

19CSE301

Computer Networks

Lab Sheet 1

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Ping the IP address of another computer

```
/mnt/c/Users/a/Desktop ping -c 5 google.com ok | took 55s
PING google.com(maa05s24-in-x0e.1e100.net (2404:6800:4007:81f::200e)) 56 data bytes
64 bytes from maa05s24-in-x0e.1e100.net (2404:6800:4007:81f::200e): icmp_seq=1 ttl=116 time=65.3 ms
64 bytes from maa05s24-in-x0e.1e100.net (2404:6800:4007:81f::200e): icmp_seq=2 ttl=116 time=55.1 ms
64 bytes from maa05s24-in-x0e.1e100.net (2404:6800:4007:81f::200e): icmp_seq=3 ttl=116 time=54.7 ms
64 bytes from maa05s24-in-x0e.1e100.net (2404:6800:4007:81f::200e): icmp_seq=4 ttl=116 time=53.2 ms
64 bytes from maa05s24-in-x0e.1e100.net (2404:6800:4007:81f::200e): icmp_seq=5 ttl=116 time=62.0 ms

--- google.com ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 4003ms
rtt min/avg/max/mdev = 53.291/58.114/65.315/4.719 ms
```

Ping the IP address of the default gateway

```
/mnt/c/Users/a/Desktop netstat -rn
Kernel IP routing table
Destination      Gateway          Genmask          Flags      MSS Window  irtt Iface
192.168.146.0    0.0.0.0          255.255.255.0    U          0 0        0 eth1
192.168.146.1    0.0.0.0          255.255.255.255 U          0 0        0 eth1
192.168.146.255 0.0.0.0          255.255.255.255 U          0 0        0 eth1
224.0.0.0        0.0.0.0          240.0.0.0        U          0 0        0 eth1
255.255.255.255 0.0.0.0          255.255.255.255 U          0 0        0 eth1
192.168.14.0     0.0.0.0          255.255.255.0    U          0 0        0 eth2
192.168.14.1     0.0.0.0          255.255.255.255 U          0 0        0 eth2
192.168.14.255   0.0.0.0          255.255.255.255 U          0 0        0 eth2
224.0.0.0        0.0.0.0          240.0.0.0        U          0 0        0 eth2
255.255.255.255 0.0.0.0          255.255.255.255 U          0 0        0 eth2
127.0.0.0        0.0.0.0          255.0.0.0        U          0 0        0 lo
127.0.0.1        0.0.0.0          255.255.255.255 U          0 0        0 lo
127.255.255.255 0.0.0.0          255.255.255.255 U          0 0        0 lo
224.0.0.0        0.0.0.0          240.0.0.0        U          0 0        0 lo
255.255.255.255 0.0.0.0          255.255.255.255 U          0 0        0 lo
0.0.0.0          192.168.225.1    255.255.255.255 U          0 0        0 wifi0
```

```
/mnt/c/Users/abhis/Desktop ping -c 5 192.168.225.1
PING 192.168.225.1 (192.168.225.1) 56(84) bytes of data.
64 bytes from 192.168.225.1: icmp_seq=1 ttl=64 time=2.87 ms
64 bytes from 192.168.225.1: icmp_seq=2 ttl=64 time=2.88 ms
64 bytes from 192.168.225.1: icmp_seq=3 ttl=64 time=2.83 ms
64 bytes from 192.168.225.1: icmp_seq=4 ttl=64 time=2.55 ms
64 bytes from 192.168.225.1: icmp_seq=5 ttl=64 time=3.10 ms

--- 192.168.225.1 ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 4003ms
rtt min/avg/max/mdev = 2.558/2.851/3.107/0.181 ms
```

Ping the Loopback IP address of this computer (127.0.0.1)

```
/mnt/c/Users/a/Desktop ping -c 5 127.0.0.1
PING 127.0.0.1 (127.0.0.1) 56(84) bytes of data.
64 bytes from 127.0.0.1: icmp_seq=1 ttl=128 time=0.125 ms
64 bytes from 127.0.0.1: icmp_seq=2 ttl=128 time=0.292 ms
64 bytes from 127.0.0.1: icmp_seq=3 ttl=128 time=0.538 ms
64 bytes from 127.0.0.1: icmp_seq=4 ttl=128 time=0.229 ms
64 bytes from 127.0.0.1: icmp_seq=5 ttl=128 time=0.216 ms

--- 127.0.0.1 ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 4004ms
rtt min/avg/max/mdev = 0.125/0.280/0.538/0.139 ms
```

Obtain the hostname and Ipaddress of amrita.ac.in

```
/mnt/c/Users/abhis/Desktop nslookup amrita.ac.in
Server:      192.168.225.1
Address:     192.168.225.1#53

Non-authoritative answer:
Name:   amrita.ac.in
Address: 117.193.77.232
```

Ping to amrita.ac.in and find out how its result differs from ping -c 5 amrita.ac.in.

```
/mnt/c/Users/abhis/Desktop ping amrita.ac.in
PING amrita.ac.in (117.193.77.232) 56(84) bytes of data.
64 bytes from static.ill.117.193.77.232.bsnl.in (117.193.77.232): icmp_seq=1 ttl=50 time=100 ms
64 bytes from static.ill.117.193.77.232.bsnl.in (117.193.77.232): icmp_seq=2 ttl=50 time=96.9 ms
^C
--- amrita.ac.in ping statistics ---
489 packets transmitted, 488 received, 0% packet loss, time 488496ms
rtt min/avg/max/mdev = 66.340/94.774/216.515/13.934 ms
```

```
/mnt/c/Users/a/Desktop ping -c 5 amrita.ac.in ok | took 4
PING amrita.ac.in (117.193.77.232) 56(84) bytes of data.
64 bytes from static.ill.117.193.77.232.bsnl.in (117.193.77.232): icmp_seq=1 ttl=50 time=80.7 ms
64 bytes from static.ill.117.193.77.232.bsnl.in (117.193.77.232): icmp_seq=2 ttl=50 time=82.3 ms
64 bytes from static.ill.117.193.77.232.bsnl.in (117.193.77.232): icmp_seq=3 ttl=50 time=77.2 ms
64 bytes from static.ill.117.193.77.232.bsnl.in (117.193.77.232): icmp_seq=4 ttl=50 time=98.0 ms
64 bytes from static.ill.117.193.77.232.bsnl.in (117.193.77.232): icmp_seq=5 ttl=50 time=80.9 ms

--- amrita.ac.in ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 4004ms
rtt min/avg/max/mdev = 77.235/83.854/98.013/7.280 ms
```

- The difference is that, in the first ping we didn't specify the limit to the number of packets to be sent to the destination number of packets to be sent to the destination.

- So, the number of packets transferred will be more when compared to the second ping where we specified the packets limit as 5.
- More number of bytes will be transferred when no limit is specified and it keeps on transferring packets.

Use nc command to perform the following on your local machine with one terminal as server and other as client.

<pre>/mnt/c/Users/a/Desktop nc -lp 5000 Hello I am S Abhishek Hey, hai how are you? I am good What are you doing now? Doing Networks Lab Oh great!! Fine, will be AFK for some time. see you yeah Bye Bye!</pre>	<pre>/mnt/c/Users/a/Desktop nc 192.168.146.1 5000 Hello I am S Abhishek Hey, hai how are you? I am good What are you doing now? Doing Networks Lab Oh great!! Fine, will be AFK for some ti yeah Bye Bye!</pre>
--	---

Echo a message in server and pass it to the client machine on raising a request

<pre>/mnt/c/Users/a/Desktop echo "Hello" nc -lp 5000 Hai Bye!</pre>	<pre>/mnt/c/Users/a/Desktop nc 192.168.146.1 5000 Hello Hai Bye!</pre>
---	--

Chat with your neighbour. Allow another neighbour to chat with you once the first one is terminated

<pre>/mnt/c/Users/a/Desktop nc -ltp 5000 Hello Hai Let's go to next client! Hello I am the Second guy Cool! Bye then</pre>	<pre>/mnt/c/Users/a/Desktop nc 192.168.146.1 5000 Hello Hai Let's go to next client! ^C /mnt/c/Users/a/Desktop</pre>
--	---


```
..abhis/Desktop x + v - □ x
/mnt/c/Users/a/Desktop nc 192.168.146.1 5000
Hello I am the Second guy
Cool!
Bye then
^C
```

Create a chat application such that the client will terminate the connection if no messages being received for 10 seconds.

```
/mnt/c/Users/a/Desktop nc -lp 5000      /mnt/c/Users/a/Desktop nc -w6 192.168.146.1 5000
Hello                                     Hello
Hai Man!                                Hai Man!
```

List all the files and folders in the client machine at your server.

```
/mnt/c/Users/a/Desktop nc -lp 5000      /mnt/c/Users/a/Downloads ls | nc 192.168.146.1 5000
Namecheck                                |
Recording                                |
Smash                                    |
System Volume Information                 |
[SYSTEM]                                  |
desktop.ini                               |
```

Display the contents of any file in your server at the client.
(Note: You may create a new file at server if needed)

```
/mnt/c/Users/a/Desktop cat > 1.txt << eof
heredoc> Hello
heredoc> Hai!
heredoc> Bye!
heredoc> eof
```

```
/mnt/c/Users/a/Desktop cat 1.txt
Hello
Hai!
Bye!
```

```
/mnt/c/Users/a/Desktop cat 1.txt | nc -lp 5000      /mnt/c/Users/a/Downloads nc 192.168.146.1 5000
Hello
Hai!
Bye!
^C
```

Send the man page of ls command in your client machine to the server and server should write it into a file lsman.

Server

```
/mnt/c/Users/a/Desktop ls  
desktop.ini
```

Server & Client

```
/mnt/c/Users/a/Desktop nc -lp 5000 > lsman  
/mnt/c/Users/a/Desktop ls  
desktop.ini lsman  
/mnt/c/Users/a/Desktop cat lsman  
LS(1) User Commands LS(1)  
  
NAME  
ls - list directory contents  
  
SYNOPSIS  
ls [OPTION]... [FILE]...  
  
DESCRIPTION  
List information about the FILES (the current  
directory by default). Sort entries alphabeti-  
cally if none of -cftuvSUX nor --sort is speci-  
fied.  
  
Mandatory arguments to long options are manda-  
tory for short options too.  
  
-a, --all  
do not ignore entries starting with .  
-A, --almost-all  
do not list implied . and ..  
  
--author  
with -l, print the author of each file  
  
-b, --escape  
print C-style escapes for nongraphic  
characters  
  
--block-size=SIZE  
scale sizes by SIZE before printing them;
```

Create a shell script at the client to do the following and redirect its output to the server

- Make a new directory folder1
- List all the files and folders at your home folder
- Print hi on terminal
- Go to the directory folder1
- Create a file named f1 with the contents as follows:
 - "I am going to pass the result to a remote machine!!!"
- Come back to the home folder
- List the contents of the file f1.

```
/mnt/c/Users/a/Documents nc -lp 5000
Hi!
I am going to pass the result to a remote machine!!

/mnt/c/Users/a/Documents |

/mnt/c/Users/a/Downloads cat > 1.sh
mkdir "Folder 1"
ls ~
echo "Hi!"
cd "Folder 1"
cat > f1 << eof
I am going to pass the result to a remote machine!!
eof
cd ~
cat ../../mnt/c/Users/abhis/Downloads/"Folder 1"/f1
^C

/mnt/c/Users/a/Downloads ./1.sh | nc 192.168.146.1 5000
^C

/mnt/c/Users/a/Downloads
```

```
/mnt/c/Users/a/Downloads cd "Folder 1"

/mnt/c/Users/a/Dow/Folder 1 ls
f1

/mnt/c/Users/a/Dow/Folder 1 cat f1
I am going to pass the result to a remote machine!!

/mnt/c/Users/a/Dow/Folder 1 cd ~

/mnt/c/Users/a/Dow/Folder 1 cd ~

~ ls
~
```

Thankyou!!