1. ifconfig

```
student@student-VMware-Virtual-Platform:~$ ifconfig
ens33: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 192.168.253.128  netmask 255.255.255.0  broadcast 192.168.253.255
        inet6 fe80::20c:29ff:fefb:9ea  prefixlen 64  scopeid 0x20<link>
        ether 00:0c:29:fb:09:ea  txqueuelen 1000  (Ethernet)
        RX packets 23487  bytes 27520259 (27.5 MB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 6389  bytes 1484567 (1.4 MB)
        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 876  bytes 98786 (98.7 KB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 876  bytes 98786 (98.7 KB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

student@student-VMware-Virtual-Platform:~$
```

2. Ping

```
student@student-VMware-Virtual-Platform:~$ ping firefox.com
PING firefox.com (35.190.14.201) 56(84) bytes of data.
64 bytes from 201.14.190.35.bc.googleusercontent.com (35.190.14.201): icmp_seq=1 ttl=128 time=6.99 ms
64 bytes from 201.14.190.35.bc.googleusercontent.com (35.190.14.201): icmp_seq=2 ttl=128 time=6.99 ms
64 bytes from 201.14.190.35.bc.googleusercontent.com (35.190.14.201): icmp_seq=3 ttl=128 time=6.87 ms
64 bytes from 201.14.190.35.bc.googleusercontent.com (35.190.14.201): icmp_seq=4 ttl=128 time=8.05 ms
64 bytes from 201.14.190.35.bc.googleusercontent.com (35.190.14.201): icmp_seq=5 ttl=128 time=7.08 ms
64 bytes from 201.14.190.35.bc.googleusercontent.com (35.190.14.201): icmp_seq=6 ttl=128 time=6.41 ms
64 bytes from 201.14.190.35.bc.googleusercontent.com (35.190.14.201): icmp_seq=7 ttl=128 time=6.34 ms
64 bytes from 201.14.190.35.bc.googleusercontent.com (35.190.14.201): icmp_seq=8 ttl=128 time=6.39 ms
64 bytes from 201.14.190.35.bc.googleusercontent.com (35.190.14.201): icmp_seq=9 ttl=128 time=7.26 ms
^C
--- firefox.com ping statistics ---
9 packets transmitted, 9 received, 0% packet loss, time 8015ms
rtt min/avg/max/mdev = 6.336/6.931/8.054/0.508 ms
student@student-VMware-Virtual-Platform:~$
```

3. TracePath

```
student@student-VMware-Virtual-Platform:~$ tracepath www.google.com
 1?: [LOCALHOST]                        pmtu 1500
 1:  _gateway                                     0.266ms
 1:  _gateway                                     0.276ms
 2:  no reply
 3:  no reply
 4:  no reply
 5:  no reply
 6:  no reply
 7:  no reply
 8:  no reply
 9:  no reply
10:  no reply
11:  no reply
12:  no reply
13:  no reply
14:  no reply
15:  no reply
16:  no reply
17:  no reply
18:  no reply
19:  no reply
20:  no reply
21:  no reply
22:  no reply
23:  no reply
24:  no reply
25:  no reply
26:  no reply
27:  no reply
28:  no reply
29:  no reply
30:  no reply
     Too many hops: pmtu 1500
     Resume: pmtu 1500
student@student-VMware-Virtual-Platform:~$
```

4. TraceRoute

```
student@student-VMware-Virtual-Platform:~$ traceroute google.com
traceroute to google.com (142.250.70.110), 30 hops max, 60 byte packets
 1  _gateway (192.168.253.2)  0.153 ms  0.050 ms  0.052 ms
 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  * * *
27  * * *
28  * * *
29  * * *
30  * * *
student@student-VMware-Virtual-Platform:~$
```

5. Host


```
student@student-VMware-Virtual-Platform:~$ host www.firefox.com
www.firefox.com is an alias for prod.refractr.prod.webservices.mozgcp.net.
prod.refractr.prod.webservices.mozgcp.net has address 35.190.14.201
prod.refractr.prod.webservices.mozgcp.net has IPv6 address 2600:1901:0:c197::
student@student-VMware-Virtual-Platform:~$
```

6. NSLOOKUP


```
student@student-VMware-Virtual-Platform:~$ nslookup firefox.com
Server:         127.0.0.53
Address:        127.0.0.53#53

Non-authoritative answer:
Name:   firefox.com
Address: 35.190.14.201

student@student-VMware-Virtual-Platform:~$
```

7. Netstat


```
student@student-VMware-Virtual-Platform:~$ netstat -an
Active Internet connections (servers and established)
Proto Recv-Q Send-Q Local Address          Foreign Address        State
tcp        0      0 127.0.0.1:631          0.0.0.0:*              LISTEN
tcp        0      0 127.0.0.54:53          0.0.0.0:*              LISTEN
tcp        0      0 127.0.0.53:53          0.0.0.0:*              LISTEN
tcp        0      0 192.168.253.128:41000  104.22.31.209:443      ESTABLISHED
tcp        0      0 192.168.253.128:50462  108.159.72.155:443     ESTABLISHED
tcp        0      0 192.168.253.128:60250  142.250.192.34:443     ESTABLISHED
tcp        0      0 192.168.253.128:42814  142.250.192.2:443      ESTABLISHED
tcp        0      0 192.168.253.128:60702  18.239.142.21:443      TIME_WAIT
tcp        0      0 192.168.253.128:60492  34.107.243.93:443      ESTABLISHED
tcp        0      0 192.168.253.128:42108  23.193.114.57:443      ESTABLISHED
tcp        0      0 192.168.253.128:53682  142.250.199.130:443    ESTABLISHED
tcp        0      0 192.168.253.128:43258  23.48.157.163:443      ESTABLISHED
tcp        0      0 192.168.253.128:55956  142.251.42.3:443       ESTABLISHED
tcp        0      0 192.168.253.128:35650  3.0.107.214:443        ESTABLISHED
tcp        0      0 192.168.253.128:53696  142.250.199.130:443    ESTABLISHED
tcp        0      0 192.168.253.128:33738  18.66.41.121:443       ESTABLISHED
tcp        0      0 192.168.253.128:48918  67.199.150.87:443      ESTABLISHED
tcp6       0      0 ::1:631                :::*                   LISTEN
udp        0      0 127.0.0.54:53          0.0.0.0:*
udp        0      0 127.0.0.53:53          0.0.0.0:*
udp        0      0 192.168.253.128:68     192.168.253.254:67     ESTABLISHED
udp        0      0 0.0.0.0:37449          0.0.0.0:*
udp        0      0 0.0.0.0:45657          0.0.0.0:*
udp        0      0 0.0.0.0:41734          0.0.0.0:*
udp        0      0 0.0.0.0:5353           0.0.0.0:*
udp        0      0 0.0.0.0:46975          0.0.0.0:*
udp        0      0 0.0.0.0:49039          0.0.0.0:*
udp        0      0 0.0.0.0:42955          0.0.0.0:*
udp6       0      0 :::51900               :::*
udp6       0      0 :::5353                :::*
Active UNIX domain sockets (servers and established)
Proto RefCnt Flags       Type       State         I-Node   Path
unix  3      [ ]         STREAM     CONNECTED     57308
unix  3      [ ]         STREAM     CONNECTED     26544    /run/user/1000/bus
unix  3      [ ]         STREAM     CONNECTED     26187
unix  2      [ ]         DGRAM      CONNECTED     23392
unix  3      [ ]         STREAM     CONNECTED     44616
unix  3      [ ]         SEQPACKET  CONNECTED     41815
unix  3      [ ]         STREAM     CONNECTED     27470    /run/user/1000/bus
unix  3      [ ]         STREAM     CONNECTED     27041    /home/student/.cache/ibus/dbus-eXilNATQ
unix  3      [ ]         STREAM     CONNECTED     25093
unix  3      [ ]         DGRAM      CONNECTED     14163
```

8. Ip addr show


```
student@student-VMware-Virtual-Platform:~$ ip addr show
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    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 noprefixroute
       valid_lft forever preferred_lft forever
2: ens33: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP group default qlen 1000
    link/ether 00:0c:29:fb:09:ea brd ff:ff:ff:ff:ff:ff
    altname enp2s1
    inet 192.168.253.128/24 brd 192.168.253.255 scope global dynamic noprefixroute ens33
       valid_lft 1530sec preferred_lft 1530sec
    inet6 fe80::20c:29ff:fefb:9ea/64 scope link
       valid_lft forever preferred_lft forever
student@student-VMware-Virtual-Platform:~$
```

9. Dig


```
student@student-VMware-Virtual-Platform:~$ dig firefox.com

; <<>> DiG 9.18.30-0ubuntu0.24.04.2-Ubuntu <<>> firefox.com
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 62209
;; flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1

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

;; ANSWER SECTION:
firefox.com.            5       IN      A       35.190.14.201

;; Query time: 10 msec
;; SERVER: 127.0.0.53#53(127.0.0.53) (UDP)
;; WHEN: Sun Feb 02 17:51:28 IST 2025
;; MSG SIZE  rcvd: 56

student@student-VMware-Virtual-Platform:~$
```