IFCONFIG
    ROLLNO:64

1.

    ifconfig:
ifconfig displays the status of the currently active interfaces,used to configure network interfaces

    example:

```
ak@ak-Latitude-E4300:~$ ifconfig
enp0s25: flags=4099<UP,BROADCAST,MULTICAST>  mtu 1500
        ether 00:26:b9:d1:5a:ba  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
        device interrupt 22  memory 0xf6ae0000-f6b00000

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 3931  bytes 329367 (329.3 KB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 3931  bytes 329367 (329.3 KB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

wlan0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 192.168.0.17  netmask 255.255.255.0  broadcast 192.168.0.255
        inet6 fe80::a412:549c:7b4f:704f  prefixlen 64  scopeid 0x20<link>
        ether 00:26:5e:27:25:40  txqueuelen 1000  (Ethernet)
        RX packets 25497  bytes 19084747 (19.0 MB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 21579  bytes 3940576 (3.9 MB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0
```

ifconfig -a:
it displays the status of all interfaces, even those that are down

example:

```
ak@ak-Latitude-E4300:~$ ifconfig -a
enp0s25: flags=4099<UP,BROADCAST,MULTICAST>  mtu 1500
        ether 00:26:b9:d1:5a:ba  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
        device interrupt 22  memory 0xf6ae0000-f6b00000

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 3988  bytes 334396 (334.3 KB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 3988  bytes 334396 (334.3 KB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

wlan0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 192.168.0.17  netmask 255.255.255.0  broadcast 192.168.0.255
        inet6 fe80::a412:549c:7b4f:704f  prefixlen 64  scopeid 0x20<link>
        ether 00:26:5e:27:25:40  txqueuelen 1000  (Ethernet)
        RX packets 26203  bytes 19245117 (19.2 MB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 21824  bytes 3975937 (3.9 MB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0
```

ifconfig <specific adapter>:
displays the status of specif network adapter

example

```
ak@ak-Latitude-E4300:~$ ifconfig wlan0
wlan0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 192.168.0.17  netmask 255.255.255.0  broadcast 192.168.0.255
        inet6 fe80::a412:549c:7b4f:704f  prefixlen 64  scopeid 0x20<link>
        ether 00:26:5e:27:25:40  txqueuelen 1000  (Ethernet)
        RX packets 26363  bytes 19260876 (19.2 MB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 21844  bytes 3978283 (3.9 MB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0
```

ifconfig <interface name> <ip address>
To Assign a IP Address to Network Interface

example:

```
ak@ak-Latitude-E4300:~$ sudo ifconfig lo 172.16.25.125
[sudo] password for ak:
ak@ak-Latitude-E4300:~$ ifconfig lo
lo: flags=73<UP,LOOPBACK,RUNNING>  mtu 65536
        inet 172.16.25.125  netmask 255.255.0.0
        inet6 ::1  prefixlen 128  scopeid 0x10<host>
        loop  txqueuelen 1000  (Local Loopback)
        RX packets 630  bytes 55246 (55.2 KB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 630  bytes 55246 (55.2 KB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0
```

ifconfig <network interface> netmask <ip>
To Assign a Netmask to Network Interface

example:

```
ak@ak-Latitude-E4300:~$ sudo ifconfig lo netmask 255.255.255.224
ak@ak-Latitude-E4300:~$ ifconfig lo
lo: flags=73<UP,LOOPBACK,RUNNING>  mtu 65536
        inet 172.16.25.125  netmask 255.255.255.224
        inet6 ::1  prefixlen 128  scopeid 0x10<host>
        loop  txqueuelen 1000  (Local Loopback)
        RX packets 656  bytes 59013 (59.0 KB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 656  bytes 59013 (59.0 KB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0
```

ifconfig <network interface> broadcast <IP>
To Assign a Broadcast to Network Interface

example:
```
ak@ak-Latitude-E4300:~$ sudo ifconfig wlan0 broadcast 172.16.25.65
ak@ak-Latitude-E4300:~$ ifconfig wlan0
wlan0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 192.168.0.17  netmask 255.255.255.0  broadcast 172.16.25.65
        inet6 fe80::a412:549c:7b4f:704f  prefixlen 64  scopeid 0x20<link>
        ether 00:26:5e:27:25:40  txqueuelen 1000  (Ethernet)
        RX packets 6776  bytes 3944968 (3.9 MB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 5261  bytes 760052 (760.0 KB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0
```

ifconfig <interface name> promisc
To Enable Promiscuous Mode
ifconfig <interface name> -promisc
To Disable Promiscuous Mode

example:

2.

ifdown:
To take a network interface down

ifup:
To bring a network interface up

example:

```
ak@ak-Latitude-E4300:~$ sudo ifdown lo
ifdown: interface lo not configured
ak@ak-Latitude-E4300:~$ sudo ifup lo
ak@ak-Latitude-E4300:~$ ifconfig
enp0s25: flags=4099<UP,BROADCAST,MULTICAST>  mtu 1500
        ether 00:26:b9:d1:5a:ba  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
        device interrupt 22  memory 0xf6ae0000-f6b00000

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 4071  bytes 342700 (342.7 KB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 4071  bytes 342700 (342.7 KB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

wlan0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 192.168.0.17  netmask 255.255.255.0  broadcast 192.168.0.255
        inet6 fe80::a412:549c:7b4f:704f  prefixlen 64  scopeid 0x20<link>
        ether 00:26:5e:27:25:40  txqueuelen 1000  (Ethernet)
        RX packets 27013  bytes 19346759 (19.3 MB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 22043  bytes 4014198 (4.0 MB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

ak@ak-Latitude-E4300:~$
```

3.

route:
To show tor manipulate the IP routing table

example:

```
ak@ak-Latitude-E4300:~$ route
Kernel IP routing table
Destination     Gateway         Genmask         Flags Metric Ref    Use Iface
default         _gateway        0.0.0.0         UG    600    0        0 wlan0
link-local      0.0.0.0         255.255.0.0     U     1000   0        0 wlan0
192.168.0.0     0.0.0.0         255.255.255.0   U     600    0        0 wlan0
```

route add -net 10.10.10.0/24 gw <IP>
To add new route

route del -net 10.10.10.0/24 gw <IP>
To delete a route

route add default gw <IP>
Set a default gateway

4.

host:
DNS look up utility,give domain name gets ip address

example:

```
ak@ak-Latitude-E4300:~$ host www.google.com
www.google.com has address 172.217.163.132
www.google.com has IPv6 address 2404:6800:4007:80d::2004
```

5.

netstat:
Print network connections, routing tables, interface statistics, masquerade connections, and multicast memberships

netstat -r:
Display the kernel routing tables

example:

```
ak@ak-Latitude-E4300:~$ netstat -r
Kernel IP routing table
Destination     Gateway         Genmask         Flags   MSS Window  irtt Iface
default         _gateway        0.0.0.0         UG        0 0          0 wlan0
link-local      0.0.0.0         255.255.0.0     U         0 0          0 wlan0
192.168.0.0     0.0.0.0         255.255.255.0   U         0 0          0 wlan0
```

6.

ping:
Packet Internet Groper,send ICMP ECHO_REQUEST to network hosts

ping -c 5 <domain name>
exist after 5 number of requests

example:

```
ak@ak-Latitude-E4300:~$ ping www.cet.ac.in
PING www.cet.ac.in (14.139.171.166) 56(84) bytes of data.
```

7.

ip addr:
gives the ip address of each network interface

example:

```
ak@ak-Latitude-E4300:~$ ip addr
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
       valid_lft forever preferred_lft forever
2: enp0s25: <NO-CARRIER,BROADCAST,MULTICAST,UP> mtu 1500 qdisc fq_codel state DOWN group default qlen 1000
    link/ether 00:26:b9:d1:5a:ba brd ff:ff:ff:ff:ff:ff
4: wlan0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc mq state UP group default qlen 1000
    link/ether 00:26:5e:27:25:40 brd ff:ff:ff:ff:ff:ff
    inet 192.168.0.17/24 brd 192.168.0.255 scope global dynamic noprefixroute wlan0
       valid_lft 2047sec preferred_lft 2047sec
    inet6 fe80::a412:549c:7b4f:704f/64 scope link noprefixroute
       valid_lft forever preferred_lft forever
```

8.

 # ifconfig \<interface name\> 192.168.50.5 netmask 255.255.255.0
Assigning an IP Address and Gateway to interface

example:

ifconfig \<interface name\> mtu \<size\>
changing mtu size

example:

9.

hostname:
gives hostname

example:

RESULT:
familiarized network interface commands and their uses by using ifconfig.