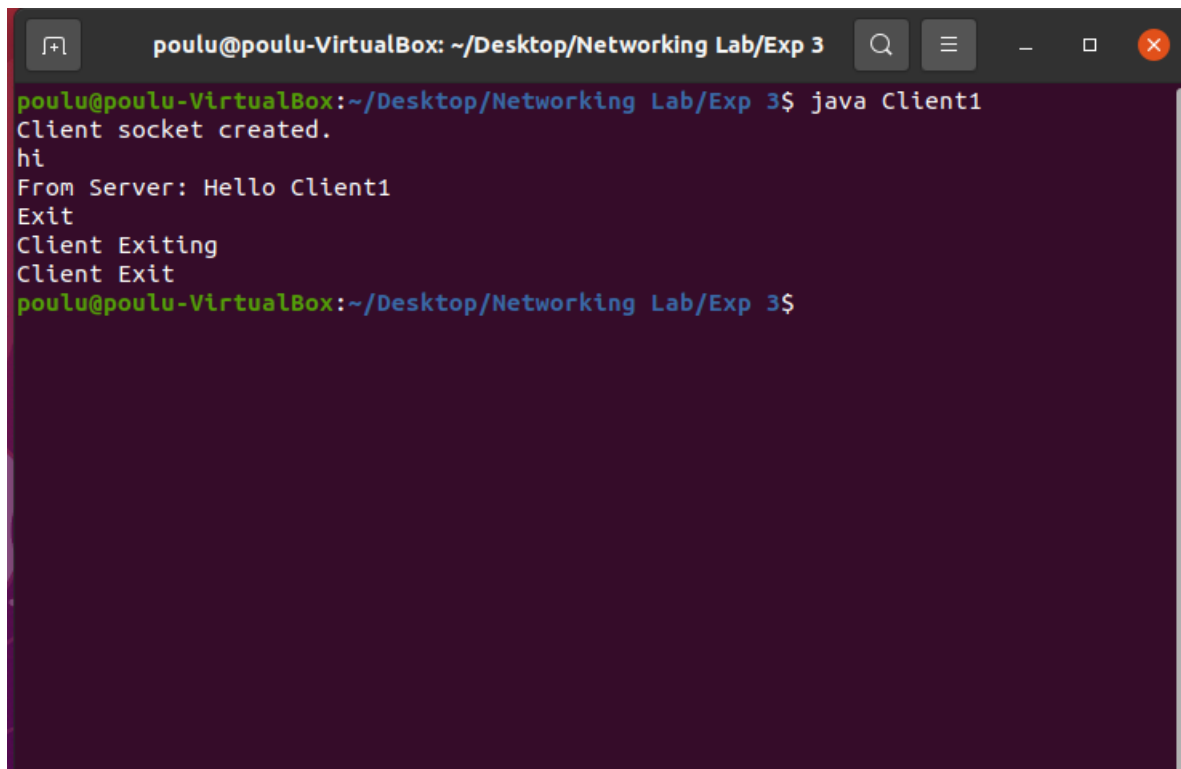
To exit, the client should send "Exit". Once all clients have exited, the server also exits.

Output:

Server:

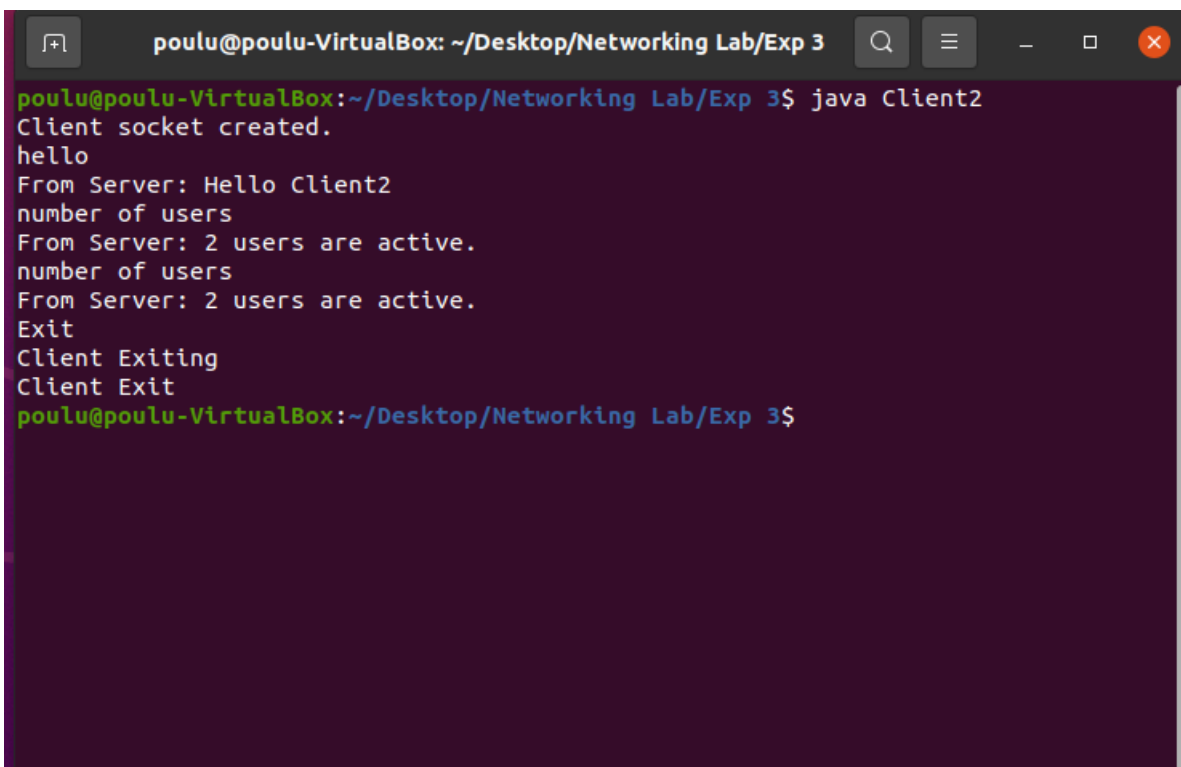
```
poulu@poulu-VirtualBox: ~/Desktop/Networking Lab/Exp 3
poulu@poulu-VirtualBox:~/Desktop/Networking Lab/Exp 3$ java Server
Server socket created for Client: 1
Server socket created for Client: 2
Server socket created for Client: 3
Connection established from Client: 1
From Client1: hi
Connection established from Client: 2
From Client2: hello
From Client2: number of users
Connection established from Client: 3
From Client3: hello server
From Client3: number of users
From Client1: Exit
Client1 Exiting.
Socket 1 closed.
From Client2: number of users
From Client2: Exit
Client2 Exiting.
Socket 2 closed.
From Client3: number of users
From Client3: Exit
Client3 Exiting.
Socket 3 closed.
poulu@poulu-VirtualBox:~/Desktop/Networking Lab/Exp 3$
```

Client1:

A terminal window titled 'poulou@poulou-VirtualBox: ~/Desktop/Networking Lab/Exp 3'. The prompt is 'poulou@poulou-VirtualBox:~/Desktop/Networking Lab/Exp 3\$'. The user enters 'java Client1'. The output is: 'Client socket created.', 'hi', 'From Server: Hello Client1', 'Exit', 'Client Exiting', 'Client Exit'. The prompt returns.

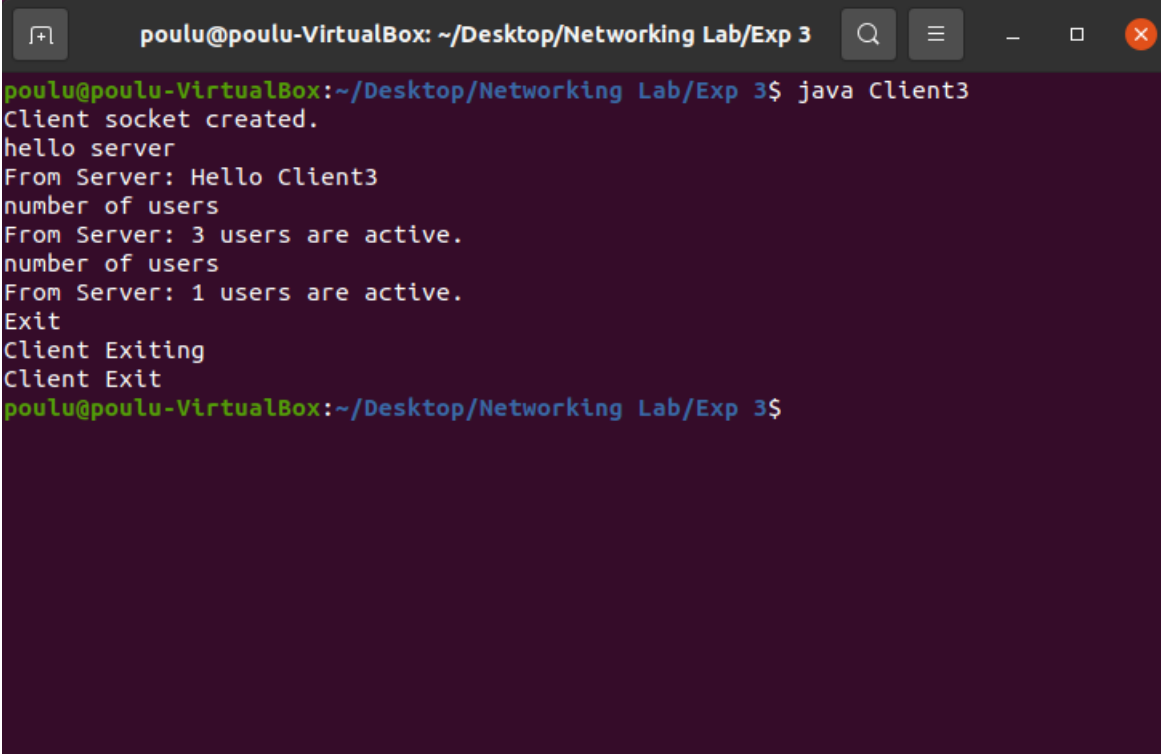
```
poulou@poulou-VirtualBox: ~/Desktop/Networking Lab/Exp 3$ java Client1
Client socket created.
hi
From Server: Hello Client1
Exit
Client Exiting
Client Exit
poulou@poulou-VirtualBox:~/Desktop/Networking Lab/Exp 3$
```

Client2:

A terminal window titled 'poulou@poulou-VirtualBox: ~/Desktop/Networking Lab/Exp 3'. The prompt is 'poulou@poulou-VirtualBox:~/Desktop/Networking Lab/Exp 3\$'. The user enters 'java Client2'. The output is: 'Client socket created.', 'hello', 'From Server: Hello Client2', 'number of users', 'From Server: 2 users are active.', 'number of users', 'From Server: 2 users are active.', 'Exit', 'Client Exiting', 'Client Exit'. The prompt returns.

```
poulou@poulou-VirtualBox:~/Desktop/Networking Lab/Exp 3$ java Client2
Client socket created.
hello
From Server: Hello Client2
number of users
From Server: 2 users are active.
number of users
From Server: 2 users are active.
Exit
Client Exiting
Client Exit
poulou@poulou-VirtualBox:~/Desktop/Networking Lab/Exp 3$
```

Client3:



```
poulu@poulu-VirtualBox: ~/Desktop/Networking Lab/Exp 3
poulu@poulu-VirtualBox:~/Desktop/Networking Lab/Exp 3$ java Client3
Client socket created.
hello server
From Server: Hello Client3
number of users
From Server: 3 users are active.
number of users
From Server: 1 users are active.
Exit
Client Exiting
Client Exit
poulu@poulu-VirtualBox:~/Desktop/Networking Lab/Exp 3$
```

The image shows a terminal window titled "poulu@poulu-VirtualBox: ~/Desktop/Networking Lab/Exp 3". The user has executed the command "java Client3". The output of the program is as follows: "Client socket created.", "hello server", "From Server: Hello Client3", "number of users", "From Server: 3 users are active.", "number of users", "From Server: 1 users are active.", "Exit", "Client Exiting", and "Client Exit". The prompt "poulu@poulu-VirtualBox:~/Desktop/Networking Lab/Exp 3\$" is visible at the bottom of the terminal.