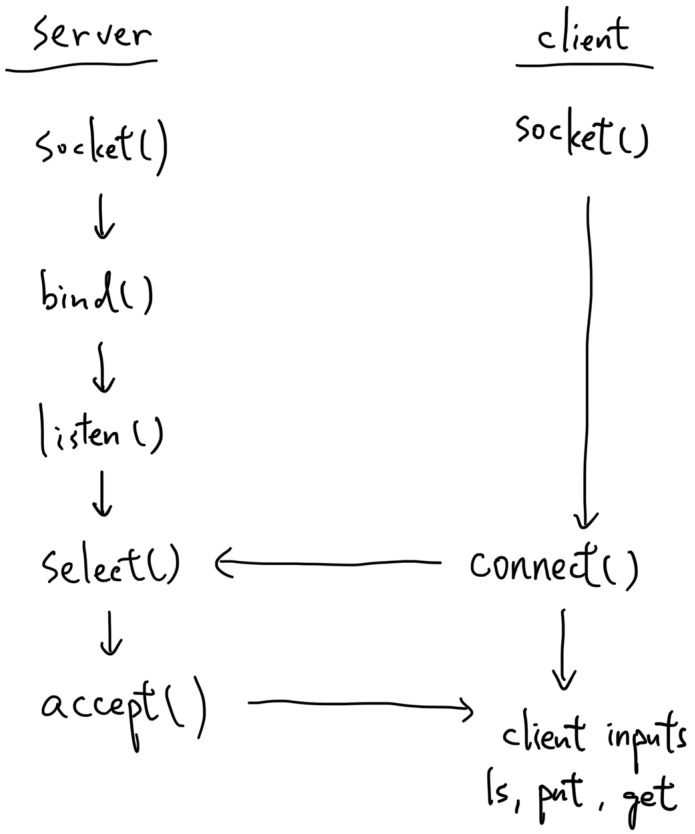
Computer Networks Project 1 Report

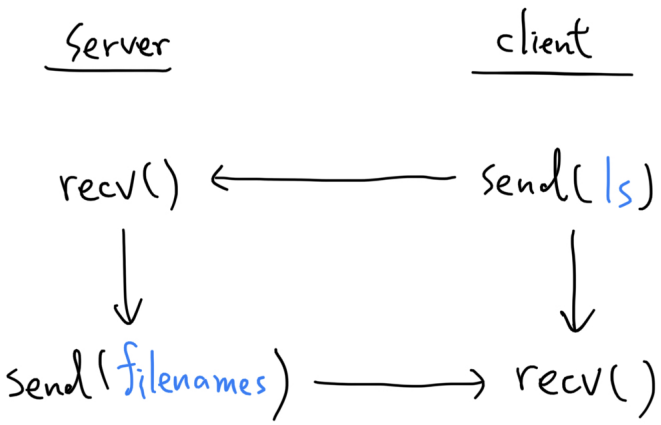
B07502028 吳宗翰

1. Flowchart.

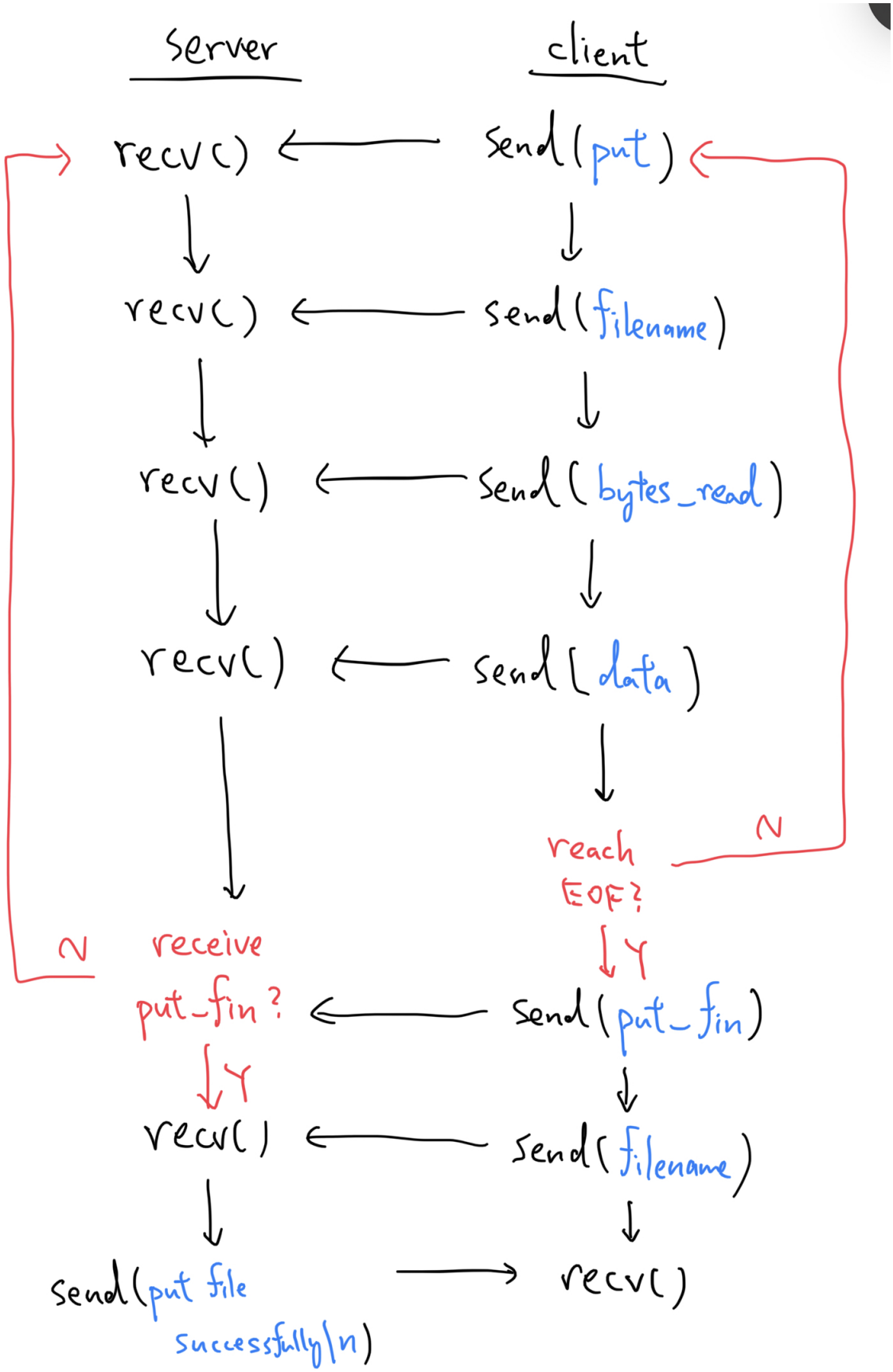
(1) Connection setup



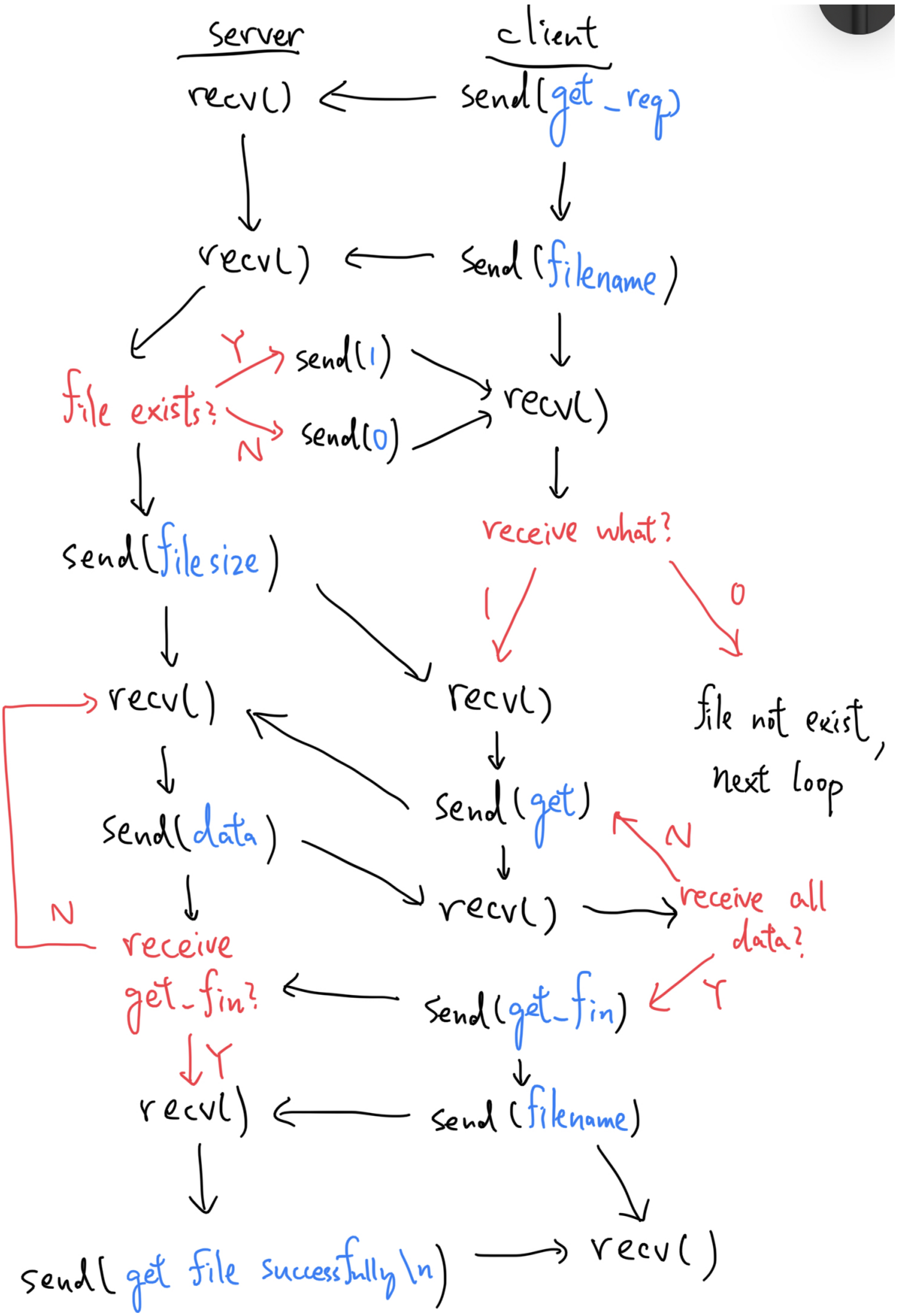
(2) `ls` command



(3) `put` command



(4) `get` command



2. Dealing with Multiple Clients.

(1) `select()` function is used to monitor all sockets.

(2) Within each `while(true)` loop, check any new connections to `main_socket` using `FD_ISSET()`.

(3) Within each `while(true)` loop, check all sockets that can be read/written using `FD_ISSET()`.

(4) Within each `while(true)` loop, server accepts a command from one of the clients, so it can serve many clients.

(5) For `put`, client sends file in chunks. Server receives one chunk in each `while(true)` loop. Server can deal with other clients' commands between two chunks, so it wouldn't be blocked by one client's `put`.

(6) Similarly, for `get`, server sends one file chunk in each `while(true)` loop. Server can deal with other clients' commands between two chunks, so it wouldn't be blocked by one client's `get`.

3. SIGPIPE.

SIGPIPE is a signal generated by the system when the write-end socket writes data to a closed read-end socket.

To deal with this, pass `MSG_NOSIGNAL` to the fourth argument of `send()`.