COMPUTER NETWORK LAB 3

Date: 6/2/23

PING

```
som@SOM:~$ ping amazon.in
PING amazon.in (54.239.33.92) 56(84) bytes of data.
64 bytes from 54.239.33.92 (54.239.33.92): icmp_seq=1 ttl=221 time=226 ms
64 bytes from 54.239.33.92 (54.239.33.92): icmp_seq=2 ttl=221 time=200 ms
64 bytes from 54.239.33.92 (54.239.33.92): icmp_seq=3 ttl=221 time=223 ms
64 bytes from 54.239.33.92 (54.239.33.92): icmp_seq=4 ttl=221 time=244 ms
64 bytes from 54.239.33.92 (54.239.33.92): icmp_seq=5 ttl=221 time=267 ms
64 bytes from 54.239.33.92 (54.239.33.92): icmp_seq=6 ttl=221 time=289 ms
64 bytes from 54.239.33.92 (54.239.33.92): icmp_seq=7 ttl=221 time=172 ms
64 bytes from 54.239.33.92 (54.239.33.92): icmp_seq=8 ttl=221 time=230 ms
64 bytes from 54.239.33.92 (54.239.33.92): icmp_seq=9 ttl=221 time=258 ms
64 bytes from 54.239.33.92 (54.239.33.92): icmp_seq=10 ttl=221 time=280 ms
64 bytes from 54.239.33.92 (54.239.33.92): icmp_seq=11 ttl=221 time=298 ms
64 bytes from 54.239.33.92 (54.239.33.92): icmp_seq=12 ttl=221 time=219 ms
64 bytes from 54.239.33.92 (54.239.33.92): icmp_seq=13 ttl=221 time=202 ms
64 bytes from 54.239.33.92 (54.239.33.92): icmp_seq=14 ttl=221 time=183 ms
64 bytes from 54.239.33.92 (54.239.33.92): icmp_seq=15 ttl=221 time=285 ms
64 bytes from 54.239.33.92 (54.239.33.92): icmp_seq=16 ttl=221 time=308 ms
64 bytes from 54.239.33.92 (54.239.33.92): icmp_seq=17 ttl=221 time=178 ms
64 bytes from 54.239.33.92 (54.239.33.92): icmp_seq=18 ttl=221 time=251 ms
```

```
somsi@SOM MINGW64 ~
$ ping pastebin.com

Pinging pastebin.com [104.20.68.143] with 32 bytes of data:
Reply from 104.20.68.143: bytes=32 time=32ms TTL=53
Reply from 104.20.68.143: bytes=32 time=80ms TTL=53
Reply from 104.20.68.143: bytes=32 time=78ms TTL=53
Reply from 104.20.68.143: bytes=32 time=69ms TTL=53

Ping statistics for 104.20.68.143:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 32ms, Maximum = 80ms, Average = 64ms
```

Tracert / Traceroute

```
som@SOM:~$ traceroute amazon.in
traceroute to amazon.in (54.239.33.92), 30 hops max, 60 byte packets
 1  SOM.mshome.net (172.19.0.1)  0.878 ms  0.810 ms  0.768 ms
 2  192.168.28.29 (192.168.28.29)  21.861 ms  21.202 ms  21.151 ms
 3  * * *
 4  56.8.66.25 (56.8.66.25)  46.821 ms 56.8.66.41 (56.8.66.41)  50.202 ms 56.8.66.9 (56.8.66.9)  46.69
 5  192.168.92.157 (192.168.92.157)  46.665 ms  46.637 ms  46.324 ms
 6  * * *
 7  * * *
 8  * * *
 9  * * *
10  * * *
11  * * *
12  103.198.140.176 (103.198.140.176)  79.974 ms 103.198.140.174 (103.198.140.174)  75.912 ms  75.898
13  103.198.140.213 (103.198.140.213)  183.119 ms  183.107 ms 103.198.140.29 (103.198.140.29)  128.573
14  103.198.140.107 (103.198.140.107)  144.043 ms 52.95.218.74 (52.95.218.74)  140.083 ms  131.724 ms
15  * * 52.95.218.74 (52.95.218.74)  138.496 ms
16  * * *
17  * * *
18  * * *
19  * * *
20  * * *
21  * * *
22  * * *
23  * * *
24  * * *
25  * * *
26  * * *
27  * * *
28  * * *
29  * * *
30  * * *
som@SOM:~$ traceroute --help
```

```
somsi@SOM MINGW64 ~
$ tracert amazon.in

Tracing route to amazon.in [52.95.120.67]
over a maximum of 30 hops:

  1    11 ms    11 ms     4 ms  192.168.28.29
  2     *         *         *     Request timed out.
  3    57 ms    63 ms    40 ms  56.8.66.33
  4    85 ms    34 ms    48 ms  192.168.92.153
  5     *         *         *     Request timed out.
  6     *         *         *     Request timed out.
  7     *         *         *     Request timed out.
  8     *         *         *     Request timed out.
  9     *         *         *     Request timed out.
 10     *         *         *     Request timed out.
 11   178 ms    34 ms    39 ms  103.198.140.176
 12   215 ms   141 ms   164 ms  103.198.140.215
 13   148 ms   186 ms   203 ms  52.95.218.74
 14     *         *         *     Request timed out.
 15     *         *         *     Request timed out.
 16     *         *         *     Request timed out.
 17     *         *         *     Request timed out.
 18     *         *         *     Request timed out.
 19     *         *         *     Request timed out.
 20     *         *         *     Request timed out.
 21     *         *         *     Request timed out.
 22     *         *         *     Request timed out.
 23     *         *         *     Request timed out.
 24     *         *         *     Request timed out.
 25     *         *         *     Request timed out.
 26     *         *         *     Request timed out.
 27     *         *         *     Request timed out.
 28     *         *         *     Request timed out.
 29     *         *         *     Request timed out.
 30     *         *         *     Request timed out.

Trace complete.
```

Netstat

```
somsi@SOM MINGW64 ~
$ netstat

Active Connections

  Proto  Local Address          Foreign Address        State
  TCP    127.0.0.1:49676        SOM:49677              ESTABLISHED
  TCP    127.0.0.1:49677        SOM:49676              ESTABLISHED
  TCP    127.0.0.1:49678        SOM:49679              ESTABLISHED
  TCP    127.0.0.1:49679        SOM:49678              ESTABLISHED
  TCP    127.0.0.1:49714        SOM:49715              ESTABLISHED
  TCP    127.0.0.1:49715        SOM:49714              ESTABLISHED
  TCP    127.0.0.1:49722        SOM:49723              ESTABLISHED
  TCP    127.0.0.1:49723        SOM:49722              ESTABLISHED
  TCP    127.0.0.1:51123        SOM:51124              ESTABLISHED
  TCP    127.0.0.1:51124        SOM:51123              ESTABLISHED
  TCP    127.0.0.1:54197        SOM:54198              ESTABLISHED
  TCP    127.0.0.1:54198        SOM:54197              ESTABLISHED
  TCP    127.0.0.1:54338        SOM:54339              ESTABLISHED
  TCP    127.0.0.1:54339        SOM:54338              ESTABLISHED
  TCP    127.0.0.1:54404        SOM:54405              ESTABLISHED
  TCP    127.0.0.1:54405        SOM:54404              ESTABLISHED
  TCP    127.0.0.1:55706        SOM:55707              ESTABLISHED
  TCP    127.0.0.1:55707        SOM:55706              ESTABLISHED
  TCP    127.0.0.1:56696        SOM:56697              ESTABLISHED
  TCP    127.0.0.1:56697        SOM:56696              ESTABLISHED
  TCP    127.0.0.1:57060        SOM:57061              ESTABLISHED
  TCP    127.0.0.1:57061        SOM:57060              ESTABLISHED
  TCP    127.0.0.1:59620        SOM:59621              ESTABLISHED
  TCP    127.0.0.1:59621        SOM:59620              ESTABLISHED
  TCP    127.0.0.1:59651        SOM:59652              ESTABLISHED
  TCP    127.0.0.1:59652        SOM:59651              ESTABLISHED
  TCP    127.0.0.1:59789        SOM:59790              ESTABLISHED
```

```
somsi@SOM MINGW64 ~
$ netstat -es
Interface Statistics

                           Received            Sent

Bytes                     179631035          64547053
Unicast packets              205583            142512
Non-unicast packets             170             59214
Discards                          0                 0
Errors                            0                 0
Unknown protocols                 0

IPv4 Statistics

  Packets Received                   = 42551657
  Received Header Errors             = 29
  Received Address Errors            = 995414
  Datagrams Forwarded                = 0
  Unknown Protocols Received         = 25
  Received Packets Discarded         = 1860964
  Received Packets Delivered         = 39972361
  Output Requests                    = 6349774
  Routing Discards                   = 0
  Discarded Output Packets           = 39121
  Output Packet No Route             = 879
  Reassembly Required                = 1832
  Reassembly Successful              = 887
  Reassembly Failures                = 0
  Datagrams Successfully Fragmented  = 0
  Datagrams Failing Fragmentation    = 0
  Fragments Created                  = 0

IPv6 Statistics

  Packets Received                   = 28
  Received Header Errors             = 0
  Received Address Errors            = 28
  Datagrams Forwarded                = 0
  Unknown Protocols Received         = 0
  Received Packets Discarded         = 0
  Received Packets Delivered         = 329734
  Output Requests                    = 330564
  Routing Discards                   = 0
  Discarded Output Packets           = 0
  Output Packet No Route             = 0
  Reassembly Required                = 0
  Reassembly Successful              = 0
  Reassembly Failures                = 0
  Datagrams Successfully Fragmented  = 0
  Datagrams Failing Fragmentation    = 0
  Fragments Created                  = 0

ICMPv4 Statistics

                           Received    Sent
  Messages                 17824       11053
  Errors                   0           0
  Destination Unreachable  4538        6294
  Time Exceeded            21          6
  Parameter Problems       0           0
  Source Quenches          0           0
  Redirects                0           0
  Echo Replies             4595        0
  Echos                    3           4753
  Timestamps               0           0
  Timestamp Replies        0           0
  Address Masks            0           0
```

Nslookup

```
som@SOM:~$ nslookup
> amazon.in
Server:          172.19.0.1
Address:         172.19.0.1#53

Non-authoritative answer:
Name:    amazon.in
Address: 54.239.33.92
Name:    amazon.in
Address: 52.95.120.67
Name:    amazon.in
Address: 52.95.116.115
>
```

```
som@SOM:~$ nslookup amazon.in
Server:          172.19.0.1
Address:         172.19.0.1#53

Non-authoritative answer:
Name:    amazon.in
Address: 52.95.120.67
Name:    amazon.in
Address: 54.239.33.92
Name:    amazon.in
Address: 52.95.116.115
```

Ipconfig/ifconfig

```
som@SOM:~$ ifconfig -a
bond0: flags=5122<BROADCAST,MASTER,MULTICAST>  mtu 1500
        ether 86:c4:65:6b:02:74  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

dummy0: flags=130<BROADCAST,NOARP>  mtu 1500
        ether ba:98:27:1a:22:f6  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

eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 172.19.9.193  netmask 255.255.240.0  broadcast 172.19.15.255
        inet6 fe80::215:5dff:fe76:3e16  prefixlen 64  scopeid 0x20<link>
        ether 00:15:5d:76:3e:16  txqueuelen 1000  (Ethernet)
        RX packets 208  bytes 215465 (215.4 KB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 180  bytes 12440 (12.4 KB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

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 14  bytes 546 (546.0 B)
        RX errors 0  dropped 0  overruns 0  frame 0
```

Route

```
som@SOM:~$ route
Kernel IP routing table
Destination     Gateway         Genmask         Flags Metric Ref    Use Iface
default         SOM.mshome.net  0.0.0.0         UG    0      0        0 eth0
172.19.0.0      0.0.0.0         255.255.240.0   U     0      0        0 eth0
som@SOM:~$
```

ARP

```
somsi@SOM MINGW64 ~
$ arp -a

Interface: 192.168.28.107 --- 0xa
  Internet Address      Physical Address      Type
  192.168.28.29         9a-48-df-b5-c8-85     dynamic
  192.168.28.255        ff-ff-ff-ff-ff-ff     static
  224.0.0.22            01-00-5e-00-00-16     static
  224.0.0.251           01-00-5e-00-00-fb     static
  224.0.0.252           01-00-5e-00-00-fc     static
  239.255.255.250       01-00-5e-7f-ff-fa     static
  255.255.255.255       ff-ff-ff-ff-ff-ff     static

Interface: 172.19.0.1 --- 0x3d
  Internet Address      Physical Address      Type
  172.19.3.65           00-15-5d-76-34-c8     dynamic
  172.19.7.119          00-15-5d-76-33-44     dynamic
  172.19.9.193          00-15-5d-76-3e-16     dynamic
  172.19.15.255         ff-ff-ff-ff-ff-ff     static
  224.0.0.2             01-00-5e-00-00-02     static
  224.0.0.9             01-00-5e-00-00-09     static
  224.0.0.18            01-00-5e-00-00-12     static
  224.0.0.22            01-00-5e-00-00-16     static
  224.0.0.250           01-00-5e-00-00-fa     static
  224.0.0.251           01-00-5e-00-00-fb     static
  224.0.0.253           01-00-5e-00-00-fd     static
  224.0.1.60            01-00-5e-00-01-3c     static
  224.0.1.187           01-00-5e-00-01-bb     static
  239.255.255.250       01-00-5e-7f-ff-fa     static
  239.255.255.253       01-00-5e-7f-ff-fd     static

somsi@SOM MINGW64 ~
$ _
```

```
som@SOM:~$ arp -a
SOM.mshome.net (172.19.0.1) at 00:15:5d:be:d7:56 [ether] on eth0
som@SOM:~$
```

```
somsi@SOM MINGW64 ~
$ route print
===========================================================================
Interface List
 21...00 ff b4 ba b3 eb ......TAP-Windows Adapter V9
  9...00 ff 5a 41 d1 bf ......TAP-ProtonVPN Windows Adapter V9
 25...34 cf f6 df 7a 1a ......Microsoft Wi-Fi Direct Virtual Adapter #3
 24...36 cf f6 df 7a 19 ......Microsoft Wi-Fi Direct Virtual Adapter #4
 10...34 cf f6 df 7a 19 ......Intel(R) Wireless-AC 9461
  1...........................Software Loopback Interface 1
 61...00 15 5d be d7 56 ......Hyper-V Virtual Ethernet Adapter
===========================================================================

IPv4 Route Table
===========================================================================
Active Routes:
Network Destination        Netmask          Gateway       Interface  Metric
          0.0.0.0          0.0.0.0    192.168.28.29   192.168.28.107     55
        127.0.0.0        255.0.0.0         On-link        127.0.0.1    331
        127.0.0.1  255.255.255.255         On-link        127.0.0.1    331
  127.255.255.255  255.255.255.255         On-link        127.0.0.1    331
       172.19.0.0    255.255.240.0         On-link       172.19.0.1   5256
       172.19.0.1  255.255.255.255         On-link       172.19.0.1   5256
   172.19.15.255  255.255.255.255         On-link       172.19.0.1   5256
     192.168.28.0    255.255.255.0         On-link   192.168.28.107    311
   192.168.28.107  255.255.255.255         On-link   192.168.28.107    311
   192.168.28.255  255.255.255.255         On-link   192.168.28.107    311
        224.0.0.0        240.0.0.0         On-link        127.0.0.1    331
        224.0.0.0        240.0.0.0         On-link       172.19.0.1   5256
        224.0.0.0        240.0.0.0         On-link   192.168.28.107    311
  255.255.255.255  255.255.255.255         On-link        127.0.0.1    331
  255.255.255.255  255.255.255.255         On-link       172.19.0.1   5256
  255.255.255.255  255.255.255.255         On-link   192.168.28.107    311
===========================================================================
Persistent Routes:
  None

IPv6 Route Table
===========================================================================
Active Routes:
 If Metric Network Destination      Gateway
  1    331 ::1/128                  On-link
 61   5256 fe80::/64                On-link
 61   5256 fe80::943:e896:ab74:5be2/128
                                    On-link
  1    331 ff00::/8                 On-link
 61   5256 ff00::/8                 On-link
===========================================================================
```

ARP

```
somsi@SOM MINGW64 ~
$ arp -a

Interface: 192.168.28.107 --- 0xa
  Internet Address      Physical Address      Type
  192.168.28.29         9a-48-df-b5-c8-85     dynamic
  192.168.28.255        ff-ff-ff-ff-ff-ff     static
  224.0.0.22            01-00-5e-00-00-16     static
  224.0.0.251           01-00-5e-00-00-fb     static
  224.0.0.252           01-00-5e-00-00-fc     static
  239.255.255.250       01-00-5e-7f-ff-fa     static
  255.255.255.255       ff-ff-ff-ff-ff-ff     static

Interface: 172.19.0.1 --- 0x3d
  Internet Address      Physical Address      Type
  172.19.3.65           00-15-5d-76-34-c8     dynamic
  172.19.7.119          00-15-5d-76-33-44     dynamic
  172.19.9.193          00-15-5d-76-3e-16     dynamic
  172.19.15.255         ff-ff-ff-ff-ff-ff     static
  224.0.0.2             01-00-5e-00-00-02     static
  224.0.0.9             01-00-5e-00-00-09     static
  224.0.0.18            01-00-5e-00-00-12     static
  224.0.0.22            01-00-5e-00-00-16     static
  224.0.0.250           01-00-5e-00-00-fa     static
  224.0.0.251           01-00-5e-00-00-fb     static
  224.0.0.253           01-00-5e-00-00-fd     static
  224.0.1.60            01-00-5e-00-01-3c     static
  224.0.1.187           01-00-5e-00-01-bb     static
  239.255.255.250       01-00-5e-7f-ff-fa     static
  239.255.255.253       01-00-5e-7f-ff-fd     static
```