9.10.25 9. Subnetting in cisco packet tracer Simulator

Aim To implement subnetting in cisco packet Simulator.

Classless IP

It is the subnetting technique that allows for more efficient use of IP address by allocating for subnet masks that are not just the default masks for each IP class.

Creating a network topology

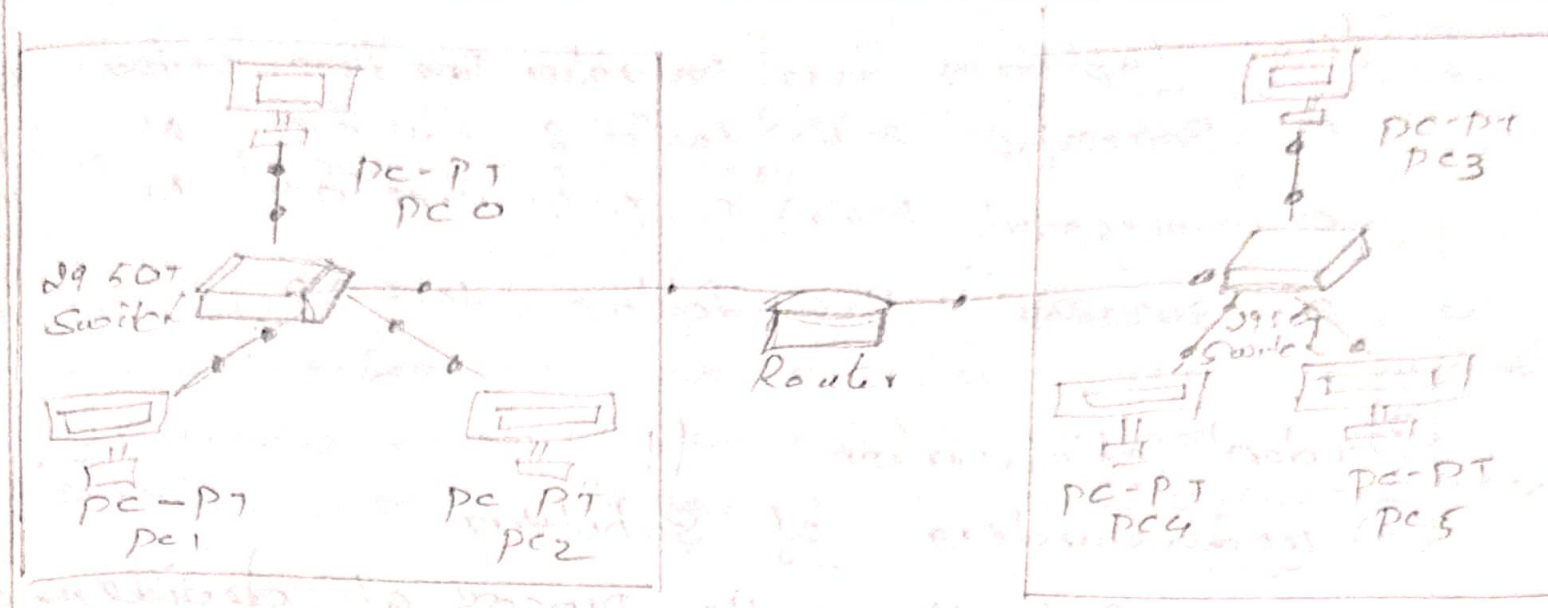
The first step in implementing classless IP Subnetting is to create a network topology in packet tracer.

Adding the devices

Once we have created our network topology we can add devices to it, Here we will be adding router switches and PCs.

Subnetting

To subnet the network address of 192.168.10 to provide enough space for at least 5 addresses for end devices, the switch and the router we can use a /27 subnet mask. This will give us 8 subnets with 30 host address each.



IP addressing

Router R1:

Gigabit Ethernet 0/0 : 192.168.1.1

Gigabit Ethernet 0/1 : 192.168.2.1

Switch S1:

fast ethernet 0/1 : 192.168.1.0/27

PC1 : 192.168.1.11

PC2 : 192.168.1.12

PC3 : 192.168.1.13

Router R2.

Fast ethernet 0/0 : 192.168.3.1

PC1 : 192.168.3.11

PC2 : 192.168.3.12

PC3 : 192.168.3.13

Testing the network

Open a Command prompt on each PC and try to ping the other PC. If the ping is successful, then the network is functioning properly.

fire	Last status	Source	destination	Type	time	period
0	Successful	PC 4(2)	Router 2	icmp	0.0	N
0	Successful	PC4(0)	PC2(1) (1)	icmp	0.0	N
0	Successful	PC0	Router 0	icmp	0.0	N

Student observation

(a) understanding of Subnetting

Subnetting is the process of dividing a large network of IP address range into smaller more manageable subnetwork called subnets

(b) advantages of implementing subnetting management:

→ Improved network

Smaller subnetworks are easier to monitor and maintain

→ Reduced broadcast traffic: Broadcast are limited to each subnet in necessary traffic across the whole network

(c) list of subnets

Subnet	IP range	Subnet mask
Subnet 1	192.168.10.0 - 255	255.255.255.0
Subnet 2	192.168.20.0 - 255	255.255.255.0

Result

Thus the implementation of subnetting in Cisco packet tracer has been executed successfully.