Ex-9)
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Implementation of Subnetting In Cisco Packet Tracer

AIM

Implementation of subnetting In Cisco Packet Tracer Simulator.

Classless IP subnetting is a technique that allows for more efficient use of IP addresses by allowing for subnet masks that are not just the default masks that are not just the default masks for each IP class. This means that we can divide our IP address space into smaller subnets, which can be useful when we have a limited number of IP addresses but need to create multiple networks

Procedure :

1) Create the network using routers, switches and PCs.

2) Configure IP addresses on PCs as follows :

Router R1 :

Gigabit 0/0 : 192.168.1.1
Gigabit 0/1 : 192.168.2.1

[Enable 'on' option for both gigabit ethernet]

Switch 81 :

Fast Ethernet 0/1 : 192.168.1.0

PC0 : 192.168.1.11

PC1 : 192.168.1.12

PC2 : 192.168.1.13

PC3 : 192.168.1.14

PC4 : 192.168.1.15

Fast Ethernet 0/2 : 192.168.2.0

PC5 : 192.168.2.11

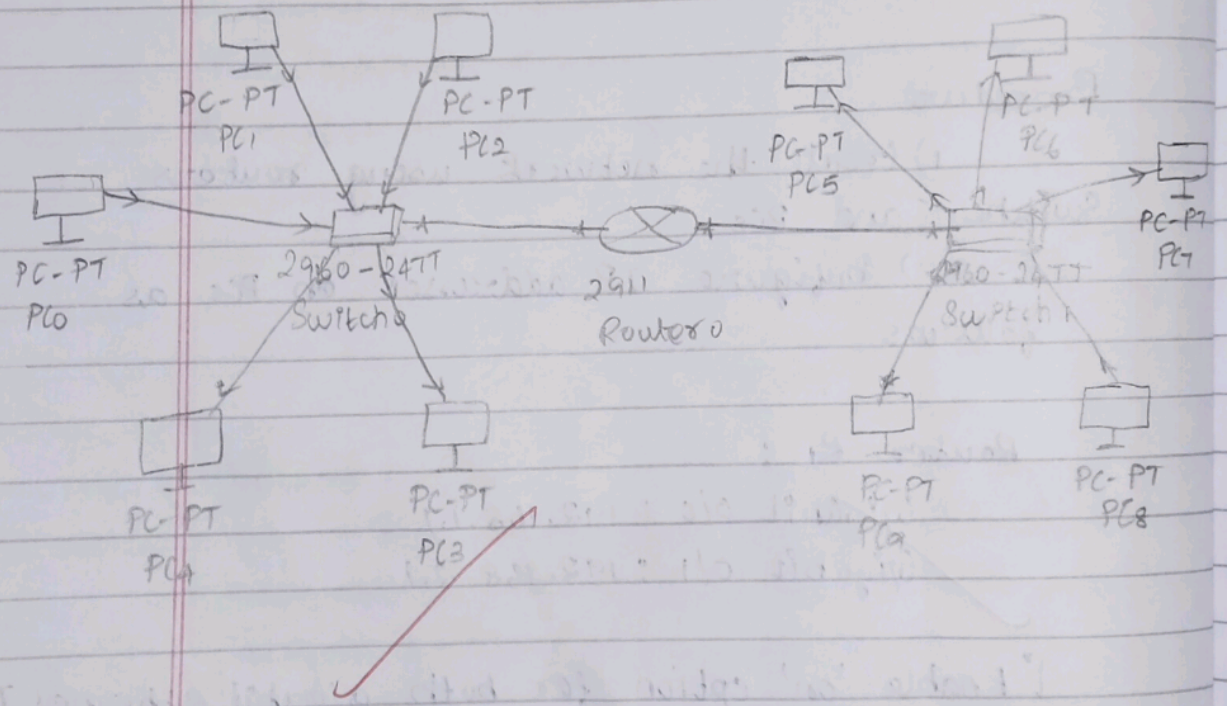
PC6 : 192.168.2.12

PC7 : 192.168.2.13

PC8 : 192.168.2.14

PC9 : 192.168.2.15.

Diagramatic representation:



Let us assume PC0 is sender and PC7 is receiver

Output :

Fire	Last Status	Source	Destination	Type	Time	Periodic	Num
●	Successful	PC0	PC7	ICMP	0.000	N	0

Student observation :

a) Write down your understanding of subnetting.

Subnetting divides a large network into smaller subnetworks, enhancing management, security and IP address efficiency. By adjusting the subnet mask, subnetting allocates specific IP portions for network vs host use. For instance, a (/24) subnet mask (255.255.255.0) reserves 24 bits for network, leaving 8 bits for hosts. This allows networks to reduce broadcast traffic and isolate network segments, improving performance and control over network traffic.

b) What is the advantage of implementing subnetting within a network?

→ Improved network performance

→ Efficient IP Address utilization

→ Enhanced security.

→ Simplified network management

→ Reduced collision domains.

Result:

Implementation of subnetting is successfully observed and the output is verified.