

# NETWORKS LAB

Experiment:4

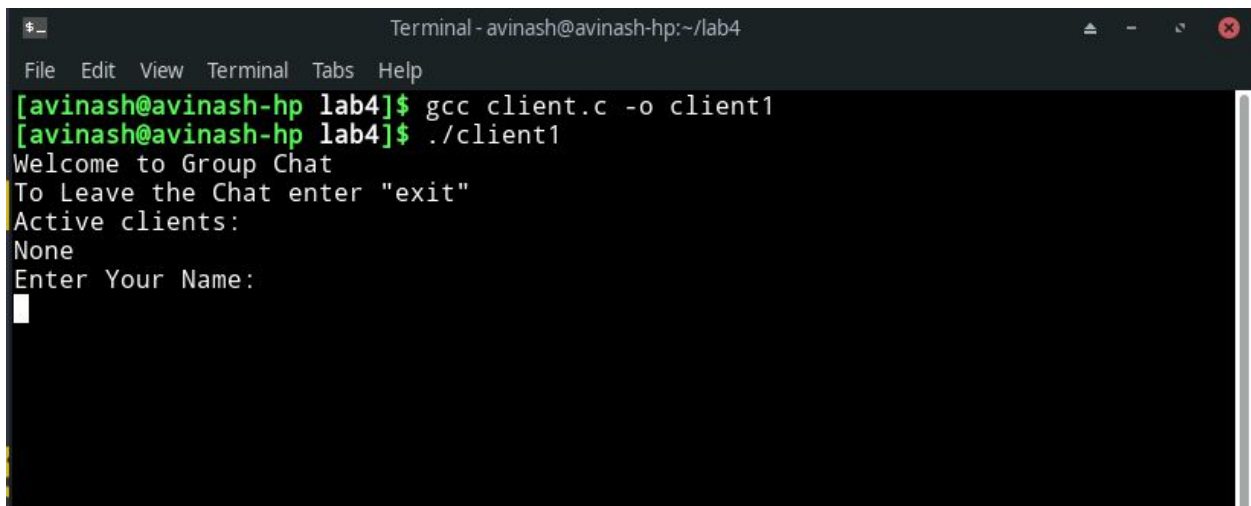
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Screenshots :

A terminal window titled "Terminal - avinash@avinash-hp:~/lab4" with a menu bar (File, Edit, View, Terminal, Tabs, Help). The terminal shows the following commands and output:

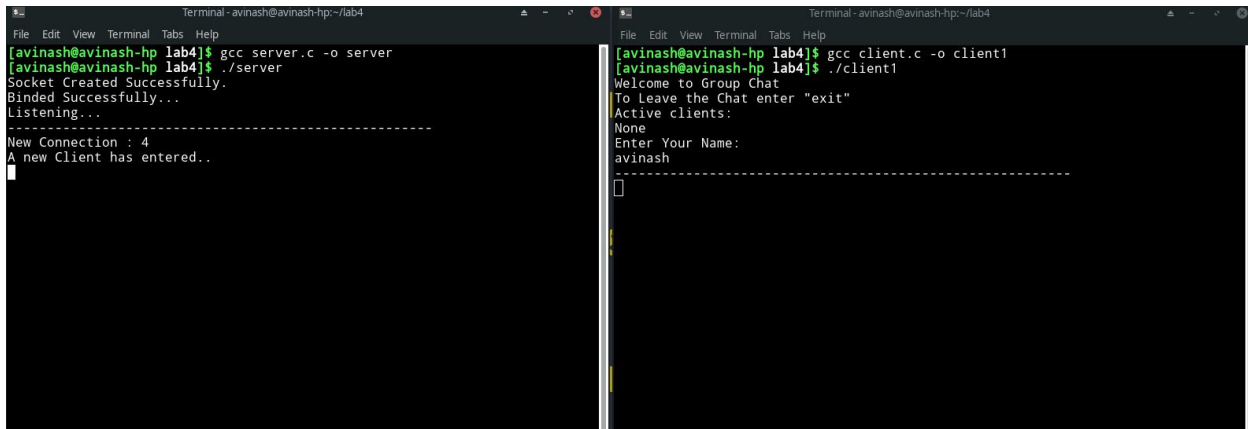
```
[avinash@avinash-hp lab4]$ gcc server.c -o server
[avinash@avinash-hp lab4]$ ./server
Socket Created Successfully.
Binded Successfully...
Listening...
-----
```

Fig.1 Running the server

A terminal window titled "Terminal - avinash@avinash-hp:~/lab4" with a menu bar (File, Edit, View, Terminal, Tabs, Help). The terminal shows the following commands and output:

```
[avinash@avinash-hp lab4]$ gcc client.c -o client1
[avinash@avinash-hp lab4]$ ./client1
Welcome to Group Chat
To Leave the Chat enter "exit"
Active clients:
None
Enter Your Name:
█
```

Fig.2 : After running the client program it asks for a name to identify a client

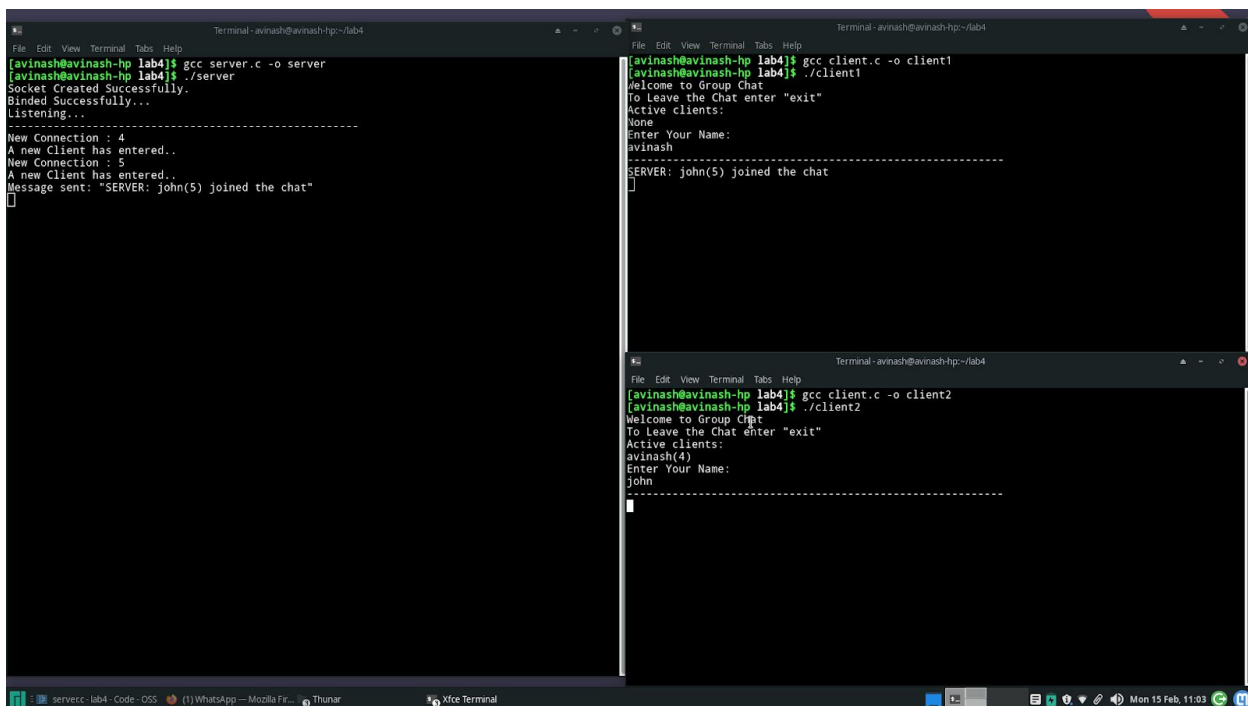


The image shows two terminal windows side-by-side. The left window is the server terminal, and the right window is the client terminal. Both are running a C program for a chat application.

```
Terminal - avinash@avinash-hp:~/lab4
[avinash@avinash-hp lab4]$ gcc server.c -o server
[avinash@avinash-hp lab4]$ ./server
Socket Created Successfully.
Binded Successfully...
Listening...
-----
New Connection : 4
A new Client has entered..
█

Terminal - avinash@avinash-hp:~/lab4
[avinash@avinash-hp lab4]$ gcc client.c -o client1
[avinash@avinash-hp lab4]$ ./client1
Welcome to Group Chat
To Leave the Chat enter "exit"
Active clients:
None
Enter Your Name:
avinash
-----
█
```

Fig.3 : After entering your name it will show you as a active client for upcoming clients.



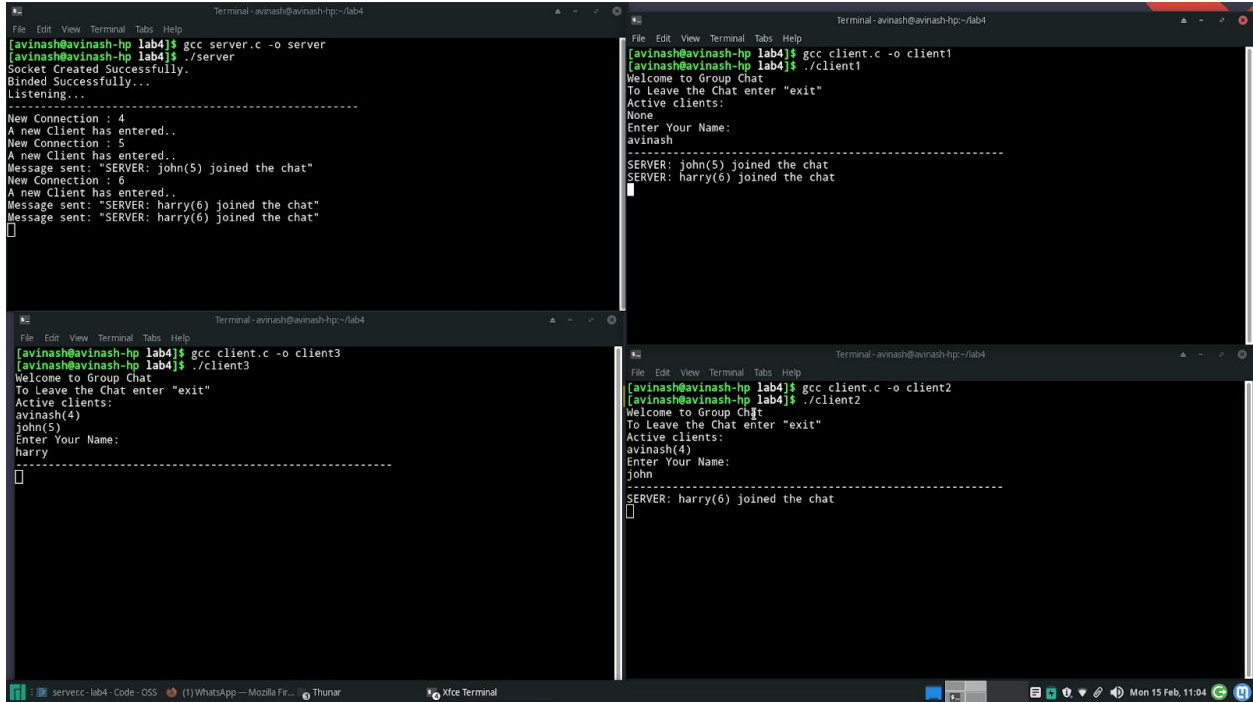
The image shows three terminal windows. The left window is the server terminal, and the two windows on the right are client terminals. The server terminal shows the progression of two clients joining and a message being sent.

```
Terminal - avinash@avinash-hp:~/lab4
[avinash@avinash-hp lab4]$ gcc server.c -o server
[avinash@avinash-hp lab4]$ ./server
Socket Created Successfully.
Binded Successfully...
Listening...
-----
New Connection : 4
A new Client has entered..
New Connection : 5
A new Client has entered..
Message sent: "SERVER: john(5) joined the chat"
█

Terminal - avinash@avinash-hp:~/lab4
[avinash@avinash-hp lab4]$ gcc client.c -o client1
[avinash@avinash-hp lab4]$ ./client1
Welcome to Group Chat
To Leave the Chat enter "exit"
Active clients:
None
Enter Your Name:
avinash
-----
SERVER: john(5) joined the chat
█

Terminal - avinash@avinash-hp:~/lab4
[avinash@avinash-hp lab4]$ gcc client.c -o client2
[avinash@avinash-hp lab4]$ ./client2
Welcome to Group Chat
To Leave the Chat enter "exit"
Active clients:
avinash(4)
Enter Your Name:
john
-----
█
```

Fig.4 : Running client2 and showing active clients for client2 and after accepting a new client the server will alert all the active users saying a new client has joined.



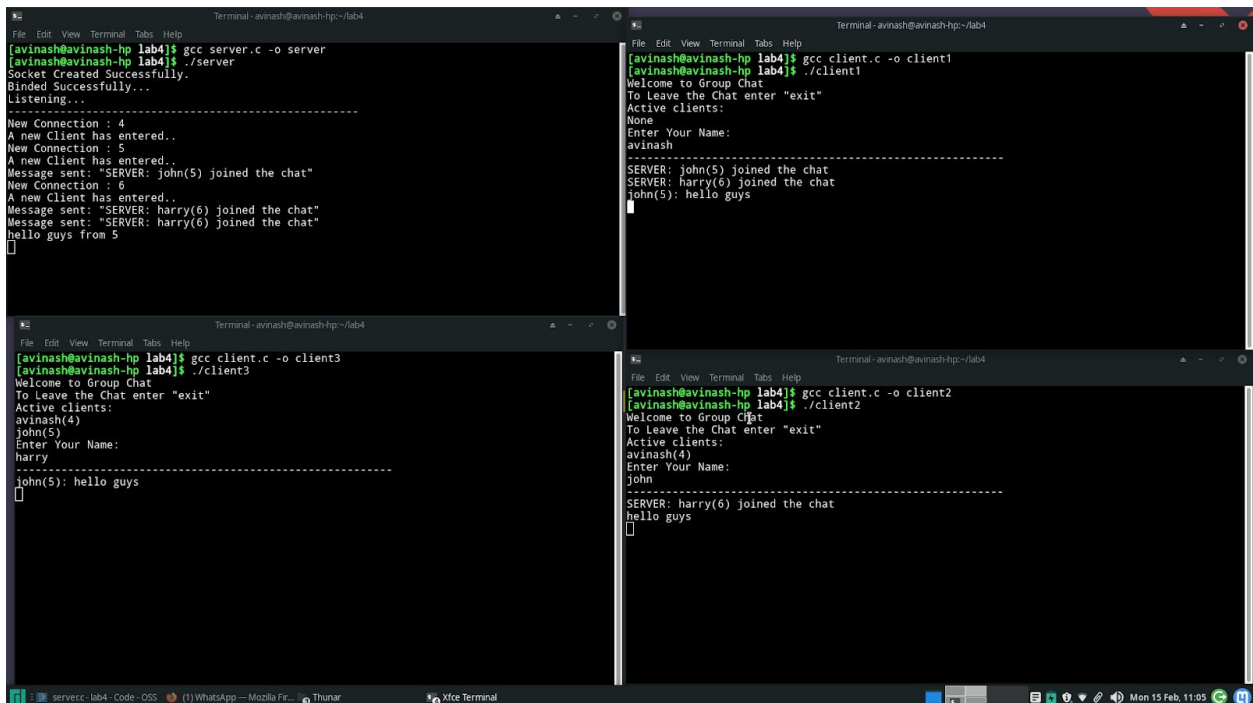
```
[avinash@avinash-hp lab4]$ gcc server.c -o server
[avinash@avinash-hp lab4]$ ./server
Socket Created Successfully.
Binded Successfully...
Listening...
-----
New Connection : 4
A new Client has entered..
New Connection : 5
A new Client has entered..
Message sent: "SERVER: john(5) joined the chat"
New Connection : 6
A new Client has entered..
Message sent: "SERVER: harry(6) joined the chat"
Message sent: "SERVER: harry(6) joined the chat"
[]

[avinash@avinash-hp lab4]$ gcc client.c -o client3
[avinash@avinash-hp lab4]$ ./client3
Welcome to Group Chat
To Leave the Chat enter "exit"
Active clients:
avinash(4)
john(5)
Enter Your Name:
harry
-----
[]

[avinash@avinash-hp lab4]$ gcc client.c -o client1
[avinash@avinash-hp lab4]$ ./client1
Welcome to Group Chat
To Leave the Chat enter "exit"
Active clients:
None
Enter Your Name:
avinash
-----
SERVER: john(5) joined the chat
SERVER: harry(6) joined the chat
[]

[avinash@avinash-hp lab4]$ gcc client.c -o client2
[avinash@avinash-hp lab4]$ ./client2
Welcome to Group Chat
To Leave the Chat enter "exit"
Active clients:
avinash(4)
john
Enter Your Name:
john
-----
SERVER: harry(6) joined the chat
[]
```

Fig.5 : Running of client3 and showing active users for him



```
[avinash@avinash-hp lab4]$ gcc server.c -o server
[avinash@avinash-hp lab4]$ ./server
Socket Created Successfully.
Binded Successfully...
Listening...
-----
New Connection : 4
A new Client has entered..
New Connection : 5
A new Client has entered..
Message sent: "SERVER: john(5) joined the chat"
New Connection : 6
A new Client has entered..
Message sent: "SERVER: harry(6) joined the chat"
Message sent: "SERVER: harry(6) joined the chat"
hello guys from 5
[]

[avinash@avinash-hp lab4]$ gcc client.c -o client3
[avinash@avinash-hp lab4]$ ./client3
Welcome to Group Chat
To Leave the Chat enter "exit"
Active clients:
avinash(4)
john(5)
Enter Your Name:
harry
-----
john(5): hello guys
[]

[avinash@avinash-hp lab4]$ gcc client.c -o client1
[avinash@avinash-hp lab4]$ ./client1
Welcome to Group Chat
To Leave the Chat enter "exit"
Active clients:
None
Enter Your Name:
avinash
-----
SERVER: john(5) joined the chat
SERVER: harry(6) joined the chat
john(5): hello guys
[]

[avinash@avinash-hp lab4]$ gcc client.c -o client2
[avinash@avinash-hp lab4]$ ./client2
Welcome to Group Chat
To Leave the Chat enter "exit"
Active clients:
avinash(4)
john
Enter Your Name:
john
-----
SERVER: harry(6) joined the chat
hello guys
[]
```

Fig.6 : Client2 sending a message to chat group(server) and all the active users receives that message along with client2 name so that they can identify from which client this message came from.

```
Terminal - avinash@avinash-hp:~/lab4
[avinash@avinash-hp lab4]$ gcc server.c -o server
[avinash@avinash-hp lab4]$ ./server
Socket Created Successfully.
Binded Successfully...
Listening...
-----
New Connection : 4
A new Client has entered..
New Connection : 5
A new Client has entered..
Message sent: "SERVER: john(5) joined the chat"
New Connection : 6
A new Client has entered..
Message sent: "SERVER: harry(6) joined the chat"
Message sent: "SERVER: harry(6) joined the chat"
hello guys from 5
hey there from 4
[]

Terminal - avinash@avinash-hp:~/lab4
[avinash@avinash-hp lab4]$ gcc client.c -o client1
[avinash@avinash-hp lab4]$ ./client1
Welcome to Group Chat
To Leave the Chat enter "exit"
Active clients:
None
Enter Your Name:
avinash
-----
SERVER: john(5) joined the chat
SERVER: harry(6) joined the chat
john(5): hello guys
hey there
[]

Terminal - avinash@avinash-hp:~/lab4
[avinash@avinash-hp lab4]$ gcc client.c -o client3
[avinash@avinash-hp lab4]$ ./client3
Welcome to Group Chat
To Leave the Chat enter "exit"
Active clients:
avinash(4)
john(5)
Enter Your Name:
harry
-----
john(5): hello guys
avinash(4): hey there
[]

Terminal - avinash@avinash-hp:~/lab4
[avinash@avinash-hp lab4]$ gcc client.c -o client2
[avinash@avinash-hp lab4]$ ./client2
Welcome to Group Chat
To Leave the Chat enter "exit"
Active clients:
avinash(4)
john
Enter Your Name:
john
-----
SERVER: harry(6) joined the chat
hello guys
avinash(4): hey there
[]
```

Fig.7 : Client1 sees the message from client2 and replies back.

```
Terminal - avinash@avinash-hp:~/lab4
[avinash@avinash-hp lab4]$ gcc server.c -o server
[avinash@avinash-hp lab4]$ ./server
Socket Created Successfully.
Binded Successfully...
Listening...
-----
New Connection : 4
A new Client has entered..
New Connection : 5
A new Client has entered..
Message sent: "SERVER: john(5) joined the chat"
New Connection : 6
A new Client has entered..
Message sent: "SERVER: harry(6) joined the chat"
Message sent: "SERVER: harry(6) joined the chat"
hello guys from 5
hey there from 4
exit from 6
Message Sent: SERVER: harry(6) left the chat
Message Sent: SERVER: harry(6) left the chat
[]

Terminal - avinash@avinash-hp:~/lab4
[avinash@avinash-hp lab4]$ gcc client.c -o client3
[avinash@avinash-hp lab4]$ ./client3
Welcome to Group Chat
To Leave the Chat enter "exit"
Active clients:
avinash(4)
john(5)
Enter Your Name:
harry
-----
john(5): hello guys
avinash(4): hey there
exit
Connection closed..
[avinash@avinash-hp lab4]$

Terminal - avinash@avinash-hp:~/lab4
[avinash@avinash-hp lab4]$ gcc client.c -o client1
[avinash@avinash-hp lab4]$ ./client1
Welcome to Group Chat
To Leave the Chat enter "exit"
Active clients:
None
Enter Your Name:
avinash
-----
SERVER: john(5) joined the chat
SERVER: harry(6) joined the chat
john(5): hello guys
hey there
harry(6): exit
SERVER: harry(6) left the chat
[]

Terminal - avinash@avinash-hp:~/lab4
[avinash@avinash-hp lab4]$ gcc client.c -o client2
[avinash@avinash-hp lab4]$ ./client2
Welcome to Group Chat
To Leave the Chat enter "exit"
Active clients:
avinash(4)
john
Enter Your Name:
john
-----
SERVER: harry(6) joined the chat
hello guys
avinash(4): hey there
harry(6): exit
SERVER: harry(6) left the chat
[]
```

Fig.8 : Client3 exiting the group chat and all the active users will receive an alert for the same.

```
Terminal - avinash@avinash-hp:~/lab4
File Edit View Terminal Tabs Help
Socket Created Successfully.
Binded Successfully...
Listening...
-----
New Connection : 4
A new Client has entered..
New Connection : 5
A new Client has entered..
Message sent: "SERVER: john(5) joined the chat"
New Connection : 6
A new Client has entered..
Message sent: "SERVER: harry(6) joined the chat"
Message sent: "SERVER: harry(6) joined the chat"
hello guys from 5
hey there from 4
exit from 6
Message Sent: SERVER: harry(6) left the chat
Message Sent: SERVER: harry(6) left the chat
exit from 5
Message Sent: SERVER: john(5) left the chat
exit from 4
$

Terminal - avinash@avinash-hp:~/lab4
File Edit View Terminal Tabs Help
[avinash@avinash-hp lab4]$ gcc client.c -o client3
[avinash@avinash-hp lab4]$ ./client3
Welcome to Group Chat
To Leave the Chat enter "exit"
Active clients:
avinash(4)
john(5)
Enter Your Name:
harry
-----
john(5): hello guys
avinash(4): hey there
exit
Connection closed..
[avinash@avinash-hp lab4]$

Terminal - avinash@avinash-hp:~/lab4
File Edit View Terminal Tabs Help
[avinash@avinash-hp lab4]$ gcc client.c -o client1
[avinash@avinash-hp lab4]$ ./client1
Welcome to Group Chat
To Leave the Chat enter "exit"
Active clients:
None
Enter Your Name:
avinash
-----
SERVER: john(5) joined the chat
SERVER: harry(6) joined the chat
john(5): hello guys
hey there
harry(6): exit
SERVER: harry(6) left the chat
john(5): exit
exit
Connection closed..
[avinash@avinash-hp lab4]$

Terminal - avinash@avinash-hp:~/lab4
File Edit View Terminal Tabs Help
[avinash@avinash-hp lab4]$ gcc client.c -o client2
[avinash@avinash-hp lab4]$ ./client2
Welcome to Group Chat
To Leave the Chat enter "exit"
Active clients:
avinash(4)
john
Enter Your Name:
john
-----
SERVER: harry(6) joined the chat
hello guys
avinash(4): hey there
harry(6): exit
SERVER: harry(6) left the chat
exit
Connection closed..
[avinash@avinash-hp lab4]$
```

Fig.9 : All the clients exited the group chat and the server is still up.