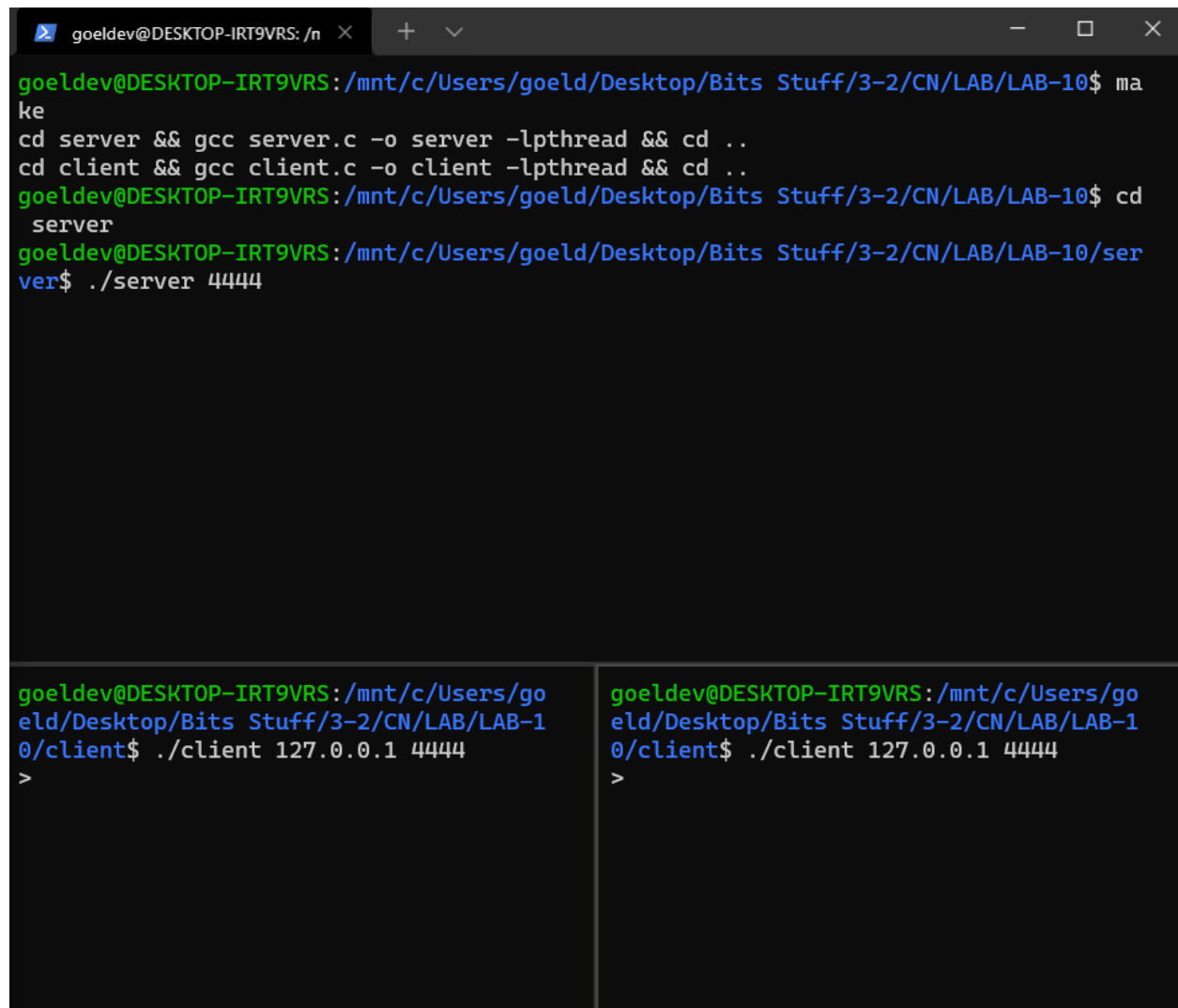


LAB 10 - TCP Client and Server Chat Application

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THIS DOCUMENT DISCUSSES EACH CASE IN DETAIL RELATED TO THE CLIENT-SERVER COMMUNICATION

In the below screenshot, the server runs successfully, and both the clients are connected to the server.



```
goeldev@DESKTOP-IRT9VRS: /mnt/c/Users/goeld/Desktop/Bits Stuff/3-2/CN/LAB/LAB-10$ make
cd server && gcc server.c -o server -lpthread && cd ..
cd client && gcc client.c -o client -lpthread && cd ..
goeldev@DESKTOP-IRT9VRS: /mnt/c/Users/goeld/Desktop/Bits Stuff/3-2/CN/LAB/LAB-10$ cd server
goeldev@DESKTOP-IRT9VRS: /mnt/c/Users/goeld/Desktop/Bits Stuff/3-2/CN/LAB/LAB-10/server$ ./server 4444

goeldev@DESKTOP-IRT9VRS: /mnt/c/Users/goeld/Desktop/Bits Stuff/3-2/CN/LAB/LAB-10/client$ ./client 127.0.0.1 4444
>

goeldev@DESKTOP-IRT9VRS: /mnt/c/Users/goeld/Desktop/Bits Stuff/3-2/CN/LAB/LAB-10/client$ ./client 127.0.0.1 4444
>
```

We send a message from our first client, which is displayed in the server terminal and the 2nd client's terminal.

```
goeldev@DESKTOP-IRT9VRS: /mnt/c/Users/goeld/Desktop/Bits Stuff/3-2/CN/LAB/LAB-10$ make
cd server && gcc server.c -o server -lpthread && cd ..
cd client && gcc client.c -o client -lpthread && cd ..
goeldev@DESKTOP-IRT9VRS: /mnt/c/Users/goeld/Desktop/Bits Stuff/3-2/CN/LAB/LAB-10$ cd server
goeldev@DESKTOP-IRT9VRS: /mnt/c/Users/goeld/Desktop/Bits Stuff/3-2/CN/LAB/LAB-10/server$ ./server 4444

Hello from client 1
IP and Port - MESSAGE SENT TO 127.0.0.1:1247


goeldev@DESKTOP-IRT9VRS: /mnt/c/Users/goeld/Desktop/Bits Stuff/3-2/CN/LAB/LAB-10/client$ ./client 127.0.0.1 4444
> Hello from client 1
> |

goeldev@DESKTOP-IRT9VRS: /mnt/c/Users/goeld/Desktop/Bits Stuff/3-2/CN/LAB/LAB-10/client$ ./client 127.0.0.1 4444
>
Hello from client 1
>
```

We send a message from our second client, which is displayed in the server terminal and the 1st client's terminal.

```
goeldev@DESKTOP-IRT9VRS: /n X + v - □ X
goeldev@DESKTOP-IRT9VRS:/mnt/c/Users/goeld/Desktop/Bits Stuff/3-2/CN/LAB/LAB-10$ make
cd server && gcc server.c -o server -lpthread && cd ..
cd client && gcc client.c -o client -lpthread && cd ..
goeldev@DESKTOP-IRT9VRS:/mnt/c/Users/goeld/Desktop/Bits Stuff/3-2/CN/LAB/LAB-10$ cd server
goeldev@DESKTOP-IRT9VRS:/mnt/c/Users/goeld/Desktop/Bits Stuff/3-2/CN/LAB/LAB-10/server$ ./server 4444

Hello from client 1
IP and Port - MESSAGE SENT TO 127.0.0.1:1247

Hello from client 2
IP and Port - MESSAGE SENT TO 127.0.0.1:735

goeldev@DESKTOP-IRT9VRS:/mnt/c/Users/goeld/Desktop/Bits Stuff/3-2/CN/LAB/LAB-10/client$ ./client 127.0.0.1 4444
> Hello from client 1
>
Hello from client 2
>

goeldev@DESKTOP-IRT9VRS:/mnt/c/Users/goeld/Desktop/Bits Stuff/3-2/CN/LAB/LAB-10/client$ ./client 127.0.0.1 4444
>
Hello from client 1
> Hello from client 2
> |
```

On typing 'EXIT' in any of the terminals, both the clients exit, while the server keeps on running to accept a new pair of clients.

```
goeldev@DESKTOP-IRT9VRS: /n x + v - □ ×
ke
cd server && gcc server.c -o server -lpthread && cd ..
cd client && gcc client.c -o client -lpthread && cd ..
goeldev@DESKTOP-IRT9VRS:/mnt/c/Users/goeld/Desktop/Bits Stuff/3-2/CN/LAB/LAB-10$ cd
server
goeldev@DESKTOP-IRT9VRS:/mnt/c/Users/goeld/Desktop/Bits Stuff/3-2/CN/LAB/LAB-10/ser
ver$ ./server 4444

Hello from client 1
IP and Port - MESSAGE SENT TO 127.0.0.1:1247

Hello from client 2
IP and Port - MESSAGE SENT TO 127.0.0.1:735

EXIT
IP and Port - MESSAGE SENT TO 127.0.0.1:1247

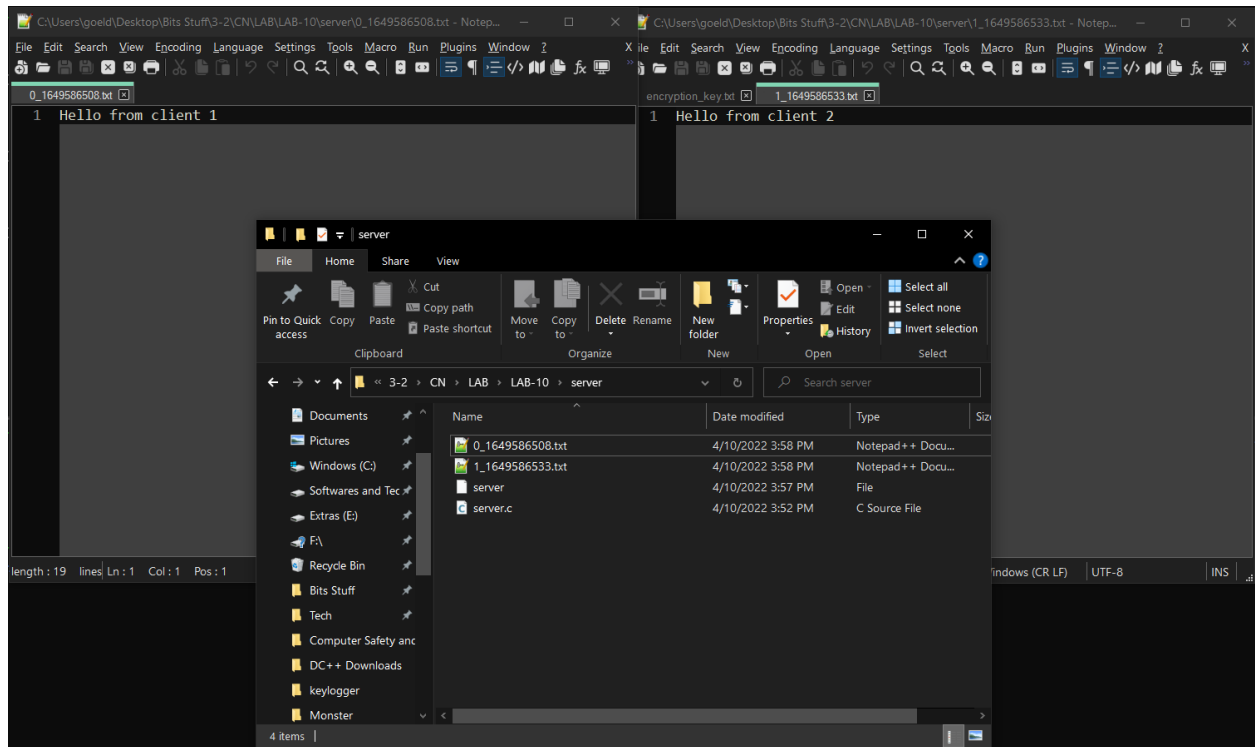
goeldev@DESKTOP-IRT9VRS:/mnt/c/Users/go
eld/Desktop/Bits Stuff/3-2/CN/LAB/LAB-1
0/client$ ./client 127.0.0.1 4444
> Hello from client 1
>
Hello from client 2
> EXIT

Terminating...
goeldev@DESKTOP-IRT9VRS:/mnt/c/Users/go
eld/Desktop/Bits Stuff/3-2/CN/LAB/LAB-1
0/client$ |

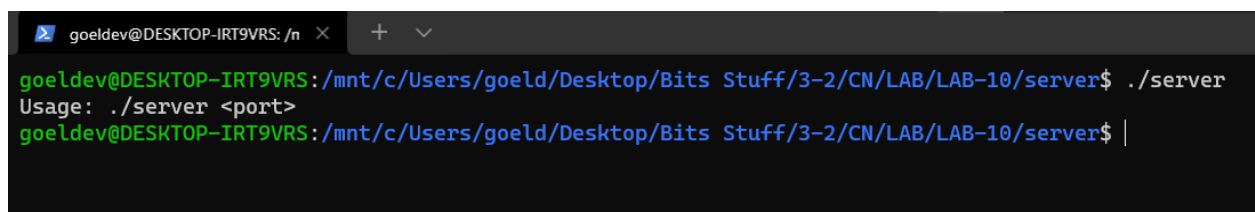
goeldev@DESKTOP-IRT9VRS:/mnt/c/Users/go
eld/Desktop/Bits Stuff/3-2/CN/LAB/LAB-1
0/client$ ./client 127.0.0.1 4444
>
Hello from client 1
> Hello from client 2
>
EXIT

Terminating...
goeldev@DESKTOP-IRT9VRS:/mnt/c/Users/go
eld/Desktop/Bits Stuff/3-2/CN/LAB/LAB-1
0/client$
```

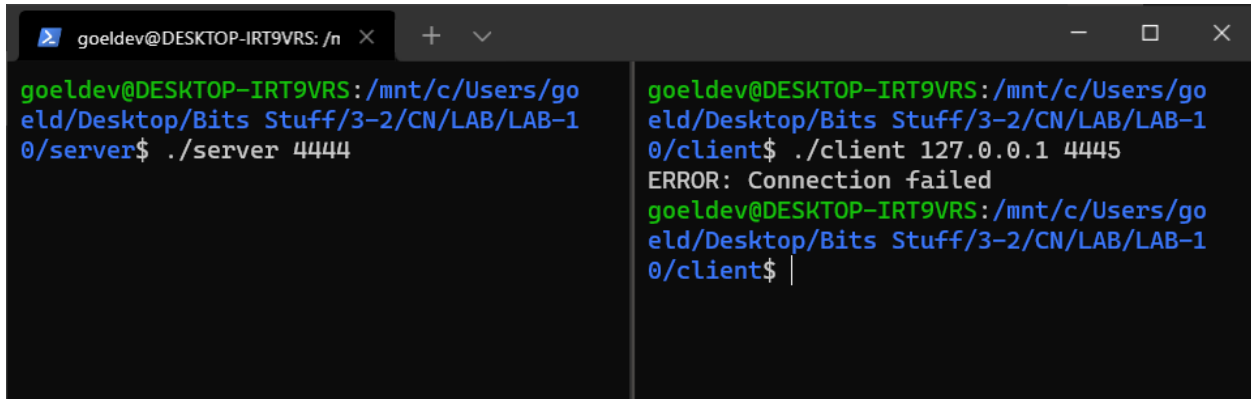
For all communication between the clients, text files are created in the server folder, which contain the messages exchanged between these clients.



In case we do not specify the correct arguments to the server, it exits with an appropriate error message.



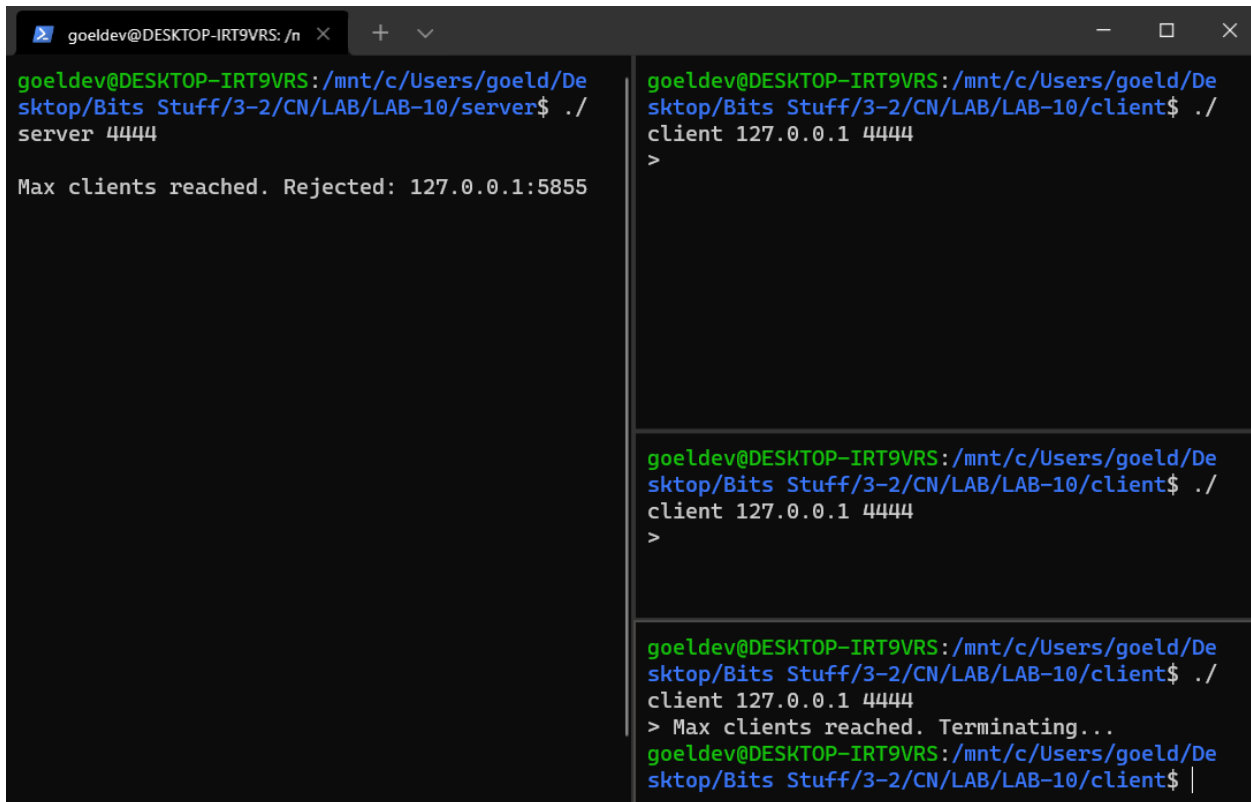
In case we supply the wrong port or address to the clients, they exit with an appropriate error message.



```
goeldev@DESKTOP-IRT9VRS: /mnt/c/Users/goeldev/Desktop/Bits Stuff/3-2/CN/LAB/LAB-10/server$ ./server 4444

goeldev@DESKTOP-IRT9VRS: /mnt/c/Users/goeldev/Desktop/Bits Stuff/3-2/CN/LAB/LAB-10/client$ ./client 127.0.0.1 4445
ERROR: Connection failed
goeldev@DESKTOP-IRT9VRS: /mnt/c/Users/goeldev/Desktop/Bits Stuff/3-2/CN/LAB/LAB-10/client$ |
```

In case more than two clients try to connect to the server, the server rejects the connection and the client socket closes.



```
goeldev@DESKTOP-IRT9VRS: /mnt/c/Users/goeldev/Desktop/Bits Stuff/3-2/CN/LAB/LAB-10/server$ ./server 4444

Max clients reached. Rejected: 127.0.0.1:5855

goeldev@DESKTOP-IRT9VRS: /mnt/c/Users/goeldev/Desktop/Bits Stuff/3-2/CN/LAB/LAB-10/client$ ./client 127.0.0.1 4444
>

goeldev@DESKTOP-IRT9VRS: /mnt/c/Users/goeldev/Desktop/Bits Stuff/3-2/CN/LAB/LAB-10/client$ ./client 127.0.0.1 4444
>

goeldev@DESKTOP-IRT9VRS: /mnt/c/Users/goeldev/Desktop/Bits Stuff/3-2/CN/LAB/LAB-10/client$ ./client 127.0.0.1 4444
> Max clients reached. Terminating...
goeldev@DESKTOP-IRT9VRS: /mnt/c/Users/goeldev/Desktop/Bits Stuff/3-2/CN/LAB/LAB-10/client$ |
```