

Computer Network project 1

Coding Platform

- Operating System : Mac OSX (Can work on CSIE workstation)
- Compiler : g++ version 8.0.0.0

Content

- client.cpp
- server.cpp
- makefile
- README

Program Execution

- make (Compile and create object files)
- ./server port
- ./client -n number -t timeout host1:port1 host2:port2 ...
- **Note:**
 1. Server must be executed before client
 2. If not provided, number is default 0 & timeout is 1000
 3. host can be either hostname or IP address
 4. Maximum client and server numbers are both 1024
 5. timeout values should ≥ 0.001 msec

Result

- Server Output :
 1. new connection [ip:port]
 2. recv from [ip:port]
 3. lost connection from [ip:port]

```

recv from [127.0.0.1:49881]
recv from [127.0.0.1:49881]
recv from [127.0.0.1:49881]
recv from [127.0.0.1:49881]
recv from [127.0.0.1:49881]
recv from [127.0.0.1:49881]
recv from [127.0.0.1:49881]
recv from [127.0.0.1:49881]
recv from [127.0.0.1:49881]
recv from [127.0.0.1:49881]
lost connection from [127.0.0.1:49881]

```

- Client Output :
 1. recv from [ip:port]
 2. timeout when connect to [ip:port]

```

recv from [127.0.0.1], RTT = 0.023000
recv from [127.0.0.1], RTT = 0.021000
recv from [127.0.0.1], RTT = 0.021000
recv from [127.0.0.1], RTT = 0.017000
recv from [127.0.0.1], RTT = 0.021000
recv from [127.0.0.1], RTT = 0.020000
recv from [127.0.0.1], RTT = 0.016000
recv from [127.0.0.1], RTT = 0.020000
recv from [127.0.0.1], RTT = 0.023000
recv from [127.0.0.1], RTT = 0.020000

```

Code Segment

- Server :
 1. **socket, bind, listen, accept** (Create connection)
 2. **FD_ISSET, select** (Handle multiple clients)
 3. **getpeername** (Get clients' IP & port)
 4. **recv, send** (Transmit messages)
- Client :
 1. **socket, connect** (Create connection)
 2. **gethostbyname** (Convert host name to IP)
 3. **pthread_create** (Handle multiple servers)
 4. **recv, send** (Transmit messages)
 5. **clock** (Calculate RTT)
 6. **setsockopt** (Set timeout for recv)