1.Design framework:

Diagram

Description automatically generated

2.code and instruction to run the program

the code in server: In the server, firstly it creates the server socket and assign the server’s name and server port of it. and then it includes three functions. One named send\_msg(), which is used to send message from server to all connected clients. And the second one is called connect\_client(), which is used to connect the all connected clients with server. And the last one is called receive(), which is used to receive the information of all clients’ connection.

Text

Description automatically generated

Text

Description automatically generated

The code in client:

after client connect successful with the particular server’s name and server port. It mainly includes two functions. One of is called client\_receive(), which is used to receive message from connected server, and another one is called client\_send(), which is used to receive message from connected client to server. the client uses two threads, one used to send message and another one is used to receive message.

Text

Description automatically generated

3.How to run the code (*please uses the python3 to run*):

The first step is opening one terminal to run the server. After running the server successfully, you will get the window as below:

Graphical user interface, text, application, email

Description automatically generated

And then open another two or more terminals to run the client. When the clients run successfully, you will get the windows such as:

Graphical user interface, text, application, email

Description automatically generated

After the client connected with the server, it can communicate with the others which connected with server.

Graphical user interface, text, application

Description automatically generated

The server window can display all connected information of clients. These connected clients can send and responded to others by through server.