NAME:SIVARANGINI.Y

ROLL NO:231901051

DATE:27/7/24

EXP NO:1B

NETWORKING COMMANDS IN LINUX

Aim:

To study the basic networking commands in linux

Commands:

1. **tracepath:** The tracepath command is the same as the traceroute command, and it is used to find network delays. Besides, it does not need root privileges. By default, it comes pre-installed in Ubuntu. It traces the path to the destination and recognizes all hops in it. It identifies the point at which the network is weak if our network is not strong enough.

Syntax:

tracepath **<destination>**

2. **dig:** dig is short for Domain Information Groper. The dig command is an improvised edition of the nslookup command. It is utilized in DNS lookup to reserve the DNS name server. Also, it is used to balance DNS related problems. Mainly, it is used to authorize DNS mappings, host addresses, MX records, and every other DNS record for the best DNS topography understanding.

Syntax:

dig **<domainname>**

3. **route:** The route command shows and employs the routing table available for our system. Basically, a router is used to detect a better way to transfer the packets around a destination.

Syntax:

Route

4. **host:** The host command shows the IP address for a hostname and the domain name for an IP address. Also, it is used to get DNS lookup for DNS related issues.

Syntax:

host -t **<resourceName>**

5. **whois:** The whois command fetches every website related information. We can get every information of a website, such as an owner and the registration information.

Syntax:

whois **<websiteName>**

5. iftop: The iftop command is utilized in traffic monitoring.

6. **ip**: It is the updated and latest edition of ifconfig command. The command provides the information of every network, such as ifconfig. Also, it can be used to get information about a particular interface.
Syntax:

1. ip a
2. ip addr

7.ping: It is short for Packet Internet Groper. The ping command is one of the widely used commands for network troubleshooting. Basically, it inspects the network connectivity between two different nodes.
Syntax:
ping **<destination>**

8. **netstat:** It is short for network statistics. It gives statistical figures of many interfaces, which contain open sockets, connection information, and routing tables.

Syntax:
Netstat

9. **nsloopup:** The nslookup command is an older edition of the dig command. Also, it is utilized for DNS related problems.
   Syntax:
   nslookup **<domainname**

`10. iwconfig: It is a simple command which is used to see and set the system's hostname.

OUTPUT:

```
┌──(student㉿kali)-[~]
└─$ dig google.com

; <<>> DiG 9.19.21-1+b1-Debian <<>> google.com
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 55882
;; flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 0

;; QUESTION SECTION:
;google.com.                    IN      A

;; ANSWER SECTION:
google.com.             221     IN      A       172.217.163.206

;; Query time: 0 msec
;; SERVER: 172.16.52.1#53(172.16.52.1) (UDP)
;; WHEN: Tue Nov 05 09:00:59 IST 2024
;; MSG SIZE  rcvd: 44
```

```
┌──(student㉿kali)-[~]
└─$ route
Kernel IP routing table
Destination     Gateway         Genmask         Flags Metric Ref    Use Iface
default         _gateway        0.0.0.0         UG    100    0        0 eth0
172.16.52.0     0.0.0.0         255.255.252.0   U     100    0        0 eth0
```

```
┌──(student㉿kali)-[~]
└─$ host -t A google.com
google.com has address 172.217.163.206
```

```
└─$ whois google.com
   Domain Name: GOOGLE.COM
   Registry Domain ID: 2138514_DOMAIN_COM-VRSN
   Registrar WHOIS Server: whois.markmonitor.com
   Registrar URL: http://www.markmonitor.com
   Updated Date: 2019-09-09T15:39:04Z
   Creation Date: 1997-09-15T04:00:00Z
   Registry Expiry Date: 2028-09-14T04:00:00Z
   Registrar: MarkMonitor Inc.
   Registrar IANA ID: 292
   Registrar Abuse Contact Email: abusecomplaints@markmonitor.com
   Registrar Abuse Contact Phone: +1.2086851750
   Domain Status: clientDeleteProhibited https://icann.org/epp#clientDeleteProhibited
   Domain Status: clientTransferProhibited https://icann.org/epp#clientTransferProhibited
   Domain Status: clientUpdateProhibited https://icann.org/epp#clientUpdateProhibited
   Domain Status: serverDeleteProhibited https://icann.org/epp#serverDeleteProhibited
   Domain Status: serverTransferProhibited https://icann.org/epp#serverTransferProhibited
   Domain Status: serverUpdateProhibited https://icann.org/epp#serverUpdateProhibited
   Name Server: NS1.GOOGLE.COM
   Name Server: NS2.GOOGLE.COM
   Name Server: NS3.GOOGLE.COM
   Name Server: NS4.GOOGLE.COM
   DNSSEC: unsigned
   URL of the ICANN Whois Inaccuracy Complaint Form: https://www.icann.org/wicf/
>>> Last update of whois database: 2024-11-05T03:31:44Z <<<
```

```
└─$ nslookup google.com
Server:         172.16.52.1
Address:        172.16.52.1#53

Non-authoritative answer:
Name:   google.com
Address: 172.217.163.206
Name:   google.com
Address: 2404:6800:4007:810::200e
```

```
└─$ netstat
Active Internet connections (w/o servers)
Proto Recv-Q Send-Q Local Address           Foreign Address         State
tcp        0      0 kali:56474             maa03s44-in-f3.1e:https ESTABLISHED
tcp        0      0 kali:42810             maa05s18-in-f14.1:https ESTABLISHED
tcp        0      0 kali:44916             maa05s19-in-f10.1:https ESTABLISHED
tcp        0      0 kali:48248             93.243.107.34.bc.:https ESTABLISHED
tcp6       0      0 172.16.52.174:1716     172.16.52.170:36294     ESTABLISHED
tcp6       0      0 172.16.52.174:49146    172.16.52.175:1716      ESTABLISHED
tcp6       0      0 172.16.52.174:34474    172.16.52.141:1716      ESTABLISHED
tcp6       0      0 172.16.52.174:1716     172.16.52.171:56152     ESTABLISHED
tcp6       0      0 172.16.52.174:58638    172.16.52.165:1716      ESTABLISHED
tcp6       0      0 172.16.52.174:58004    172.16.52.164:1716      ESTABLISHED
tcp6       0      0 172.16.52.174:1716     172.16.52.172:56164     ESTABLISHED
tcp6       0      0 172.16.52.174:35850    172.16.52.166:1716      ESTABLISHED
tcp6       0      0 172.16.52.174:42510    172.16.52.176:1716      ESTABLISHED
tcp6       0      0 172.16.52.174:47128    172.16.52.163:1716      ESTABLISHED
tcp6       0      0 172.16.52.174:48624    172.16.52.162:1716      ESTABLISHED
tcp6       0      0 172.16.52.174:56552    172.16.52.169:1716      ESTABLISHED
Active UNIX domain sockets (w/o servers)
Proto RefCnt Flags       Type       State         I-Node   Path
unix  3      [ ]         STREAM     CONNECTED     7496
unix  3      [ ]         STREAM     CONNECTED     51929
unix  2      [ ]         STREAM     CONNECTED     21601
unix  3      [ ]         STREAM     CONNECTED     9084
unix  3      [ ]         STREAM     CONNECTED     12028
unix  3      [ ]         STREAM     CONNECTED     17917    /run/systemd/journal/stdout
unix  3      [ ]         STREAM     CONNECTED     17598
unix  3      [ ]         STREAM     CONNECTED     18742    /run/user/1000/bus
unix  3      [ ]         STREAM     CONNECTED     10456
```

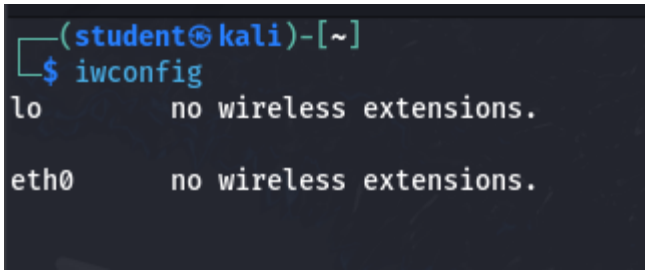
```
┌──(student㉿kali)-[~]
└─$ ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
       valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host noprefixroute
       valid_lft forever preferred_lft forever
2: eth0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 88:ae:dd:15:ed:7f brd ff:ff:ff:ff:ff:ff
    inet 172.16.52.174/22 brd 172.16.55.255 scope global noprefixroute eth0
       valid_lft forever preferred_lft forever
    inet6 fe80::8aae:ddff:fe15:ed7f/64 scope link noprefixroute
       valid_lft forever preferred_lft forever

┌──(student㉿kali)-[~]
└─$
```

```
└─$ ifconfig
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 172.16.52.174  netmask 255.255.252.0  broadcast 172.16.55.255
        inet6 fe80::8aae:ddff:fe15:ed7f  prefixlen 64  scopeid 0x20<link>
        ether 88:ae:dd:15:ed:7f  txqueuelen 1000  (Ethernet)
        RX packets 722837  bytes 369117393 (352.0 MiB)
        RX errors 0  dropped 3721  overruns 0  frame 0
        TX packets 87258  bytes 21103290 (20.1 MiB)
        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 57  bytes 3440 (3.3 KiB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 57  bytes 3440 (3.3 KiB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0
```

```
└─$ ping facebook.com
PING facebook.com (157.240.192.35) 56(84) bytes of data.
64 bytes from edge-star-mini-shv-02-maa2.facebook.com (157.240.192.35): icmp_seq=1 ttl=58 time=12.4 ms
64 bytes from edge-star-mini-shv-02-maa2.facebook.com (157.240.192.35): icmp_seq=2 ttl=58 time=11.9 ms
64 bytes from edge-star-mini-shv-02-maa2.facebook.com (157.240.192.35): icmp_seq=3 ttl=58 time=15.2 ms
64 bytes from edge-star-mini-shv-02-maa2.facebook.com (157.240.192.35): icmp_seq=4 ttl=58 time=9.03 ms
64 bytes from edge-star-mini-shv-02-maa2.facebook.com (157.240.192.35): icmp_seq=5 ttl=58 time=7.49 ms
64 bytes from edge-star-mini-shv-02-maa2.facebook.com (157.240.192.35): icmp_seq=6 ttl=58 time=3.74 ms
64 bytes from edge-star-mini-shv-02-maa2.facebook.com (157.240.192.35): icmp_seq=7 ttl=58 time=2.84 ms
64 bytes from edge-star-mini-shv-02-maa2.facebook.com (157.240.192.35): icmp_seq=8 ttl=58 time=6.29 ms
64 bytes from edge-star-mini-shv-02-maa2.facebook.com (157.240.192.35): icmp_seq=9 ttl=58 time=3.34 ms
64 bytes from edge-star-mini-shv-02-maa2.facebook.com (157.240.192.35): icmp_seq=10 ttl=58 time=2.96 ms
64 bytes from edge-star-mini-shv-02-maa2.facebook.com (157.240.192.35): icmp_seq=11 ttl=58 time=3.32 ms
64 bytes from edge-star-mini-shv-02-maa2.facebook.com (157.240.192.35): icmp_seq=12 ttl=58 time=2.84 ms
64 bytes from edge-star-mini-shv-02-maa2.facebook.com (157.240.192.35): icmp_seq=13 ttl=58 time=2.82 ms
64 bytes from edge-star-mini-shv-02-maa2.facebook.com (157.240.192.35): icmp_seq=14 ttl=58 time=3.14 ms
64 bytes from edge-star-mini-shv-02-maa2.facebook.com (157.240.192.35): icmp_seq=15 ttl=58 time=3.00 ms
64 bytes from edge-star-mini-shv-02-maa2.facebook.com (157.240.192.35): icmp_seq=16 ttl=58 time=3.01 ms
64 bytes from edge-star-mini-shv-02-maa2.facebook.com (157.240.192.35): icmp_seq=17 ttl=58 time=2.98 ms
64 bytes from edge-star-mini-shv-02-maa2.facebook.com (157.240.192.35): icmp_seq=18 ttl=58 time=3.01 ms
64 bytes from edge-star-mini-shv-02-maa2.facebook.com (157.240.192.35): icmp_seq=19 ttl=58 time=3.44 ms
64 bytes from edge-star-mini-shv-02-maa2.facebook.com (157.240.192.35): icmp_seq=20 ttl=58 time=3.06 ms
64 bytes from edge-star-mini-shv-02-maa2.facebook.com (157.240.192.35): icmp_seq=21 ttl=58 time=2.81 ms
64 bytes from edge-star-mini-shv-02-maa2.facebook.com (157.240.192.35): icmp_seq=22 ttl=58 time=3.86 ms
64 bytes from edge-star-mini-shv-02-maa2.facebook.com (157.240.192.35): icmp_seq=23 ttl=58 time=2.95 ms
64 bytes from edge-star-mini-shv-02-maa2.facebook.com (157.240.192.35): icmp_seq=24 ttl=58 time=2.94 ms
64 bytes from edge-star-mini-shv-02-maa2.facebook.com (157.240.192.35): icmp_seq=25 ttl=58 time=2.98 ms
64 bytes from edge-star-mini-shv-02-maa2.facebook.com (157.240.192.35): icmp_seq=26 ttl=58 time=2.99 ms
64 bytes from edge-star-mini-shv-02-maa2.facebook.com (157.240.192.35): icmp_seq=27 ttl=58 time=3.51 ms
64 bytes from edge-star-mini-shv-02-maa2.facebook.com (157.240.192.35): icmp_seq=28 ttl=58 time=2.98 ms
64 bytes from edge-star-mini-shv-02-maa2.facebook.com (157.240.192.35): icmp_seq=29 ttl=58 time=3.61 ms
64 bytes from edge-star-mini-shv-02-maa2.facebook.com (157.240.192.35): icmp_seq=30 ttl=58 time=9.45 ms
64 bytes from edge-star-mini-shv-02-maa2.facebook.com (157.240.192.35): icmp_seq=31 ttl=58 time=2.85 ms
64 bytes from edge-star-mini-shv-02-maa2.facebook.com (157.240.192.35): icmp_seq=32 ttl=58 time=2.91 ms
64 bytes from edge-star-mini-shv-02-maa2.facebook.com (157.240.192.35): icmp_seq=33 ttl=58 time=3.49 ms
64 bytes from edge-star-mini-shv-02-maa2.facebook.com (157.240.192.35): icmp_seq=34 ttl=58 time=3.06 ms
64 bytes from edge-star-mini-shv-02-maa2.facebook.com (157.240.192.35): icmp_seq=35 ttl=58 time=3.18 ms
64 bytes from edge-star-mini-shv-02-maa2.facebook.com (157.240.192.35): icmp_seq=36 ttl=58 time=2.91 ms
64 bytes from edge-star-mini-shv-02-maa2.facebook.com (157.240.192.35): icmp_seq=37 ttl=58 time=5.35 ms
64 bytes from edge-star-mini-shv-02-maa2.facebook.com (157.240.192.35): icmp_seq=38 ttl=58 time=3.93 ms
```



RESULT:

The linux networking command has been studied and the output is verified.