

1) how to build socket (server and client) using makefile

+ step 1: build server with command line as follow:

make server

+ step 2: build client with command line as follow:

make client

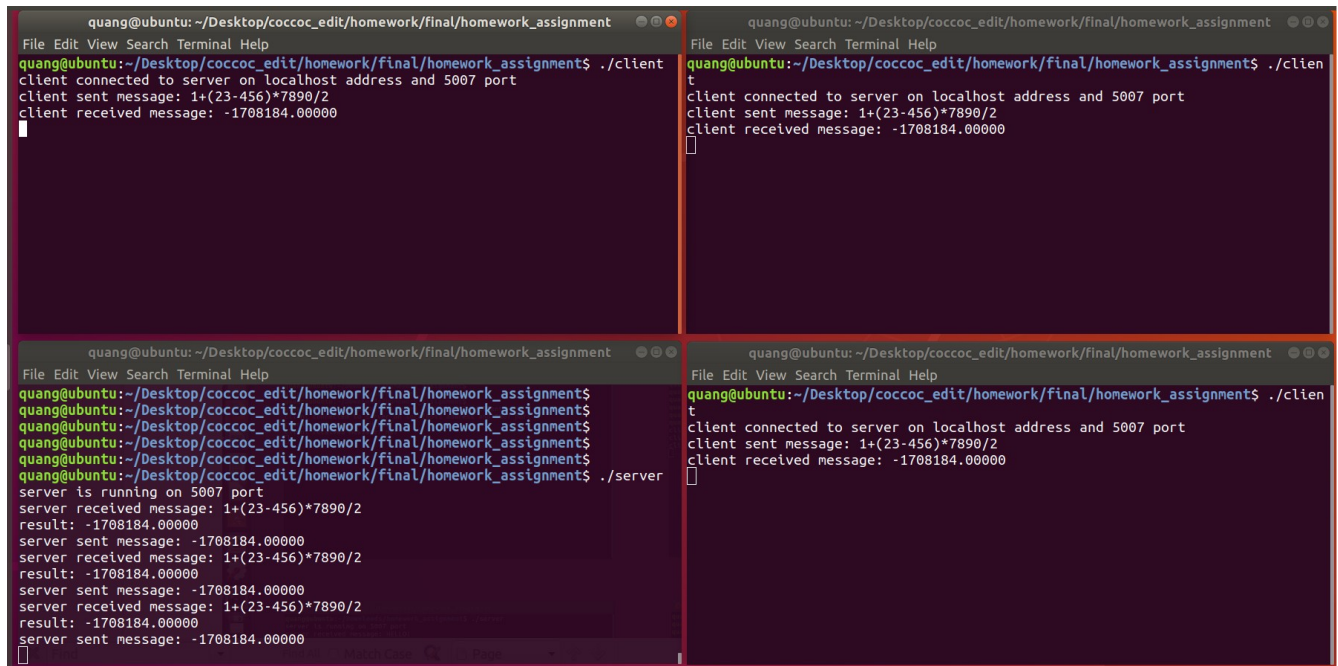
2) how to test communication between server and client via tcp socket

+ Server is running on 5007 port: run command line as follow:

./server

The image displays four terminal windows arranged in a 2x2 grid, all showing the same directory: `~/Desktop/coccoc_edit/homework/final/homework_assignment`.
Top-left window: Shows the initial prompt `quang@ubuntu:~/Desktop/coccoc_edit/homework/final/homework_assignment$`.
Top-right window: Also shows the initial prompt `quang@ubuntu:~/Desktop/coccoc_edit/homework/final/homework_assignment$`.
Bottom-left window: Shows a series of 15 repeated prompts `quang@ubuntu:~/Desktop/coccoc_edit/homework/final/homework_assignment$`, followed by the command `./server` and the output `server is running on 5007 port`.
Bottom-right window: Shows the initial prompt `quang@ubuntu:~/Desktop/coccoc_edit/homework/final/homework_assignment$`.

+ Client connected to server on localhost address and 5007 port: run command line as follow:
./client



The image displays four terminal windows arranged in a 2x2 grid, showing the execution of a client-server program. Each window has a title bar indicating the user is 'quang' on an 'ubuntu' machine, in the directory '~/Desktop/coccoc_edit/homework/final/homework_assignment'.

- Top-left terminal:** Shows the client running './client'. It outputs: 'client connected to server on localhost address and 5007 port', 'client sent message: 1+(23-456)*7890/2', and 'client received message: -1708184.00000'.
- Top-right terminal:** Shows the client running './client'. It outputs: 'client connected to server on localhost address and 5007 port', 'client sent message: 1+(23-456)*7890/2', and 'client received message: -1708184.00000'.
- Bottom-left terminal:** Shows the server running './server'. It outputs: 'server is running on 5007 port', followed by three iterations of receiving a message, calculating the result, and sending it back. The messages and results are identical to those in the client terminals.
- Bottom-right terminal:** Shows the client running './client'. It outputs: 'client connected to server on localhost address and 5007 port', 'client sent message: 1+(23-456)*7890/2', and 'client received message: -1708184.00000'.