Compilation

```
$ make
```

Notes on code execution

File Structure

- a.out is a sample file to transfer. It's and executable for a "Hello" prining programme.
- scriptfile and script_log are for replaying the server code
- Client executaion is seen in readme.pdf as text and screenshot.

```
├── a.out
├── client
│   └── client.c
├── makefile
├── readme.md
├── readme.pdf
├── scriptfile
├── script_log
└── server.c
```

In one terminal, execute the server code by:

Server

```
$ ./s 4444
# format ./s [port no]
```

The server will now prompt the user to enter an interface number from the oprions displayed. Please type the required integer, and press enter.

Client

For each client, open a new terminal, and run:

```
$ cd ./client
$ ./c 127.0.0.1 4444
# format ./c [server ip] [server port no]
```

The client will now prompt the user for a filename. Please type a valid filename and press enter. Type `quit` to exit.

Replay demo

For best results, please run when terminal is >= 94 characters wide. This will replay the demo in real time. The replay will show an execution of the server code for about 2 minutes.

```
$ scriptreplay --timing=script_log scriptfile
```

For the 6 instances of clients tested, execution is seen in the screenshot below:

- Requested the server.c file

```
❯ ./c 10.4.19.67 4444
# Connection established! type msg after the prompt 'C>'
C>server.c
Scanned: server.c
Reading file in 7184 chunks
File perms: 664
C>quit
Scanned: quit
# exiting
```

- Requested an executable, a.out. We can see that the file successfuly runs

```
❯ ./c 10.4.19.67 4444
# Connection established! type msg after the prompt 'C>'
C>a.out
Scanned: a.out
Reading file in 16696 chunks
File perms: 775
C>quit
Scanned: quit
# exiting
❯ ./a.out
Hello!
```

- Joined and quit

```
❯ ./c 10.4.19.67 4444
# Connection established! type msg after the prompt 'C>'
C>quit
```

```
Scanned: quit
# exiting
```

- Joined and quit

```
❯ ./c 10.4.19.67 4444
# Connection established! type msg after the prompt 'C>'
C>quit
Scanned: quit
# exiting
```

- Joined and quit

```
❯ ./c 10.4.19.67 4444
# Connection established! type msg after the prompt 'C>'
C>quit
Scanned: quit
# exiting
```

- Extra client, only able to join if someone above quit
- Requests the server executable
- We can see that the large executable file s successfully executs.

```
❯ ./c 10.4.19.67 4444
# Server refused connection
❯ ./c 10.4.19.67 4444
# Connection established! type msg after the prompt 'C>'
C>s
Scanned: s
Reading file in 22664 chunks
File perms: 775
C>quit
Scanned: quit
# exiting
❯ ./s 4445
[info] Interface no. 0 : lo     address: 127.0.0.1
[info] Interface no. 1 : enp3s0 address: 10.4.19.67
[info] Interface no. 2 : virbr0 address: 192.168.122.1
[action] please type the interface number you wish to use:
```

client:zsh — Konsole

```
          client:zsh        Close terminal          client:zsh       Close terminal                 assign-4:zsh                                          Close terminal
> ./c 10.4.19.67 4444                      > ./c 10.4.19.67 4444                   [info] file perms: 664
# Connection established! type msg after the p   # Connection established! type msg after the p   [info] 7184 chunks      [info] waiting for msg from tid #20572
rompt 'C>'                                 rompt 'C>'                              [info] rcvd_client, client fd: 5
C>server.c                                 C>a.out                                 [info] checking if lim of 5 reached, current count is 1
Scanned: server.c                          Scanned: a.out                          [info] waiting for new client, current count: 2
Reading file in 7184 chunks                Reading file in 16696 chunks               [info] waiting for msg from tid #20610
File perms: 664                            File perms: 775                         [info] rcvd_client, client fd: 6
C>quit                                     C>quit                                  [info] checking if lim of 5 reached, current count: 2
Scanned: quit                              Scanned: quit                           [info] waiting for new client, current count: 3
# exiting                                  # exiting                                  [info] waiting for msg from tid #20621
┌ ◁ ⊑ ~/B/3-2/N/np-lab/assign-4/client ⊟ ⅄ ma   > ./a.out                           [info] rcvd_client, client fd: 7
ster !6 ?7                                 Hello!                                  [info] checking if lim of 5 reached, current count is 3
└─▷ []                                 ┌ ◁ ⊑ ~/B/3-2/N/np-lab/assign-4/client ⊟ ⅄ ma   [info] waiting for new client, current count: 4
                                           ster !6 ?7                                 [info] waiting for msg from tid #20623
                                           └─▷ █                                [info] rcvd_client, client fd: 8
                                                                                   [info] waiting for new client, current count: 5
                                                                                   [info] rcvd_client, client fd: 9
          client:zsh        Close terminal          client:zsh       Close terminal   [info] checking if lim of 5 reached, current count is 5
|  /     |   host   G3 3590                 > ./c 10.4.19.67 4444                   [warining] REJECTED, max clients
> ./c 10.4.19.67 4444                      # Connection established! type msg after the p   [info] waiting for new client, current count: 5
# Connection established! type msg after the p   rompt 'C>'                           [info] exiting, from tid #20572
rompt 'C>'                                 C>quit                                  [info] checking if lim of 5 reached, current count is 4
C>quit                                     Scanned: quit                           [info] waiting for new client, current count: 5
Scanned: quit                              # exiting                                  [info] waiting for msg from tid #20748
# exiting                                  ┌ ◁ ⊑ ~/B/3-2/N/np-lab/assign-4/client ⊟ ⅄ ma      [info] waiting for msg from tid #20748 requested: s
┌ ◁ ⊑ ~/B/3-2/N/np-lab/assign-4/client ⊟ ⅄ ma   ┌ ◁ ⊑ ~/B/3-2/N/np-lab/assign-4/client ⊟ ⅄ ma   [info] filesize: 22664
┌ ◁ ⊑ ~/B/3-2/N/np-lab/assign-4/client ⊟ ⅄ ma   ┌ ◁ ⊑ ~/B/3-2/N/np-lab/assign-4/client ⊟ ⅄ ma   [info] file perms: 775
┌ ◁ ⊑ ~/B/3-2/N/np-lab/assign-4/client ⊟ ⅄ ma   ster !6 ?7                           [info] 22664 chunks      [info] waiting for msg from tid #20748
                                                                                      [info] exiting, from tid #20748
          client:zsh        Close terminal          client:zsh       Close terminal      [info]C, tid #20610 requested: a.out
> ./c 10.4.19.67 4444                      # Server refused connection             [info] filesize: 16696
# Connection established! type msg after the p   > ./c 10.4.19.67 4444                [info] file perms: 775
rompt 'C>'                                 # Connection established! type msg after the p   [info] 16696 chunks      [info] waiting for msg from tid #20610
C>quit                                     rompt 'C>'                                 [info] exiting, from tid #20610
Scanned: quit                              C>s                                        [info] exiting, from tid #20621
# exiting                                  Scanned: s                                 [info] exiting, from tid #20623
┌ ◁ ⊑ ~/B/3-2/N/np-lab/assign-4/client ⊟ ⅄ ma   Reading file in 22664 chunks          [info] exiting, from tid #20643
ster !6 ?7                                 File perms: 775                         ^C[info] Received  SIGINT, closing socket
└─▷ []                                 C>quit                                  ┌ ◁ ⊑ ~/BITS/3-2/NP/np-lab/assign-4 ⊟ ⅄ master !6 ?7 ························· ⊠ 1m 51s ┐
                                           Scanned: quit                           └─▷
                                           # exiting
                                           ┌ ◁ ~/B/3-2/N/np-lab/client ⊟ ⅄ ma
```