[2016 Network System Programming Homework7]

Implement a simple client-server model using sockets in UNIX, Internet, and UDP/TCP domains.

Rules:

1. Please use **C** language in this homework and run your program on **Ubuntu 16.04**.

2. Please provide Makefile to compile your homework; otherwise, you will get **ZERO**.

3. **Do not copy others homework.**

4. If you have any question, please send email to sp_ta@net.nsysu.edu.tw or come to F5018, but TA does not help to debug.
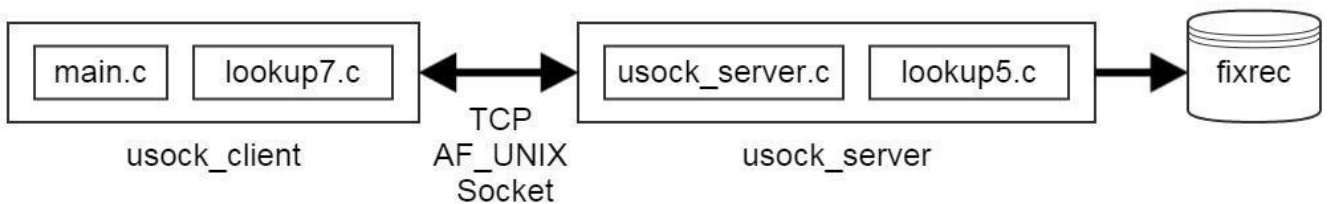
Upload:

1. Please compress your homework into **zip** or **tar** archive.

2. Naming rules: "**StudentID_SP_HW7.zip**". For example: M033040001_SP_HW7.zip

3. Upload your homework to **NSYSU Cyber University**.

4. **Deadline: 2016/12/20 (Tue.) 23:59; if it is overdue, you will also get ZERO.**

Part1:

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

   I、 Edit the lookup7.c file to communicate with a server by using
      TCP AF_UNIX sockets.

   II、 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.

   III、 After the file have been edited, type make, or make
        usock_server and usock_cilent.

   IV、 When you get the prompt, run the usock_server and
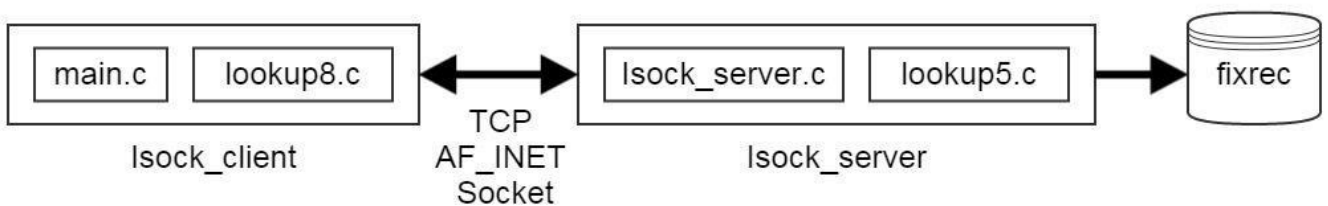   usock_client as shown in the output below.

2. 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 : 
```

Part2:

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

   I、 Edit the lookup8.c file to communicate with a server by using TCP AF_INET sockets.

   II、 Edit isock_server.c to listen on an TCP AF_INET socket for any number of internet clients and reply down the same socket.

   III、 After the file have been edited, type make, or make isock_server and isock_cilent.

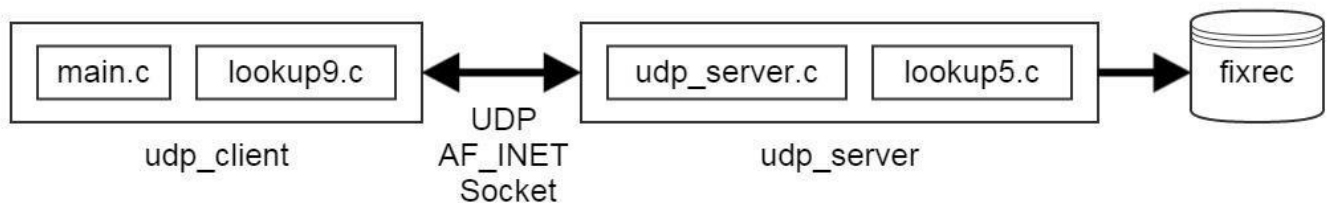   IV、 When you get the prompt, run the isock_server and isock_client

   as shown in the output below.

2. 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 : 
```

Part3:

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

   I、 Edit the lookup9.c file to communicate with a server by using UDP AF_INET sockets.

   II、 Edit udp_server.c to listen on an UDP AF_INET socket for any number of internet clients and reply down the same socket.

   III、 After the file have been edited, type make, or make udp_server and udp_cilent.

   IV、 When you get the prompt, run the udp_server and udp_client as shown in the output below.

2. Sample output