[2018 Advanced Computer Networks Homework 3]

Rules

1. Please do your homework by using C language and ensure your homework can be compiled under Ubuntu 18.04.
2. You have to upload your own Makefile to compile your program.
3. Deducting points if you do not follow above restrictions.
4. Do not copy assignment from anyone. All participants will get ZERO.
5. We will notice your demonstration time later by email.
6. You can ask TAs any questions about this assignment except debugging.

TAs email: **net_ta@net.nsysu.edu.tw**

Lab: Network & System Laboratory-**EC5018** (11:00 ~ 17:00)

Upload

Please compress your homework to zip or tar and upload to National Sun Yat-Sen Cyber University.

Name your homework to "Student ID_TCPIP_HW3".

Example: **M043040032_TCPIP_HW3.zip**

Deadline: 2018/10/16 (Tue.) 23:59

Please use TCP Socket to implement a chat room on the mininet。

Server: (70%)

Usage: ./server <port number>

1. Use multi-thread to handle requests from clients.
2. List all the members and chat room online, client can choose which room to join.
3. Handle clients request:
   - Send messages to the member who in the same group。
   - Decide person or group to receive the messages

Client: (15%)

Usage: ./client <Server IP> <Port number>

Connect to server.
Handle input:
<Message>
Send the messages to the group

/W <Name or room> <Message>
Decide person or group to receive the messages

Bye
Disconnection

Enviroment:
You can practice construct 4 host on the mininet and they can “ping” each other.
Example: h1 is server
h2 h3 h4 is client

```
mininet> pingall
*** Ping: testing ping reachability
h1 -> h2 h3 h4
h2 -> h1 h3 h4
h3 -> h1 h2 h4
h4 -> h1 h2 h3
*** Results: 0% dropped (12/12 received)
mininet> net
h1 h1-eth0:s1-eth1
h2 h2-eth0:s1-eth2
h3 h3-eth0:s1-eth3
h4 h4-eth0:s1-eth4
s1 lo:  s1-eth1:h1-eth0 s1-eth2:h2-eth0 s1-eth3:h3-eth0 s1-eth4:h4-eth0
c0
```

Sample output:

You don’t need show the same output by follow, but you need make same functions in your homework.