5) Given an IP address range of 192.168.1.0/24, divide the network into 4 subnets.Task: Manually calculate the new subnet mask and the range of valid IP addresses for each subnet. Assign IP addresses from these subnets to devices in Cisco Packet Tracer and verify connectivity using ping between them.

IP Address: 192.168.1.0

Subnet Mask: 255.255.255.0

Total IPs in /24: 256 IPs

Usable IPs: 256 - 2 = 254 we exclude network and broadcast addresses

2 bits → 2^2 = 4 . so to create 4 subnets, we borrow 2 more bits from the host. Hence new subnet mask: /26

Subnet size: 2^(32−26)= 64 IPs

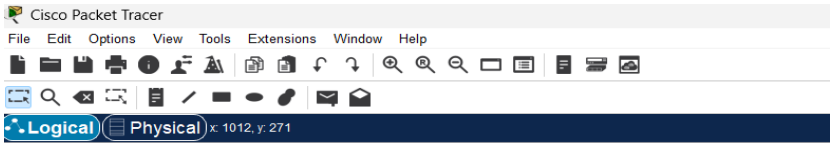
Usable IPs: 62 (excluding network & broadcast)

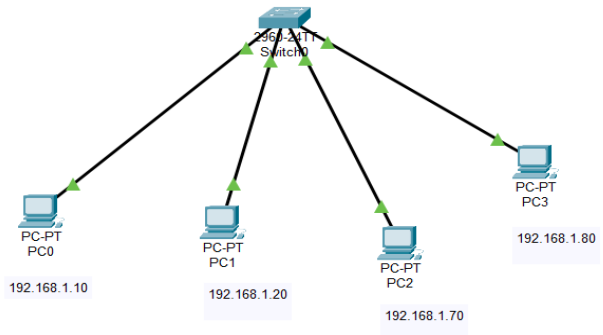
Subnet 1 : Usable Ip Range - 192.168.1.1 to 192.168.1.62 here Network Add - 192.168.1.0 and broadcast Add- 192.168.1.63

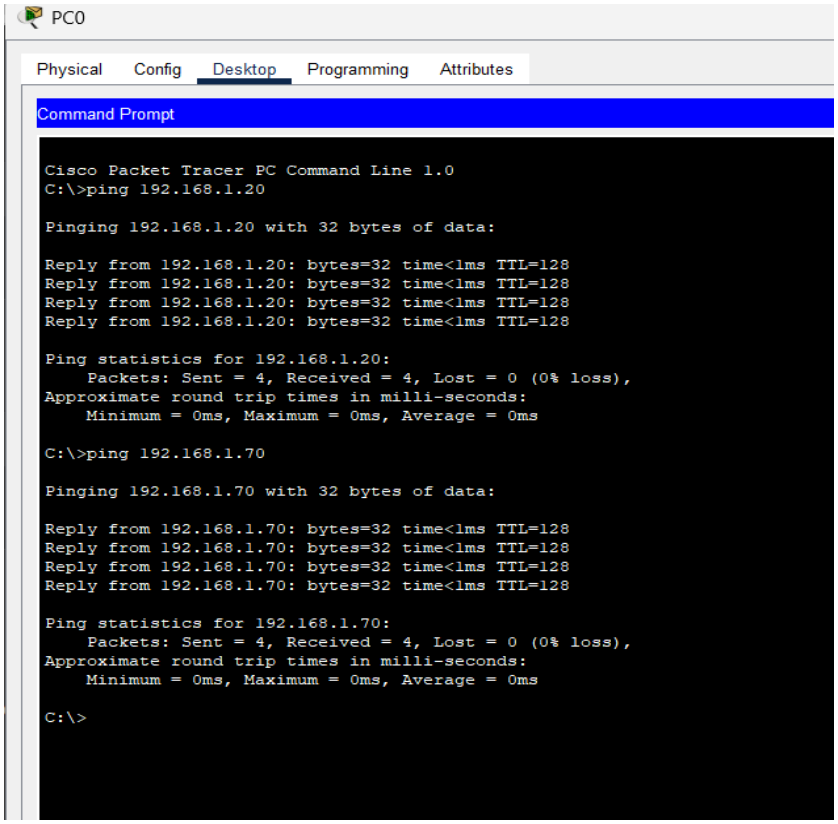
Subnet 2 : Ip Range - 192.168.1.65 to 192.168.1.126 here Network Add - 192.168.1.64 and broadcast Add- 192.168.1.127

Subnet 3 : Ip Range - 192.168.1.129 to 192.168.1.190 here Network Add - 192.168.1.128 and broadcast Add- 192.168.1.191

Subnet 4 : Ip Range - 192.168.1.193 to 192.168.1.254 here Network Add - 192.168.1.192 and broadcast Add- 192.168.1.255







Ping is Successful.