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- Course: System Software

Client-Server Working Process
Stream Sockets
Screenshots and Explanation.



How to run the server.

In Next, page I have shown how to run server code.

In command prompt go to folder where server file is placed

And run the command below.

```
>> g++ -pthread server.cpp -o server
```

```
>> ./server 8080
```

The server is running and clients are not connected to server, so it is waiting for clients to connect.

```
hemang@hemang-VirtualBox: ~/Desktop
hemang@hemang-VirtualBox:~/Desktop$ g++ -pthread server.cpp -o server
hemang@hemang-VirtualBox:~/Desktop$ ./server 8080
Waiting for incoming connections...

```

```
hemang@hemang-VirtualBox:~/Desktop$
```

```
hemang@hemang-VirtualBox:~/Desktop$
```

```
hemang@hemang-VirtualBox:~/Desktop$
```



How to connect clients to the server.

- Go to the folder in command prompt where client file is placed.
- At this point server is running and waiting for clients to connect.
Now run the command below.

```
>> g++ -pthread client.cpp -o client
```

```
>> ./client localhost 8080
```

Similarly repeat this process for n number of clients in n different terminals.

It is shown in next 3 slide, for 3 clients. Every time new client connects to the server, it sends message to already connected clients that new client is connected with server.

```
hemang@hemang-VirtualBox: ~/Desktop
hemang@hemang-VirtualBox:~/Desktop$ g++ -pthread server.cpp -o server
hemang@hemang-VirtualBox:~/Desktop$ ./server 8080
Waiting for incoming connections...
-> Connection accepted for socket id: 4
█
```

```
hemang@hemang-VirtualBox: ~/Desktop
hemang@hemang-VirtualBox:~/Desktop$ g++ -pthread client.cpp -o client
hemang@hemang-VirtualBox:~/Desktop$ ./client localhost 8080

*** Instructions ***

-> Initially You can send message to only server itself.
-> For Changing Reciver for ONE TO ONE Mode as you are Sender,
    - Type SET and hit ENTER, it will ask for socket ID,
    - enter socket Id to connect and again hit enter.
-> Now you can send message to socket with entered ID.
-> Similarly for BROADCAST Mode type "411" after typing SET and hitting ENTER
-> Type Q and hit Enter To quit conversation

Hello Client , I have received your connection. And now I will assign a handler
for you
Congrats !!😊 You are first to connected with server.
Connecting...

Greetings! I am your connection handler And we are connected :)

-----
Please enter the message: █
```

```
hemang@hemang-VirtualBox: ~/Desktop
hemang@hemang-VirtualBox:~/Desktop$ █
```

```
hemang@hemang-VirtualBox: ~/Desktop
hemang@hemang-VirtualBox:~/Desktop$ █
```

```
hemang@hemang-VirtualBox: ~/Desktop
hemang@hemang-VirtualBox:~/Desktop$ g++ -pthread server.cpp -o server
hemang@hemang-VirtualBox:~/Desktop$ ./server 8080
Waiting for incoming connections...
-> Connection accepted for socket id: 4
-> Connection accepted for socket id: 5
█
```

```
hemang@hemang-VirtualBox: ~/Desktop
hemang@hemang-VirtualBox:~/Desktop$ █
```

```
hemang@hemang-VirtualBox: ~/Desktop
hemang@hemang-VirtualBox:~/Desktop$ ./client localhost 8080

*** Instructions ***

-> Initially You can send message to only server itself.
-> For Changing Receiver for ONE TO ONE Mode as you are Sender,
    - Type SET and hit ENTER, it will ask for socket ID,
    - enter socket ID to connect and again hit enter.
-> Now you can send message to socket with entered ID.
-> Similarly for BROADCAST Mode type "411" after typing SET and hitting ENTER
-> Type Q and hit Enter To quit conversation

Hello Client , I have received your connection. And now I will assign a handler
for you
Congrats !!😊 You are first to connected with server.
Connecting...

Greetings! I am your connection handler And we are connected :)

-----
Please enter the message:

**NEW MESSAGE : Socket ID: 5 is Connected with Server !!
█
```

```
hemang@hemang-VirtualBox: ~/Desktop
hemang@hemang-VirtualBox:~/Desktop$ ./client localhost 8080

*** Instructions ***

-> Initially You can send message to only server itself.
-> For Changing Receiver for ONE TO ONE Mode as you are Sender,
    - Type SET and hit ENTER, it will ask for socket ID,
    - enter socket ID to connect and again hit enter.
-> Now you can send message to socket with entered ID.
-> Similarly for BROADCAST Mode type "411" after typing SET and hitting ENTER
-> Type Q and hit Enter To quit conversation

Hello Client , I have received your connection. And now I will assign a handler
for you
Current Connected Sockets To Server: 4,
Connecting...

Greetings! I am your connection handler And we are connected :)

-----
Please enter the message: █
```

```
hemang@hemang-VirtualBox: ~/Desktop
hemang@hemang-VirtualBox:~/Desktop$ g++ -pthread server.cpp -o server
hemang@hemang-VirtualBox:~/Desktop$ ./server 8080
Waiting for incoming connections...
-> Connection accepted for socket id: 4

-> Connection accepted for socket id: 5

-> Connection accepted for socket id: 6

█
```

```
hemang@hemang-VirtualBox: ~/Desktop
-> Initially You can send message to only server itself.
-> For Changing Receiver for ONE TO ONE Mode as you are Sender,
    - Type SET and hit ENTER, it will ask for socket ID,
      - enter socket ID to connect and again hit enter.
-> Now you can send message to socket with entered ID.
-> Similarly for BROADCAST Mode type "411" after typing SET and hitting ENTER
-> Type Q and hit Enter To quit conversation

Hello Client , I have received your connection. And now I will assign a handler
for you
Congrats !! 😊 You are first to connected with server.
Connecting...

Greetings! I am your connection handler And we are connected :)

-----
Please enter the message:

**NEW MESSAGE : Socket ID: 5 is Connected with Server !!

**NEW MESSAGE : Socket ID: 6 is Connected with Server !!

█
```

```
hemang@hemang-VirtualBox: ~/Desktop
hemang@hemang-VirtualBox:~/Desktop$ ./client localhost 8080

*** Instructions ***

-> Initially You can send message to only server itself.
-> For Changing Receiver for ONE TO ONE Mode as you are Sender,
    - Type SET and hit ENTER, it will ask for socket ID,
      - enter socket ID to connect and again hit enter.
-> Now you can send message to socket with entered ID.
-> Similarly for BROADCAST Mode type "411" after typing SET and hitting ENTER
-> Type Q and hit Enter To quit conversation

Hello Client , I have received your connection. And now I will assign a handler
for you
Current Connected Sockets To Server: 4, 5,
Connecting...

Greetings! I am your connection handler And we are connected :)

-----
Please enter the message: █
```

```
hemang@hemang-VirtualBox: ~/Desktop
hemang@hemang-VirtualBox:~/Desktop$ ./client localhost 8080

*** Instructions ***

-> Initially You can send message to only server itself.
-> For Changing Receiver for ONE TO ONE Mode as you are Sender,
    - Type SET and hit ENTER, it will ask for socket ID,
      - enter socket ID to connect and again hit enter.
-> Now you can send message to socket with entered ID.
-> Similarly for BROADCAST Mode type "411" after typing SET and hitting ENTER
-> Type Q and hit Enter To quit conversation

Hello Client , I have received your connection. And now I will assign a handler
for you
Current Connected Sockets To Server: 4,
Connecting...

Greetings! I am your connection handler And we are connected :)

-----
Please enter the message:

**NEW MESSAGE : Socket ID: 6 is Connected with Server !!

█
```



Initial communication with server.

Until now client sockets with ids 4, 5 and 6 are connected with server.

Default socket id of server is 1.

So initially clients are connected with server only so when they send message, the message goes to server. I have shown that client sockets 4 and 6 are sending message to the server.


```
hemang@hemang-VirtualBox: ~/Desktop
hemang@hemang-VirtualBox:~/Desktop$ g++ -pthread server.cpp -o server
hemang@hemang-VirtualBox:~/Desktop$ ./server 8080
Waiting for incoming connections...
-> Connection accepted for socket id: 4

-> Connection accepted for socket id: 5

-> Connection accepted for socket id: 6

Msg Transfer: 4 to 1 : Hello Server!!! Socket-4 Here!!!

Msg Transfer: 6 to 1 : Hello Server !! Good Morning !! BTW Socket-6 Here.

█
```

```
hemang@hemang-VirtualBox: ~/Desktop
-> Initially You can send message to only server itself.
-> For Changing Reciver for ONE TO ONE Mode as you are Sender,
    - Type SET and hit ENTER, it will ask for socket ID,
    - enter socket ID to connect and again hit enter.
-> Now you can send message to socket with entered ID.
-> Similarly for BROADCAST Mode type "411" after typing SET and hitting ENTER
-> Type Q and hit Enter To quit conversation

Hello Client , I have received your connection. And now I will assign a handler
for you
Congrats !!😊 You are first to connected with server.
Connecting...

Greetings! I am your connection handler And we are connected :)

-----
Please enter the message:

**NEW MESSAGE : Socket ID: 5 is Connected with Server !!

**NEW MESSAGE : Socket ID: 6 is Connected with Server !!
Hello Server!!! Socket-4 Here!!!
Please enter the message: █
```

```
hemang@hemang-VirtualBox: ~/Desktop
hemang@hemang-VirtualBox:~/Desktop$ ./client localhost 8080

*** Instructions ***

-> Initially You can send message to only server itself.
-> For Changing Reciver for ONE TO ONE Mode as you are Sender,
    - Type SET and hit ENTER, it will ask for socket ID,
    - enter socket ID to connect and again hit enter.
-> Now you can send message to socket with entered ID.
-> Similarly for BROADCAST Mode type "411" after typing SET and hitting ENTER
-> Type Q and hit Enter To quit conversation

Hello Client , I have received your connection. And now I will assign a handler
for you
Current Connected Sockets To Server: 4, 5,
Connecting...

Greetings! I am your connection handler And we are connected :)

-----
Please enter the message: Hello Server !! Good Morning !! BTW Socket-6 Here.
Please enter the message: █
```

```
hemang@hemang-VirtualBox: ~/Desktop
hemang@hemang-VirtualBox:~/Desktop$ ./client localhost 8080

*** Instructions ***

-> Initially You can send message to only server itself.
-> For Changing Reciver for ONE TO ONE Mode as you are Sender,
    - Type SET and hit ENTER, it will ask for socket ID,
    - enter socket ID to connect and again hit enter.
-> Now you can send message to socket with entered ID.
-> Similarly for BROADCAST Mode type "411" after typing SET and hitting ENTER
-> Type Q and hit Enter To quit conversation

Hello Client , I have received your connection. And now I will assign a handler
for you
Current Connected Sockets To Server: 4,
Connecting...

Greetings! I am your connection handler And we are connected :)

-----
Please enter the message:

**NEW MESSAGE : Socket ID: 6 is Connected with Server !!

█
```



How to connect two or more clients with each other.

To set connection with another client, type “SET” and hit enter in any client terminal to connect it with other client

Now it will ask for socket id of another client to connect with it.

Type socket id and hit enter. Now you are connected with it. This will send message to opposite client that you are connected with it. Now whatever message you will send will go to that client through server.

This is shown in next 3 pages. Client 4 and 5 are connected with each other. We can extend it with n number of client as well.

```
hemang@hemang-VirtualBox: ~/Desktop
hemang@hemang-VirtualBox:~/Desktop$ g++ -pthread server.cpp -o server
hemang@hemang-VirtualBox:~/Desktop$ ./server 8080
Waiting for incoming connections...
-> Connection accepted for socket id: 4

-> Connection accepted for socket id: 5

-> Connection accepted for socket id: 6

Msg Transfer: 4 to 1 : Hello Server!!! Socket-4 Here!!!

Msg Transfer: 6 to 1 : Hello Server !! Good Morning !! BTW Socket-6 Here.

Msg Transfer: 4 to 1 : SET

-> READING SOCKET ID FOR CHANGING REVIVER OF ID 4 ....
```

```
hemang@hemang-VirtualBox: ~/Desktop
hemang@hemang-VirtualBox:~/Desktop$ ./client localhost 8080

*** Instructions ***

-> Initially You can send message to only server itself.
-> For Changing Reciver for ONE TO ONE Mode as you are Sender,
    - Type SET and hit ENTER, it will ask for socket ID,
    - enter socket Id to connect and again hit enter.
-> Now you can send message to socket with entered ID.
-> Similarly for BROADCAST Mode type "411" after typing SET and hitting ENTER
-> Type Q and hit Enter To quit conversation

Hello Client , I have received your connection. And now I will assign a handler
for you
Current Connected Sockets To Server: 4, 5,
Connecting...

Greetings! I am your connection handler And we are connected :)

-----
Please enter the message: Hello Server !! Good Morning !! BTW Socket-6 Here.
Please enter the message:
```

```
hemang@hemang-VirtualBox: ~/Desktop
-> For Changing Reciver for ONE TO ONE Mode as you are Sender,
    - Type SET and hit ENTER, it will ask for socket ID,
    - enter socket Id to connect and again hit enter.
-> Now you can send message to socket with entered ID.
-> Similarly for BROADCAST Mode type "411" after typing SET and hitting ENTER
-> Type Q and hit Enter To quit conversation

Hello Client , I have received your connection. And now I will assign a handler
for you
Congrats !!😊 You are first to connected with server.
Connecting...

Greetings! I am your connection handler And we are connected :)

-----
Please enter the message:

**NEW MESSAGE : Socket ID: 5 is Connected with Server !!

**NEW MESSAGE : Socket ID: 6 is Connected with Server !!
Hello Server!!! Socket-4 Here!!!
Please enter the message: SET
ENTER SOCKET ID TO COMMUNICATE:
```

```
hemang@hemang-VirtualBox: ~/Desktop
hemang@hemang-VirtualBox:~/Desktop$ ./client localhost 8080

*** Instructions ***

-> Initially You can send message to only server itself.
-> For Changing Reciver for ONE TO ONE Mode as you are Sender,
    - Type SET and hit ENTER, it will ask for socket ID,
    - enter socket Id to connect and again hit enter.
-> Now you can send message to socket with entered ID.
-> Similarly for BROADCAST Mode type "411" after typing SET and hitting ENTER
-> Type Q and hit Enter To quit conversation

Hello Client , I have received your connection. And now I will assign a handler
for you
Current Connected Sockets To Server: 4,
Connecting...

Greetings! I am your connection handler And we are connected :)

-----
Please enter the message:

**NEW MESSAGE : Socket ID: 6 is Connected with Server !!
```

```
hemang@hemang-VirtualBox: ~/Desktop
hemang@hemang-VirtualBox:~/Desktop$ g++ -pthread server.cpp -o server
hemang@hemang-VirtualBox:~/Desktop$ ./server 8080
Waiting for incoming connections...
-> Connection accepted for socket id: 4

-> Connection accepted for socket id: 5

-> Connection accepted for socket id: 6

Msg Transfer: 4 to 1 : Hello Server!!! Socket-4 Here!!!

Msg Transfer: 6 to 1 : Hello Server !! Good Morning !! BTW Socket-6 Here.

Msg Transfer: 4 to 1 : SET

-> READING SOCKET ID FOR CHANGING REVIVER OF ID 4 ....
Sender Id: 4 set to Receiver Id: 5
█
```

```
hemang@hemang-VirtualBox: ~/Desktop
hemang@hemang-VirtualBox:~/Desktop$ ./client localhost 8080

*** Instructions ***

-> Initially You can send message to only server itself.
-> For Changing Receiver for ONE TO ONE Mode as you are Sender,
    - Type SET and hit ENTER, it will ask for socket ID,
    - enter socket Id to connect and again hit enter.
-> Now you can send message to socket with entered ID.
-> Similarly for BROADCAST Mode type "411" after typing SET and hitting ENTER
-> Type Q and hit Enter To quit conversation

Hello Client , I have received your connection. And now I will assign a handler
for you
Current Connected Sockets To Server: 4, 5,
Connecting...

Greetings! I am your connection handler And we are connected :)

-----
Please enter the message: Hello Server !! Good Morning !! BTW Socket-6 Here.
Please enter the message: █
```

```
hemang@hemang-VirtualBox: ~/Desktop

- Type SET and hit ENTER, it will ask for socket ID,
- enter socket Id to connect and again hit enter.
-> Now you can send message to socket with entered ID.
-> Similarly for BROADCAST Mode type "411" after typing SET and hitting ENTER
-> Type Q and hit Enter To quit conversation

Hello Client , I have received your connection. And now I will assign a handler
for you
Congrats !! 😊 You are first to connected with server.
Connecting...

Greetings! I am your connection handler And we are connected :)

-----
Please enter the message:

**NEW MESSAGE : Socket ID: 5 is Connected with Server !!

**NEW MESSAGE : Socket ID: 6 is Connected with Server !!
Hello Server!!! Socket-4 Here!!!
Please enter the message: SET
ENTER SOCKET ID TO COMMUNICATE: 5
Please enter the message: █
```

```
hemang@hemang-VirtualBox: ~/Desktop

-> Initially You can send message to only server itself.
-> For Changing Receiver for ONE TO ONE Mode as you are Sender,
    - Type SET and hit ENTER, it will ask for socket ID,
    - enter socket Id to connect and again hit enter.
-> Now you can send message to socket with entered ID.
-> Similarly for BROADCAST Mode type "411" after typing SET and hitting ENTER
-> Type Q and hit Enter To quit conversation

Hello Client , I have received your connection. And now I will assign a handler
for you
Current Connected Sockets To Server: 4,
Connecting...

Greetings! I am your connection handler And we are connected :)

-----
Please enter the message:

**NEW MESSAGE : Socket ID: 6 is Connected with Server !!

**NEW MESSAGE : Socket 4 connected to you
█
```



```
hemang@hemang-VirtualBox: ~/Desktop
Waiting for incoming connections...
-> Connection accepted for socket id: 4
-> Connection accepted for socket id: 5
-> Connection accepted for socket id: 6

Msg Transfer: 4 to 1 : Hello Server!!! Socket-4 Here!!!

Msg Transfer: 6 to 1 : Hello Server !! Good Morning !! BTW Socket-6 Here.

Msg Transfer: 4 to 1 : SET

-> READING SOCKET ID FOR CHANGING REVIVER OF ID 4 ....
Sender Id: 4 set to Reciever Id: 5

Msg Transfer: 4 to 5 : Hello Socket 5, connect to me!

Msg Transfer: 5 to 1 : SET

-> READING SOCKET ID FOR CHANGING REVIVER OF ID 5 ....
Sender Id: 5 set to Reciever Id: 4
```

```
hemang@hemang-VirtualBox: ~/Desktop
-> Type Q and hit Enter To quit conversation

Hello Client , I have received your connection. And now I will assign a handler
for you
Congrats !! 😊 You are first to connected with server.
Connecting...

Greetings! I am your connection handler And we are connected :)

-----
Please enter the message:

**NEW MESSAGE : Socket ID: 5 is Connected with Server !!

**NEW MESSAGE : Socket ID: 6 is Connected with Server !!
Hello Server!!! Socket-4 Here!!!
Please enter the message: SET
ENTER SOCKET ID TO COMMUNICATE: 5
Please enter the message: Hello Socket 5, connect to me!
Please enter the message:

**NEW MESSAGE : Socket 5 connected to you
```

```
hemang@hemang-VirtualBox: ~/Desktop
hemang@hemang-VirtualBox:~/Desktop$ ./client localhost 8080

*** Instructions ***

-> Initially You can send message to only server itself.
-> For Changing Reciver for ONE TO ONE Mode as you are Sender,
    - Type SET and hit ENTER, it will ask for socket ID,
    - enter socket ID to connect and again hit enter.
-> Now you can send message to socket with entered ID.
-> Similarly for BROADCAST Mode type "411" after typing SET and hitting ENTER
-> Type Q and hit Enter To quit conversation

Hello Client , I have received your connection. And now I will assign a handler
for you
Current Connected Sockets To Server: 4, 5,
Connecting...

Greetings! I am your connection handler And we are connected :)

-----
Please enter the message: Hello Server !! Good Morning !! BTW Socket-6 Here.
Please enter the message:
```

```
hemang@hemang-VirtualBox: ~/Desktop
-> Similarly for BROADCAST Mode type "411" after typing SET and hitting ENTER
-> Type Q and hit Enter To quit conversation

Hello Client , I have received your connection. And now I will assign a handler
for you
Current Connected Sockets To Server: 4,
Connecting...

Greetings! I am your connection handler And we are connected :)

-----
Please enter the message:

**NEW MESSAGE : Socket ID: 6 is Connected with Server !!

**NEW MESSAGE : Socket 4 connected to you

**NEW MESSAGE : From: 4 :: Hello Socket 5, connect to me!

SET
ENTER SOCKET ID TO COMMUNICATE: 4
Please enter the message:
```



Communication between clients.

In next page client socket 4 and 5 are communicating.

We can see this messages are going through server.

Similarly if we have n clients, then they all can communicate with each other via server. This functionality is added in my code.

```
hemang@hemang-VirtualBox: ~/Desktop
-> Connection accepted for socket id: 6
Msg Transfer: 4 to 1 : Hello Server!!! Socket-4 Here!!!
Msg Transfer: 6 to 1 : Hello Server !! Good Morning !! BTW Socket-6 Here.
Msg Transfer: 4 to 1 : SET
-> READING SOCKET ID FOR CHANGING REVIVER OF ID 4 ....
Sender Id: 4 set to Reciever Id: 5
Msg Transfer: 4 to 5 : Hello Socket 5, connect to me!
Msg Transfer: 5 to 1 : SET
-> READING SOCKET ID FOR CHANGING REVIVER OF ID 5 ....
Sender Id: 5 set to Reciever Id: 4
Msg Transfer: 5 to 4 : Hello bro, How are You there ?
Msg Transfer: 4 to 5 : Heyyy !! I'm absolutely fine here.
```

```
hemang@hemang-VirtualBox: ~/Desktop
hemang@hemang-VirtualBox:~/Desktop$ ./client localhost 8080
*** Instructions ***
-> Initlaly You can send message to only server itself.
-> For Changing Reciever for ONE TO ONE Mode as you are Sender,
    - Type SET and hit ENTER, it will ask for socket ID,
    - enter socket ID to connect and again hit enter.
-> Now you can send message to socket with entered ID.
-> Similarly for BROADCAST Mode type "411" after typing SET and hitting ENTER
-> Type Q and hit Enter To quit conversation

Hello Client , I have received your connection. And now I will assign a handler
for you
Current Connected Sockets To Server: 4, 5,
Connecting...

Greetings! I am your connection handler And we are connected :)
-----
Please enter the message: Hello Server !! Good Morning !! BTW Socket-6 Here.
Please enter the message:
```

```
hemang@hemang-VirtualBox: ~/Desktop
Connecting...
Greetings! I am your connection handler And we are connected :)
-----
Please enter the message:

**NEW MESSAGE : Socket ID: 5 is Connected with Server !!

**NEW MESSAGE : Socket ID: 6 is Connected with Server !!
Hello Server!!! Socket-4 Here!!!
Please enter the message: SET
ENTER SOCKET ID TO COMMUNICATE: 5
Please enter the message: Hello Socket 5, connect to me!
Please enter the message:

**NEW MESSAGE : Socket 5 connected to you

**NEW MESSAGE : From: 5 :: Hello bro, How are You there ?

Heyyy !! I'm absolutely fine here.
Please enter the message:
```

```
hemang@hemang-VirtualBox: ~/Desktop
Current Connected Sockets To Server: 4,
Connecting...
Greetings! I am your connection handler And we are connected :)
-----
Please enter the message:

**NEW MESSAGE : Socket ID: 6 is Connected with Server !!

**NEW MESSAGE : Socket 4 connected to you

**NEW MESSAGE : From: 4 :: Hello Socket 5, connect to me!

SET
ENTER SOCKET ID TO COMMUNICATE: 4
Please enter the message: Hello bro, How are You there ?
Please enter the message:

**NEW MESSAGE : From: 4 :: Heyyy !! I'm absolutely fine here.
```



How to send broadcast messages.

Whichever client want to send broadcast message, in that client type “SET” and hit enter. Now type “411” specific code when is asks for socket id to send broadcast messages and hit enter.

Here ‘4’ stands for ‘A’ and ‘1’ stands for ‘L’, so not other logic behind it, so here ‘411’ means ‘ALL’.

Now whatever message you will sent it will go to all other connected clients. Any number of clients can broadcast simultaneously. This functionality is added in my code.

In next 3 pages client socket with id 6 set to broadcast mode and sending messages to all other sockets through server.


```

hemang@hemang-VirtualBox: ~/Desktop
Msg Transfer: 4 to 1 : SET
-> READING SOCKET ID FOR CHANGING REVIVER OF ID 4 ....
Sender Id: 4 set to Reciever Id: 5
Msg Transfer: 4 to 5 : Hello Socket 5, connect to me!
Msg Transfer: 5 to 1 : SET
-> READING SOCKET ID FOR CHANGING REVIVER OF ID 5 ....
Sender Id: 5 set to Reciever Id: 4
Msg Transfer: 5 to 4 : Hello bro, How are You there ?
Msg Transfer: 4 to 5 : Heyyy !! I'm absolutely fine here.
Msg Transfer: 6 to 1 : I'm setting up to broadcast mode now/
Msg Transfer: 6 to 1 : SET
-> READING SOCKET ID FOR CHANGING REVIVER OF ID 6 ....
Sender Id: 6 set to Reciever Id: 411

```

```

hemang@hemang-VirtualBox: ~/Desktop
Connecting...
Greetings! I am your connection handler And we are connected :)
-----
Please enter the message:
**NEW MESSAGE : Socket ID: 5 is Connected with Server !!
**NEW MESSAGE : Socket ID: 6 is Connected with Server !!
Hello Server!!! Socket-4 Here!!!
Please enter the message: SET
ENTER SOCKET ID TO COMMUNICATE: 5
Please enter the message: Hello Socket 5, connect to me!
Please enter the message:
**NEW MESSAGE : Socket 5 connected to you
**NEW MESSAGE : From: 5 :: Hello bro, How are You there ?
Heyyy !! I'm absolutely fine here.
Please enter the message:

```

```

hemang@hemang-VirtualBox: ~/Desktop
*** Instructions ***
-> Initially You can send message to only server itself.
-> For Changing Reciver for ONE TO ONE Mode as you are Sender,
    - Type SET and hit ENTER, it will ask for socket ID,
    - enter socket ID to connect and again hit enter.
-> Now you can send message to socket with entered ID.
-> Similarly for BROADCAST Mode type "411" after typing SET and hitting ENTER
-> Type Q and hit Enter To quit conversation

Hello Client , I have received your connection. And now I will assign a handler
for you
Current Connected Sockets To Server: 4, 5,
Connecting...

Greetings! I am your connection handler And we are connected :)
-----
Please enter the message: Hello Server !! Good Morning !! BTW Socket-6 Here.
Please enter the message: I'm setting up to broadcast mode now/
Please enter the message: SET
ENTER SOCKET ID TO COMMUNICATE: 411
Please enter the message:

```

```

hemang@hemang-VirtualBox: ~/Desktop
Current Connected Sockets To Server: 4,
Connecting...
Greetings! I am your connection handler And we are connected :)
-----
Please enter the message:
**NEW MESSAGE : Socket ID: 6 is Connected with Server !!
**NEW MESSAGE : Socket 4 connected to you
**NEW MESSAGE : From: 4 :: Hello Socket 5, connect to me!
SET
ENTER SOCKET ID TO COMMUNICATE: 4
Please enter the message: Hello bro, How are You there ?
Please enter the message:
**NEW MESSAGE : From: 4 :: Heyyy !! I'm absolutely fine here.

```

```

hemang@hemang-VirtualBox: ~/Desktop
-> READING SOCKET ID FOR CHANGING REVIVER OF ID 4 ....
Sender Id: 4 set to Reciever Id: 5

Msg Transfer: 4 to 5 : Hello Socket 5, connect to me!

Msg Transfer: 5 to 1 : SET

-> READING SOCKET ID FOR CHANGING REVIVER OF ID 5 ....
Sender Id: 5 set to Reciever Id: 4

Msg Transfer: 5 to 4 : Hello bro, How are You there ?

Msg Transfer: 4 to 5 : Heyyy !! I'm absolutely fine here.

Msg Transfer: 6 to 1 : I'm setting up to broadcast mode now/

Msg Transfer: 6 to 1 : SET

-> READING SOCKET ID FOR CHANGING REVIVER OF ID 6 ....
Sender Id: 6 set to Reciever Id: 411

Msg Transfer: 6 to 411 : Hello Guys !! Hope you'll doing good.

```

```

hemang@hemang-VirtualBox: ~/Desktop
-----
Please enter the message:

**NEW MESSAGE : Socket ID: 5 is Connected with Server !!

**NEW MESSAGE : Socket ID: 6 is Connected with Server !!
Hello Server!!! Socket-4 Here!!!
Please enter the message: SET
ENTER SOCKET ID TO COMMUNICATE: 5
Please enter the message: Hello Socket 5, connect to me!
Please enter the message:

**NEW MESSAGE : Socket 5 connected to you

**NEW MESSAGE : From: 5 :: Hello bro, How are You there ?

Heyyy !! I'm absolutely fine here.
Please enter the message:

**NEW MESSAGE : From: 6 :: Hello Guys !! Hope you'll doing good.

```

```

hemang@hemang-VirtualBox: ~/Desktop
*** Instructions ***

-> Initially You can send message to only server itself.
-> For Changing Reciver for ONE TO ONE Mode as you are Sender,
    - Type SET and hit ENTER, it will ask for socket ID,
    - enter socket Id to connect and again hit enter.
-> Now you can send message to socket with entered ID.
-> Similarly for BROADCAST Mode type "411" after typing SET and hitting ENTER
-> Type Q and hit Enter To quit conversation

Hello Client , I have received your connection. And now I will assign a handler
for you
Current Connected Sockets To Server: 4, 5,
Connecting...

Greetings! I am your connection handler And we are connected :)

-----
Please enter the message: Hello Server !! Good Morning !! BTW Socket-6 Here.
Please enter the message: I'm setting up to broadcast mode now/
Please enter the message: SET
ENTER SOCKET ID TO COMMUNICATE: 411
Please enter the message: Hello Guys !! Hope you'll doing good.
Please enter the message:

```

```

hemang@hemang-VirtualBox: ~/Desktop
-----
Please enter the message:

**NEW MESSAGE : Socket ID: 6 is Connected with Server !!

**NEW MESSAGE : Socket 4 connected to you

**NEW MESSAGE : From: 4 :: Hello Socket 5, connect to me!

SET
ENTER SOCKET ID TO COMMUNICATE: 4
Please enter the message: Hello bro, How are You there ?
Please enter the message:

**NEW MESSAGE : From: 4 :: Heyyy !! I'm absolutely fine here.

**NEW MESSAGE : From: 6 :: Hello Guys !! Hope you'll doing good.

```

```

hemang@hemang-VirtualBox: ~/Desktop
Msg Transfer: 4 to 5 : Hello Socket 5, connect to me!
Msg Transfer: 5 to 1 : SET
    -> READING SOCKET ID FOR CHANGING REVIVER OF ID 5 ....
Sender Id: 5 set to Reciever Id: 4
Msg Transfer: 5 to 4 : Hello bro, How are You there ?
Msg Transfer: 4 to 5 : Heyyy !! I'm absolutely fine here.
Msg Transfer: 6 to 1 : I'm setting up to broadcast mode now/
Msg Transfer: 6 to 1 : SET
    -> READING SOCKET ID FOR CHANGING REVIVER OF ID 6 ....
Sender Id: 6 set to Reciever Id: 411
Msg Transfer: 6 to 411 : Hello Guys !! Hope you'll doing good.
Msg Transfer: 6 to 411 : Keep chatting, enjoy the day :)

```

```

hemang@hemang-VirtualBox: ~/Desktop
**NEW MESSAGE : Socket ID: 6 is Connected with Server !!
Hello Server!!! Socket-4 Here!!!
Please enter the message: SET
ENTER SOCKET ID TO COMMUNICATE: 5
Please enter the message: Hello Socket 5, connect to me!
Please enter the message:

**NEW MESSAGE : Socket 5 connected to you

**NEW MESSAGE : From: 5 :: Hello bro, How are You there ?

Heyyy !! I'm absolutely fine here.
Please enter the message:

**NEW MESSAGE : From: 6 :: Hello Guys !! Hope you'll doing good.

**NEW MESSAGE : From: 6 :: Keep chatting, enjoy the day :)

```

```

hemang@hemang-VirtualBox: ~/Desktop
-> Initially You can send message to only server itself.
-> For Changing Reciver for ONE TO ONE Mode as you are Sender,
    - Type SET and hit ENTER, it will ask for socket ID,
    - enter socket Id to connect and again hit enter.
-> Now you can send message to socket with entered ID.
-> Similarly for BROADCAST Mode type "411" after typing SET and hitting ENTER
-> Type Q and hit Enter To quit conversation

Hello Client , I have received your connection. And now I will assign a handler
for you
Current Connected Sockets To Server: 4, 5,
Connecting...

Greetings! I am your connection handler And we are connected :)

-----
Please enter the message: Hello Server !! Good Morning !! BTW Socket-6 Here.
Please enter the message: I'm setting up to broadcast mode now/
Please enter the message: SET
ENTER SOCKET ID TO COMMUNICATE: 411
Please enter the message: Hello Guys !! Hope you'll doing good.
Please enter the message: Keep chatting, enjoy the day :)
Please enter the message:

```

```

hemang@hemang-VirtualBox: ~/Desktop
**NEW MESSAGE : Socket ID: 6 is Connected with Server !!

**NEW MESSAGE : Socket 4 connected to you

**NEW MESSAGE : From: 4 :: Hello Socket 5, connect to me!

SET
ENTER SOCKET ID TO COMMUNICATE: 4
Please enter the message: Hello bro, How are You there ?
Please enter the message:

**NEW MESSAGE : From: 4 :: Heyyy !! I'm absolutely fine here.

**NEW MESSAGE : From: 6 :: Hello Guys !! Hope you'll doing good.

**NEW MESSAGE : From: 6 :: Keep chatting, enjoy the day :)

```



How to terminate client.

We can simply type 'Q' and hit enter to terminate client.

Or Press CTRL+C.

Or Close terminal directly.

When any client disconnects server will Free that socket, and will display message "Free Socket".

Here in next page client socket id 6 disconnected after entering 'Q'.

```
hemang@hemang-VirtualBox: ~/Desktop
-> READING SOCKET ID FOR CHANGING REVIVER OF ID 5 ....
Sender Id: 5 set to Reciever Id: 4

Msg Transfer: 5 to 4 : Hello bro, How are You there ?

Msg Transfer: 4 to 5 : Heyyy !! I'm absolutely fine here.

Msg Transfer: 6 to 1 : I'm setting up to broadcast mode now/

Msg Transfer: 6 to 1 : SET

-> READING SOCKET ID FOR CHANGING REVIVER OF ID 6 ....
Sender Id: 6 set to Reciever Id: 411

Msg Transfer: 6 to 411 : Hello Guys !! Hope you'll doing good.

Msg Transfer: 6 to 411 : Keep chatting, enjoy the day :)

Msg Transfer: 6 to 411 : Ok Bye Guys.

Msg Transfer: 6 to 411 : Q

FREE SOCKET
```

```
hemang@hemang-VirtualBox: ~/Desktop
Please enter the message: SET
ENTER SOCKET ID TO COMMUNICATE: 5
Please enter the message: Hello Socket 5, connect to me!
Please enter the message:

**NEW MESSAGE : Socket 5 connected to you

**NEW MESSAGE : From: 5 :: Hello bro, How are You there ?

Heyyy !! I'm absolutely fine here.
Please enter the message:

**NEW MESSAGE : From: 6 :: Hello Guys !! Hope you'll doing good.

**NEW MESSAGE : From: 6 :: Keep chatting, enjoy the day :)

**NEW MESSAGE : From: 6 :: Ok Bye Guys.
```

```
hemang@hemang-VirtualBox: ~/Desktop

**NEW MESSAGE : From: 4 :: Hello Socket 5, connect to me!

SET
ENTER SOCKET ID TO COMMUNICATE: 4
Please enter the message: Hello bro, How are You there ?
Please enter the message:

**NEW MESSAGE : From: 4 :: Heyyy !! I'm absolutely fine here.

**NEW MESSAGE : From: 6 :: Hello Guys !! Hope you'll doing good.

**NEW MESSAGE : From: 6 :: Keep chatting, enjoy the day :)

**NEW MESSAGE : From: 6 :: Ok Bye Guys.
```




What if server disconnects ?

We can close server by just pressing CTRL+C or closing terminal directly.


By doing this all connected clients will also terminate itself because they can't connect without server anymore.

And at the moment server disconnects, Client terminal shows message "SERVER CLOSED !!" and stop running program anymore.

Here in next 2 pages this is shown. I have closed server terminal directly by clicking on 

That's all. We can play again like this with server and clients, by running them again.


```
hemang@hemang-VirtualBox: ~/Desktop
Msg Transfer: 6 to 1 : I'm setting up to broadcast mode now/
Msg Transfer: 6 to 1 : SET
-> READING SOCKET ID FOR CHANGING REVIVER OF ID 6 ....
Send
Msg T
Msg T
Msg T
Msg T
FREE SOCKET
Msg Transfer: 5 to 4 : Heyy Bro what if Server itself disconnect ?
Msg Transfer: 4 to 5 : We should automatically disconnect from it.
Msg Transfer: 5 to 4 : Ok Lets see
```



Close this terminal?
There is still a process running in this terminal. Closing the terminal will kill it.

Cancel

Close Terminal

```
hemang@hemang-VirtualBox: ~/Desktop
Heyyy !! I'm absolutely fine here.
Please enter the message:
**NEW MESSAGE : From: 6 :: Hello Guys !! Hope you'll doing good.
**NEW MESSAGE : From: 6 :: Keep chatting, enjoy the day :)
**NEW MESSAGE : From: 6 :: Ok Bye Guys.
**NEW MESSAGE : From: 5 :: Heyy Bro what if Server itself disconnect ?
We should automatically disconnect from it.
Please enter the message:
**NEW MESSAGE : From: 5 :: Ok Lets see
```

```
hemang@hemang-VirtualBox: ~/Desktop
Please enter the message: Hello bro, How are You there ?
Please enter the message:
**NEW MESSAGE : From: 4 :: Heyyy !! I'm absolutely fine here.
**NEW MESSAGE : From: 6 :: Hello Guys !! Hope you'll doing good.
**NEW MESSAGE : From: 6 :: Keep chatting, enjoy the day :)
**NEW MESSAGE : From: 6 :: Ok Bye Guys.
Heyy Bro what if Server itself disconnect ?
Please enter the message:
**NEW MESSAGE : From: 4 :: We should automatically disconnect from it.
Ok Lets see
Please enter the message:
```



```
hemang@hemang-VirtualBox: ~/Desktop
Heyyy !! I'm absolutely fine here.
Please enter the message:

**NEW MESSAGE : From: 6 :: Hello Guys !! Hope you'll doing good.

**NEW MESSAGE : From: 6 :: Keep chatting, enjoy the day :)

**NEW MESSAGE : From: 6 :: Ok Bye Guys.

**NEW MESSAGE : From: 5 :: Heyy Bro what if Server itself disconnect ?
We should automatically disconnect from it.
Please enter the message:

**NEW MESSAGE : From: 5 :: Ok Lets see

SERVER CLOSED !!! ⚠️
hemang@hemang-VirtualBox:~/Desktop$
```

```
hemang@hemang-VirtualBox: ~/Desktop
Please enter the message:

**NEW MESSAGE : From: 4 :: Heyyy !! I'm absolutely fine here.

**NEW MESSAGE : From: 6 :: Hello Guys !! Hope you'll doing good.

**NEW MESSAGE : From: 6 :: Keep chatting, enjoy the day :)

**NEW MESSAGE : From: 6 :: Ok Bye Guys.

Heyy Bro what if Server itself disconnect ?
Please enter the message:

**NEW MESSAGE : From: 4 :: We should automatically disconnect from it.

Ok Lets see
Please enter the message: SERVER CLOSED !!! ⚠️
hemang@hemang-VirtualBox:~/Desktop$
```