

# CN Assignment 1

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B.Tech ECE

2020172

## Answer 1)

a) Screenshot of 'ifconfig' command:

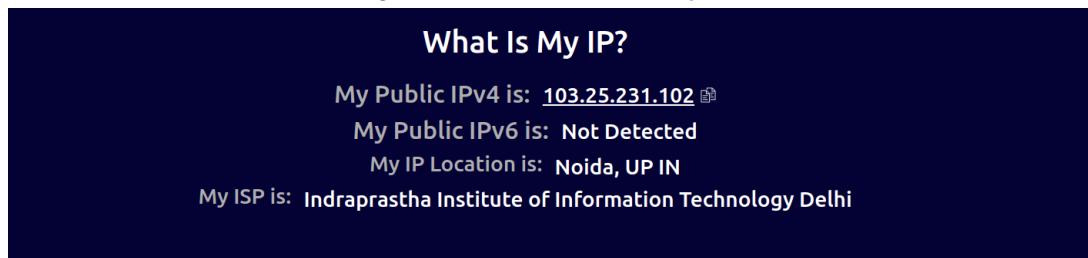
```
akshat@akshat-G3-3500:~$ ifconfig
enp4s0: flags=4099<UP,BROADCAST,MULTICAST> mtu 1500
    ether 70:b5:e8:ae:2d:df txqueuelen 1000 (Ethernet)
    RX packets 0 bytes 0 (0.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 0 bytes 0 (0.0 B)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

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 3136 bytes 278555 (278.5 KB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 3136 bytes 278555 (278.5 KB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

wlp0s20f3: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 192.168.45.154 netmask 255.255.224.0 broadcast 192.168.63.255
    inet6 fe80::6482:1b58:130:f9dd prefixlen 64 scopeid 0x20<link>
    ether a8:7e:ea:c1:bd:d5 txqueuelen 1000 (Ethernet)
    RX packets 125373 bytes 144960293 (144.9 MB)
    RX errors 0 dropped 140 overruns 0 frame 0
    TX packets 49129 bytes 18393607 (18.3 MB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

IP Address: 192.168.45.154

b) Screenshot of webpage '<https://www.whatismyip.com>':



IP Address: 103.25.231.102

We can see that the IP addresses are different, as the 'ifconfig' command provides us with the privately configured internal IP address of the system it uses. In contrast, the webpage '<https://www.whatismyip.com>' gives us the IP address assigned by the Internet Service Provider (ISP).

## Answer 2)

a) Screenshot of 'nslookup' for 'google.in' with authoritative result:

```
akshat@akshat-G3-3500:~$ nslookup -type=soa google.in
Server:          127.0.0.53
Address:         127.0.0.53#53

Non-authoritative answer:
google.in
    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:

akshat@akshat-G3-3500:~$
```

To get the authoritative result, we can set the query type as 'soa' (State of Authority), giving us the required details.

b) Screenshot of time to live (TTL) for 'google.in':

```
akshat@akshat-G3-3500:~$ dig google.in

;<<>> DiG 9.16.1-Ubuntu <<>> google.in
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 55805
;; flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 65494
;; QUESTION SECTION:
;google.in.                IN      A
;; ANSWER SECTION:
google.in.                 300     IN      A      142.250.192.228

;; Query time: 156 msec
;; SERVER: 127.0.0.53#53(127.0.0.53)
;; WHEN: Tue Aug 22 15:54:04 IST 2023
;; MSG SIZE rcvd: 54
```

After three hundred seconds, this entry will expire from the local DNS server. We can verify it by running the command after a few seconds.

### Answer 3)

a) Screenshot of 'traceroute google.in':

```
akshat@akshat-G3-3500:~$ traceroute google.in
traceroute to google.in (142.250.192.228), 64 hops max
 1  192.168.32.254  12.273ms  177.194ms  26.492ms
 2  192.168.1.99   2.159ms  2.129ms  2.072ms
 3  103.25.231.1   1.293ms  2.194ms  2.134ms
 4  * * *
 5  10.119.234.162  6.483ms  4.242ms  4.040ms
 6  72.14.195.56   16.437ms 14.777ms 22.680ms
 7  74.125.244.193  5.415ms  5.414ms  4.395ms
 8  142.251.54.63   5.072ms  5.359ms  5.244ms
 9  142.250.192.228 5.724ms  7.223ms  5.668ms
akshat@akshat-G3-3500:~$
```

After ignoring the invisible hosts, we can see that there are **eight** intermediate hosts in total.

Host S.No.	IP Address	Average Latency (3 entries) (rounded to 3 decimal places)
1	192.168.32.254	$(12.273\text{ms} + 177.194\text{ms} + 26.492\text{ms})/3 = 71.986\text{ms}$
2	192.168.1.99	$(2.159\text{ms} + 2.129\text{ms} + 2.072\text{ms})/3 = 2.12\text{ms}$
3	103.25.231.1	$(1.293\text{ms} + 2.194\text{ms} + 2.134\text{ms})/3 = 1.874\text{ms}$
4	10.119.234.162	$(6.483\text{ms} + 4.242\text{ms} + 4.040\text{ms})/3 = 4.922\text{ms}$
5	72.14.195.56	$(16.437\text{ms} + 14.777\text{ms} + 22.680\text{ms})/3 = 17.965\text{ms}$
6	74.125.244.193	$(5.415\text{ms} + 5.414\text{ms} + 4.395\text{ms})/3 = 5.075\text{ms}$
7	142.251.54.63	$(5.072\text{ms} + 5.359\text{ms} + 5.244\text{ms})/3 = 5.225\text{ms}$
8	142.250.192.228	$(5.724\text{ms} + 7.223\text{ms} + 5.668\text{ms})/3 = 6.205\text{ms}$

b) 50 ping messages to 'google.in':

Average latency (given in output of ping): 9.362 milliseconds

```
akshat@akshat-G3-3500:~$ ping -c 50 google.in
PING google.in (142.250.192.196) 56(84) bytes of data.
64 bytes from del11s12-in-f4.1e100.net (142.250.192.196): icmp_seq=1 ttl=118 time=8.69 ms
64 bytes from del11s12-in-f4.1e100.net (142.250.192.196): icmp_seq=2 ttl=118 time=7.53 ms
64 bytes from del11s12-in-f4.1e100.net (142.250.192.196): icmp_seq=3 ttl=118 time=7.30 ms
64 bytes from del11s12-in-f4.1e100.net (142.250.192.196): icmp_seq=4 ttl=118 time=7.48 ms
64 bytes from del11s12-in-f4.1e100.net (142.250.192.196): icmp_seq=5 ttl=118 time=7.75 ms
64 bytes from del11s12-in-f4.1e100.net (142.250.192.196): icmp_seq=6 ttl=118 time=6.47 ms
64 bytes from del11s12-in-f4.1e100.net (142.250.192.196): icmp_seq=7 ttl=118 time=6.97 ms
64 bytes from del11s12-in-f4.1e100.net (142.250.192.196): icmp_seq=8 ttl=118 time=17.4 ms
64 bytes from del11s12-in-f4.1e100.net (142.250.192.196): icmp_seq=9 ttl=118 time=13.5 ms
64 bytes from del11s12-in-f4.1e100.net (142.250.192.196): icmp_seq=10 ttl=118 time=6.76 ms
64 bytes from del11s12-in-f4.1e100.net (142.250.192.196): icmp_seq=11 ttl=118 time=6.78 ms
64 bytes from del11s12-in-f4.1e100.net (142.250.192.196): icmp_seq=12 ttl=118 time=6.92 ms
64 bytes from del11s12-in-f4.1e100.net (142.250.192.196): icmp_seq=13 ttl=118 time=7.07 ms
64 bytes from del11s12-in-f4.1e100.net (142.250.192.196): icmp_seq=14 ttl=118 time=7.20 ms
64 bytes from del11s12-in-f4.1e100.net (142.250.192.196): icmp_seq=15 ttl=118 time=8.05 ms
64 bytes from del11s12-in-f4.1e100.net (142.250.192.196): icmp_seq=16 ttl=118 time=7.42 ms
64 bytes from del11s12-in-f4.1e100.net (142.250.192.196): icmp_seq=17 ttl=118 time=6.93 ms
64 bytes from del11s12-in-f4.1e100.net (142.250.192.196): icmp_seq=18 ttl=118 time=7.40 ms
64 bytes from del11s12-in-f4.1e100.net (142.250.192.196): icmp_seq=19 ttl=118 time=4.99 ms
64 bytes from del11s12-in-f4.1e100.net (142.250.192.196): icmp_seq=20 ttl=118 time=7.57 ms
64 bytes from del11s12-in-f4.1e100.net (142.250.192.196): icmp_seq=21 ttl=118 time=9.56 ms
64 bytes from del11s12-in-f4.1e100.net (142.250.192.196): icmp_seq=22 ttl=118 time=7.50 ms
64 bytes from del11s12-in-f4.1e100.net (142.250.192.196): icmp_seq=23 ttl=118 time=7.44 ms
64 bytes from del11s12-in-f4.1e100.net (142.250.192.196): icmp_seq=24 ttl=118 time=6.83 ms
64 bytes from del11s12-in-f4.1e100.net (142.250.192.196): icmp_seq=25 ttl=118 time=7.00 ms
64 bytes from del11s12-in-f4.1e100.net (142.250.192.196): icmp_seq=26 ttl=118 time=7.95 ms
64 bytes from del11s12-in-f4.1e100.net (142.250.192.196): icmp_seq=27 ttl=118 time=6.71 ms
64 bytes from del11s12-in-f4.1e100.net (142.250.192.196): icmp_seq=28 ttl=118 time=9.22 ms
64 bytes from del11s12-in-f4.1e100.net (142.250.192.196): icmp_seq=29 ttl=118 time=9.40 ms
64 bytes from del11s12-in-f4.1e100.net (142.250.192.196): icmp_seq=30 ttl=118 time=8.96 ms
64 bytes from del11s12-in-f4.1e100.net (142.250.192.196): icmp_seq=31 ttl=118 time=9.75 ms
64 bytes from del11s12-in-f4.1e100.net (142.250.192.196): icmp_seq=32 ttl=118 time=8.28 ms
64 bytes from del11s12-in-f4.1e100.net (142.250.192.196): icmp_seq=33 ttl=118 time=12.7 ms
64 bytes from del11s12-in-f4.1e100.net (142.250.192.196): icmp_seq=34 ttl=118 time=12.7 ms
64 bytes from del11s12-in-f4.1e100.net (142.250.192.196): icmp_seq=35 ttl=118 time=6.60 ms
64 bytes from del11s12-in-f4.1e100.net (142.250.192.196): icmp_seq=36 ttl=118 time=7.26 ms
64 bytes from del11s12-in-f4.1e100.net (142.250.192.196): icmp_seq=37 ttl=118 time=9.77 ms
64 bytes from del11s12-in-f4.1e100.net (142.250.192.196): icmp_seq=38 ttl=118 time=13.9 ms
64 bytes from del11s12-in-f4.1e100.net (142.250.192.196): icmp_seq=39 ttl=118 time=17.3 ms
64 bytes from del11s12-in-f4.1e100.net (142.250.192.196): icmp_seq=40 ttl=118 time=8.26 ms
64 bytes from del11s12-in-f4.1e100.net (142.250.192.196): icmp_seq=41 ttl=118 time=7.54 ms
64 bytes from del11s12-in-f4.1e100.net (142.250.192.196): icmp_seq=42 ttl=118 time=18.4 ms
64 bytes from del11s12-in-f4.1e100.net (142.250.192.196): icmp_seq=43 ttl=118 time=17.2 ms
64 bytes from del11s12-in-f4.1e100.net (142.250.192.196): icmp_seq=44 ttl=118 time=7.33 ms
64 bytes from del11s12-in-f4.1e100.net (142.250.192.196): icmp_seq=45 ttl=118 time=7.62 ms
64 bytes from del11s12-in-f4.1e100.net (142.250.192.196): icmp_seq=46 ttl=118 time=16.9 ms
64 bytes from del11s12-in-f4.1e100.net (142.250.192.196): icmp_seq=47 ttl=118 time=12.1 ms
64 bytes from del11s12-in-f4.1e100.net (142.250.192.196): icmp_seq=48 ttl=118 time=13.4 ms
64 bytes from del11s12-in-f4.1e100.net (142.250.192.196): icmp_seq=49 ttl=118 time=7.00 ms
64 bytes from del11s12-in-f4.1e100.net (142.250.192.196): icmp_seq=50 ttl=118 time=13.4 ms

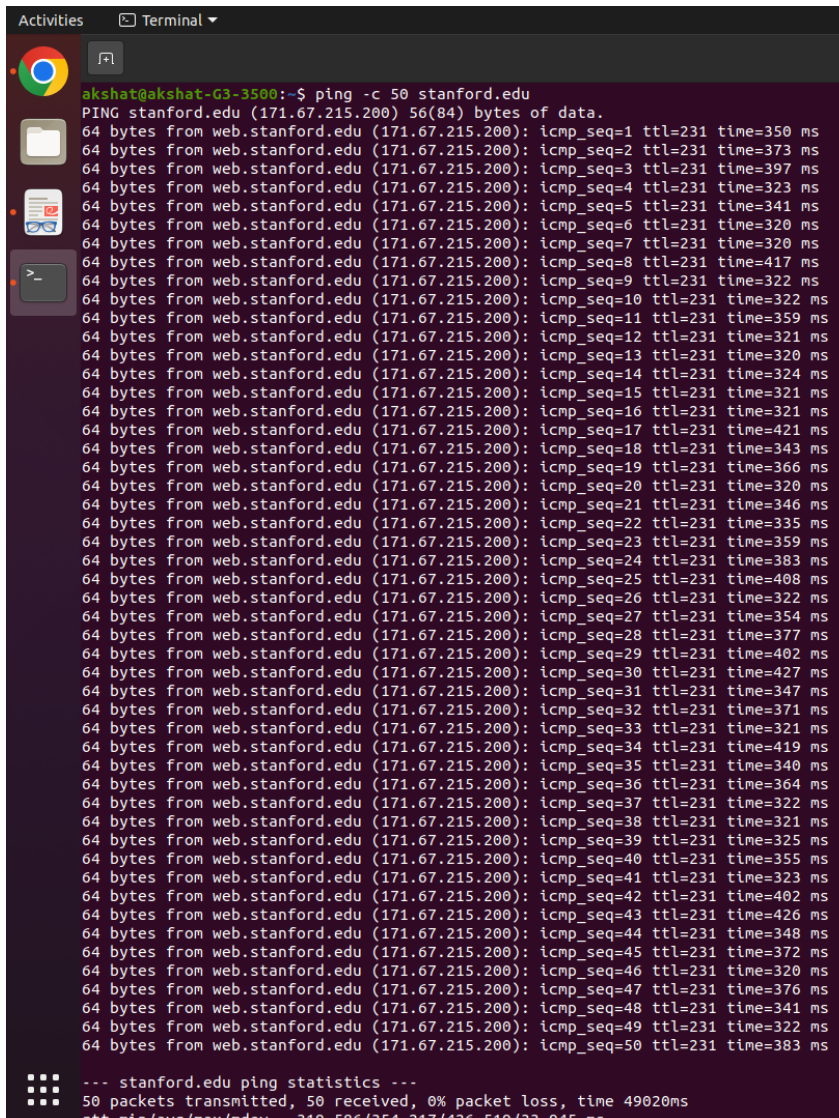
--- google.in ping statistics ---
50 packets transmitted, 50 received, 0% packet loss, time 49082ms
rtt min/avg/max/mdev = 4.993/9.362/18.434/3.414 ms
```

c) Sum of all latencies in a) :  $3 \times 71.986 + 3 \times 2.12 + 3 \times 1.874 + 3 \times 4.922 + 3 \times 17.965 + 5.075 \times 3 + 3 \times 5.225 + 3 \times 6.205 = 346.116$  milliseconds

Sum of all latencies in b) :  $9.362 \times 50 = 468.1$  milliseconds (Avg latency x No of Packets)

Sum of latencies in a) and b) are different as there are 24 entries in a) and 50 entries in b), hence sum of latencies in the pinging process would be greater than traceroute command.

- d) Maximum latency in a): 177.194 milliseconds  
Maximum latency in b): 18.434 milliseconds  
Maximum latencies are different. This difference occurs as ping is generally faster than the traceroute command as 'traceroute' sends packets and waits for the timeout response, while ping only forwards packets.
- e) There are three entries of latencies as the 'traceroute' command sends three packets to the hop, and each entry represents its latency (here in milliseconds)
- f) 50 ping messages to stanford.edu':  
Average latency (given in output of ping): 354.217 milliseconds



```
Activities Terminal
akshat@akshat-G3-3500:~$ 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=231 time=350 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=2 ttl=231 time=373 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=3 ttl=231 time=397 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=4 ttl=231 time=323 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=5 ttl=231 time=341 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=6 ttl=231 time=320 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=7 ttl=231 time=320 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=8 ttl=231 time=417 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=9 ttl=231 time=322 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=10 ttl=231 time=322 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=11 ttl=231 time=359 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=12 ttl=231 time=321 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=13 ttl=231 time=320 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=14 ttl=231 time=324 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=15 ttl=231 time=321 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=16 ttl=231 time=321 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=17 ttl=231 time=421 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=18 ttl=231 time=343 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=19 ttl=231 time=366 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=20 ttl=231 time=320 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=21 ttl=231 time=346 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=22 ttl=231 time=335 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=23 ttl=231 time=359 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=24 ttl=231 time=383 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=25 ttl=231 time=408 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=26 ttl=231 time=322 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=27 ttl=231 time=354 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=28 ttl=231 time=377 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=29 ttl=231 time=402 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=30 ttl=231 time=427 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=31 ttl=231 time=347 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=32 ttl=231 time=371 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=33 ttl=231 time=321 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=34 ttl=231 time=419 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=35 ttl=231 time=340 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=36 ttl=231 time=364 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=37 ttl=231 time=322 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=38 ttl=231 time=321 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=39 ttl=231 time=325 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=40 ttl=231 time=355 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=41 ttl=231 time=323 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=42 ttl=231 time=402 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=43 ttl=231 time=426 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=44 ttl=231 time=348 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=45 ttl=231 time=372 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=46 ttl=231 time=320 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=47 ttl=231 time=376 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=48 ttl=231 time=341 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=49 ttl=231 time=322 ms
64 bytes from web.stanford.edu (171.67.215.200): icmp_seq=50 ttl=231 time=383 ms

--- stanford.edu ping statistics ---
50 packets transmitted, 50 received, 0% packet loss, time 49020ms
rtt min/avg/max/mdev = 319.586/354.217/426.519/33.945 ms
```



g) Screenshot of 'traceroute stanford.edu':

```
akshat@akshat-G3-3500:~$ traceroute stanford.edu
traceroute to stanford.edu (171.67.215.200), 64 hops max
 1  192.168.32.254  32.515ms  21.509ms  40.692ms
 2  192.168.1.99   5.793ms  4.632ms  3.182ms
 3  103.25.231.1   2.254ms  3.096ms  3.161ms
 4  10.1.209.201   29.246ms  31.363ms  27.900ms
 5  10.1.200.137   41.324ms  41.368ms  37.357ms
 6  10.255.238.122 27.345ms  28.476ms  32.908ms
 7  180.149.48.18  36.617ms  33.680ms  36.654ms
 8  180.149.48.6   253.174ms 207.969ms 202.033ms
 9  180.149.48.13  309.245ms 305.622ms 305.383ms
10  163.253.1.116  409.662ms 410.276ms 408.788ms
11  163.253.1.116  412.289ms 407.259ms 344.243ms
12  163.253.1.211  324.748ms 354.148ms 353.945ms
13  163.253.1.211  328.730ms 340.970ms 410.508ms
14  163.253.1.206  409.159ms 411.613ms 407.235ms
15  163.253.2.29   344.763ms 371.688ms 409.324ms
16  163.253.1.169  415.764ms 403.690ms 409.019ms
17  163.253.1.169  410.389ms 409.253ms 409.637ms
18  163.253.1.38   409.548ms 409.302ms 410.070ms
19  163.253.1.193  408.114ms 412.287ms 408.430ms
20  163.253.1.193  407.850ms 410.530ms 409.142ms
21  137.164.25.95  408.985ms 410.467ms 410.472ms
22  137.164.25.95  408.204ms 414.102ms 404.997ms
23  137.164.26.241 408.801ms 410.945ms 408.445ms
24  * * *
25  * * *
26  171.67.215.200 414.935ms 408.814ms 410.110ms
akshat@akshat-G3-3500:~$
```

We can see that the number of hops (intermediate hosts) for 'stanford.edu' is very high (24) as compared to 'google.in' (8) as the server of stanford.edu is further from my system than the server of 'google.in', hence, many intermediate hosts are encountered on the path to the server of 'stanford.edu'.

h) The latency for pinging to 'google.in' is very low compared to 'stanford.edu' as my system is much closer to the server of 'google.in' than the server of 'stanford.edu', which means that the time taken for packets to transfer is lower. Hence, the latencies are lower.

## Answer 4)

To make the ping command fail for 127.0.0.1 (with 100% packet loss), we need to shut down the loopback interface ('lo') using the down command. Now we ping (10 packets) and see the results.

Screenshot:

```
akshat@akshat-G3-3500:~$ sudo ifconfig lo down
akshat@akshat-G3-3500:~$ ifconfig
enp4s0: flags=4099<UP,BROADCAST,MULTICAST> mtu 1500
    ether 70:b5:e8:ae:2d:df 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

wlp0s20f3: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 192.168.45.154 netmask 255.255.224.0 broadcast 192.168.63.255
    inet6 fe80::6482:1b58:130:f9dd prefixlen 64 scopeid 0x20<link>
    ether a8:7e:ea:c1:bd:d5 txqueuelen 1000 (Ethernet)
    RX packets 181305 bytes 115517143 (115.5 MB)
    RX errors 0 dropped 1263 overruns 0 frame 0
    TX packets 81268 bytes 39781595 (39.7 MB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

akshat@akshat-G3-3500:~$ ping -c 10 127.0.0.1
PING 127.0.0.1 (127.0.0.1) 56(84) bytes of data.

--- 127.0.0.1 ping statistics ---
10 packets transmitted, 0 received, 100% packet loss, time 9207ms

akshat@akshat-G3-3500:~$
```

We can see that the packet loss is 100%.

## Answer 5)

All steps followed:

- 1) 'telnet 192.168.24.12 9900'.
- 2) GET request on /secret ('GET /secret HTTP/1.1')
- 3) Setting host ('Host: 192.168.24.12')

X-secret: U2FsdGVkX1+m0E3LkYVVaXvahl+bWu1rxG8+ybmH153xkix6N6GFbFQUNdZkdA42  
(First part: U2FsdGVkX1)

Screenshot:

```
akshat@akshat-G3-3500:~$ 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: 192.168.24.12

HTTP/1.1 200 OK
Content-Type: text/plain
ip: 192.168.1.99
X-secret: U2FsdGVkX1+m0E3LkYVVaXvahl+bWu1rxG8+ybmH153xkix6N6GFbFQUNdZkdA42
Date: Fri, 25 Aug 2023 14:55:16 GMT
Connection: keep-alive
Keep-Alive: timeout=5
Content-Length: 8

Success
Connection closed by foreign host.
```

## Answer 6)

All steps followed:

- 1) 'telnet 192.168.24.12 smtp'.
- 2) Identifying system ('helo cse232.com')
- 3) Mailing from my id (my roll number: 2020172) ('mail from: [20172@cse232.com](mailto:20172@cse232.com)')
- 4) Mailing to my id ('rcpt to: [20172@cse232.com](mailto:20172@cse232.com)') (tried x2, didn't work)
- 5) Mailing to my friend Kumar Ankit ('rcpt to: [20214@cse232.com](mailto:20214@cse232.com)') (worked)
- 6) Added subject and message after entering data
- 7) Ended the mail with a '.'
- 8) Message queued (ID: 2022C6F6441E)
- 9) Closed with exit

Screenshot:

```
akshat@akshat-G3-3500:~$ 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: 20172@cse232.com
250 2.1.0 Ok
rcpt to: 20172@cse232.com
550 5.1.1 <20172@cse232.com>: Recipient address rejected: User unknown in virtual mailbox table
data
554 5.5.1 Error: no valid recipients
rcpt to: 20172@cse232.com
550 5.1.1 <20172@cse232.com>: Recipient address rejected: User unknown in virtual mailbox table
rcpt to: 20214@cse232.com
250 2.1.5 Ok
data
354 End data with <CR><LF>.<CR><LF>
subject: testing
hello ankit, you are a very good friend
.
250 2.0.0 Ok: queued as 2022C6F6441E
quit
221 2.0.0 Bye
Connection closed by foreign host.
akshat@akshat-G3-3500:~$
```