

# Computer Networks(CSE 232)

## Assignment 1: Command Line Utilities

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Q1)

A)

```
saad@saad-VirtualBox: ~  
saad@saad-VirtualBox:~$ ifconfig  
enp0s3: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500  
    inet 10.0.2.15 netmask 255.255.255.0 broadcast 10.0.2.255  
    inet6 fe80::6638:40c:15b5:cb41 prefixlen 64 scopeid 0x20<link>  
    ether 08:00:27:df:79:3d txqueuelen 1000 (Ethernet)  
    RX packets 3359 bytes 4607908 (4.6 MB)  
    RX errors 0 dropped 0 overruns 0 frame 0  
    TX packets 1003 bytes 125684 (125.6 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 120 bytes 17608 (17.6 KB)  
    RX errors 0 dropped 0 overruns 0 frame 0  
    TX packets 120 bytes 17608 (17.6 KB)  
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0  
  
saad@saad-VirtualBox:~$
```

🌐 IP WHOIS Lookup   🌐 DNS Lookup   🕒 Internet Speed Test   ⚙️ Tools

## What Is My IP?

My Public IPv4 is: **103.95.80.185** 📄

My Public IPv6 is: Not Detected

My IP Location is: **Banda, UP IN**

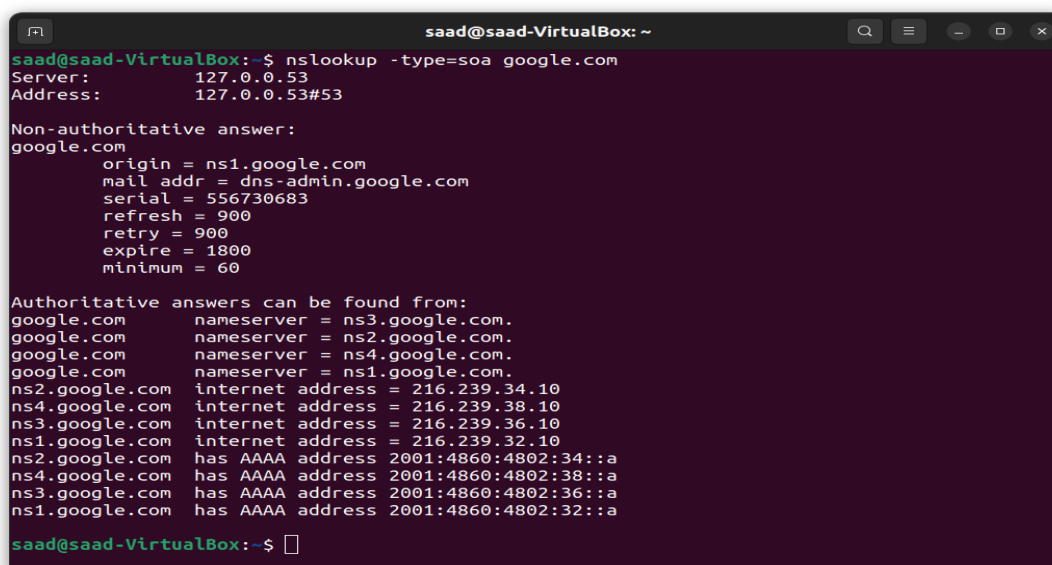
My ISP is: **Evedin Technologies**

B) Ans:- both the IPs that are shown by ifconfig command and by whatismyip.com are different

The reason for it that the ip that is shown by whatismyip.com is the IP that is provided by our Internet Service Provider(ISP), not by our laptop. The IP address provided by ifconfig command is provided by the VM( virtual machine).

Q2)

A)

A terminal window titled 'saad@saad-VirtualBox: ~' with a dark purple background. It shows the command 'nslookup -type=soa google.com' and its output. The output includes the server address (127.0.0.53), a non-authoritative answer for google.com with various DNS parameters, and a list of authoritative nameservers and their IP addresses for google.com.

```
saad@saad-VirtualBox:~$ nslookup -type=soa google.com
Server:          127.0.0.53
Address:         127.0.0.53#53

Non-authoritative answer:
google.com
    origin = ns1.google.com
    mail addr = dns-admin.google.com
    serial = 556730683
    refresh = 900
    retry = 900
    expire = 1800
    minimum = 60

Authoritative answers can be found from:
google.com      nameserver = ns3.google.com.
google.com      nameserver = ns2.google.com.
google.com      nameserver = ns4.google.com.
google.com      nameserver = ns1.google.com.
ns2.google.com  internet address = 216.239.34.10
ns4.google.com  internet address = 216.239.38.10
ns3.google.com  internet address = 216.239.36.10
ns1.google.com  internet address = 216.239.32.10
ns2.google.com  has AAAA address 2001:4860:4802:34::a
ns4.google.com  has AAAA address 2001:4860:4802:38::a
ns3.google.com  has AAAA address 2001:4860:4802:36::a
ns1.google.com  has AAAA address 2001:4860:4802:32::a

saad@saad-VirtualBox:~$
```

First we get the details of the authoritative server for this I used nslookup -type=soa google.com here soa implies SOA Start of Authority records. By this we get the authoritative response.

B)

A terminal window titled 'saad@saad-VirtualBox: ~' with standard window controls. The command 'dig +ttlunits google.com' has been executed. The output shows DNS query details for google.com, including the question section, answer section with a TTL of 55s, and query statistics.

```
saad@saad-VirtualBox:~$ dig +ttlunits google.com

; <<> DiG 9.18.12-0ubuntu0.22.04.2-Ubuntu <<> +ttlunits google.com
;; global options: +cmd
;; Got answer:
;; ->HEADER<- opcode: QUERY, status: NOERROR, id: 52582
;; Flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:: udp: 65494
;; QUESTION SECTION:
;google.com.                IN      A

;; ANSWER SECTION:
google.com.                55s     IN      A      142.250.206.174

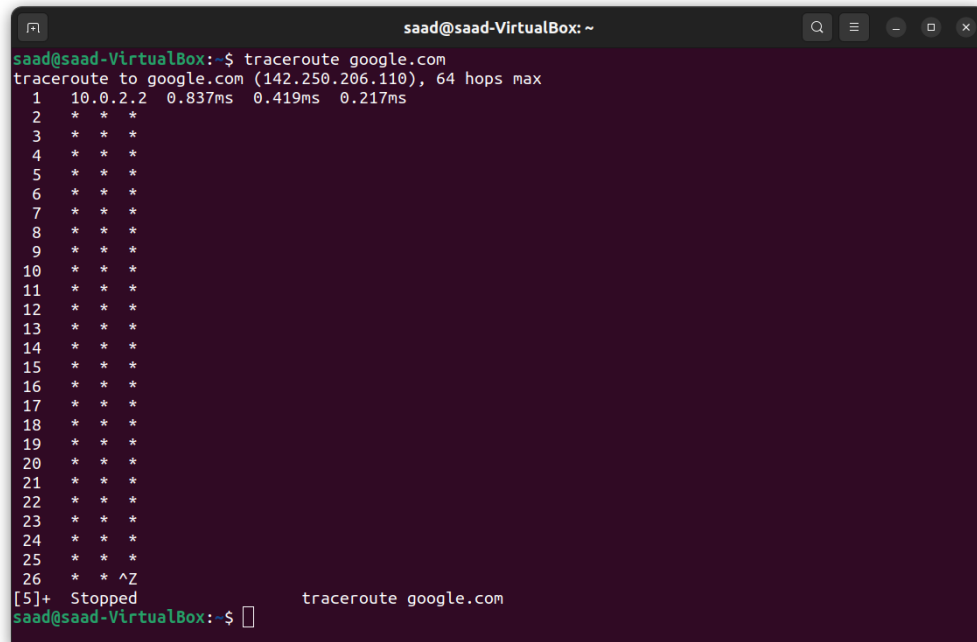
;; Query time: 0 msec
;; SERVER: 127.0.0.53#53(127.0.0.53) (UDP)
;; WHEN: Tue Aug 22 16:39:57 IST 2023
;; MSG SIZE rcvd: 55

saad@saad-VirtualBox:~$
```

I have used dig +ttlunits command to find the ttl(Time to Live) of any website here i found out the time to live of google.com Here time to live of google.com is 55 sec. +ttlunits give the time in min and sec. It will expire after 55sec.

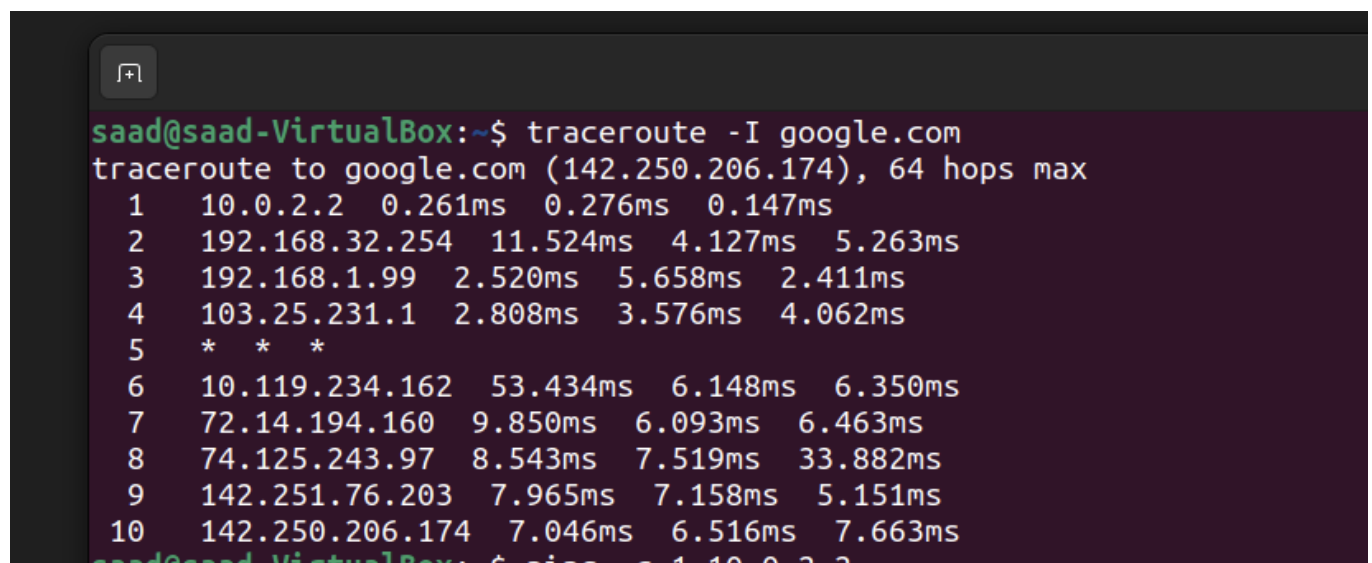
Q3)

A) When I am using traceroute google.com, I just got i IP address and rest I got astricx like this—



```
saad@saad-VirtualBox: ~  
saad@saad-VirtualBox:~$ traceroute google.com  
traceroute to google.com (142.250.206.110), 64 hops max  
1  10.0.2.2  0.837ms  0.419ms  0.217ms  
2  * * *  
3  * * *  
4  * * *  
5  * * *  
6  * * *  
7  * * *  
8  * * *  
9  * * *  
10 * * *  
11 * * *  
12 * * *  
13 * * *  
14 * * *  
15 * * *  
16 * * *  
17 * * *  
18 * * *  
19 * * *  
20 * * *  
21 * * *  
22 * * *  
23 * * *  
24 * * *  
25 * * *  
26 * * ^Z  
[5]+  Stopped                  traceroute google.com  
saad@saad-VirtualBox:~$
```

But when i used traceroute -I google.com i got this output



```
saad@saad-VirtualBox:~$ traceroute -I google.com  
traceroute to google.com (142.250.206.174), 64 hops max  
1  10.0.2.2  0.261ms  0.276ms  0.147ms  
2  192.168.32.254  11.524ms  4.127ms  5.263ms  
3  192.168.1.99  2.520ms  5.658ms  2.411ms  
4  103.25.231.1  2.808ms  3.576ms  4.062ms  
5  * * *  
6  10.119.234.162  53.434ms  6.148ms  6.350ms  
7  72.14.194.160  9.850ms  6.093ms  6.463ms  
8  74.125.243.97  8.543ms  7.519ms  33.882ms  
9  142.251.76.203  7.965ms  7.158ms  5.151ms  
10 142.250.206.174  7.046ms  6.516ms  7.663ms  
saad@saad-VirtualBox:~$ ping -c 1 10.0.2.2
```

Average latency of intermediate host:-

IPS	Average Latency
1 10.0.2.2	0.228 ms
2 192.168.32.254	6.971 ms
3 192.168.1.99	3.529 ms
4 103.25.231.1	3.482 ms
6 10.119.234.162	21.977ms
7 72.14.194.160	7.468 ms
8 74.125.243.97	16.648 ms
9 142.251.76.203	6.668 ms
10 142.250.206.174	7.075 ms

B)

```
saad@saad-VirtualBox:~$ ping -c 50 google.com
PING google.com (142.250.206.174) 56(84) bytes of data:
64 bytes from dell11522-ln-f14-1e1000.net (142.250.206.174): icmp_seq=1 ttl=117 time=15.0 ms
64 bytes from dell11522-ln-f14-1e1000.net (142.250.206.174): icmp_seq=2 ttl=117 time=18.5 ms
64 bytes from dell11522-ln-f14-1e1000.net (142.250.206.174): icmp_seq=3 ttl=117 time=36.3 ms
64 bytes from dell11522-ln-f14-1e1000.net (142.250.206.174): icmp_seq=4 ttl=117 time=63.5 ms
64 bytes from dell11522-ln-f14-1e1000.net (142.250.206.174): icmp_seq=5 ttl=117 time=6.73 ms
64 bytes from dell11522-ln-f14-1e1000.net (142.250.206.174): icmp_seq=6 ttl=117 time=7.32 ms
64 bytes from dell11522-ln-f14-1e1000.net (142.250.206.174): icmp_seq=7 ttl=117 time=8.45 ms
64 bytes from dell11522-ln-f14-1e1000.net (142.250.206.174): icmp_seq=8 ttl=117 time=26.7 ms
64 bytes from dell11522-ln-f14-1e1000.net (142.250.206.174): icmp_seq=9 ttl=117 time=7.24 ms
64 bytes from dell11522-ln-f14-1e1000.net (142.250.206.174): icmp_seq=10 ttl=117 time=6.59 ms
64 bytes from dell11522-ln-f14-1e1000.net (142.250.206.174): icmp_seq=11 ttl=117 time=7.31 ms
64 bytes from dell11522-ln-f14-1e1000.net (142.250.206.174): icmp_seq=12 ttl=117 time=9.49 ms
64 bytes from dell11522-ln-f14-1e1000.net (142.250.206.174): icmp_seq=13 ttl=117 time=13.8 ms
64 bytes from dell11522-ln-f14-1e1000.net (142.250.206.174): icmp_seq=14 ttl=117 time=6.66 ms
64 bytes from dell11522-ln-f14-1e1000.net (142.250.206.174): icmp_seq=15 ttl=117 time=6.51 ms
64 bytes from dell11522-ln-f14-1e1000.net (142.250.206.174): icmp_seq=16 ttl=117 time=6.70 ms
64 bytes from dell11522-ln-f14-1e1000.net (142.250.206.174): icmp_seq=17 ttl=117 time=25.4 ms
64 bytes from dell11522-ln-f14-1e1000.net (142.250.206.174): icmp_seq=18 ttl=117 time=8.13 ms
64 bytes from dell11522-ln-f14-1e1000.net (142.250.206.174): icmp_seq=19 ttl=117 time=7.25 ms
64 bytes from dell11522-ln-f14-1e1000.net (142.250.206.174): icmp_seq=20 ttl=117 time=15.2 ms
64 bytes from dell11522-ln-f14-1e1000.net (142.250.206.174): icmp_seq=21 ttl=117 time=27.0 ms
64 bytes from dell11522-ln-f14-1e1000.net (142.250.206.174): icmp_seq=22 ttl=117 time=49.9 ms
64 bytes from dell11522-ln-f14-1e1000.net (142.250.206.174): icmp_seq=23 ttl=117 time=12.0 ms
64 bytes from dell11522-ln-f14-1e1000.net (142.250.206.174): icmp_seq=24 ttl=117 time=6.00 ms
64 bytes from dell11522-ln-f14-1e1000.net (142.250.206.174): icmp_seq=25 ttl=117 time=11.3 ms
64 bytes from dell11522-ln-f14-1e1000.net (142.250.206.174): icmp_seq=26 ttl=117 time=24.1 ms
64 bytes from dell11522-ln-f14-1e1000.net (142.250.206.174): icmp_seq=27 ttl=117 time=7.71 ms
64 bytes from dell11522-ln-f14-1e1000.net (142.250.206.174): icmp_seq=28 ttl=117 time=5.90 ms
64 bytes from dell11522-ln-f14-1e1000.net (142.250.206.174): icmp_seq=29 ttl=117 time=7.66 ms
64 bytes from dell11522-ln-f14-1e1000.net (142.250.206.174): icmp_seq=30 ttl=117 time=12.6 ms
64 bytes from dell11522-ln-f14-1e1000.net (142.250.206.174): icmp_seq=31 ttl=117 time=4.4 ms
64 bytes from dell11522-ln-f14-1e1000.net (142.250.206.174): icmp_seq=32 ttl=117 time=5.83 ms
64 bytes from dell11522-ln-f14-1e1000.net (142.250.206.174): icmp_seq=33 ttl=117 time=6.40 ms
64 bytes from dell11522-ln-f14-1e1000.net (142.250.206.174): icmp_seq=34 ttl=117 time=11.6 ms
64 bytes from dell11522-ln-f14-1e1000.net (142.250.206.174): icmp_seq=35 ttl=117 time=26.0 ms
64 bytes from dell11522-ln-f14-1e1000.net (142.250.206.174): icmp_seq=36 ttl=117 time=58.3 ms
64 bytes from dell11522-ln-f14-1e1000.net (142.250.206.174): icmp_seq=37 ttl=117 time=6.92 ms
64 bytes from dell11522-ln-f14-1e1000.net (142.250.206.174): icmp_seq=38 ttl=117 time=5.98 ms
64 bytes from dell11522-ln-f14-1e1000.net (142.250.206.174): icmp_seq=39 ttl=117 time=6.32 ms
64 bytes from dell11522-ln-f14-1e1000.net (142.250.206.174): icmp_seq=40 ttl=117 time=9.13 ms
64 bytes from dell11522-ln-f14-1e1000.net (142.250.206.174): icmp_seq=41 ttl=117 time=5.85 ms
64 bytes from dell11522-ln-f14-1e1000.net (142.250.206.174): icmp_seq=42 ttl=117 time=46.7 ms
64 bytes from dell11522-ln-f14-1e1000.net (142.250.206.174): icmp_seq=43 ttl=117 time=46.2 ms
64 bytes from dell11522-ln-f14-1e1000.net (142.250.206.174): icmp_seq=44 ttl=117 time=5.96 ms
64 bytes from dell11522-ln-f14-1e1000.net (142.250.206.174): icmp_seq=45 ttl=117 time=6.66 ms
64 bytes from dell11522-ln-f14-1e1000.net (142.250.206.174): icmp_seq=46 ttl=117 time=21.0 ms
64 bytes from dell11522-ln-f14-1e1000.net (142.250.206.174): icmp_seq=47 ttl=117 time=37.7 ms
64 bytes from dell11522-ln-f14-1e1000.net (142.250.206.174): icmp_seq=48 ttl=117 time=5.77 ms
64 bytes from dell11522-ln-f14-1e1000.net (142.250.206.174): icmp_seq=49 ttl=117 time=5.68 ms
64 bytes from dell11522-ln-f14-1e1000.net (142.250.206.174): icmp_seq=50 ttl=117 time=4.18 ms

... google.com ping statistics ...
50 packets transmitted, 50 received, 0% packet loss, time 4014ms
rtt min/avg/max/mdev = 3.675/15.981/58.286/14.051 ms
saad@saad-VirtualBox:~$
```

So the Average latency for google.com is:- 15.981 ms

C)

sum of the average latencies obtained of the intermediate host:- 74.046ms

Average latency in part b:- 15.981ms

No, they are not matching. We get a higher latency when we sum all the intermediate latencies. This is because the traceroute command takes the latency of each hop from the host. That means in the later hops, the latencies of the previous hops are already accounted.

D)

The maximum ping latency of the intermediate host is:- 21.977 ms

Average latency in part b:- 15.981 ms

They are not matching. But they are close. This is because the traceroute command sends the packets quickly but takes time in responding back to the host. That's why it has higher latency.

E) Because the traceroute command sends 3 consecutive packets to the hops in a round trip. All three entries are the time of the individual packets sent to the hops.

F)

```
saad@saad-VirtualBox:~$ ping -c 50 stanford.edu
ping: stanford.edu: Name or service not known
saad@saad-VirtualBox:~$ ping -c 50 stanford.edu
PING stanford.edu (171.67.215.200): 56(84) bytes of data:
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=1 ttl=230 time=323 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=2 ttl=230 time=322 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=3 ttl=230 time=351 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=4 ttl=230 time=372 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=5 ttl=230 time=322 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=6 ttl=230 time=327 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=7 ttl=230 time=325 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=8 ttl=230 time=360 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=9 ttl=230 time=321 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=10 ttl=230 time=320 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=11 ttl=230 time=323 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=12 ttl=230 time=321 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=13 ttl=230 time=344 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=14 ttl=230 time=321 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=15 ttl=230 time=321 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=16 ttl=230 time=321 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=17 ttl=230 time=321 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=18 ttl=230 time=321 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=19 ttl=230 time=340 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=20 ttl=230 time=337 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=21 ttl=230 time=321 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=22 ttl=230 time=321 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=23 ttl=230 time=321 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=24 ttl=230 time=328 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=25 ttl=230 time=357 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=26 ttl=230 time=336 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=27 ttl=230 time=350 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=28 ttl=230 time=362 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=29 ttl=230 time=321 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=30 ttl=230 time=322 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=31 ttl=230 time=326 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=32 ttl=230 time=338 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=33 ttl=230 time=351 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=34 ttl=230 time=346 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=35 ttl=230 time=320 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=36 ttl=230 time=321 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=37 ttl=230 time=321 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=38 ttl=230 time=321 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=39 ttl=230 time=363 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=40 ttl=230 time=344 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=41 ttl=230 time=323 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=42 ttl=230 time=322 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=43 ttl=230 time=321 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=44 ttl=230 time=340 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=45 ttl=230 time=343 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=46 ttl=230 time=321 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=47 ttl=230 time=321 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=48 ttl=230 time=321 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=49 ttl=230 time=325 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=50 ttl=230 time=337 ms

--- stanford.edu ping statistics ---
50 packets transmitted, 50 received, 0% packet loss, time 49310ms
rtt min/avg/max/mdev = 320.383/332.117/372.340/14.256 ms
saad@saad-VirtualBox:~$
```

So the Average latency for Stanford.edu is:- 332.117 ms

G)

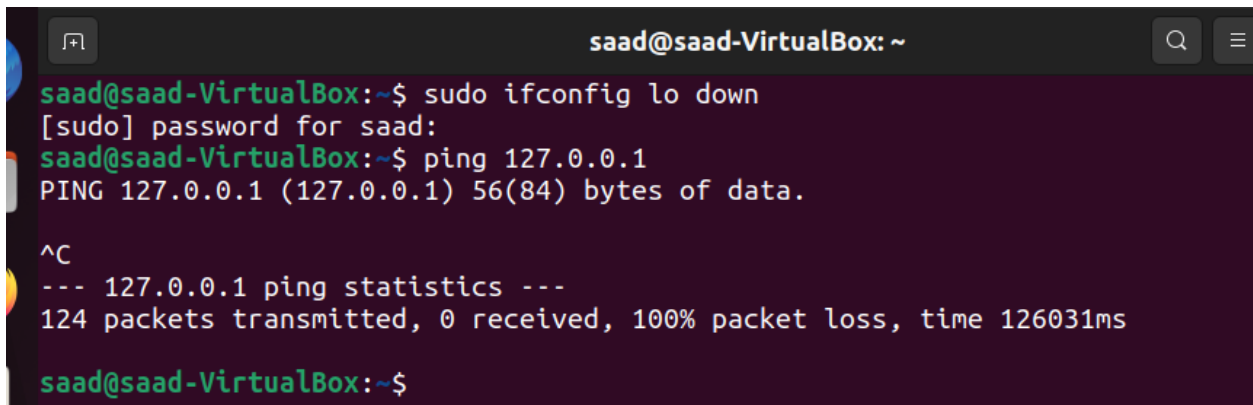
```
saad@saad-VirtualBox:~$ traceroute -I stanford.edu
traceroute to stanford.edu (171.67.215.200), 64 hops max
 1  10.0.2.2  0.407ms  0.330ms  0.233ms
 2  192.168.32.254  2.953ms  2.650ms  3.053ms
 3  192.168.1.99  2.062ms  1.827ms  1.726ms
 4  103.25.231.1  3.308ms  3.313ms  23.514ms
 5  10.1.209.201  29.828ms  30.662ms  61.236ms
 6  10.1.200.137  36.871ms  66.703ms  36.690ms
 7  10.255.238.254  65.955ms  35.858ms  78.979ms
 8  180.149.48.18  31.077ms  71.910ms  31.021ms
 9  180.149.48.6  181.314ms  181.301ms  209.240ms
10  180.149.48.20  207.352ms  181.247ms  171.626ms
11  180.149.48.13  253.471ms  253.854ms  259.881ms
12  163.253.1.116  324.364ms  324.317ms  325.599ms
13  163.253.1.123  344.410ms  319.308ms  320.323ms
14  163.253.1.211  319.480ms  320.112ms  320.303ms
15  163.253.1.206  339.741ms  330.681ms  326.041ms
16  163.253.2.29  327.663ms  360.492ms  329.857ms
17  163.253.1.250  326.170ms  324.345ms  351.074ms
18  163.253.1.169  339.378ms  340.743ms  339.108ms
19  163.253.1.186  330.309ms  323.264ms  328.034ms
20  163.253.1.34  317.292ms  347.660ms  321.184ms
21  163.253.1.193  324.590ms  324.189ms  366.117ms
22  137.164.26.126  336.466ms  387.682ms  338.287ms
23  137.164.25.95  320.595ms  366.334ms  318.445ms
24  137.164.26.241  329.907ms  354.460ms  330.061ms
25  171.66.255.132  325.251ms  325.312ms  349.510ms
26  * * *
27  171.67.215.200  321.236ms  322.349ms  321.329ms
saad@saad-VirtualBox:~$
```

In stanford.edu there are more hops as compared to google.com.

H)

The reason for the high latency is the distance between the server and the user, and since it has higher latency, then there are many delays because of the lots of hops.

Q4)

A terminal window titled 'saad@saad-VirtualBox: ~' with a search icon and a menu icon in the top right. The terminal shows the following commands and output:

```
saad@saad-VirtualBox:~$ sudo ifconfig lo down
[sudo] password for saad:
saad@saad-VirtualBox:~$ ping 127.0.0.1
PING 127.0.0.1 (127.0.0.1) 56(84) bytes of data.

^C
--- 127.0.0.1 ping statistics ---
124 packets transmitted, 0 received, 100% packet loss, time 126031ms

saad@saad-VirtualBox:~$
```

We have to block the loopback interface by using the command `sudo ifconfig lo down`. The down flag will inactive the loopback interface. Then we write the command `ping 127.0.0.1` and the result we will obtain will be 100% packet loss.



Q5)

```
saad@saad-VirtualBox:~$ telnet 192.168.24.12 9900
Trying 192.168.24.12...
Connected to 192.168.24.12.
Escape character is '^]'.
GET /secret HTTP/1.1
Host: www.google.com

HTTP/1.1 200 OK
Content-Type: text/plain
ip: 192.168.44.206
X-secret: U2FsdGVkX1/HpsbGDrmslKgp5n6eyzDka30rC7hi1EKqRtS0x5/Ds+jGccLPZfbV
Date: Wed, 23 Aug 2023 08:51:36 GMT
Connection: keep-alive
Keep-Alive: timeout=5
Content-Length: 8

Success
Connection closed by foreign host.
saad@saad-VirtualBox:~$ SS
```

Q6)

```
saad@saad-VirtualBox:~$ telnet 192.168.24.12 smtp
Trying 192.168.24.12...
Connected to 192.168.24.12.
Escape character is '^]'.
220 Welcome to CSE232 Mail Server
helo cse232.com
250 xeon01-rs-iiitd.iiitd.edu.in
MAIL FROM: 21068@cse232.com
250 2.1.0 Ok
RCPT TO: 21084@cse232.com
250 2.1.5 Ok
DATA
354 End data with <CR><LF>.<CR><LF>
From: saad
TO: raj
Subject: test mesg
hello raj
this is a test mesg
your frnd
saad
.
250 2.0.0 Ok: queued as BDF696F643A5
QUIT
221 2.0.0 Bye
Connection closed by foreign host.
```

This is the output my friend got when I mailed him.

```
From 21068@cse232.com Wed Aug 23 15:05:52 2023
Return-Path: <21068@cse232.com>
X-Original-To: 21084@cse232.com
Delivered-To: 21084@cse232.com
Received: from cse232.com (unknown [192.168.44.206])
        by xeon01-rs-iiitd.iiitd.edu.in (Postfix) with SMTP id BDF696F643A5
        for <21084@cse232.com>; Wed, 23 Aug 2023 15:03:22 +0530 (IST)
From: saad
TO: raj
Subject: test mesg

hello raj
this is a test mesg
your frnd
saad
```