

Assignment 2

I have two machines. Both of them have Ubuntu System. In this project, I use UDP function to transport data between machines with C/C++.

```
blade@blade-XPS-8930:~$ ifconfig
enp4s0: flags=4099<UP,BROADCAST,MULTICAST> mtu 1500
    ether d8:9e:f3:88:b9:eb txqueuelen 1000 (Ethernet)
    RX packets 0 bytes 0 (0.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 0 bytes 0 (0.0 B)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
    device interrupt 19

lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
    inet6 ::1 prefixlen 128 scopeid 0x10<host>
    loop txqueuelen 1000 (Local Loopback)
    RX packets 1299 bytes 119044 (119.0 KB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 1299 bytes 119044 (119.0 KB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

wlp3s0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 192.168.1.11 netmask 255.255.255.0 broadcast 192.168.1.255
    inet6 fe80::d75b:ca16:3601:7c7 prefixlen 64 scopeid 0x20<link>
    ether fc:01:7c:02:28:13 txqueuelen 1000 (Ethernet)
    RX packets 104090 bytes 137347606 (137.3 MB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 23379 bytes 3717285 (3.7 MB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

```
Terminal
(xenial)blade@localhost:~$ ip -c a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
        valid_lft forever preferred_lft forever
2: wlan0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc mq state UP group default qlen 1000
    link/ether 64:5d:86:9d:5d:0f brd ff:ff:ff:ff:ff:ff
    inet 192.168.1.13/24 brd 192.168.1.255 scope global wlan0
        valid_lft forever preferred_lft forever
    inet6 fe80::665d:86ff:fe9d:5d0f/64 scope link
        valid_lft forever preferred_lft forever
3: arcbr0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc noqueue state UNKNOWN group default qlen 1000
    link/ether 42:ae:f4:ca:48:38 brd ff:ff:ff:ff:ff:ff
    inet 100.115.92.1/30 brd 100.115.92.3 scope global arcbr0
    inet6 fe80::40ae:f4ff:feca:4838/64 scope link
        valid_lft forever preferred_lft forever
(xenial)blade@localhost:~$
```


According to this above pictures, one computer 's IP address is 192.168.1.11, Another computer 's IP is 192.168.1.13.

Then I open a terminal window for the server. Just as the following.

```
inet6 fe80::d75b:ca16:3601:7c7 prefixlen 64 scopeid 0x20<link>
ether fc:01:7c:02:28:13 txqueuelen 1000 (Ethernet)
RX packets 104090 bytes 137347606 (137.3 MB)
RX errors 0 dropped 0 overruns 0 frame 0
TX packets 23379 bytes 3717285 (3.7 MB)
TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

blade@blade-XPS-8930:~$ ls
anaconda3 Desktop Documents Downloads examples.desktop Music Pictures Public Templates Videos
blade@blade-XPS-8930:~$ cd Documents/
blade@blade-XPS-8930:~/Documents$ ls
0124_sosp2007.pdf cryptography-network-security-7th.pdf 'Introduction to Machine Learning (Ethem Alpay
0131_vldb2017.pdf 'DISTRIBUTED SYSTEMS Concepts and Design 5th Edition.pdf' 'Python for Data Analysis, 2nd Edition.pdf'
C++_res 'Introduction to Algorithms(3rd Edition).pdf' 'Python for Data Analysis.pdf'
blade@blade-XPS-8930:~/Documents$ cd WorkPlace_Spring/
blade@blade-XPS-8930:~/Documents/WorkPlace_Spring$ ls
Books Codes Notes
blade@blade-XPS-8930:~/Documents/WorkPlace_Spring$ cd Codes/
blade@blade-XPS-8930:~/Documents/WorkPlace_Spring/Codes$ ls
Dictionary_Accomplishment
blade@blade-XPS-8930:~/Documents/WorkPlace_Spring/Codes$ cd Dictionary_Accomplishment/
blade@blade-XPS-8930:~/Documents/WorkPlace_Spring/Codes/Dictionary_Accomplishment$ ls
a.out Assignment1.pdf b.out client_dic.cpp Oxford_English_Dictionary.txt server_dic.cpp words.txt
blade@blade-XPS-8930:~/Documents/WorkPlace_Spring/Codes/Dictionary_Accomplishment$ g++ server_dic.cpp
In file included from /usr/include/x86_64-linux-gnu/c++/7/bits/os_defines.h:39:0,
from /usr/include/x86_64-linux-gnu/c++/7/bits/c++config.h:533,
from /usr/include/c++/7/cstring:41,
from server_dic.cpp:6:
/usr/include/features.h:184:3: warning: #warning " _BSD_SOURCE and _SVID_SOURCE are deprecated, use _DEFAULT_SOURCE" [-Wcpp]
# warning " _BSD_SOURCE and _SVID_SOURCE are deprecated, use _DEFAULT_SOURCE"
^
blade@blade-XPS-8930:~/Documents/WorkPlace_Spring/Codes/Dictionary_Accomplishment$ ./a.out
waiting on port 1995
```

Then I open a terminal window for the client. Just as the following.

```
Terminal
inet6 fe80::40ae:f4ff:feca:4838/64 scope link
valid_lft forever preferred_lft forever
(xenial)blade@localhost:~$ cd Documents/
(xenial)blade@localhost:~/Documents$ ls
Computer_Security Financial Java 134_sosp2007.pdf Tianyi's Resume.pdf 7th.pdf
Distributed_System Git_WorkPlace SSR_TSRPT.pdf github-mark.png 'DISTRIBUTED SYSTEMS Concepts and Design 5th Edit
(xenial)blade@localhost:~/Documents$ cd Git_WorkPlace/
(xenial)blade@localhost:~/Documents/Git_WorkPlace$ ls
Books Codes Notes
(xenial)blade@localhost:~/Documents/Git_WorkPlace$ cd Codes/
(xenial)blade@localhost:~/Documents/Git_WorkPlace/Codes$ ls
Dictionary_Accomplishment
(xenial)blade@localhost:~/Documents/Git_WorkPlace/Codes$ cd Dictionary_Accomplishment/
(xenial)blade@localhost:~/Documents/Git_WorkPlace/Codes/Dictionary_Accomplishment$ ls
Assignment1.pdf client_dic.cpp words.txt
Oxford_English_Dictionary.txt server_dic.cpp
(xenial)blade@localhost:~/Documents/Git_WorkPlace/Codes/Dictionary_Accomplishment$ g++ client_dic.cpp
(xenial)blade@localhost:~/Documents/Git_WorkPlace/Codes/Dictionary_Accomplishment$ ./a.out
Please input the word which you wanna know: a terminal window for the client. Just as the t
```

Then the testing result is :


```

Terminal
(xenial)blade@localhost:~/Documents/Git_WorkPlace/Codes/Dictionary_Accomplishmen
t$ g++ client_dic.cpp
(xenial)blade@localhost:~/Documents/Git_WorkPlace/Codes/Dictionary_Accomplishmen
t$ ./a.out
Please input the word which you wanna know:
fadsdfsaf
received55bytes
received message:
Fail to search that word!
Please input the word again!
Please input the word which you wanna know:
a
It is a letters
distribute
received135bytes
received message:
Distribute v. (-ting) 1 give shares of; deal out. 2 scatter; put at different p
oints. 3 arrange; classify. [latin tribuo -but- assign]
Please input the word which you wanna know:
system
received449bytes
received message:
System n. 1 complex whole; set of connected things or parts; organized body of
things. 2 a set of organs in the body with a common structure or function. B hum
an or animal body as a whole. 3 method; scheme of action, procedure, or classifi
cation. 4 orderliness. 5 (prec. By the) prevailing political or social order, es
p. Regarded as oppressive. get a thing out of one's system colloq. Get rid of a
preoccupation or anxiety. [greek sustema -mat-]
Please input the word which you wanna know:

```

The server:

```

File Edit View Search Terminal Help
blade@blade-XPS-8930:~/Documents/WorkPlace_Spring/Codes/Dictionary_Accomplishmen
t$ ./a.out
waiting on port 1995
received9bytes
received message: fadsdfsaf09
+++++++fadsdfsaf-----9
open the file
Message dataFail to search that word!
Please input the word again!message length55
waiting on port 1995
received10bytes
received message: distribute9
+++++++distribute-----10
open the file
Bingo! find it!
Distribute v. (-ting) 1 give shares of; deal out. 2 scatter; put at different p
oints. 3 arrange; classify. [Latin tribuo -but- assign]
Message dataDistribute v. (-ting) 1 give shares of; deal out. 2 scatter; put at
different points. 3 arrange; classify. [Latin tribuo -but- assign]message lengt
h135
waiting on port 1995
received6bytes
received message: systembute9
+++++++system-----6
open the file
Bingo! find it!
System n. 1 complex whole; set of connected things or parts; organized body of
things. 2 a set of organs in the body with a common structure or function. B hum
an or animal body as a whole. 3 method; scheme of action, procedure, or classifi
cation. 4 orderliness. 5 (prec. By the) prevailing political or social order, es
p. Regarded as oppressive. get a thing out of one's system colloq. Get rid of a
preoccupation or anxiety. [greek sustema -mat-]
Message dataSystem n. 1 complex whole; set of connected things or parts; organi
zed body of things. 2 a set of organs in the body with a common structure or fun
ction. B human or animal body as a whole. 3 method; scheme of action, procedure,
or classification. 4 orderliness. 5 (prec. By the) prevailing political or soci
al order, esp. Regarded as oppressive. get a thing out of one's system colloq.
Get rid of a preoccupation or anxiety. [greek sustema -mat-]message length449
waiting on port 1995

```

