



Assignment #4: UDP Chat Server

Your job is to write a Java application that will act as the server for an anonymous¹ “Instant Messaging” application. Clients will transmit to the server to talk to each other. Clients will type messages that are composed of one line of text. First message from a client is the user name. Each time a user types a new line of text at the keyboard, that line will be transmitted to the server as a UDP datagram.

Each time the server receives a line from any client, it will send a copy to all the active clients but the one who sent it (i.e. to prevent a confusing double echo on the sending client). A client sends the string "QUIT" for signaling the server that the user is leaving the chat.

Your Code

Your code has to conduct the following tasks:

1. Accept any number of simultaneous clients, but it is safe to assume no more than one hundred simultaneous clients.
2. Retransmit any text line, including empty lines, to any active client but to the one typing that text line. Sender's name and a colon is prepended to the text line (eg. Bob: text line ...)
3. Control if received messages are equal to "QUIT". This means this client quits the conversation.

Some tips

- The first message from a client is always a string with the client name. This line is not to be retransmitted to others. Instead, the text "New user <name> joined the conversation" will be retransmitted to notify others of the new user in the chat.
- When a user quits the chat, the message "User <name> left the conversation" is forwarded to the remaining clients.
- Server listens on port 7777
- You can use several "netcat" commands as clients of your server by just typing:
nc -u localhost 7777
- Remember that netcat command will append an end-of-line character at the end of each transmitted message. Datagram is only transmitted after the user presses enter at the keyboard.

Due date

Your Java source code has to be submitted by email by noon of May 5th, 2011.

Main class name **MUST** be UDPchat. Email subject line **MUST** be Assignment#4 to ensure proper processing of your submission.

If you have any doubt about the assignment I suggest you to stop by my office during office hours (posted on the web).

¹ It is said chat service is anonymous because no check is performed on the identity of the users. No previous registration is needed and no user control is done.

Sample Session

```
misan@misan910: ~  
Archivo Editor Ver Terminal Ayuda  
misan@misan910:~$ nc -u localhost 7777  
Alice  
John: New user <John> joined the conversation  
Bob: Hello guys  
Hi Bob  
John: Hello all  
John: Kind of busy here  
Ok, then I'll see you later  
Bob: Bye John  
Bob: User <Bob> left the conversation  
Bye John  
QUIT  
█
```

```
misan@misan910: ~/Documents/Redes/UDPchat  
Archivo Editor Ver Terminal Ayuda  
misan@misan910:~/Documents/Redes/UDPchat$ nc -u localhost 7777  
Bob  
Alice: New user <Alice> joined the conversation  
John: New user <John> joined the conversation  
Hello guys  
Alice: Hi Bob  
John: Hello all  
John: Kind of busy here  
Alice: Ok, then I'll see you later  
Bye John  
QUIT  
█
```

```
misan@misan910: ~  
Archivo Editor Ver Terminal Ayuda  
misan@misan910:~$ nc -u localhost 7777  
John  
Bob: Hello guys  
Alice: Hi Bob  
Hello all  
Kind of busy here  
Alice: Ok, then I'll see you later  
Bob: Bye John  
Bob: User <Bob> left the conversation  
Alice: Bye John  
Alice: User <Alice> left the conversation  
QUIT  
█
```