Lab No   :   01

Name of the Lab   : Network configuration , Routing table & Virtual interfaces

ID   : IT-15025

Objective   :   ❖   Finding IP,MAC
                ❖ Routing Table Basics
                ❖   virtual interfaces

1.Question
If you have a network that ranges from 192.168.1.0 to 192.168.1.255.explain why
individual devices in the network can only be assigned IP addresses in the range
of 192.168.1.1 to 192.168.1.254.
ANS: Here 192.168.1.0 is a network address and 192.168.1.255 is a broadcast address
Those 2 are not useful.For this we have only assigned IP addresses in the range of
192.168.1.1 to 192.168.1.254 .It is called subnetting

2.Question:Find ip and Mac address on your pc
ANS:
MAC Address

```
mahade@Virtual-Box:~$ myip="$(dig +short myip.opendns.com @resolver1.opendns.com
)"
mahade@Virtual-Box:~$ echo "My WAN/Public IP address: ${myip}"
My WAN/Public IP address: 27.147.200.46
mahade@Virtual-Box:~$
```

MAC Address

```
mahade@Virtual-Box:~$ ifconfig -a | grep -ioE '([a-z0-9]{2}:){5}..'
c8:d3:ff:e5:7e:6f
30:e3:7a:b1:ed:24
mahade@Virtual-Box:~$
```

3.Question
Now,enter the command:"$ netstat=r" to print your computers routing table.
Explain (very briefly) he different columns:
Destination,Gateway,Genmask,Flags,MSS, Window,rtt and Iface,

```
mahade@Virtual-Box:~$ netstat -r
Kernel IP routing table
Destination     Gateway          Genmask          Flags   MSS Window  irtt Iface
default         _gateway         0.0.0.0          UG        0 0          0 wlo1
link-local      0.0.0.0          255.255.0.0      U         0 0          0 wlo1
192.168.0.0     0.0.0.0          255.255.255.0    U         0 0          0 wlo1
mahade@Virtual-Box:~$
```

- **Destination** : The destination network or destination host.
- **Gateway** : The gateway address or '*' if none set.
- **Genmask** : The netmask for the destination net; 255.255.255.255 for a host destination and 0.0.0.0 for the default route.
   - **Flags** : Possible flags include
      - U (route is up)
      - H (target is a host)
      - G (use gateway)
   - **MSS** : Default maximum segment size for TCP connections over this route.
   - **Window** : Default window size for TCP connections over this route.
   - **irtt** : Initial RTT (Round Trip Time). The kernel uses this to guess about the best TCP protocol parameters without waiting on (possibly slow) answers.

Iface : Interface to which packets for this route will be sent

4.Question

a)Create a virtual interface

```
mahade@Virtual-Box:~$ ifconfig eth0:0 192.168.2.32
SIOCSIFADDR: Operation not permitted
eth0:0: ERROR while getting interface flags: No such device
mahade@Virtual-Box:~$ ifconfig eth0: 192.168.2.32
SIOCSIFADDR: Operation not permitted
eth0:: ERROR while getting interface flags: No such device
mahade@Virtual-Box:~$
```