

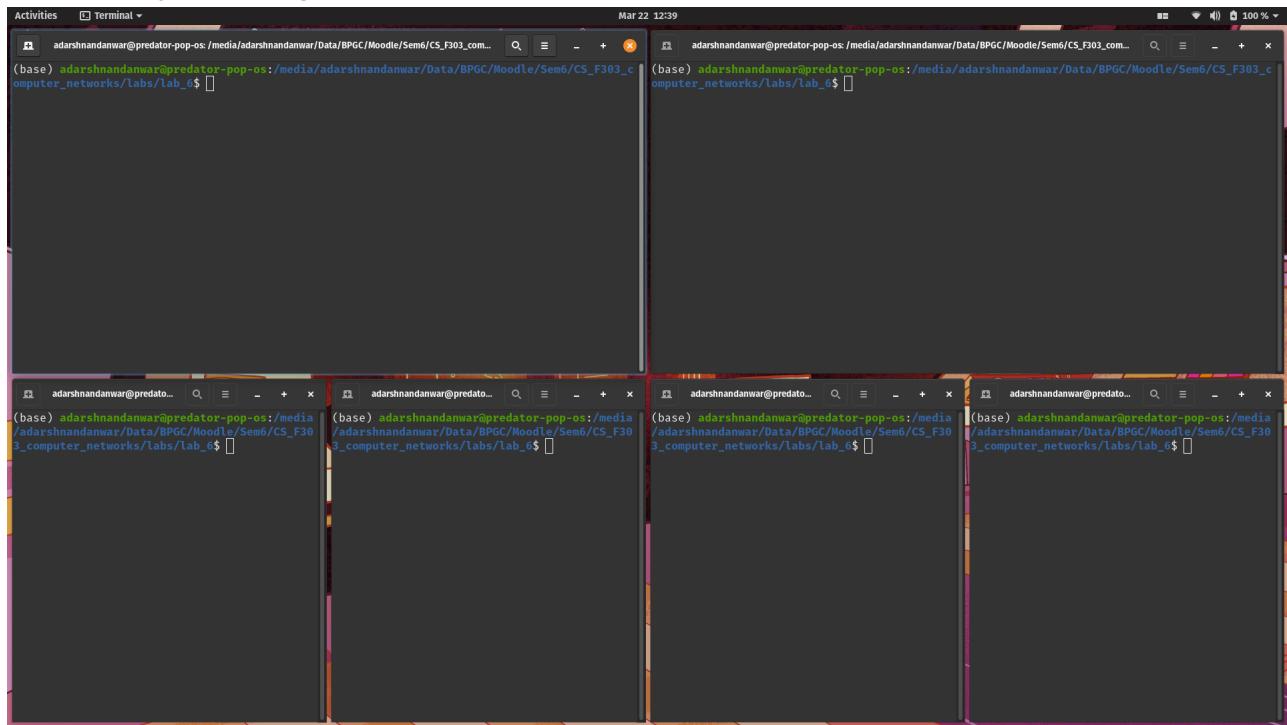
# Lab 6

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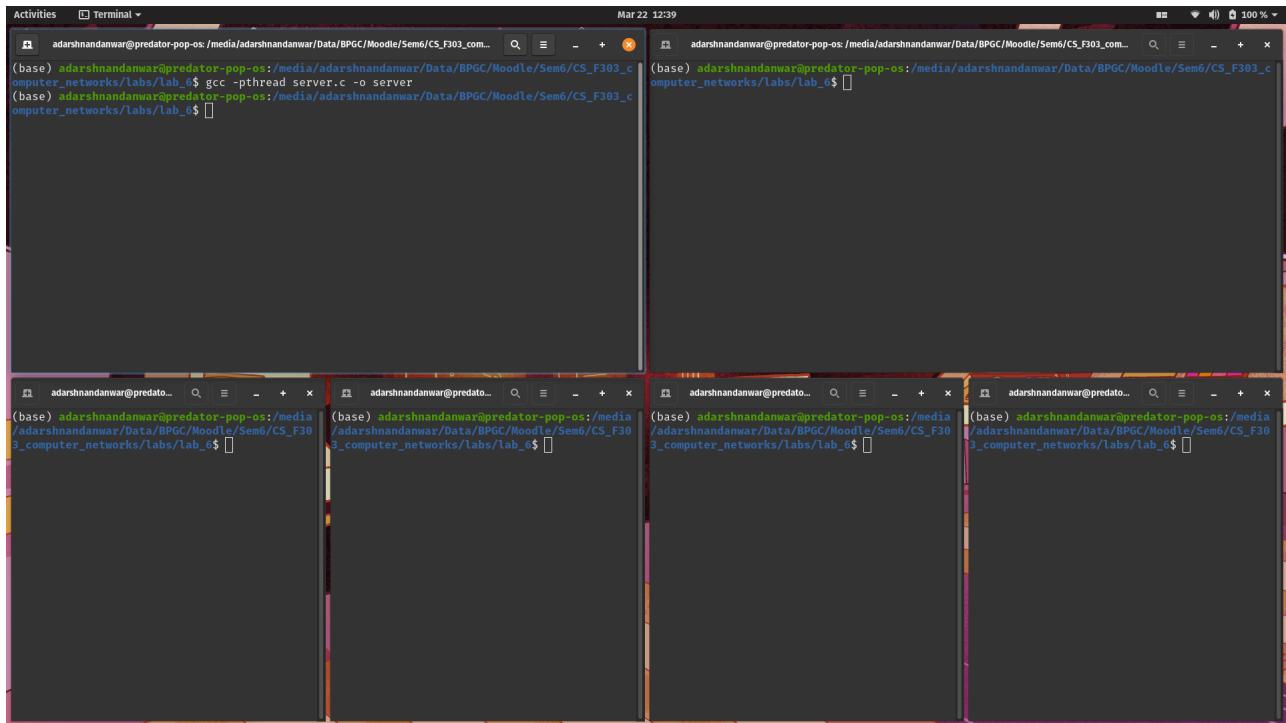
## Program Screenshots

NOTE - In the following explanation, clients 1,2,3,4,5 have ID/descriptor 4,5,6,7,8 in the screenshots respectively.

1. Open 6 terminals for server and multiple clients. Change the working directory of the terminals to the directory containing the `server.c` and `client.c` files.



## 2. Compile the `server.c` with `-pthread`.



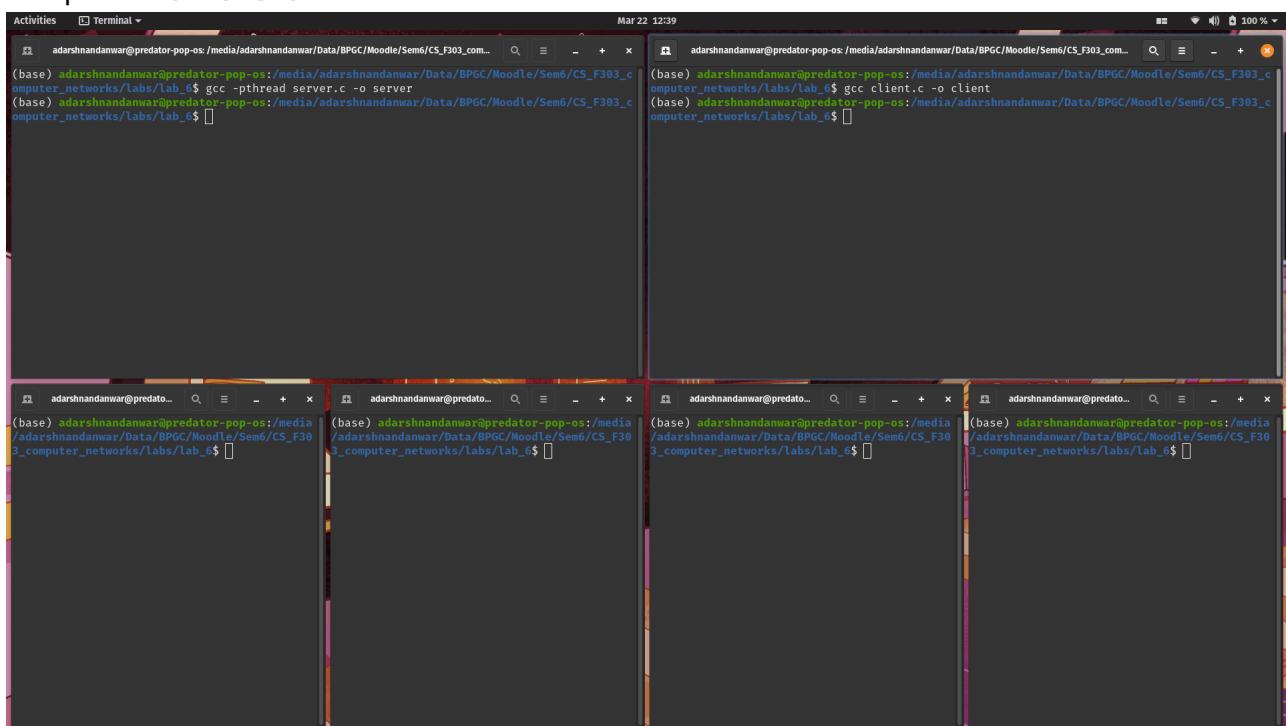
```
(base) adarshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F303_computer_networks/labs/lab_6$ gcc -pthread server.c -o server
(base) adarshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F303_computer_networks/labs/lab_6$ ls
```

```
(base) adarshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F303_computer_networks/labs/lab_6$ ls
```

```
(base) adarshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F303_computer_networks/labs/lab_6$ ls
```

```
(base) adarshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F303_computer_networks/labs/lab_6$ ls
```

## 3. Compile the `client.c`.



```
(base) adarshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F303_computer_networks/labs/lab_6$ gcc -pthread server.c -o server
(base) adarshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F303_computer_networks/labs/lab_6$ ls
```

```
(base) adarshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F303_computer_networks/labs/lab_6$ ls
```

```
(base) adarshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F303_computer_networks/labs/lab_6$ ls
```

```
(base) adarshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F303_computer_networks/labs/lab_6$ ls
```

4. Run the server with {port\_number} as argument. Server is listening on port 8000.

The screenshot shows four terminal windows side-by-side. The leftmost window shows the server being compiled and run:

```
(base) adarshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F303_computer_networks/labs/lab_6$ gcc -pthread server.c -o server
(base) adarshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F303_computer_networks/labs/lab_6$ ./server 8000
listening on port 8000 ...
```

The other three windows show the client being compiled and run, with the rightmost window showing the client connecting to the server:

```
(base) adarshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F303_computer_networks/labs/lab_6$ gcc client.c -o client
(base) adarshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F303_computer_networks/labs/lab_6$ ./client 127.0.0.1 8000
connected to the server
Enter the message: 
```

5. Run client 1 with {server\_ip\_address, port\_number} as arguments. Client 1 is accepted.

The screenshot shows four terminal windows side-by-side. The leftmost window shows the server being compiled and run:

```
(base) adarshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F303_computer_networks/labs/lab_6$ gcc -pthread server.c -o server
(base) adarshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F303_computer_networks/labs/lab_6$ ./server 8000
listening on port 8000 ...
* client[4] accepted *
```

The other three windows show the client being compiled and run, with the rightmost window showing the client connecting to the server:

```
(base) adarshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F303_computer_networks/labs/lab_6$ gcc client.c -o client
(base) adarshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F303_computer_networks/labs/lab_6$ ./client 127.0.0.1 8000
connected to the server
Enter the message: 
```

6. Run client 2, 3 and 4 with {server\_ip\_address, port\_number} as arguments. Clients 2, 3 and 4 are accepted.

```

(base) adarshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F30_computer_networks/labs/lab_6$ gcc -pthread server.c -o server
(base) adarshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F30_computer_networks/labs/lab_6$ ./server 8000
listening on port 8000 ...
* client[4] accepted *
* client[5] accepted *
* client[6] accepted *
* client[7] accepted *

```

```

(base) adarshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F30_computer_networks/labs/lab_6$ gcc client.c -o client
(base) adarshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F30_computer_networks/labs/lab_6$ ./client 127.0.0.1 8000
connected to the server
Enter the message: 
```

```

(base) adarshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F30_computer_networks/labs/lab_6$ ./client 127.0.0.1 8000
connected to the server
Enter the message: 
```

```

(base) adarshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F30_computer_networks/labs/lab_6$ ./client 127.0.0.1 8000
connected to the server
Enter the message: 
```

7. Run client 5 with {server\_ip\_address, port\_number} as arguments. Client 5 is rejected as the maximum number of clients allowed in server is 4.

```

(base) adarshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F30_computer_networks/labs/lab_6$ gcc -pthread server.c -o server
(base) adarshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F30_computer_networks/labs/lab_6$ ./server 8000
listening on port 8000 ...
* client[4] accepted *
* client[5] accepted *
* client[6] accepted *
* client[7] accepted *
* client[8] rejected, client limit (4) reached. *

```

```

(base) adarshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F30_computer_networks/labs/lab_6$ ./client 127.0.0.1 8000
connected to the server
Enter the message: 
```

```

(base) adarshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F30_computer_networks/labs/lab_6$ ./client 127.0.0.1 8000
connected to the server
Enter the message: 
```

```

(base) adarshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F30_computer_networks/labs/lab_6$ ./client 127.0.0.1 8000
connected to the server
Enter the message: 
```

```

(base) adarshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F30_computer_networks/labs/lab_6$ ./client 127.0.0.1 8000
server's client limit reached. try again in a while.
(base) adarshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F30_computer_networks/labs/lab_6$ 
```

8. Type a message in client 1 STDIN and press enter to send it to the server. The server is asked to send response message.

```

(base) adarshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F30_computer_networks/labs/lab_6$ gcc -pthread server.c -o server
(base) adarshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F30_computer_networks/labs/lab_6$ ./server 8000
listening on port 8000 ...
* client[4] accepted *
* client[5] accepted *
* client[6] accepted *
* client[7] accepted *
* client[8] rejected. client limit (4) reached. *
[client[4], 21 bytes]: itneilc morf 1egassem
Enter response message for client[4]:

```

```

(base) adarshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F30_computer_networks/labs/lab_6$ ./client 127.0.0.1 8000
connected to the server
Enter the message: []

```

```

(base) adarshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F30_computer_networks/labs/lab_6$ ./client 127.0.0.1 8000
connected to the server
Enter the message: []

```

```

(base) adarshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F30_computer_networks/labs/lab_6$ ./client 127.0.0.1 8000
connected to the server
Enter the message: []

```

```

(base) adarshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F30_computer_networks/labs/lab_6$ ./client 127.0.0.1 8000
server's client limit reached. try again in a while.
(base) adarshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F30_computer_networks/labs/lab_6$ 

```

## 9. Type the response message in the server STDIN and press enter to send the response to the client 1.

```

(base) adarshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F30_computer_networks/labs/lab_6$ ./server 8000
listening on port 8000 ...
* client[4] accepted *
* client[5] accepted *
* client[6] accepted *
* client[7] accepted *
* client[8] rejected. client limit (4) reached. *
[client[4], 21 bytes]: itneilc morf 1egassem
Enter response message for client[4]:
response1 from server
* response sent to client[4] (21 bytes) *

```

```

(base) adarshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F30_computer_networks/labs/lab_6$ ./client 127.0.0.1 8000
connected to the server
Enter the message: []

```

```

(base) adarshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F30_computer_networks/labs/lab_6$ ./client 127.0.0.1 8000
connected to the server
Enter the message: []

```

```

(base) adarshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F30_computer_networks/labs/lab_6$ ./client 127.0.0.1 8000
connected to the server
Enter the message: []

```

```

(base) adarshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F30_computer_networks/labs/lab_6$ ./client 127.0.0.1 8000
server's client limit reached. try again in a while.
(base) adarshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F30_computer_networks/labs/lab_6$ 

```

## 10. Type a message in client 2 STDIN and press enter to send it to the server. The server is asked to send response message.

11. Type a message in client 3 STDIN and press enter to send it to the server.

```
Activities Terminal Mar 22 12:42
adarshnandanwar@predator-pop-os: /media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F303_computer_networks/labs/lab_6$ gcc -pthread server.c -o server
(base) adarshnandanwar@predator-pop-os: /media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F303_computer_networks/labs/lab_6$ ./server 8000
listening on port 8000 ...
* client[4] accepted *
* client[5] accepted *
* client[6] accepted *
* client[7] accepted *
* client[8] rejected. client limit (4) reached.
[client[4], 21 bytes]: itneilc morf legassem
Enter response message for client[4]:
response from server
* response sent to client[4] (21 bytes) *
[client[5], 21 bytes]: 2tneilc morf 2egassem
Enter response message for client[5]:
[client[6], 21 bytes]: 3tneilc morf 3egassem
[]

adarshnandanwar@predator-pop-os: /media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F303_computer_networks/labs/lab_6$ ./client 127.0.0.1 8000
connected to the server
Enter the message: message2 from client2
* sending message (21 bytes) *
[]

adarshnandanwar@predator-pop-os: /media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F303_computer_networks/labs/lab_6$ ./client 127.0.0.1 8000
connected to the server
Enter the message: message3 from client3
* sending message (21 bytes) *
[]

adarshnandanwar@predator-pop-os: /media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F303_computer_networks/labs/lab_6$ ./client 127.0.0.1 8000
connected to the server
Enter the message: message1 from client1
* sending message (21 bytes) *
[server, 21 bytes]: revres morf lesnopser
Enter the message: []
[]

adarshnandanwar@predator-pop-os: /media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F303_computer_networks/labs/lab_6$ ./client 127.0.0.1 8000
connected to the server
Enter the message: []
[]
```

12. Type the response message in the server STDIN and press enter to send the response to the client 2.

The server is now asked to type in the response for the client 3.

```

(base) adarshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F303_computer_networks/labs/lab_6$ gcc -pthread server.c -o server
(base) adarshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F303_computer_networks/labs/lab_6$ ./server 8000
listening on port 8000 ...
* client[4] accepted *
* client[5] accepted *
* client[6] accepted *
* client[7] accepted *
* client[8] rejected. client limit (4) reached. *
[client[4], 21 bytes]: itneilc morf 1egassem
Enter response message for client[4]:
response1 from server
* response sent to client[4] (21 bytes) *
[client[5], 21 bytes]: 2tneilc morf 2egassem
Enter response message for client[5]:
[client[6], 21 bytes]: 3tneilc morf 3egassem
response2 from server
Enter response message for client[6]:
* response sent to client[5] (21 bytes) *
[client[7], 21 bytes]: revres morf 1esnopser
Enter response message for client[7]:
[client[8], 21 bytes]: revres morf 1esnopser
Enter the message: []

(base) adarshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F303_computer_networks/labs/lab_6$ ./client 127.0.0.1 8000
connected to the server
Enter the message: message2 from client2
* sending message (21 bytes) *
[server, 21 bytes]: revres morf 2esnopser
Enter the message: []

(base) adarshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F303_computer_networks/labs/lab_6$ ./client 127.0.0.1 8000
connected to the server
Enter the message: message3 from client3
* sending message (21 bytes) *
[server, 21 bytes]: revres morf 3esnopser
Enter the message: []

(base) adarshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F303_computer_networks/labs/lab_6$ ./client 127.0.0.1 8000
connected to the server
Enter the message: []
server's client limit reached. try again in a while.
(base) adarshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F303_computer_networks/labs/lab_6$ 

```

13. Type the response message in the server STDIN and press enter to send the response to the client 3.

```

(base) adarshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F303_computer_networks/labs/lab_6$ gcc -pthread server.c -o server
(base) adarshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F303_computer_networks/labs/lab_6$ ./server 8000
listening on port 8000 ...
* client[4] accepted *
* client[5] accepted *
* client[6] accepted *
* client[7] accepted *
* client[8] rejected. client limit (4) reached. *
[client[4], 21 bytes]: itneilc morf 1egassem
Enter response message for client[4]:
response1 from server
* response sent to client[4] (21 bytes) *
[client[5], 21 bytes]: 2tneilc morf 2egassem
Enter response message for client[5]:
[client[6], 21 bytes]: 3tneilc morf 3egassem
response2 from server
Enter response message for client[6]:
* response sent to client[5] (21 bytes) *
response3 from server
* response sent to client[6] (21 bytes) *
[client[7], 21 bytes]: revres morf 1esnopser
Enter the message: []

(base) adarshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F303_computer_networks/labs/lab_6$ ./client 127.0.0.1 8000
connected to the server
Enter the message: message2 from client2
* sending message (21 bytes) *
[server, 21 bytes]: revres morf 2esnopser
Enter the message: []

(base) adarshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F303_computer_networks/labs/lab_6$ ./client 127.0.0.1 8000
connected to the server
Enter the message: message3 from client3
* sending message (21 bytes) *
[server, 21 bytes]: revres morf 3esnopser
Enter the message: []

(base) adarshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F303_computer_networks/labs/lab_6$ ./client 127.0.0.1 8000
connected to the server
Enter the message: []
server's client limit reached. try again in a while.
(base) adarshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F303_computer_networks/labs/lab_6$ 

```

14. Type a message in client 4 STDIN and press enter to send it to the server. The server is now asked to type in the response for the client 4.

```
Activities Terminal Mar 22 12:44
adashnandanwar@predator-pop-os:~/media/adashnandanwar/Data/BPGC/Moodle/Sem6/CS_F303_computer_networks/labs/lab_6$ ./server 8000
listening on port 8000 ...
* client[4] accepted *
* client[5] accepted *
* client[6] accepted *
* client[7] accepted *
* client[8] rejected. client limit (4) reached. *
[client[4], 21 bytes]: Itneilc morf 2egassem
Enter response message for client[4]:
response from server
* response sent to client[4] (21 bytes) *
[client[5], 21 bytes]: Zthelc morf 2egassem
Enter response message for client[5]:
[client[6], 21 bytes]: 3tnelc morf 3egassem
response? from server
Enter response message for client[6]:
* response sent to client[5] (21 bytes) *
response? from server
* response sent to client[6] (21 bytes) *
[client[7], 21 bytes]: 4tnelc morf 4egassem
Enter response message for client[7]:
[]

adashnandanwar@predator-pop-os:~/media/adashnandanwar/Data/BPGC/Moodle/Sem6/CS_F303_computer_networks/labs/lab_6$ ./client 127.0.0.1 8000
connected to the server
Enter the message: message2 from client2
* sending message (21 bytes) *
[server, 21 bytes]: _revres morf 2esnopser
Enter the message: []
```

```
(base) adashnandanwar@predator-pop-os:~/media/adashnandanwar/Data/BPGC/Moodle/Sem6/CS_F303_computer_networks/labs/lab_6$ ./client 127.0.0.1 8000
connected to the server
Enter the message: message1 from client1
* sending message (21 bytes) *
[server, 21 bytes]: revres morf 1esnopser
Enter the message: []
```

```
(base) adashnandanwar@predator-pop-os:~/media/adashnandanwar/Data/BPGC/Moodle/Sem6/CS_F303_computer_networks/labs/lab_6$ ./client 127.0.0.1 8000
connected to the server
Enter the message: message3 from client3
* sending message (21 bytes) *
[server, 21 bytes]: _revres morf 3esnopser
Enter the message: []
```

```
(base) adashnandanwar@predator-pop-os:~/media/adashnandanwar/Data/BPGC/Moodle/Sem6/CS_F303_computer_networks/labs/lab_6$ ./client 127.0.0.1 8000
connected to the server
Enter the message: message4 from client4
* sending message (21 bytes) *
[server, 21 bytes]: revres morf 4esnopser
Enter the message: []
```

```
(base) adashnandanwar@predator-pop-os:~/media/adashnandanwar/Data/BPGC/Moodle/Sem6/CS_F303_computer_networks/labs/lab_6$ ./client 127.0.0.1 8000
server's client limit reached. try again in a while.
(base) adashnandanwar@predator-pop-os:~/media/adashnandanwar/Data/BPGC/Moodle/Sem6/CS_F303_computer_networks/labs/lab_6$ []
```

15. Client 1 types "exit" command to exit and close the connection. A message is printed in the server STDOUT informing that the client 1 has exited.

```
Activities Terminal Mar 22 12:44
adarshnandanwar@predator-pop-os: /media/adarshnandanwar/Data/BPGC/Moodle/Sem6/c5_F303_computer_networks/labs/lab_6$ ./client 127.0.0.1 8000
listening on port 8000 ...
* client[4] accepted *
* client[5] accepted *
* client[6] accepted *
* client[7] accepted *
* client[8] rejected. client limit (4) reached. *
[client[4], 21 bytes]: itneile morf legassem
Enter response message for client[4]:
response1 from server
* response sent to client[4] (21 bytes) *
[client[5], 21 bytes]: 2tneile morf 2egassem
Enter response message for client[5]:
[client[6], 21 bytes]: 3tneile morf 3egassem
response2 from server
Enter response message for client[6]:
* response sent to client[5] (21 bytes) *
response3 from server
* response sent to client[6] (21 bytes) *
[client[7], 21 bytes]: 4tneile morf 4egassem
Enter response message for client[7]:
* client[4] disconnected *

(base) adarshnandanwar@predator-pop-os: /media/adarshnandanwar/Data/BPGC/Moodle/Sem6/c5_F303_computer_networks/labs/lab_6$ ./client 127.0.0.1 8000
connected to the server
Enter the message: message2 from client2
* sending message (21 bytes) *
[server, 21 bytes]: _revres morf 2esnopser
Enter the message: 
```

```
(base) adarshnandanwar@predator-pop-os: /media/adarshnandanwar/Data/BPGC/Moodle/Sem6/c5_F303_computer_networks/labs/lab_6$ ./client 127.0.0.1 8000
connected to the server
Enter the message: message1 from client1
* sending message (21 bytes) *
[server, 21 bytes]: revres morf lesnopser
Enter the message: exit
(base) adarshnandanwar@predator-pop-os: /media/adarshnandanwar/Data/BPGC/Moodle/Sem6/c5_F303_computer_networks/labs/lab_6$ 
```

```
(base) adarshnandanwar@predator-pop-os: /media/adarshnandanwar/Data/BPGC/Moodle/Sem6/c5_F303_computer_networks/labs/lab_6$ ./client 127.0.0.1 8000
connected to the server
Enter the message: message3 from client3
* sending message (21 bytes) *
[server, 21 bytes]: _revres morf 3esnopser
Enter the message: 
```

```
(base) adarshnandanwar@predator-pop-os: /media/adarshnandanwar/Data/BPGC/Moodle/Sem6/c5_F303_computer_networks/labs/lab_6$ ./client 127.0.0.1 8000
connected to the server
Enter the message: message4 from client4
* sending message (21 bytes) *
[server, 21 bytes]: revres morf 3esnopser
Enter the message: 
```

```
(base) adarshnandanwar@predator-pop-os: /media/adarshnandanwar/Data/BPGC/Moodle/Sem6/c5_F303_computer_networks/labs/lab_6$ ./client 127.0.0.1 8000
server's client limit reached. try again in a while.
(base) adarshnandanwar@predator-pop-os: /media/adarshnandanwar/Data/BPGC/Moodle/Sem6/c5_F303_computer_networks/labs/lab_6$ 
```

16. Run client 5 with {server\_ip\_address, port\_number} as arguments. Client 5 is now accepted as client 1 no more connected to the server and maximum number of clients allowed in server is 4.

17. Type the response message in the server STDIN and press enter to send the response to the client 4.

```
Activities Terminal Mar 22 12:45
adarshnandanwar@predator-pop-os: /media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F303_com... (base) adarshnandanwar@predator-pop-os: /media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F303_computer_networks/labs/lab_5$ gcc client.c -o client
(base) adarshnandanwar@predator-pop-os: /media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F303_computer_networks/labs/lab_5$ ./client 127.0.0.1 8000
connected to the server
Enter the message: message1 from client1
* sending message (21 bytes) *
[server, 21 bytes]: revres morf 1esnopser
Enter the message: exit
(base) adarshnandanwar@predator-pop-os: /media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F303_computer_networks/labs/lab_5$ 
```

```
adarshnandanwar@predato... (base) adarshnandanwar@predato... (base) adarshnandanwar@predato... (base) adarshnandanwar@predato...
adarshnandanwar@predator-pop-os: /media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F303_computer_networks/labs/lab_5$ ./client 127.0.0.1 8000
connected to the server
Enter the message: message2 from client2
* sending message (21 bytes) *
[server, 21 bytes]: revres morf 2esnopser
Enter the message: 
```

```
adarshnandanwar@predato... (base) adarshnandanwar@predato... (base) adarshnandanwar@predato... (base) adarshnandanwar@predato...
adarshnandanwar@predator-pop-os: /media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F303_computer_networks/labs/lab_5$ ./client 127.0.0.1 8000
connected to the server
Enter the message: message3 from client3
* sending message (21 bytes) *
[server, 21 bytes]: revres morf 3esnopser
Enter the message: 
```

```
adarshnandanwar@predato... (base) adarshnandanwar@predato... (base) adarshnandanwar@predato... (base) adarshnandanwar@predato...
adarshnandanwar@predator-pop-os: /media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F303_computer_networks/labs/lab_5$ ./client 127.0.0.1 8000
connected to the server
Enter the message: message4 from client4
* sending message (21 bytes) *
[server, 21 bytes]: revres morf 4esnopser
Enter the message: 
```

```
adarshnandanwar@predato... (base) adarshnandanwar@predato... (base) adarshnandanwar@predato... (base) adarshnandanwar@predato...
adarshnandanwar@predator-pop-os: /media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F303_computer_networks/labs/lab_5$ ./client 127.0.0.1 8000
connected to the server
Enter the message: 
```

18. Type a message in client 5 STDIN and press enter to send it to the server. The server is now asked to type in the response for the client 5. Type the response message in the server STDIN and press enter

to send the response to the client 5.

```

Activities Terminal Mar 22 12:46
adarshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F303_com... Enter response message for client[4]: response1 from server * response sent to client[4] (21 bytes) * [client[5], 21 bytes]: 2tnelc morf 2egassem Enter response message for client[5]: [client[6], 21 bytes]: 3tnelc morf 3egassem response2 from server Enter response message for client[6]: * response sent to client[5] (21 bytes) * response3 from server * response sent to client[6] (21 bytes) * [client[7], 21 bytes]: 4tnelc morf 4egassem Enter response message for client[7]: * client[4] disconnected * client[8] accepted * response4 from server * response sent to client[7] (21 bytes) * [client[8], 21 bytes]: 5tnelc morf 5egassem Enter response message for client[8]: response5 from server * response sent to client[8] (21 bytes) *
(base) adarshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F303_computer_networks/labs/lab_6$ ./client 127.0.0.1 8000 connected to the server Enter the message: message2 from client2 * sending message (21 bytes) * [server, 21 bytes]: revres morf 2esnopser Enter the message: []
(base) adarshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F303_computer_networks/labs/lab_6$ ./client 127.0.0.1 8000 connected to the server Enter the message: message3 from client3 * sending message (21 bytes) * [server, 21 bytes]: revres morf 3esnopser Enter the message: []
(base) adarshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F303_computer_networks/labs/lab_6$ ./client 127.0.0.1 8000 connected to the server Enter the message: message4 from client4 * sending message (21 bytes) * [server, 21 bytes]: revres morf 4esnopser Enter the message: []
(base) adarshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F303_computer_networks/labs/lab_6$ ./client 127.0.0.1 8000 connected to the server Enter the message: message5 from client5 * sending message (21 bytes) * [server, 21 bytes]: revres morf 5esnopser Enter the message: []

```

19. Client 2 and 3 types "exit" command, in order, to close their respective connections. Messages are printed in the server STDOUT informing that client 2 and 3 have exited.

```

Activities Terminal Mar 22 12:47
adarshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F303_com... Enter response message for client[4]: response1 from server * response sent to client[4] (21 bytes) * [client[5], 21 bytes]: 2tnelc morf 2egassem Enter response message for client[5]: [client[6], 21 bytes]: 3tnelc morf 3egassem response2 from server Enter response message for client[6]: * response sent to client[5] (21 bytes) * response3 from server * response sent to client[6] (21 bytes) * [client[7], 21 bytes]: 4tnelc morf 4egassem Enter response message for client[7]: * client[4] disconnected * client[8] accepted * response4 from server * response sent to client[7] (21 bytes) * [client[8], 21 bytes]: 5tnelc morf 5egassem Enter response message for client[8]: response5 from server * response sent to client[8] (21 bytes) *
(base) adarshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F303_computer_networks/labs/lab_6$ ./client 127.0.0.1 8000 connected to the server Enter the message: message2 from client2 * sending message (21 bytes) * [server, 21 bytes]: revres morf 2esnopser Enter the message: exit
(base) adarshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F303_computer_networks/labs/lab_6$ ./client 127.0.0.1 8000 connected to the server Enter the message: message3 from client3 * sending message (21 bytes) * [server, 21 bytes]: revres morf 3esnopser Enter the message: exit
(base) adarshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F303_computer_networks/labs/lab_6$ ./client 127.0.0.1 8000 connected to the server Enter the message: message4 from client4 * sending message (21 bytes) * [server, 21 bytes]: revres morf 4esnopser Enter the message: []
(base) adarshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/CS_F303_computer_networks/labs/lab_6$ ./client 127.0.0.1 8000 connected to the server Enter the message: message5 from client5 * sending message (21 bytes) * [server, 21 bytes]: revres morf 5esnopser Enter the message: []

```

20. Similarly, client 4 and 5 types "exit" command, in order, to close their respective connections. Messages are printed in the server STDOUT informing that client 4 and 5 have exited.

```
Activities Terminal Mar 22 12:47
adarshandanwar@predator-pop-os:~/media/adarshandanwar/Data/BPGC/Moodle/Sem6/CS_F303_computer_networks/labs/lab_6$ ./client 127.0.0.1 8000
Enter response message for client[5]:
[client[6], 21 bytes]: 5tnelhc morf 3egassem
response[6] from server
Enter response message for client[6]:
* response sent to client[5] (21 bytes) *
response[7] from server
* response sent to client[6] (21 bytes) *
[client[7], 21 bytes]: 4tnelhc morf 4egassem
Enter response message for client[7]:
* client[4] disconnected *
* client[8] accepted *
response[8] from server
* response sent to client[7] (21 bytes) *
[client[8], 21 bytes]: 5tnelhc morf 5egassem
Enter response message for client[8]:
response[9] from server
* response sent to client[8] (21 bytes) *
* client[5] disconnected *
* client[6] disconnected *
* client[7] disconnected *
* client[8] disconnected *
adarshandanwar@predator-pop-os:~/media/adarshandanwar/Data/BPGC/Moodle/Sem6/CS_F303_computer_networks/labs/lab_6$ ./client 127.0.0.1 8000
connected to the server
Enter the message: message2 from client2
* sending message (21 bytes) *
[server, 21 bytes]: revres morf 2esnospser
Enter the message: exit
(base) adarshandanwar@predator-pop-os:~/media/adarshandanwar/Data/BPGC/Moodle/Sem6/CS_F303_computer_networks/labs/lab_6$ 
(base) adarshandanwar@predator-pop-os:~/media/adarshandanwar/Data/BPGC/Moodle/Sem6/CS_F303_computer_networks/labs/lab_6$ ./client 127.0.0.1 8000
connected to the server
Enter the message: message1 from client1
* sending message (21 bytes) *
[server, 21 bytes]: revres morf 1esnospser
Enter the message: exit
(base) adarshandanwar@predator-pop-os:~/media/adarshandanwar/Data/BPGC/Moodle/Sem6/CS_F303_computer_networks/labs/lab_6$ 
(base) adarshandanwar@predator-pop-os:~/media/adarshandanwar/Data/BPGC/Moodle/Sem6/CS_F303_computer_networks/labs/lab_6$ ./client 127.0.0.1 8000
connected to the server
Enter the message: message3 from client3
* sending message (21 bytes) *
[server, 21 bytes]: revres morf 3esnospser
Enter the message: exit
(base) adarshandanwar@predator-pop-os:~/media/adarshandanwar/Data/BPGC/Moodle/Sem6/CS_F303_computer_networks/labs/lab_6$ 
(base) adarshandanwar@predator-pop-os:~/media/adarshandanwar/Data/BPGC/Moodle/Sem6/CS_F303_computer_networks/labs/lab_6$ ./client 127.0.0.1 8000
server's client limit reached. try again in a while.
(base) adarshandanwar@predator-pop-os:~/media/adarshandanwar/Data/BPGC/Moodle/Sem6/CS_F303_computer_networks/labs/lab_6$ ./client 127.0.0.1 8000
connected to the server
Enter the message: message5 from client5
* sending message (21 bytes) *
[server, 21 bytes]: revres morf 5esnospser
Enter the message: exit
(base) adarshandanwar@predator-pop-os:~/media/adarshandanwar/Data/BPGC/Moodle/Sem6/CS_F303_computer_networks/labs/lab_6$ 
```

21. Press `ctrl+c` to stop the server.

```
Activities Terminal Mar 22 12:47
darshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/c5_F303_computer_networks/labs/lab_6$ ./client 127.0.0.1 8000
response2 from server
Enter response message for client[6]:
* response sent to client[5] (21 bytes) *
response3 from server
* response sent to client[6] (21 bytes) *
[client[7], 21 bytes]: 4tnell morf 4egassem
Enter response message for client[7]:
* client[4] disconnected *
* client[8] accepted *
response4 from server
* response sent to client[7] (21 bytes) *
[client[8], 21 bytes]: 5tnell morf 5egassem
Enter response message for client[8]:
response5 from server
* response sent to client[8] (21 bytes) *
* client[5] disconnected *
* client[6] disconnected *
* client[7] disconnected *
* client[8] disconnected *
^C
(base) darshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/c5_F303_computer_networks/labs/lab_6$ 
```

```
darshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/c5_F303_computer_networks/labs/lab_6$ ./client 127.0.0.1 8000
connected to the server
Enter the message: message2 from client2
* sending message (21 bytes) *
[server, 21 bytes]: revres morf 2esnospser
Enter the message: exit
(base) darshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/c5_F303_computer_networks/labs/lab_6$ 
```

```
darshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/c5_F303_computer_networks/labs/lab_6$ ./client 127.0.0.1 8000
Connected to the server
Enter the message: message3 from client3
* sending message (21 bytes) *
[server, 21 bytes]: revres morf 3esnospser
Enter the message: exit
(base) darshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/c5_F303_computer_networks/labs/lab_6$ 
```

```
darshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/c5_F303_computer_networks/labs/lab_6$ ./client 127.0.0.1 8000
connected to the server
Enter the message: message4 from client4
* sending message (21 bytes) *
[server, 21 bytes]: revres morf 4esnospser
Enter the message: exit
(base) darshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/c5_F303_computer_networks/labs/lab_6$ 
```

```
darshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/c5_F303_computer_networks/labs/lab_6$ ./client 127.0.0.1 8000
server's client limit reached. try again in a while.
(base) darshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/c5_F303_computer_networks/labs/lab_6$ ./client 127.0.0.1 8000
connected to the server
Enter the message: message5 from client5
* sending message (21 bytes) *
[server, 21 bytes]: revres morf 5esnospser
Enter the message: exit
(base) darshnandanwar@predator-pop-os:/media/adarshnandanwar/Data/BPGC/Moodle/Sem6/c5_F303_computer_networks/labs/lab_6$ 
```