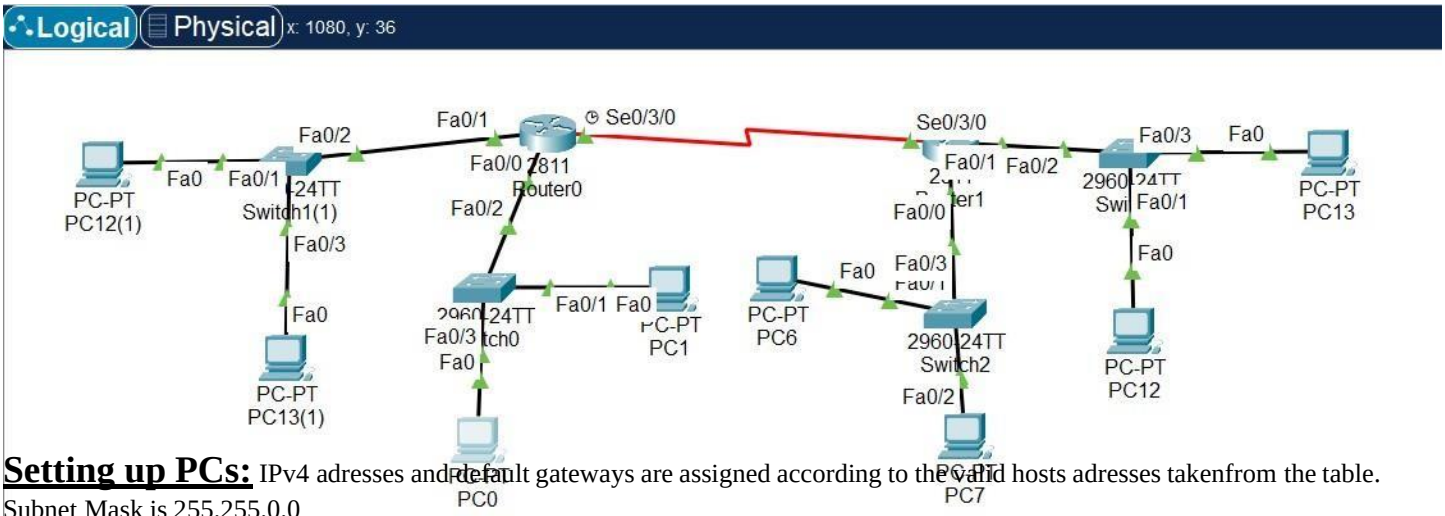
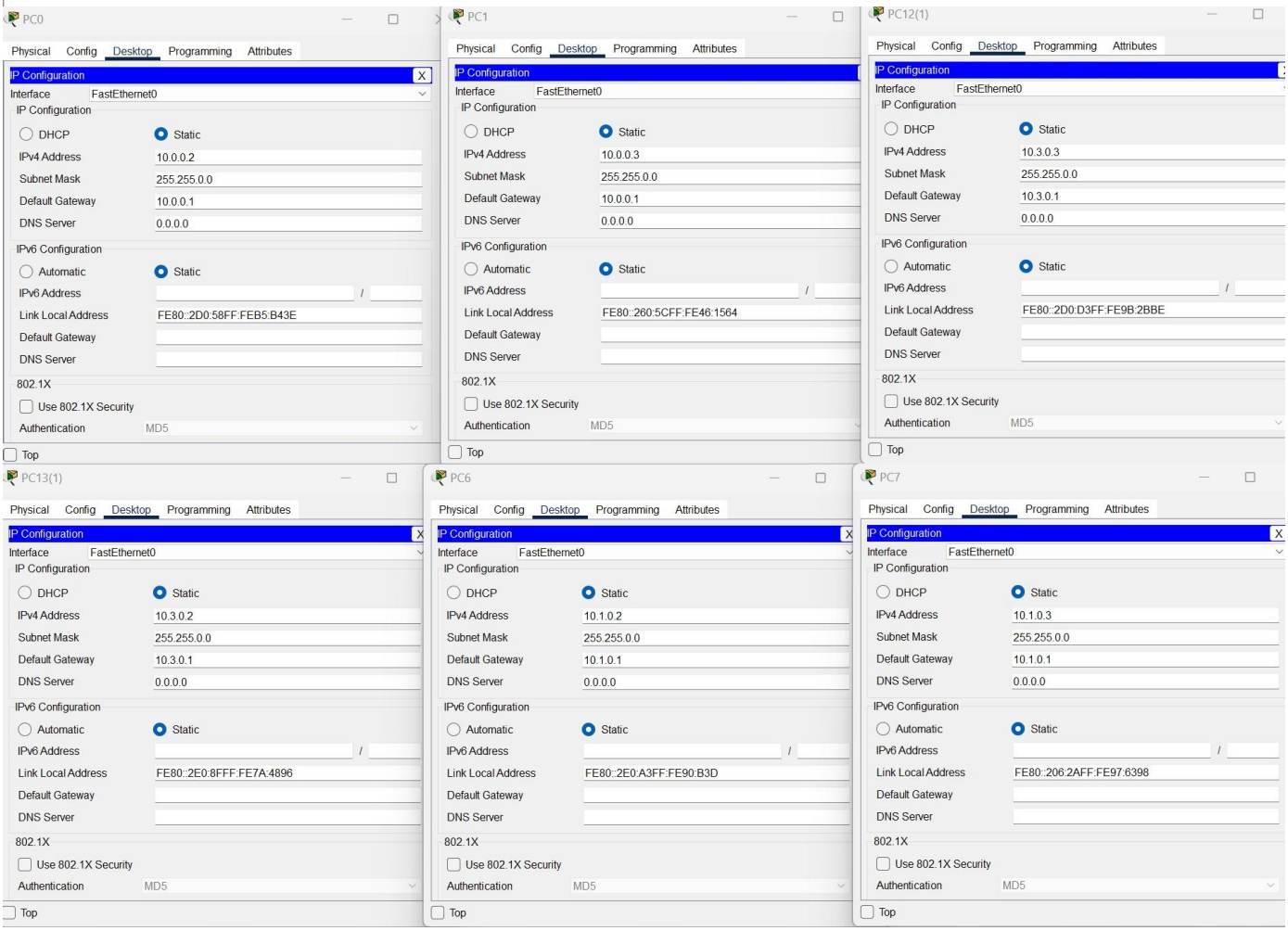
Task 4:

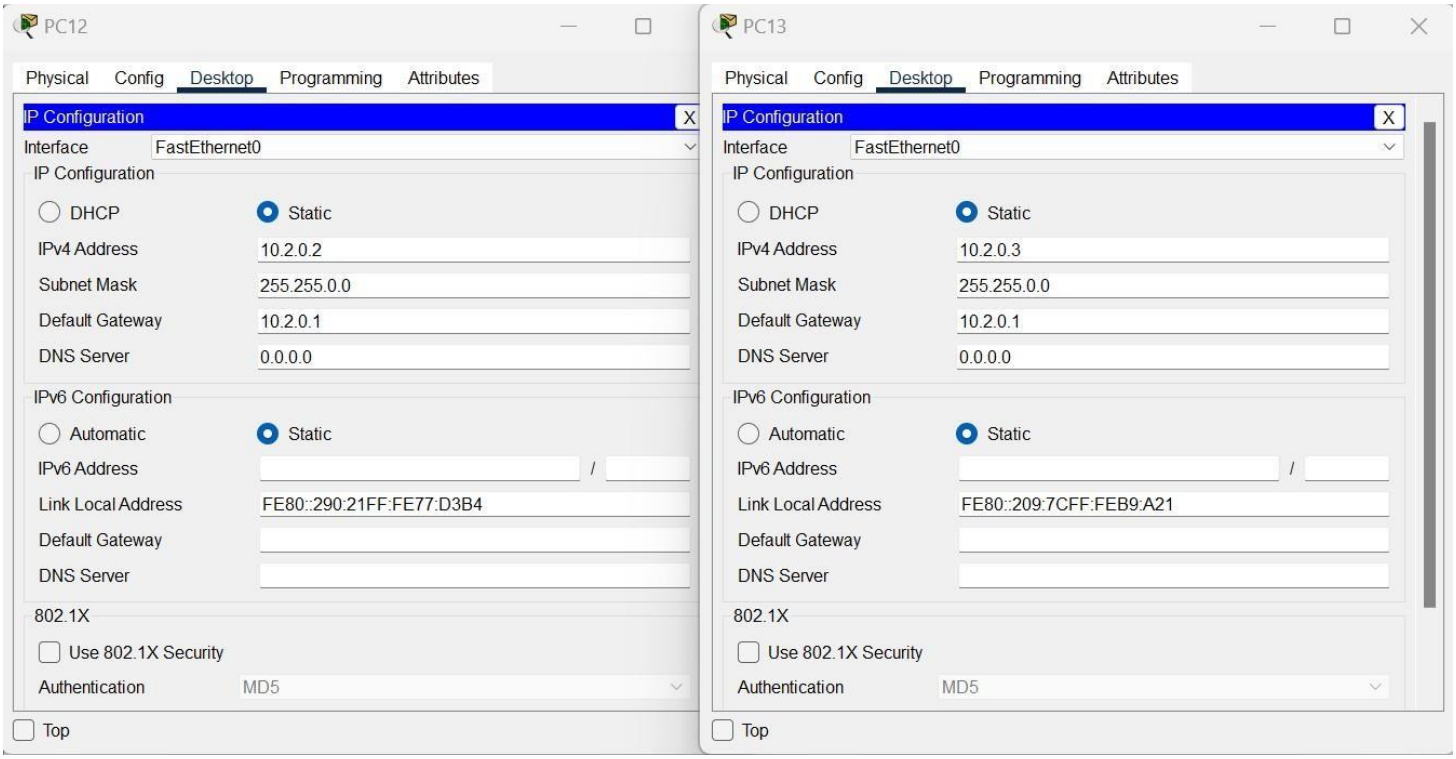
Calculate total number of subnets, total number of hosts per subnet, total number of valid hosts per subnet, subnet mask for each subnet, first valid host for each subnet, last valid host for each subnet, broadcast ip address of each subnet, subnetwork IP address for each subnet, block size for each family of IPs in each subnet. Generate a table as shown in the classroom exercise for enlisting range of IP address in each of subnet families. & finally design the same on packet tracer.

Designing the Topology: As there are 256 possible Subnets for demonstration purpose only 5 were madeThere were 4 switches attached to the router to differentiate the broadcast domains and assigned 2 PCs to each domain. The routers itself are in a separate domain.

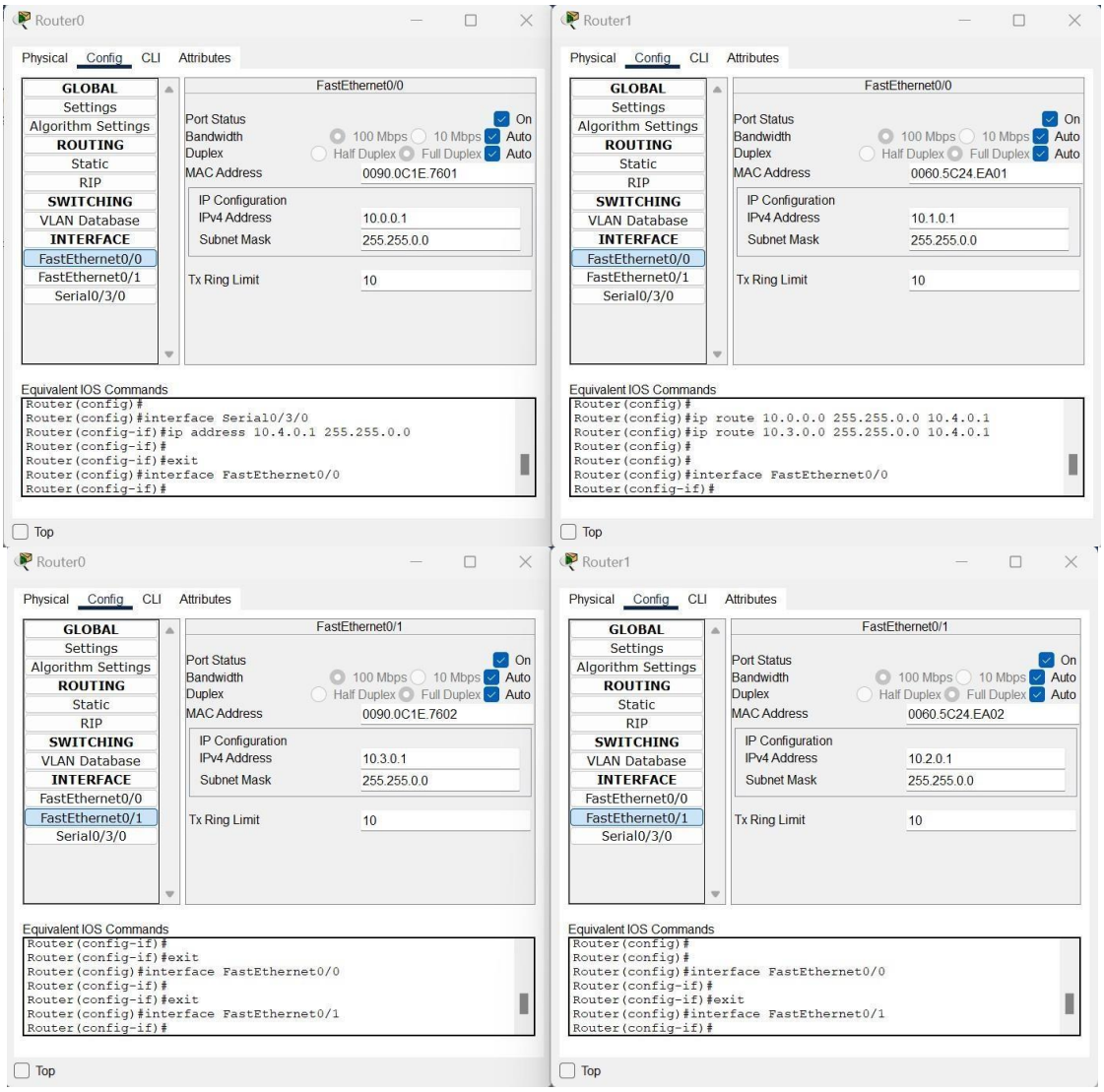


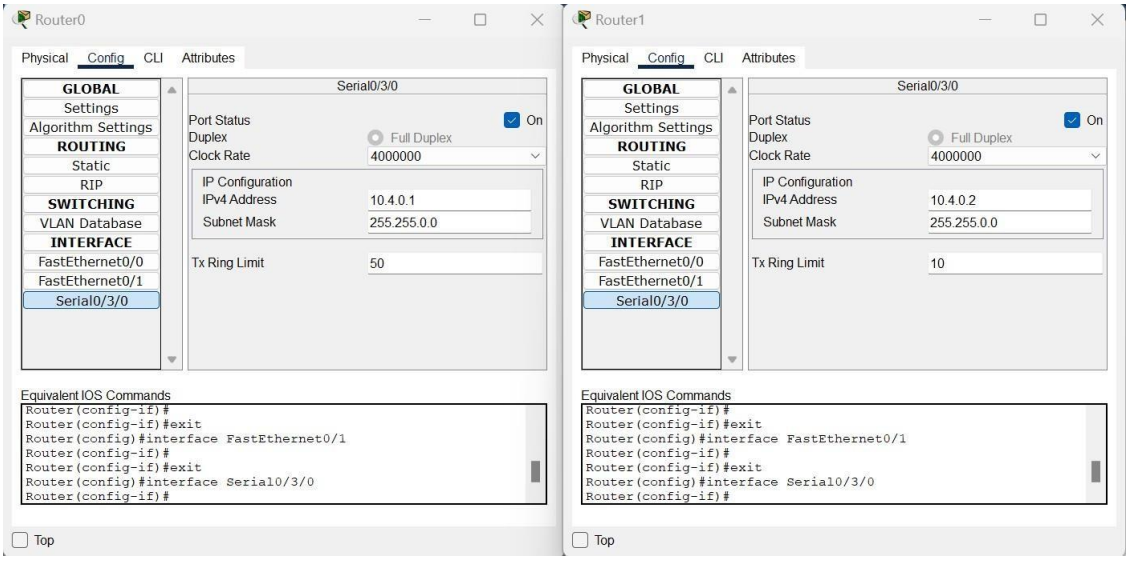
Setting up PCs: IPv4 adresses and default gateways are assigned according to the valid hosts adresses takenfrom the table. Subnet Mask is 255.255.0.0



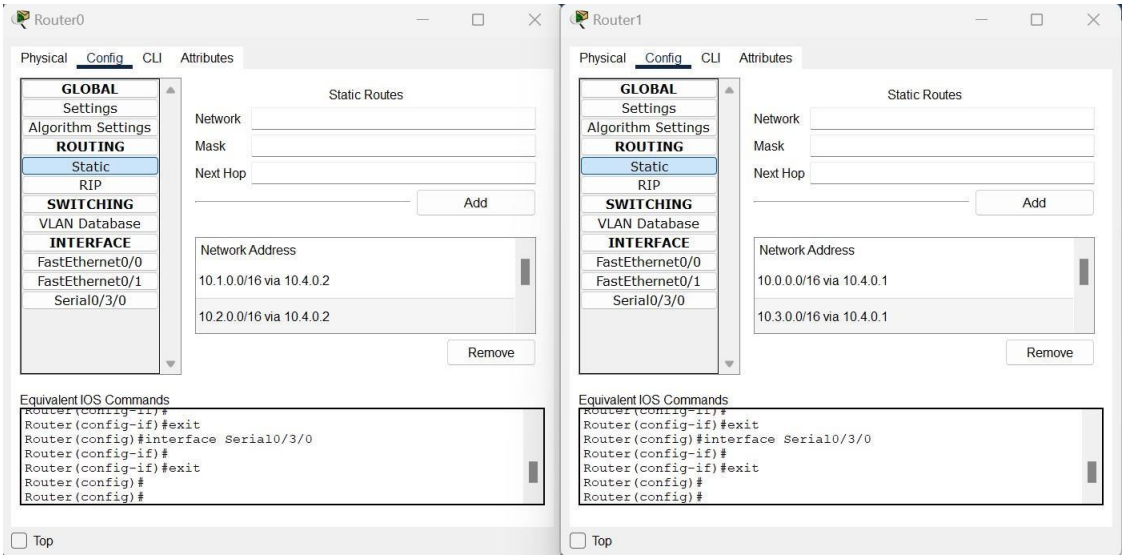


Setting up Router: Connecting the switches to router and adding the deault IPv4 of each subnet and alsomaking the routers a separate subnet.





Confguring Static routing so routers can communicate via serial port.



Pinging: Verifying connections by pinging PC0 (IPv4= 10.0.0.2) to PC13 (IPv4= 10.2.0.3) which is successful.