TASK 4

Submitted by: YOUAIL JOHN (EL-19038)

Given

Class A use a default Subnet Mask = 255.0.0.0.

Now we find
Subnet Mask in binary = 11111111.11111111.11000000.00000000
Total number of Subnets: 2^8 = 256
Total number of Hosts per Subnet: 2^{16} = 65,536
Total number of valid Hosts per Subnet: 2^{14} - 2 = 65,536 – 2 = 65,534
Block Size = 256 – 255= 1
So Blocks would be 10.1.0.0, 10.2.0.0, 10.3.0.0,……, 10.255.0.0.

Subnet Address	First Host	Last Host	Broadcast Address
10.0.0.0	10.0.0.1	10.0.255.254	10.0.255.255
10.1.0.0	10.1.0.1	10.1.255.254	10.1.255.255
10.2.0.0	10.2.0.1	10.2.255.254	10.2.255.255
10.3.0.0	10.3.0.1	10.3.255.254	10.3.255.255
10.4.0.0	10.4.0.1	10.4.255.254	10.4.255.255
10.5.0.0	10.5.0.1	10.5.255.254	10.5.255.255
10.6.0.0	10.6.0.1	10.6.255.254	10.6.255.255
10.7.0.0	10.7.0.1	10.7.255.254	10.7.255.255
10.8.0.0	10.8.0.1	10.8.255.254	10.8.255.255
10.9.0.0	10.9.0.1	10.9.255.254	10.9.255.255
10.10.0.0	10.10.0.1	10.10.255.254	10.10.255.255
10.11.0.0	10.11.0.1	10.11.255.254	10.11.255.255
10.12.0.0	10.12.0.1	10.12.255.254	10.12.255.255
10.13.0.0	10.13.0.1	10.13.255.254	10.13.255.255
10.14.0.0	10.14.0.1	10.14.255.254	10.14.255.255
10.15.0.0	10.15.0.1	10.15.255.254	10.15.255.255
10.16.0.0	10.16.0.1	10.16.255.254	10.16.255.255
10.17.0.0	10.17.0.1	10.17.255.254	10.17.255.255
10.18.0.0	10.18.0.1	10.18.255.254	10.18.255.255
10.19.0.0	10.19.0.1	10.19.255.254	10.19.255.255
10.20.0.0	10.20.0.1	10.20.255.254	10.20.255.255
10.21.0.0	10.21.0.1	10.21.255.254	10.21.255.255
10.22.0.0	10.22.0.1	10.22.255.254	10.22.255.255
10.23.0.0	10.23.0.1	10.23.255.254	10.23.255.255
10.24.0.0	10.24.0.1	10.24.255.254	10.24.255.255
10.25.0.0	10.25.0.1	10.25.255.254	10.25.255.255
10.26.0.0	10.26.0.1	10.26.255.254	10.26.255.255
10.27.0.0	10.27.0.1	10.27.255.254	10.27.255.255
10.28.0.0	10.28.0.1	10.28.255.254	10.28.255.255
10.29.0.0	10.29.0.1	10.29.255.254	10.29.255.255
10.30.0.0	10.30.0.1	10.30.255.254	10.30.255.255
10.31.0.0	10.31.0.1	10.31.255.254	10.31.255.255
10.32.0.0	10.32.0.1	10.32.255.254	10.32.255.255
10.33.0.0	10.33.0.1	10.33.255.254	10.33.255.255

Subnet Address	First Host	Last Host	Broadcast Address
10.34.0.0	10.34.0.1	10.34.255.254	10.34.255.255
10.35.0.0	10.35.0.1	10.35.255.254	10.35.255.255
10.36.0.0	10.36.0.1	10.36.255.254	10.36.255.255
10.37.0.0	10.37.0.1	10.37.255.254	10.37.255.255
10.38.0.0	10.38.0.1	10.38.255.254	10.38.255.255
10.39.0.0	10.39.0.1	10.39.255.254	10.39.255.255
10.40.0.0	10.40.0.1	10.40.255.254	10.40.255.255
10.41.0.0	10.41.0.1	10.41.255.254	10.41.255.255
10.42.0.0	10.42.0.1	10.42.255.254	10.42.255.255
10.43.0.0	10.43.0.1	10.43.255.254	10.43.255.255
10.44.0.0	10.44.0.1	10.44.255.254	10.44.255.255
10.45.0.0	10.45.0.1	10.45.255.254	10.45.255.255
10.46.0.0	10.46.0.1	10.46.255.254	10.46.255.255
10.47.0.0	10.47.0.1	10.47.255.254	10.47.255.255
10.48.0.0	10.48.0.1	10.48.255.254	10.48.255.255
10.49.0.0	10.49.0.1	10.49.255.254	10.49.255.255
10.50.0.0	10.50.0.1	10.50.255.254	10.50.255.255
10.51.0.0	10.51.0.1	10.51.255.254	10.51.255.255
10.52.0.0	10.52.0.1	10.52.255.254	10.52.255.255
10.53.0.0	10.53.0.1	10.53.255.254	10.53.255.255
10.54.0.0	10.54.0.1	10.54.255.254	10.54.255.255
10.55.0.0	10.55.0.1	10.55.255.254	10.55.255.255
10.56.0.0	10.56.0.1	10.56.255.254	10.56.255.255
10.57.0.0	10.57.0.1	10.57.255.254	10.57.255.255
10.58.0.0	10.58.0.1	10.58.255.254	10.58.255.255
10.59.0.0	10.59.0.1	10.59.255.254	10.59.255.255
10.60.0.0	10.60.0.1	10.60.255.254	10.60.255.255
10.61.0.0	10.61.0.1	10.61.255.254	10.61.255.255
10.62.0.0	10.62.0.1	10.62.255.254	10.62.255.255
10.63.0.0	10.63.0.1	10.63.255.254	10.63.255.255
10.64.0.0	10.64.0.1	10.64.255.254	10.64.255.255
10.65.0.0	10.65.0.1	10.65.255.254	10.65.255.255
10.66.0.0	10.66.0.1	10.66.255.254	10.66.255.255
10.67.0.0	10.67.0.1	10.67.255.254	10.67.255.255

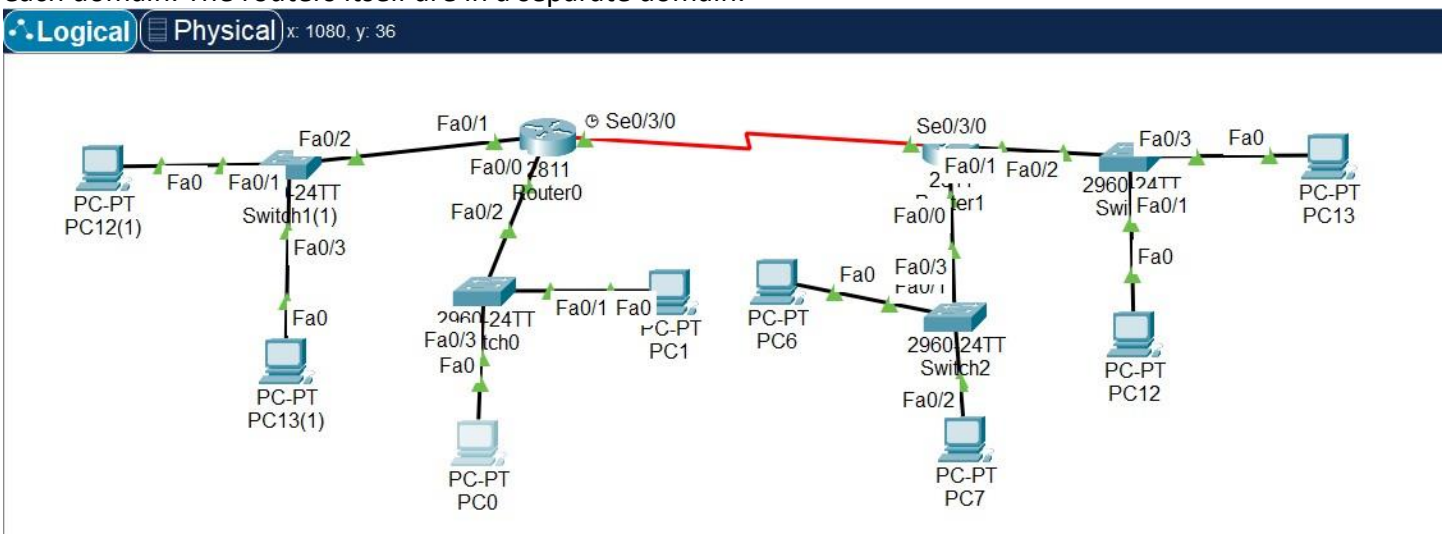
10.68.0.0	10.68.0.1	10.68.255.254	10.68.255.255
10.69.0.0	10.69.0.1	10.69.255.254	10.69.255.255
10.70.0.0	10.70.0.1	10.70.255.254	10.70.255.255
10.71.0.0	10.71.0.1	10.71.255.254	10.71.255.255
10.72.0.0	10.72.0.1	10.72.255.254	10.72.255.255
10.73.0.0	10.73.0.1	10.73.255.254	10.73.255.255
10.74.0.0	10.74.0.1	10.74.255.254	10.74.255.255
10.75.0.0	10.75.0.1	10.75.255.254	10.75.255.255
10.76.0.0	10.76.0.1	10.76.255.254	10.76.255.255
10.77.0.0	10.77.0.1	10.77.255.254	10.77.255.255
10.78.0.0	10.78.0.1	10.78.255.254	10.78.255.255
10.79.0.0	10.79.0.1	10.79.255.254	10.79.255.255
10.80.0.0	10.80.0.1	10.80.255.254	10.80.255.255
10.81.0.0	10.81.0.1	10.81.255.254	10.81.255.255
10.82.0.0	10.82.0.1	10.82.255.254	10.82.255.255
10.83.0.0	10.83.0.1	10.83.255.254	10.83.255.255
10.84.0.0	10.84.0.1	10.84.255.254	10.84.255.255
10.85.0.0	10.85.0.1	10.85.255.254	10.85.255.255
10.86.0.0	10.86.0.1	10.86.255.254	10.86.255.255
10.87.0.0	10.87.0.1	10.87.255.254	10.87.255.255
10.88.0.0	10.88.0.1	10.88.255.254	10.88.255.255
10.89.0.0	10.89.0.1	10.89.255.254	10.89.255.255
10.90.0.0	10.90.0.1	10.90.255.254	10.90.255.255
10.91.0.0	10.91.0.1	10.91.255.254	10.91.255.255
10.92.0.0	10.92.0.1	10.92.255.254	10.92.255.255
10.93.0.0	10.93.0.1	10.93.255.254	10.93.255.255
10.94.0.0	10.94.0.1	10.94.255.254	10.94.255.255
10.95.0.0	10.95.0.1	10.95.255.254	10.95.255.255
10.96.0.0	10.96.0.1	10.96.255.254	10.96.255.255
10.97.0.0	10.97.0.1	10.97.255.254	10.97.255.255
10.98.0.0	10.98.0.1	10.98.255.254	10.98.255.255
10.99.0.0	10.99.0.1	10.99.255.254	10.99.255.255
10.100.0.0	10.100.0.1	10.100.255.254	10.100.255.255
10.101.0.0	10.101.0.1	10.101.255.254	10.101.255.255
10.102.0.0	10.102.0.1	10.102.255.254	10.102.255.255
10.103.0.0	10.103.0.1	10.103.255.254	10.103.255.255
10.104.0.0	10.104.0.1	10.104.255.254	10.104.255.255
10.105.0.0	10.105.0.1	10.105.255.254	10.105.255.255
10.106.0.0	10.106.0.1	10.106.255.254	10.106.255.255
10.107.0.0	10.107.0.1	10.107.255.254	10.107.255.255
10.108.0.0	10.108.0.1	10.108.255.254	10.108.255.255
10.109.0.0	10.109.0.1	10.109.255.254	10.109.255.255
10.110.0.0	10.110.0.1	10.110.255.254	10.110.255.255
10.111.0.0	10.111.0.1	10.111.255.254	10.111.255.255
10.112.0.0	10.112.0.1	10.112.255.254	10.112.255.255
10.113.0.0	10.113.0.1	10.113.255.254	10.113.255.255
10.114.0.0	10.114.0.1	10.114.255.254	10.114.255.255
10.115.0.0	10.115.0.1	10.115.255.254	10.115.255.255
10.116.0.0	10.116.0.1	10.116.255.254	10.116.255.255

10.117.0.0	10.117.0.1	10.117.255.254	10.117.255.255
10.118.0.0	10.118.0.1	10.118.255.254	10.118.255.255
10.119.0.0	10.119.0.1	10.119.255.254	10.119.255.255
10.120.0.0	10.120.0.1	10.120.255.254	10.120.255.255
10.121.0.0	10.121.0.1	10.121.255.254	10.121.255.255
10.122.0.0	10.122.0.1	10.122.255.254	10.122.255.255
10.123.0.0	10.123.0.1	10.123.255.254	10.123.255.255
10.124.0.0	10.124.0.1	10.124.255.254	10.124.255.255
10.125.0.0	10.125.0.1	10.125.255.254	10.125.255.255
10.126.0.0	10.126.0.1	10.126.255.254	10.126.255.255
10.127.0.0	10.127.0.1	10.127.255.254	10.127.255.255
10.128.0.0	10.128.0.1	10.128.255.254	10.128.255.255
10.129.0.0	10.129.0.1	10.129.255.254	10.129.255.255
10.130.0.0	10.130.0.1	10.130.255.254	10.130.255.255
10.131.0.0	10.131.0.1	10.131.255.254	10.131.255.255
10.132.0.0	10.132.0.1	10.132.255.254	10.132.255.255
10.133.0.0	10.133.0.1	10.133.255.254	10.133.255.255
10.134.0.0	10.134.0.1	10.134.255.254	10.134.255.255
10.135.0.0	10.135.0.1	10.135.255.254	10.135.255.255
10.136.0.0	10.136.0.1	10.136.255.254	10.136.255.255
10.137.0.0	10.137.0.1	10.137.255.254	10.137.255.255
10.138.0.0	10.138.0.1	10.138.255.254	10.138.255.255
10.139.0.0	10.139.0.1	10.139.255.254	10.139.255.255
10.140.0.0	10.140.0.1	10.140.255.254	10.140.255.255
10.141.0.0	10.141.0.1	10.141.255.254	10.141.255.255
10.142.0.0	10.142.0.1	10.142.255.254	10.142.255.255
10.143.0.0	10.143.0.1	10.143.255.254	10.143.255.255
10.144.0.0	10.144.0.1	10.144.255.254	10.144.255.255
10.145.0.0	10.145.0.1	10.145.255.254	10.145.255.255
10.146.0.0	10.146.0.1	10.146.255.254	10.146.255.255
10.147.0.0	10.147.0.1	10.147.255.254	10.147.255.255
10.148.0.0	10.148.0.1	10.148.255.254	10.148.255.255
10.149.0.0	10.149.0.1	10.149.255.254	10.149.255.255
10.150.0.0	10.150.0.1	10.150.255.254	10.150.255.255
10.151.0.0	10.151.0.1	10.151.255.254	10.151.255.255
10.152.0.0	10.152.0.1	10.152.255.254	10.152.255.255
10.153.0.0	10.153.0.1	10.153.255.254	10.153.255.255
10.154.0.0	10.154.0.1	10.154.255.254	10.154.255.255
10.155.0.0	10.155.0.1	10.155.255.254	10.155.255.255
10.156.0.0	10.156.0.1	10.156.255.254	10.156.255.255
10.157.0.0	10.157.0.1	10.157.255.254	10.157.255.255
10.158.0.0	10.158.0.1	10.158.255.254	10.158.255.255
10.159.0.0	10.159.0.1	10.159.255.254	10.159.255.255
10.160.0.0	10.160.0.1	10.160.255.254	10.160.255.255
10.161.0.0	10.161.0.1	10.161.255.254	10.161.255.255
10.162.0.0	10.162.0.1	10.162.255.254	10.162.255.255
10.163.0.0	10.163.0.1	10.163.255.254	10.163.255.255
10.164.0.0	10.164.0.1	10.164.255.254	10.164.255.255
10.165.0.0	10.165.0.1	10.165.255.254	10.165.255.255

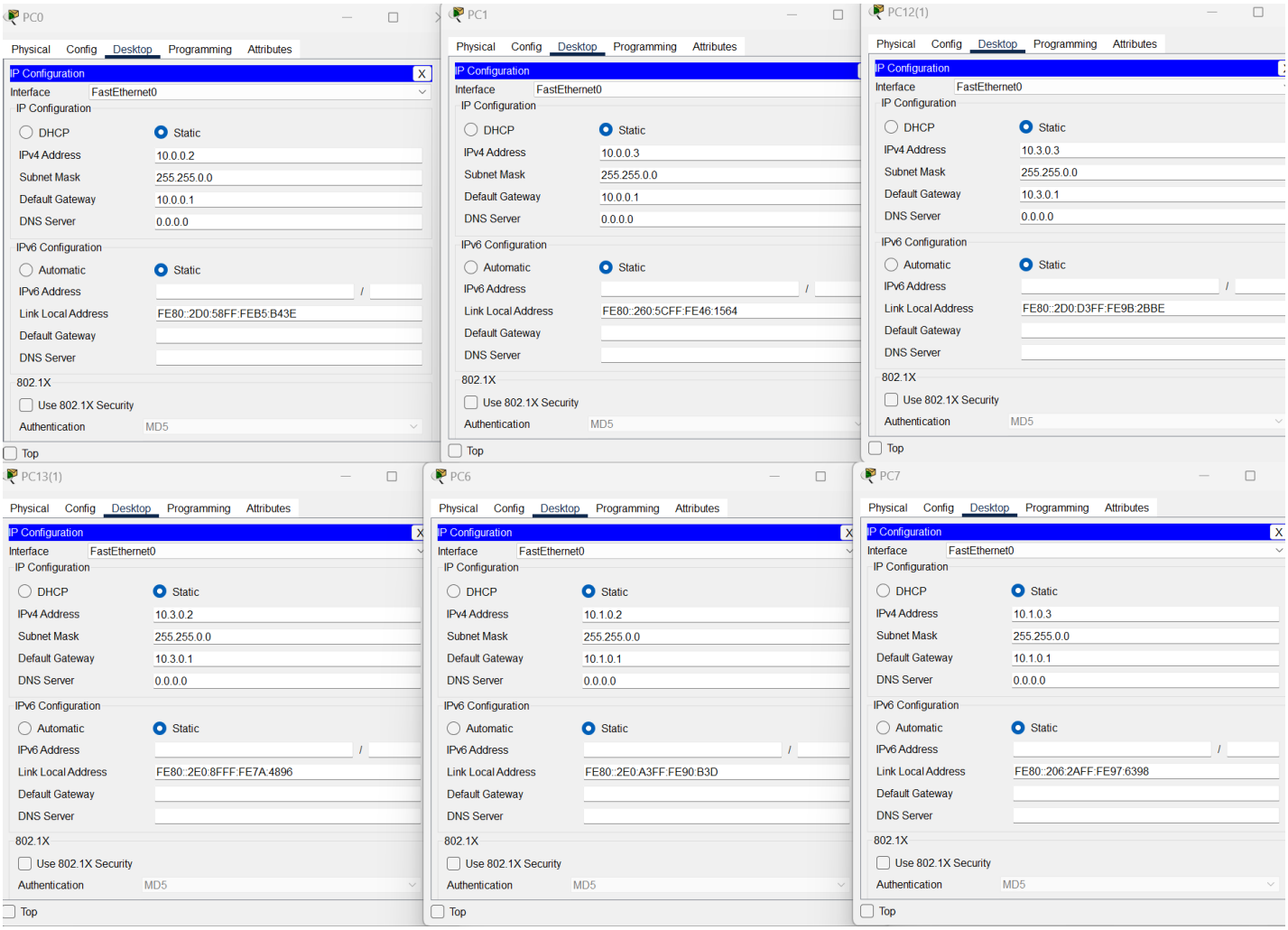
10.166.0.0	10.166.0.1	10.166.255.254	10.166.255.255
10.167.0.0	10.167.0.1	10.167.255.254	10.167.255.255
10.168.0.0	10.168.0.1	10.168.255.254	10.168.255.255
10.169.0.0	10.169.0.1	10.169.255.254	10.169.255.255
10.170.0.0	10.170.0.1	10.170.255.254	10.170.255.255
10.171.0.0	10.171.0.1	10.171.255.254	10.171.255.255
10.172.0.0	10.172.0.1	10.172.255.254	10.172.255.255
10.173.0.0	10.173.0.1	10.173.255.254	10.173.255.255
10.174.0.0	10.174.0.1	10.174.255.254	10.174.255.255
10.175.0.0	10.175.0.1	10.175.255.254	10.175.255.255
10.176.0.0	10.176.0.1	10.176.255.254	10.176.255.255
10.177.0.0	10.177.0.1	10.177.255.254	10.177.255.255
10.178.0.0	10.178.0.1	10.178.255.254	10.178.255.255
10.179.0.0	10.179.0.1	10.179.255.254	10.179.255.255
10.180.0.0	10.180.0.1	10.180.255.254	10.180.255.255
10.181.0.0	10.181.0.1	10.181.255.254	10.181.255.255
10.182.0.0	10.182.0.1	10.182.255.254	10.182.255.255
10.183.0.0	10.183.0.1	10.183.255.254	10.183.255.255
10.184.0.0	10.184.0.1	10.184.255.254	10.184.255.255
10.185.0.0	10.185.0.1	10.185.255.254	10.185.255.255
10.186.0.0	10.186.0.1	10.186.255.254	10.186.255.255
10.187.0.0	10.187.0.1	10.187.255.254	10.187.255.255
10.188.0.0	10.188.0.1	10.188.255.254	10.188.255.255
10.189.0.0	10.189.0.1	10.189.255.254	10.189.255.255
10.190.0.0	10.190.0.1	10.190.255.254	10.190.255.255
10.191.0.0	10.191.0.1	10.191.255.254	10.191.255.255
10.192.0.0	10.192.0.1	10.192.255.254	10.192.255.255
10.193.0.0	10.193.0.1	10.193.255.254	10.193.255.255
10.194.0.0	10.194.0.1	10.194.255.254	10.194.255.255
10.195.0.0	10.195.0.1	10.195.255.254	10.195.255.255
10.196.0.0	10.196.0.1	10.196.255.254	10.196.255.255
10.197.0.0	10.197.0.1	10.197.255.254	10.197.255.255
10.198.0.0	10.198.0.1	10.198.255.254	10.198.255.255
10.199.0.0	10.199.0.1	10.199.255.254	10.199.255.255
10.200.0.0	10.200.0.1	10.200.255.254	10.200.255.255
10.201.0.0	10.201.0.1	10.201.255.254	10.201.255.255
10.202.0.0	10.202.0.1	10.202.255.254	10.202.255.255
10.203.0.0	10.203.0.1	10.203.255.254	10.203.255.255
10.204.0.0	10.204.0.1	10.204.255.254	10.204.255.255
10.205.0.0	10.205.0.1	10.205.255.254	10.205.255.255
10.206.0.0	10.206.0.1	10.206.255.254	10.206.255.255
10.207.0.0	10.207.0.1	10.207.255.254	10.207.255.255
10.208.0.0	10.208.0.1	10.208.255.254	10.208.255.255
10.209.0.0	10.209.0.1	10.209.255.254	10.209.255.255
10.210.0.0	10.210.0.1	10.210.255.254	10.210.255.255

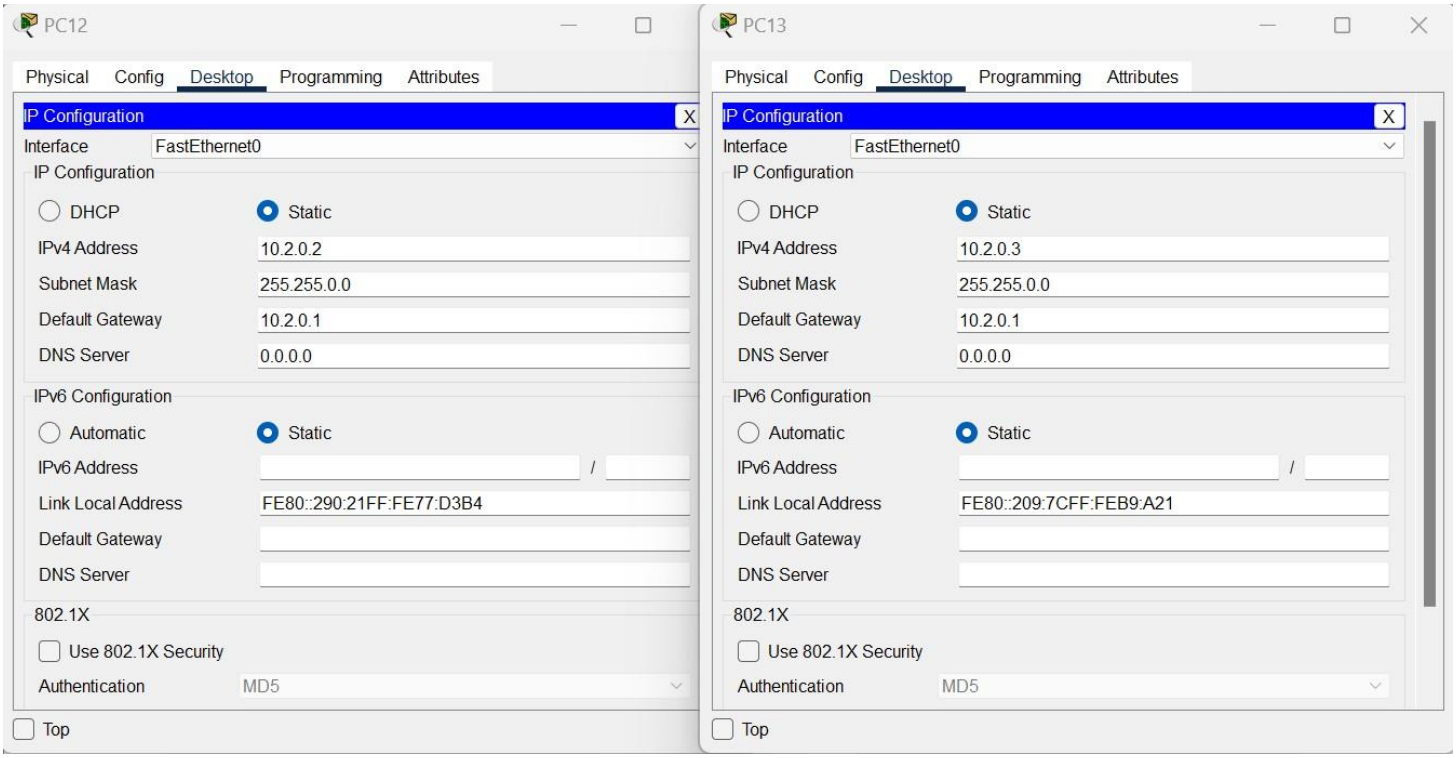
10.211.0.0	10.211.0.1	10.211.255.254	10.211.255.255
10.212.0.0	10.212.0.1	10.212.255.254	10.212.255.255
10.213.0.0	10.213.0.1	10.213.255.254	10.213.255.255
10.214.0.0	10.214.0.1	10.214.255.254	10.214.255.255
10.215.0.0	10.215.0.1	10.215.255.254	10.215.255.255
10.216.0.0	10.216.0.1	10.216.255.254	10.216.255.255
10.217.0.0	10.217.0.1	10.217.255.254	10.217.255.255
10.218.0.0	10.218.0.1	10.218.255.254	10.218.255.255
10.219.0.0	10.219.0.1	10.219.255.254	10.219.255.255
10.220.0.0	10.220.0.1	10.220.255.254	10.220.255.255
10.221.0.0	10.221.0.1	10.221.255.254	10.221.255.255
10.222.0.0	10.222.0.1	10.222.255.254	10.222.255.255
10.223.0.0	10.223.0.1	10.223.255.254	10.223.255.255
10.224.0.0	10.224.0.1	10.224.255.254	10.224.255.255
10.225.0.0	10.225.0.1	10.225.255.254	10.225.255.255
10.226.0.0	10.226.0.1	10.226.255.254	10.226.255.255
10.227.0.0	10.227.0.1	10.227.255.254	10.227.255.255
10.228.0.0	10.228.0.1	10.228.255.254	10.228.255.255
10.229.0.0	10.229.0.1	10.229.255.254	10.229.255.255
10.230.0.0	10.230.0.1	10.230.255.254	10.230.255.255
10.231.0.0	10.231.0.1	10.231.255.254	10.231.255.255
10.232.0.0	10.232.0.1	10.232.255.254	10.232.255.255
10.233.0.0	10.233.0.1	10.233.255.254	10.233.255.255
10.234.0.0	10.234.0.1	10.234.255.254	10.234.255.255
10.235.0.0	10.235.0.1	10.235.255.254	10.235.255.255
10.236.0.0	10.236.0.1	10.236.255.254	10.236.255.255
10.237.0.0	10.237.0.1	10.237.255.254	10.237.255.255
10.238.0.0	10.238.0.1	10.238.255.254	10.238.255.255
10.239.0.0	10.239.0.1	10.239.255.254	10.239.255.255
10.240.0.0	10.240.0.1	10.240.255.254	10.240.255.255
10.241.0.0	10.241.0.1	10.241.255.254	10.241.255.255
10.242.0.0	10.242.0.1	10.242.255.254	10.242.255.255
10.243.0.0	10.243.0.1	10.243.255.254	10.243.255.255
10.244.0.0	10.244.0.1	10.244.255.254	10.244.255.255
10.245.0.0	10.245.0.1	10.245.255.254	10.245.255.255
10.246.0.0	10.246.0.1	10.246.255.254	10.246.255.255
10.247.0.0	10.247.0.1	10.247.255.254	10.247.255.255
10.248.0.0	10.248.0.1	10.248.255.254	10.248.255.255
10.249.0.0	10.249.0.1	10.249.255.254	10.249.255.255
10.250.0.0	10.250.0.1	10.250.255.254	10.250.255.255
10.251.0.0	10.251.0.1	10.251.255.254	10.251.255.255
10.252.0.0	10.252.0.1	10.252.255.254	10.252.255.255
10.253.0.0	10.253.0.1	10.253.255.254	10.253.255.255
10.254.0.0	10.254.0.1	10.254.255.254	10.254.255.255
10.255.0.0	10.255.0.1	10.255.255.254	10.255.255.255

Designing the Topology: As there are 256 possible Subnets for demonstration purpose only 5 were made There 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.

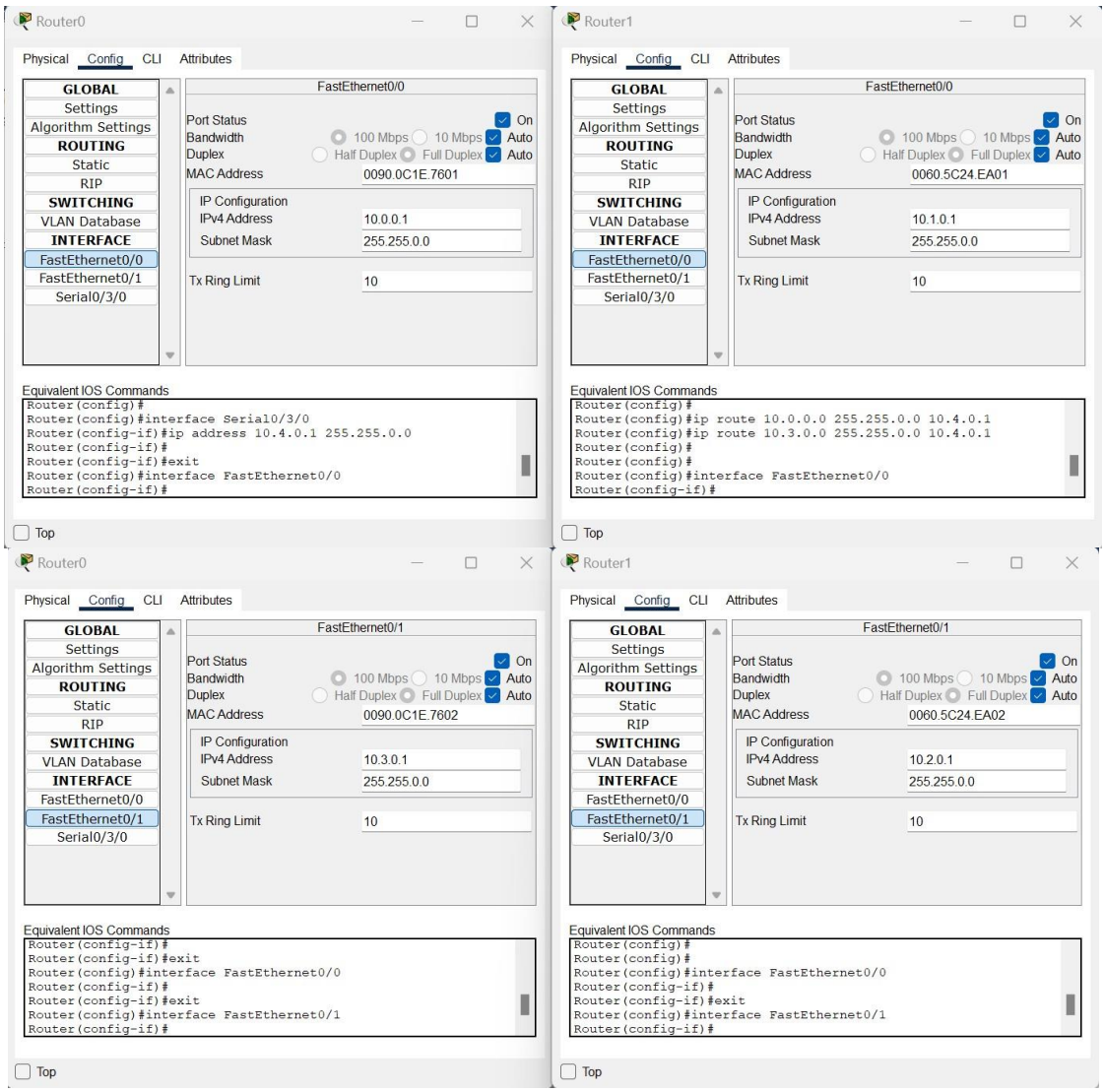


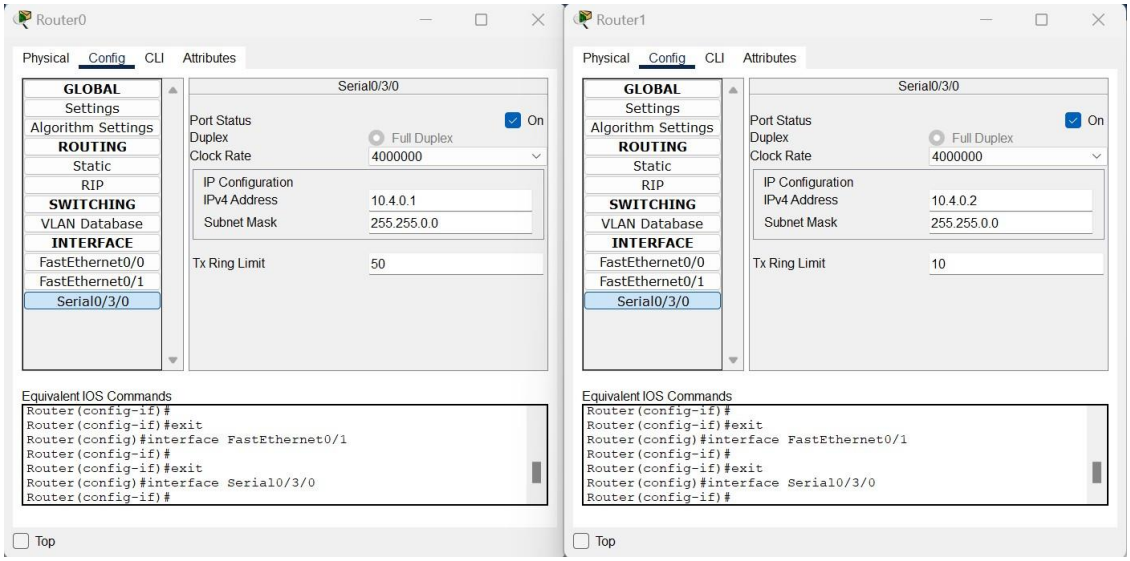
Setting up PCs: IPv4 adresses and default gateways are assigned according to the valid hosts adresses taken from the table. Subnet Mask is 255.255.0.0



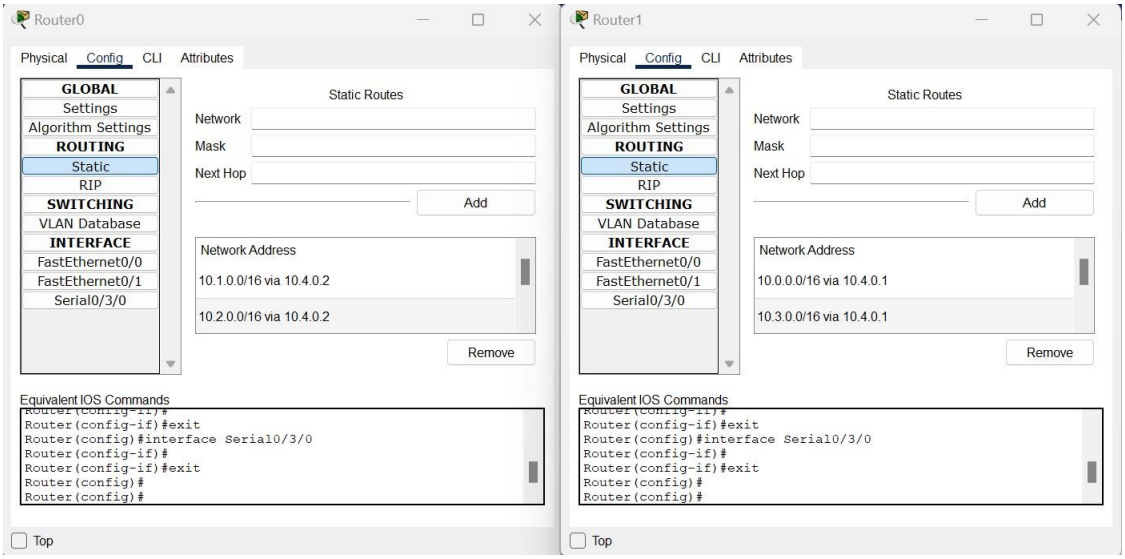


Setting up Router: Connecting the switches to router and adding the deault IPv4 of each subnet and also making the routers a separate subnet.





Confguring Static routing so routers can communicate via serial port.



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