

[2025 Network System Programming Homework 12]

Rules:

1. Please use **C language** in this homework and run your program on **Ubuntu 24.04**.
2. Please provide **Makefile** to compile your homework.
3. Do not copy the others homework definitely.
4. If you have any question, please send email to TA or drop by Room EC5018. However, TA will not help you to debug program.

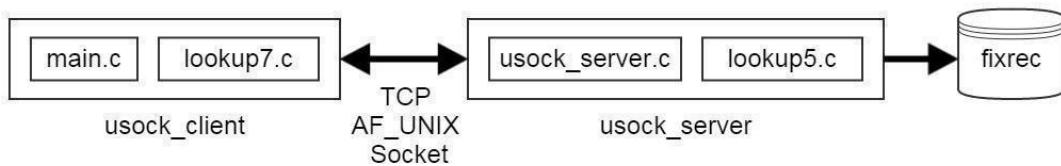
Turn in your homework:

1. Please compress your homework into zip archive.
2. Naming rules: “**SP_HW12.zip**”.
3. Upload your homework (zip file) to NSYSU Tronclass(網路大學).
4. Deadline: **2025/12/16 09:00**. You cannot get any credit if you do not turn in your homework before the deadline.

Part 1 :

Set up a client and server while talk over TCP AF_UNIX sockets. The server performs the dictionary look up.

1. Edit the lookup7.c file to communicate with a server by using TCP AF_UNIX sockets.
2. Edit usock_server.c to listen on an AF_UNIX socket for any number of TCP AF_UNIX clients and reply down the same socket.
3. After the file have been edited, type make, or make usock_server and usock_client.
4. When you get the prompt, run the usock_server and usock_client as shown in the output below.



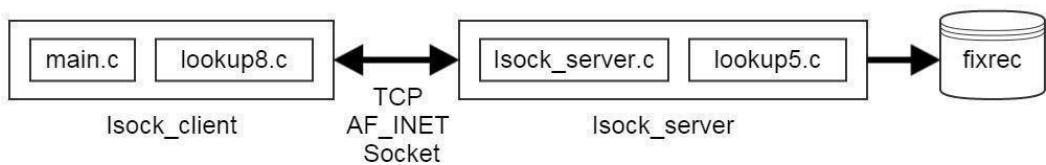
Sample output:

```
jth@jth-XS35:~/桌面/SP_HW7/part1$ ./usock_server fixrec TUNNEL &
[1] 9141
jth@jth-XS35:~/桌面/SP_HW7/part1$ ls -l TUNNEL
srwxrwxr-x 1 jth jth 0 11月 22 17:12 TUNNEL
jth@jth-XS35:~/桌面/SP_HW7/part1$ ./usock_client TUNNEL
What word do you want : work
work : The curse of the drinking classes.
What word do you want : bore
bore : A person who talks when you wish him to listen.
What word do you want : abc
abc : Not Found!
What word do you want : █
```

Part 2 :

Set up a client and server while talk over TCP AF_INET sockets. The server performs the dictionary look up.

1. Edit the lookup8.c file to communicate with a server by using TCP AF_INET sockets.
2. Edit isock_server.c to listen on an TCP AF_INET socket for any number of internet clients and reply down the same socket.
3. After the file have been edited, type make, or make isock_server and isock_client.
4. When you get the prompt, run the isock_server and isock_client.



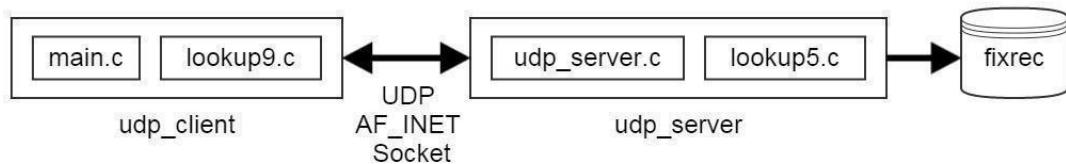
Sample output:

```
jth@jth-XS35:~/桌面/SP_HW7/part2$ ./isock_server fixrec &
[1] 9413
jth@jth-XS35:~/桌面/SP_HW7/part2$ ./isock_client localhost
What word do you want : work
work : The curse of the drinking classes.
What word do you want : bore
bore : A person who talks when you wish him to listen.
What word do you want : abc
abc : Not Found!
What word do you want : 
```

Part 3 :

Set up a client and server while talk over UDP AF_INET sockets. server performs the dictionary look up.

1. Edit the lookup9.c file to communicate with a server by using UDP AF_INET sockets.
2. Edit udp_server.c to listen on an UDP AF_INET socket for any number of internet clients and reply down the same socket.
3. After the file have been edited, type make, or make udp_server and udp_client.
4. When you get the prompt, run the udp_server and udp_client as shown in the output below.



Sample output:

```
jth@jth-XS35:~/桌面/SP_HW7/part3$ ./udp_server fixrec &
[1] 9498
jth@jth-XS35:~/桌面/SP_HW7/part3$ ./udp_client localhost
What word do you want : work
work : The curse of the drinking classes.
What word do you want : bore
bore : A person who talks when you wish him to listen.
What word do you want : abc
abc : Not Found!
What word do you want : 
```