TASK 3

Submitted by: YOUAIL JOHN (EL-19038)

Given
Network Address= 17.16.0.0 and Subnet Mask = 255.255.192.0.

Now we find

Subnet Mask Binary= 11111111.11111111.11000000.00000000

Total number of Subnets: $2^2 = 4$

Total number of Hosts per Subnet: $2^{14} = 16{,}382$

Total number of valid Hosts per Subnet: $2^{14} - 2 = 16{,}382 - 2 = 16{,}380$

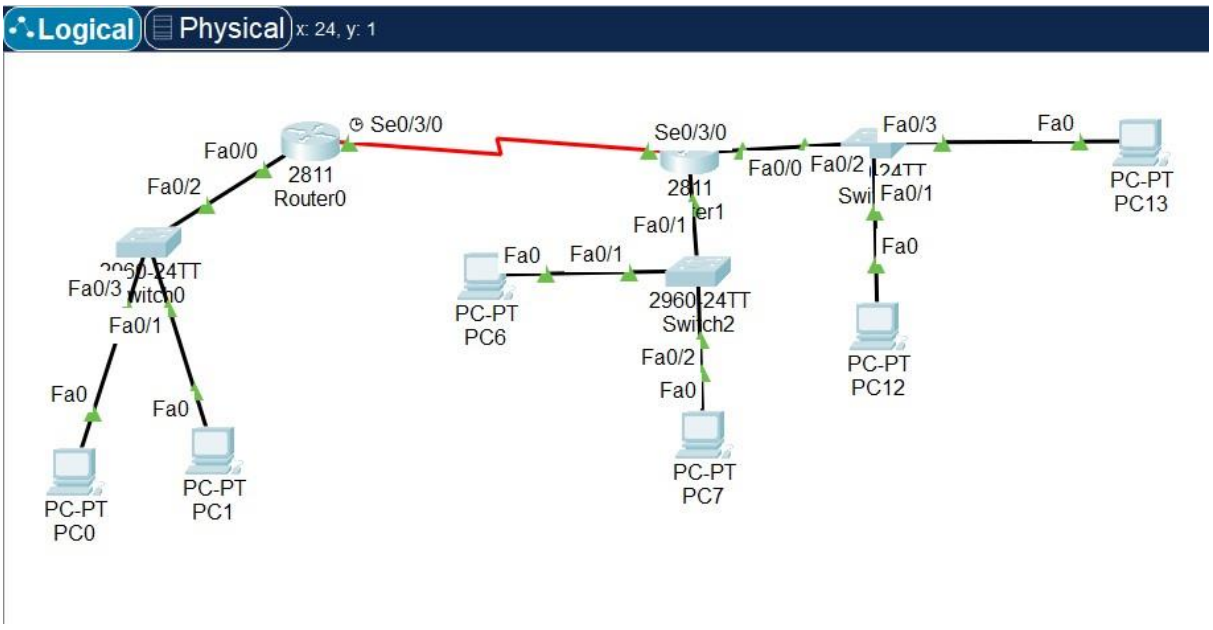
Block Size = 256 – 192= 64

So Blocks would be 172.16.0.0, 172.16.64.0, 172.16.128.0, 172.16.192.0.

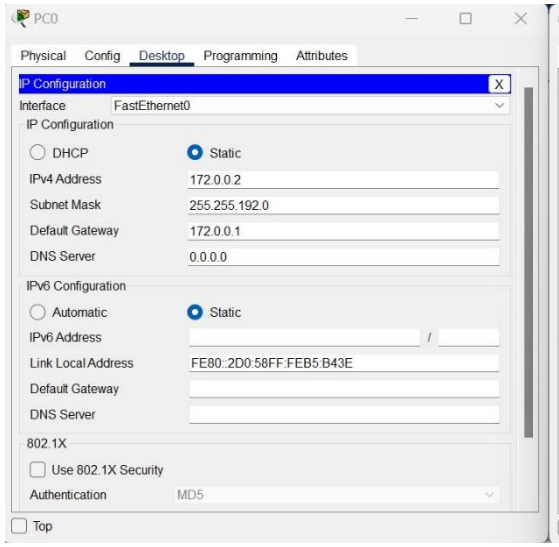
This is Class B IPv4 network address.

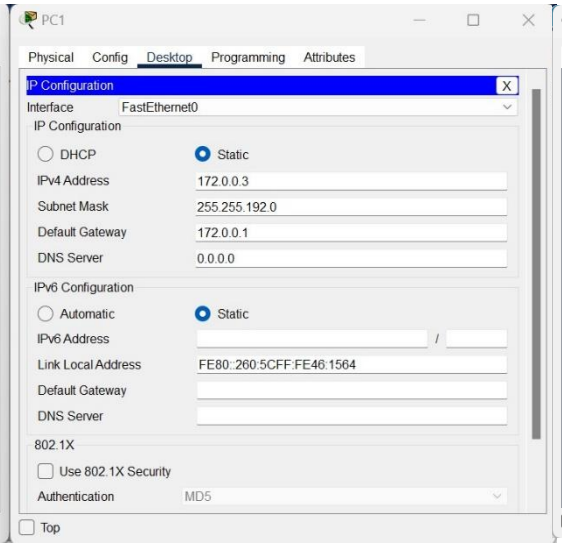
Subnet Address	First Host	Last Host	Broadcast Address
172.0.0.0	172.0.0.1	172.63.255.254	172.63.255.255
172.64.0.0	172.64.0.1	172.127.255.254	172.127.255.255
172.128.0.0	172.128.0.1	172.191.255.254	172.191.255.255
172.192.0.0	172.192.0.1	172.255.255.254	172.255.255.255

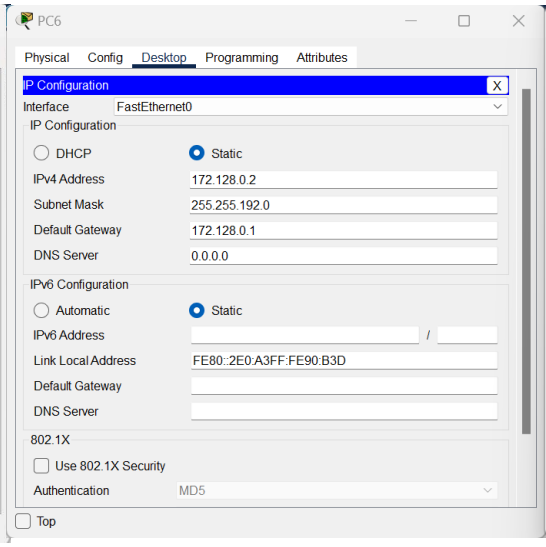
Designing the Topology: As there are 4 possible Subnets we attached 3 switches to the router to differentiate the broadcast domains and assigned 2 PCs to each domain. The routers itself are in a separate domain.

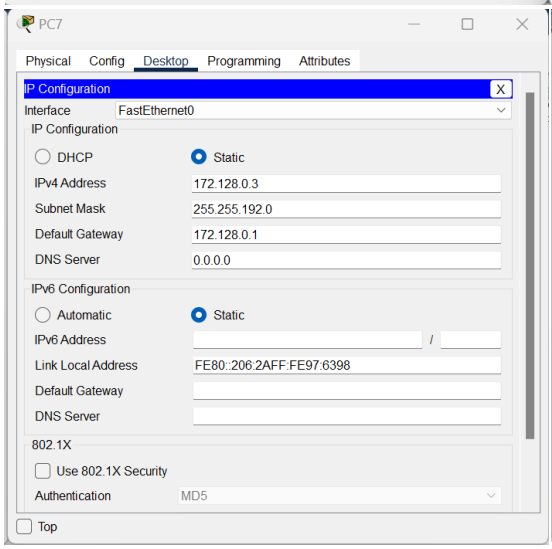


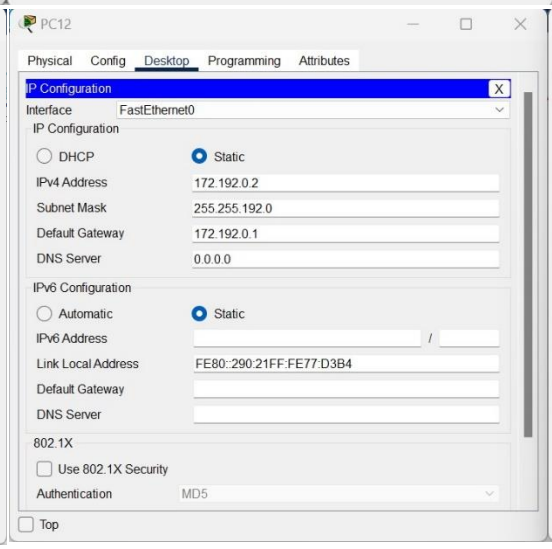
Setting up PCs: IPv4 adresses and default gateways are assigned according to the valid hosts adresses taken from the table. Subnet Mask is 255.255.192.0

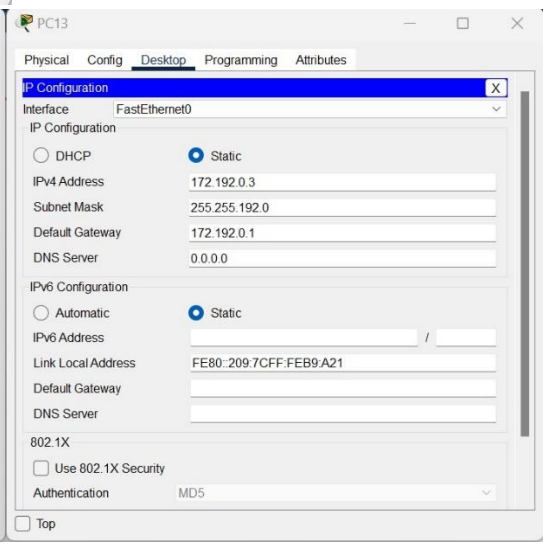




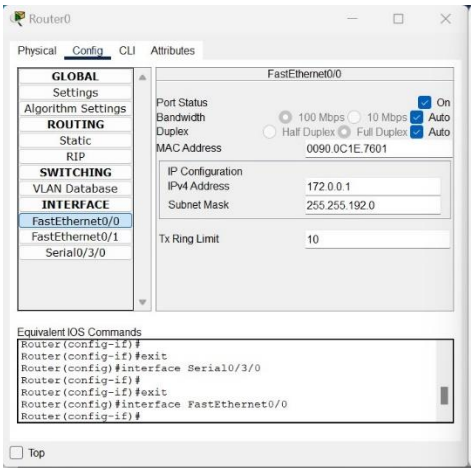


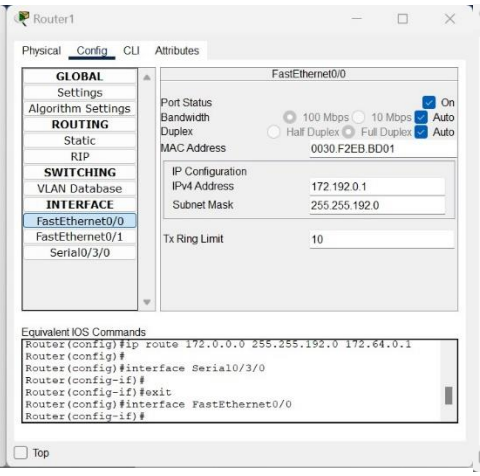


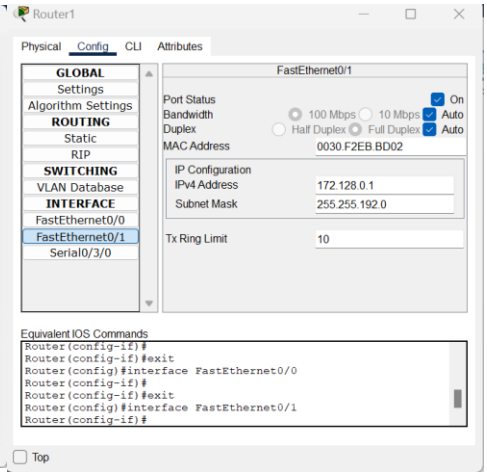


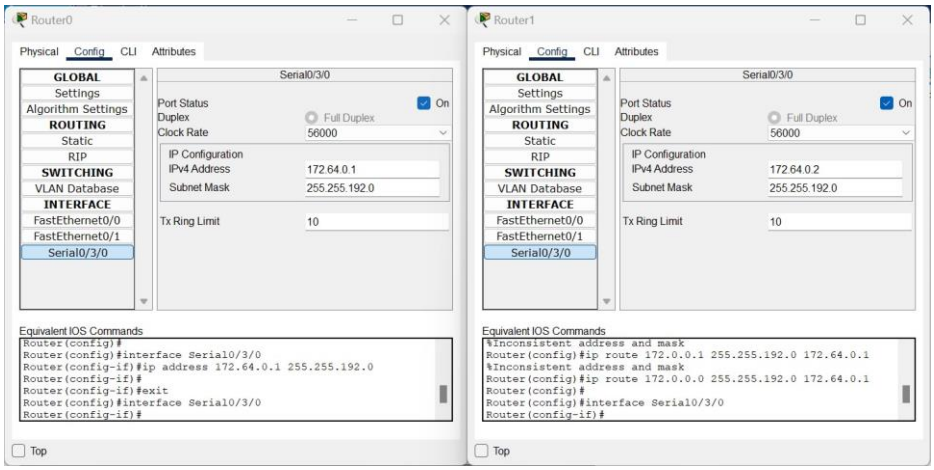


Setting up Router: Connecting the switches to router and adding the deault IPv4 of each subnet and also making the routers a separate subnet.









Pinging: Verifying connections by pinging PC1 (IPv4= 172.0.0.2) to PC13 (IPv4=172.192.0.3) which is successful.