Lab 7: TCP server accepting multiple client

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Compile and Run

Compilation

```
gcc ./server/server.c -o ./server/server.out
gcc ./client/client.c -o ./client/client.out
```

OR

```
make build
```

Start the server first

```
./server.out 4444
```

OR

```
make server
```

Then start the clients

```
./client.out 127.0.0.1 4444
```
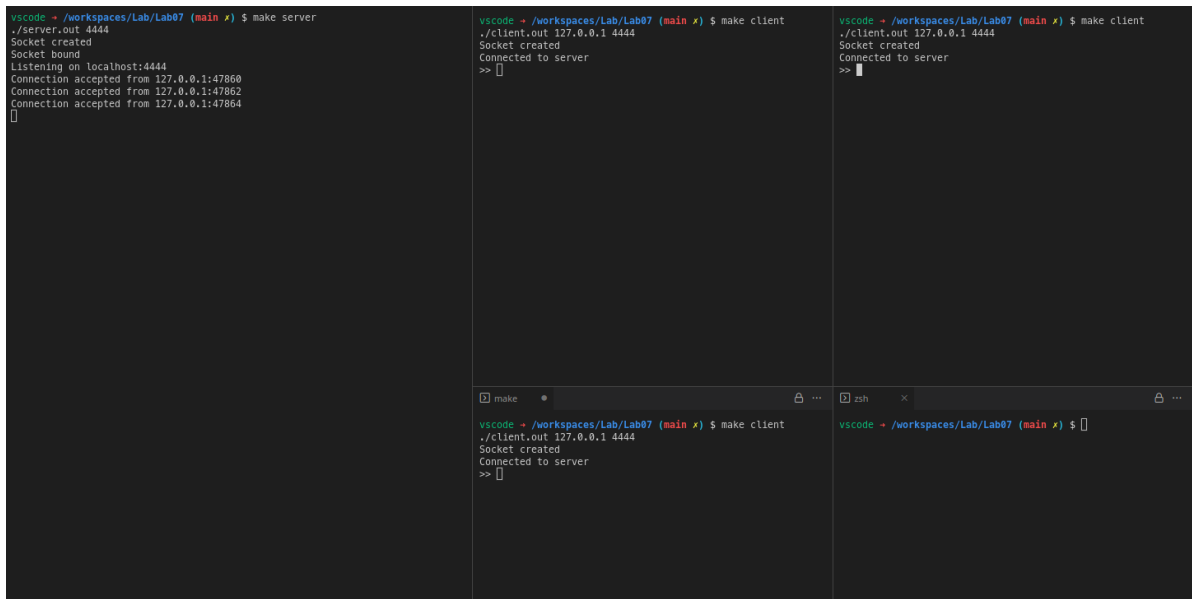
OR

```
make client
```

Screenshots

1. The Server as a command line argument accepts the port number to which it should bind.


```
vscode → /workspaces/Lab/Lab07 (main x) $ ./server.out 4444
Socket created
Socket bound
Listening on localhost:4444
```

2. The client, as command line arguments, accepts the IP address and the port number at which it will find the server.


```
vscode → /workspaces/Lab/Lab07 (main x) $ ./client.out 127.0.0.1 4444
Socket created
Connected to server
>> 
```

2. Start 3 separate instances of the client.

3. After connecting to the server, each client reads a line from the standard input and sends it to the server.

```
vscode → /workspaces/Lab/Lab07 (main ✗) $ make server
./server.out 4444
Socket created
Socket bound
Listening on localhost:4444
Connection accepted from 127.0.0.1:47860
Connection accepted from 127.0.0.1:47862
Connection accepted from 127.0.0.1:47864
C: hello123
321olleh
FROM 127.0.0.1:47860
>> []
```

```
vscode → /workspaces/Lab/Lab07 (main ✗) $ make client
./client.out 127.0.0.1 4444
Socket created
Connected to server
>> hello123
C: hello123
█
```

```
vscode → /workspaces/Lab/Lab07 (main ✗) $ make client
./client.out 127.0.0.1 4444
Socket created
Connected to server
>> []
```

```
make    ●
```

```
zsh    ×
```

```
vscode → /workspaces/Lab/Lab07 (main ✗) $ make client
./client.out 127.0.0.1 4444
Socket created
Connected to server
>> []
```

```
vscode → /workspaces/Lab/Lab07 (main ✗) $ []
```

4. The server prints the received line in reverser order along with IP address and port number from which it received the message.

```
vscode → /workspaces/Lab/Lab07 (main ✗) $ make server
./server.out 4444
Socket created
Socket bound
Listening on localhost:4444
Connection accepted from 127.0.0.1:47860
Connection accepted from 127.0.0.1:47862
Connection accepted from 127.0.0.1:47864
C: hello123
321olleh
FROM 127.0.0.1:47860
C: hello456
654olleh
FROM 127.0.0.1:47864
C: hello456
654olleh
FROM 127.0.0.1:47862
>> []
```

```
vscode → /workspaces/Lab/Lab07 (main ✗) $ make client
./client.out 127.0.0.1 4444
Socket created
Connected to server
>> hello123
C: hello123
[]
```

```
vscode → /workspaces/Lab/Lab07 (main ✗) $ make client
./client.out 127.0.0.1 4444
Socket created
Connected to server
>> hello456
C: hello456
[]
```

```
make    ●
```

```
zsh    ×
```

```
vscode → /workspaces/Lab/Lab07 (main ✗) $ make client
./client.out 127.0.0.1 4444
Socket created
Connected to server
>> hello456
C: hello456
█
```

```
vscode → /workspaces/Lab/Lab07 (main ✗) $ []
```

4. The server then reads a line from standard input and sends it to all the clients.

5. The client prints the received line in reverse order and are ready to accept a new line from the user.

6. The client exits if the user types "exit".

7. The server at a time accepts utmost 4 clients.