COMPUTER NETWORKS

PRACTICAL -6

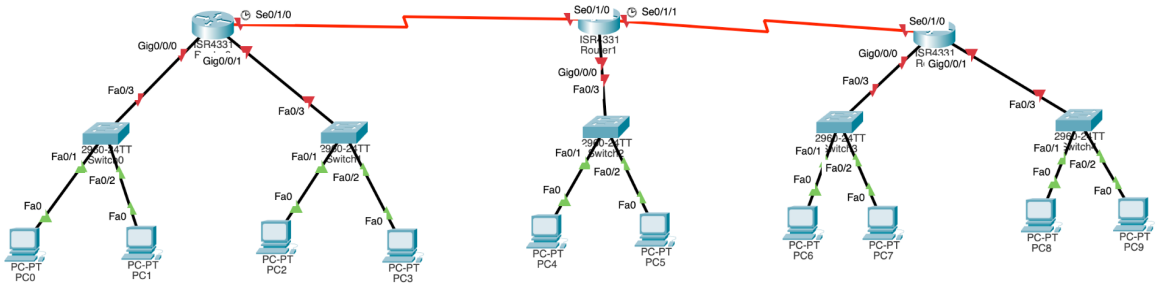
TITLE: Design a Network of an organization using fundamentals of subnetting.

SCENARIO:

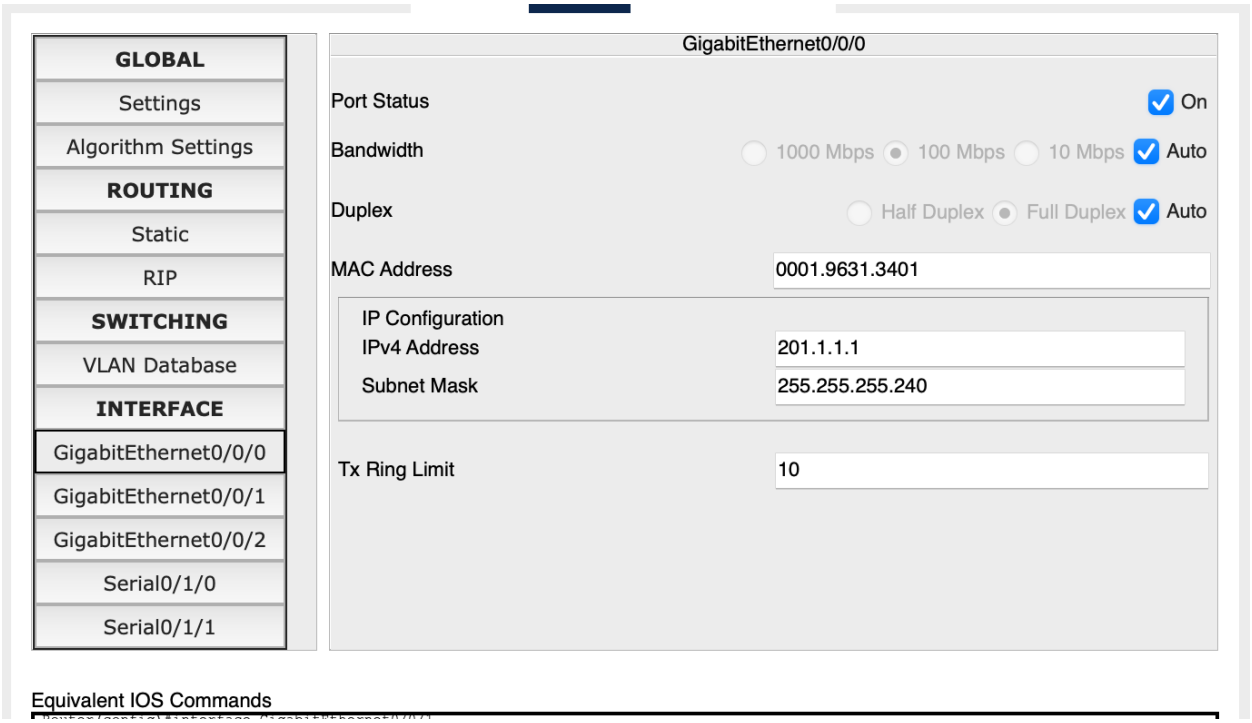
Organization named Zenith enterprise has set up a branch office at Noida and hired you as a Network Engineer. The branch office will be having 5 different Departments and each department has its own network. Each department has actually 14 devices. The IP address range given to you is 201.1.1.0/24. Design the network such that wastage of IP addresses8 is less. So, for designing purposes you can take 4 devices in each department. Also assign IP addresses dynamically to the device for ease of the implementation.

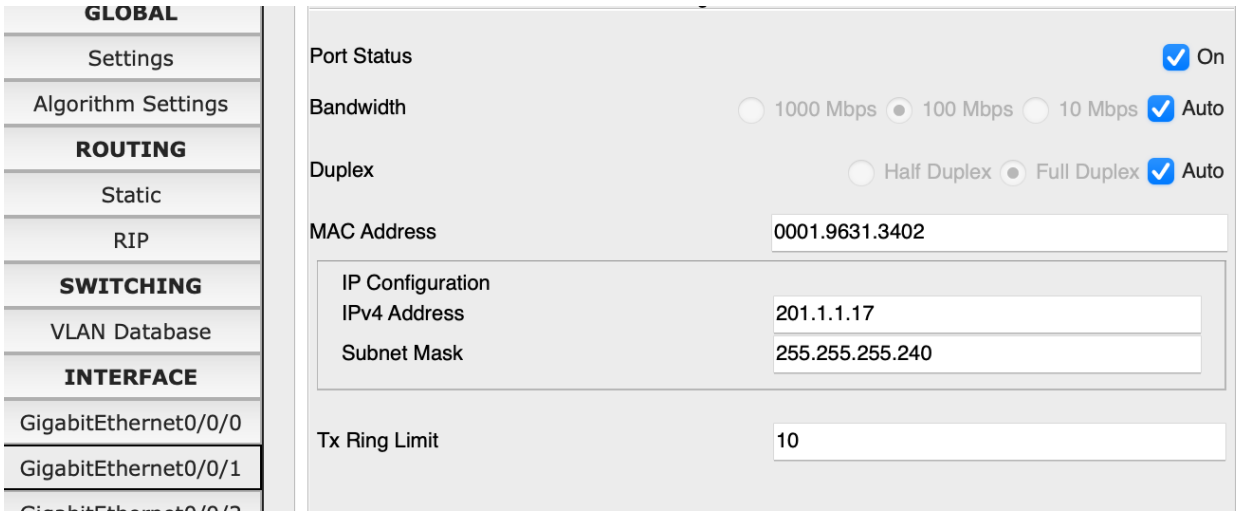
PROCEDURE:

Created topology as shown below.
Connected all the PC's and servers with the respective switches and then with the respective Routers. To connect router to router I have added NIM2T in each router and connected them with serial DTE wire.

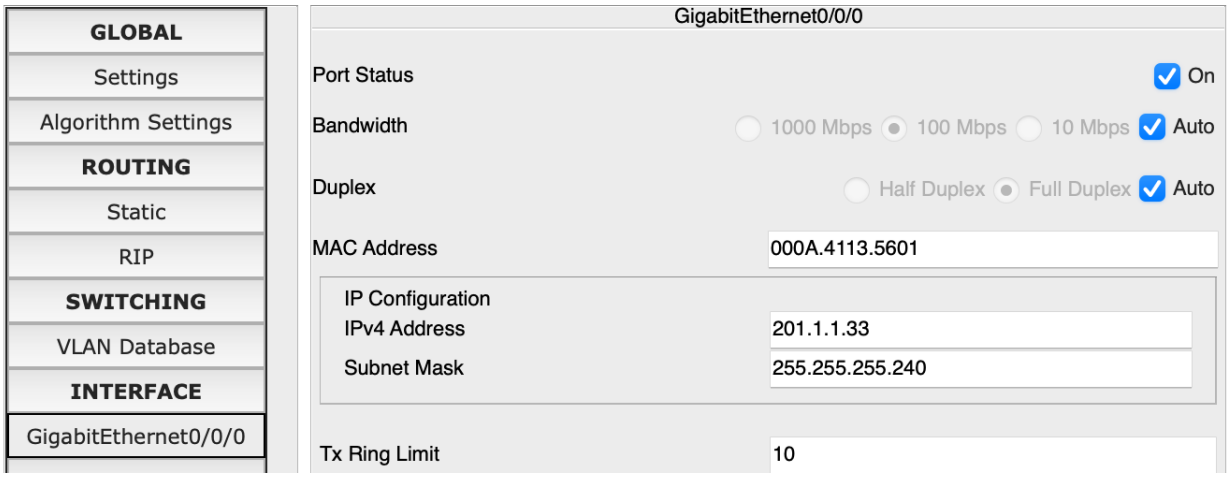


ROUTER-1 CONFIGURATION(Dept-A & Dept-B)

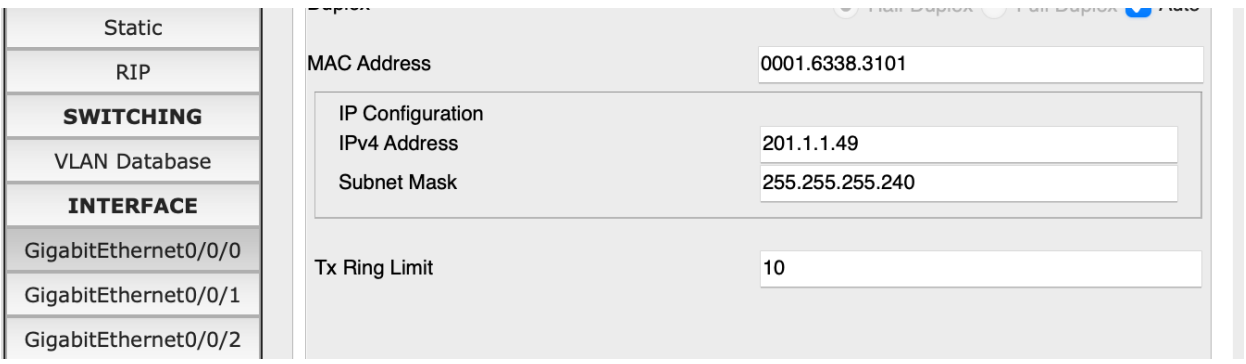


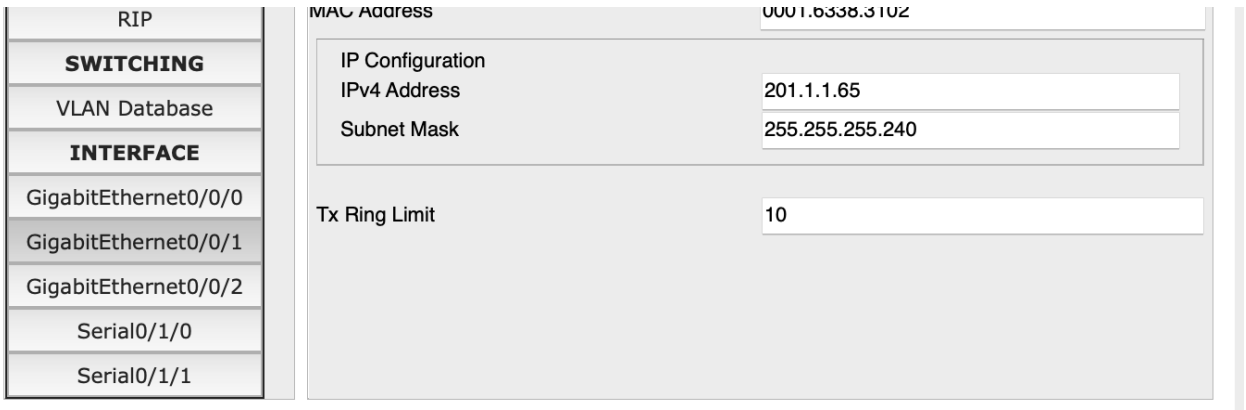


ROUTER -2 CONFIGURATION(Dept-C)



ROUTER-3 CONFIGURATION(Dept-D & Dept-E)



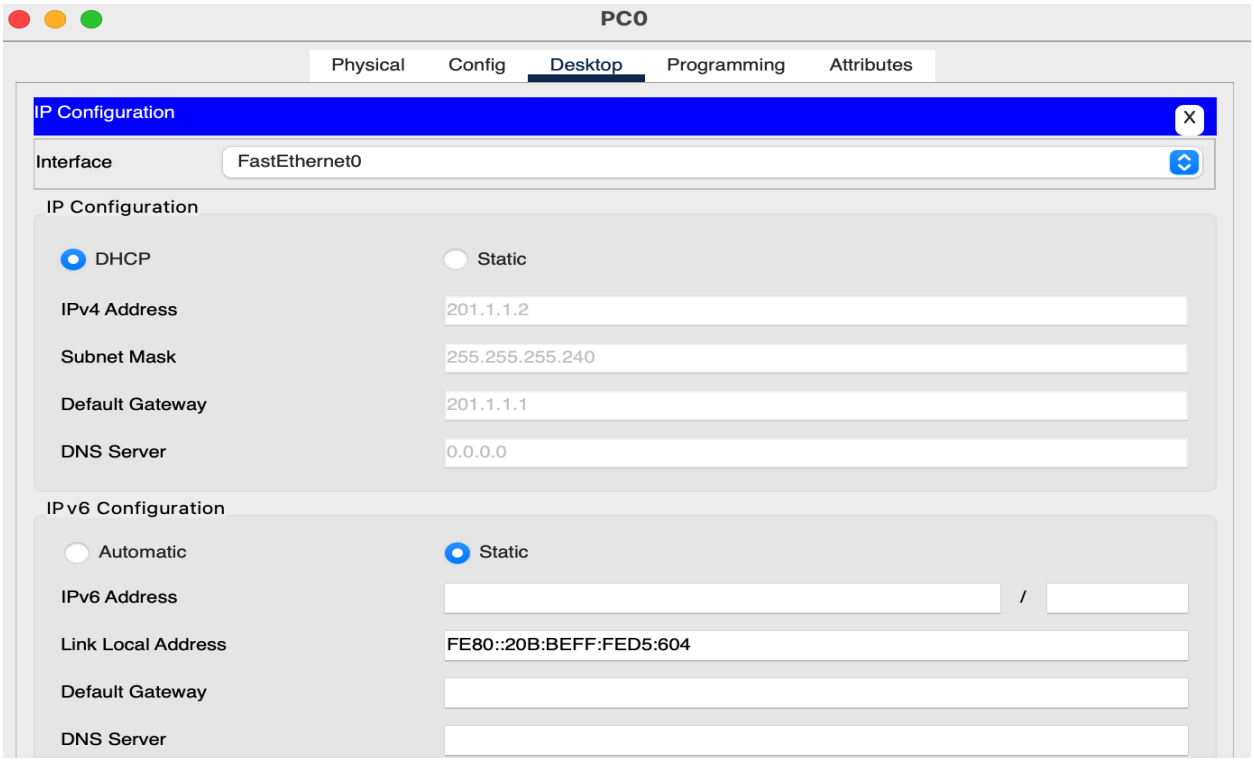


Configuring router 0 using cli

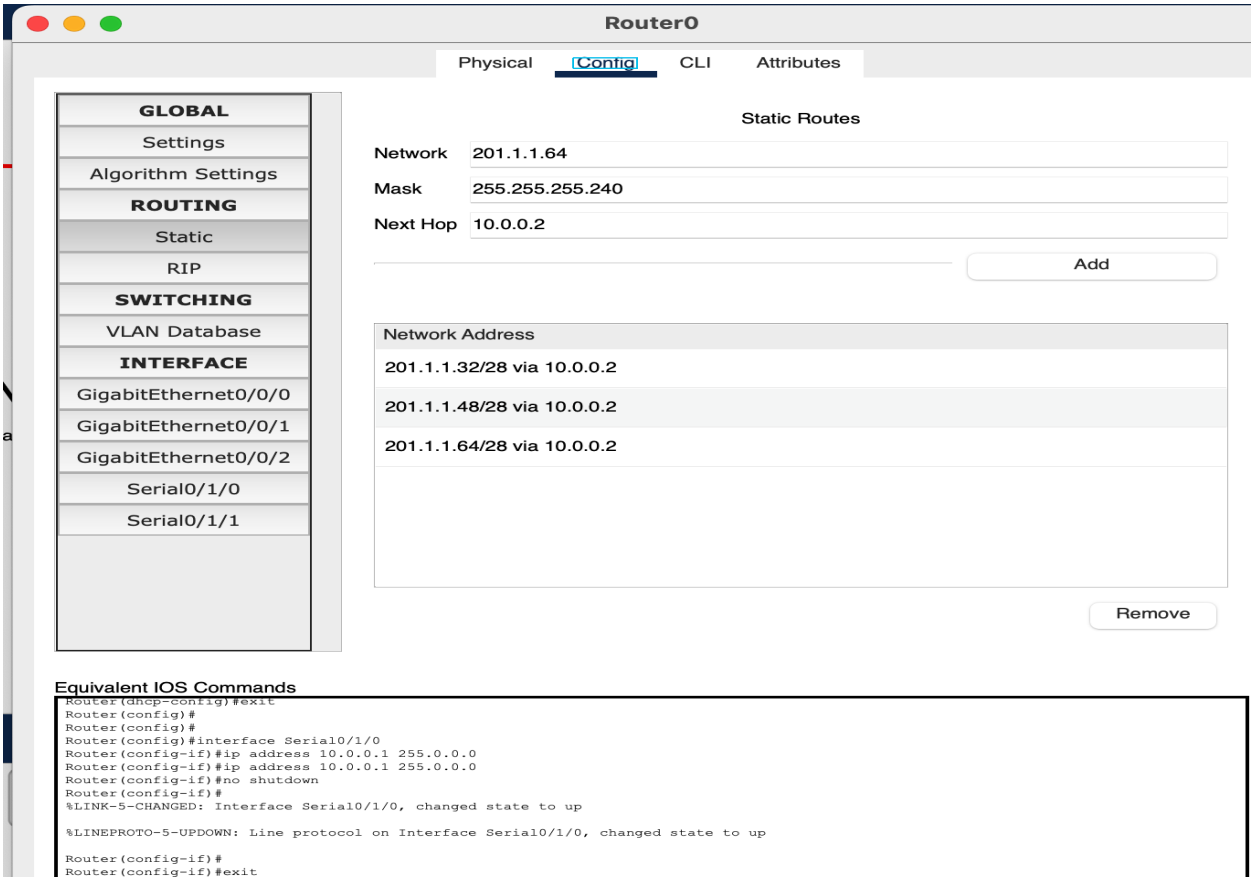
```
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/0/1
Router(config-if)#
Router(config-if)#
Router(config-if)#exit
Router(config)#no ip dhcp pool deptB
Router(config)#ip dhcp pool deptB
Router(dhcp-config)#network 201.1.1.16 255.255.255.240
Router(dhcp-config)#default-router 201.1.1.17
Router(dhcp-config)#exit
Router(config)#no ip dhcp pool deptA
Router(config)#ip dhcp pool deptA
Router(dhcp-config)#network 201.1.1.0 255.255.255.240
Router(dhcp-config)#default-router 201.1.1.1
Router(dhcp-config)#exit
Router(config)#
```

Similarly configured other 2 routers.

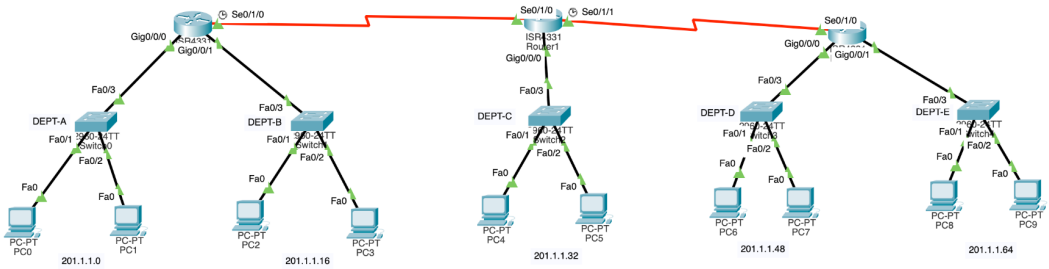
Give Ip to serial port with network id as 10.0.0.0 and 20.0.0.0
Change to dhcp mode in pc.



Give Static routing to all routers.



Testing:



CONCLUSION: I learned how to divide a network into small departments and how to subnet them.