Report of MI2.01 Systems & Networks

Centralized Chat System

Loc Thi Thuy Linh

April 9, 2018

1. Problem

Implementing a centralized chat system, similar to Internet Relay Chat (IRC). In such a system, client-to-client text messages must first be passed to a centralized server, then the server forwards the messages to the destination client. The system should work with multiplexed, nonblocking TCP socket.

2. Deploy the program

2.1. Sever side

- Creates a nonblocking server listen clients on port 8784 by function **int openListenfd(int sockfd, unsigned short port, struct sockaddr_in saddr)**.
- Listening on port 8784.
- Receive data from a clients and reply data to client.

2.2. Client side

- Takes the server hostname from STDIN or from program arguments by function **char *getSeverHostname(int argc, char *argv[])**.
- Resolves server hostname IP by function **char *resolve_hostname_IP(struct hostent *h)**.

- Connects to the server by function **int openClientfd(int sockfd, unsigned short port, struct sockaddr_in saddr, struct hostent *h)**.
- Client separate a thread for input and a thread for networking
  - Waits for input message from STDIN and sends them as messages to server by function **void handleInput(int sockfd)**.
  - Prints incoming messages (from other clients, forwarded by the server) on the client terminal by function **void handleReceivingMessage(sockfd)**.