

EXPERIMENT NO = 9

DATE: 18/9/25

## IMPLEMENTATION OF SUBNETTING IN

CISCO PACKET TRACER SIMULATOR

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 just the default mask for each IP class. This means we can divide an IP address space into smaller subnets, which can be useful when we have a limited number of IP address but need to create multiple tasks.

Creating the Network Topology.

In packet Tracer, go to new  $\rightarrow$  Network  $\rightarrow$  Generic to create a blank topology. This provides the workspace to add and connect devices.

Adding devices: ~~transmit files in with original of~~

Drag routers, switches and PCs from the device list onto the topology. Use cables to connect ports between devices.

Subnetting:

Subnet 192.168.1.0/24 into 127 networks. This gives 8 subnets with 30 usable hosts each.

## CONFIGURE THE DEVICES

Now that we have added our devices and configured them, we can start configuring them. In the CLI, enter the following commands.

# enable

# configure terminal

# Interface Fast Ethernet 0/0

# IP address <IP address> <subnet mask>

# no shutdown

# exit

Next, we will configure the switch. Right-click on the switch and select "CLI". In the CLI, enter

enable

# configure terminal

# Interface Fast Ethernet 0/1

# Switch port mode access

# exit

# Interface Fast Ethernet 0/2

# Switch port mode access

# exit

To configure the Gigabit Ethernet interface on the router you can follow these steps:

1. Right-click on the router and select "CLI"

2. Enter the following commands.

enable

# configure terminal

# Interface Gigabit Ethernet 0/0

# IP address <IP address> <subnet mask>

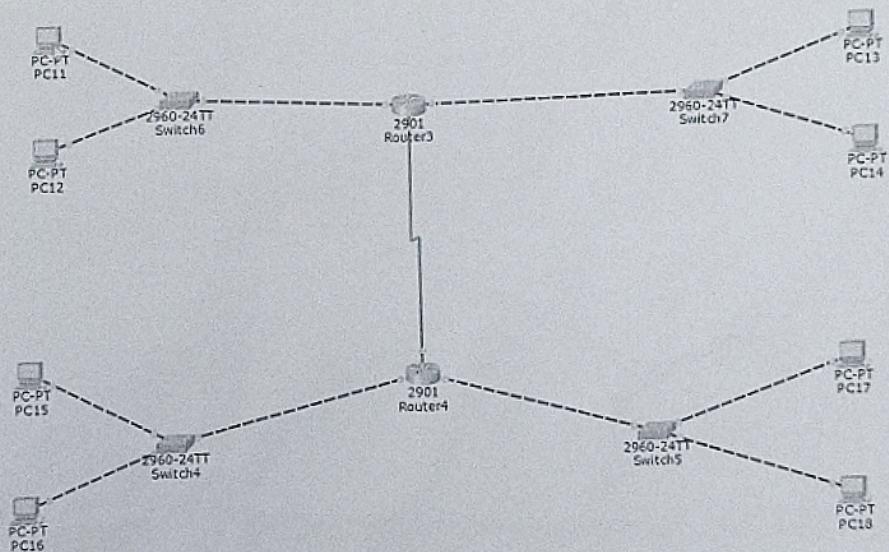
# no shutdown

# exit

Replace {IP address} and {subnet mask} with your desired IP address and subnet mask. These commands configure the Gigabit Ethernet interface with an IP address and subnet mask, and enable the interface.

### TESTING THE NETWORK:

Now that our network topology is configured, we can test 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. We can also use the "ping" command to test connectivity between the router PCs.



### STUDENT OBSERVATION:

Q. Write down your understanding of subnetting  
Ans: Subnetting is the process of dividing a large network (IP address space) into smaller, more manageable subnetworks called subnets.

b) Advantage of implementing Subnetting with

a network address and subnet of 192.168.1.0

and IP address range 192.168.1.1 to 192.168.1.254

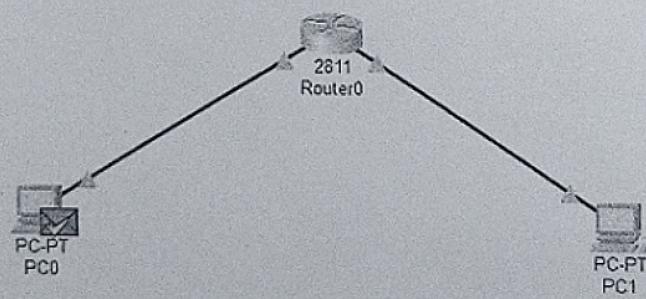
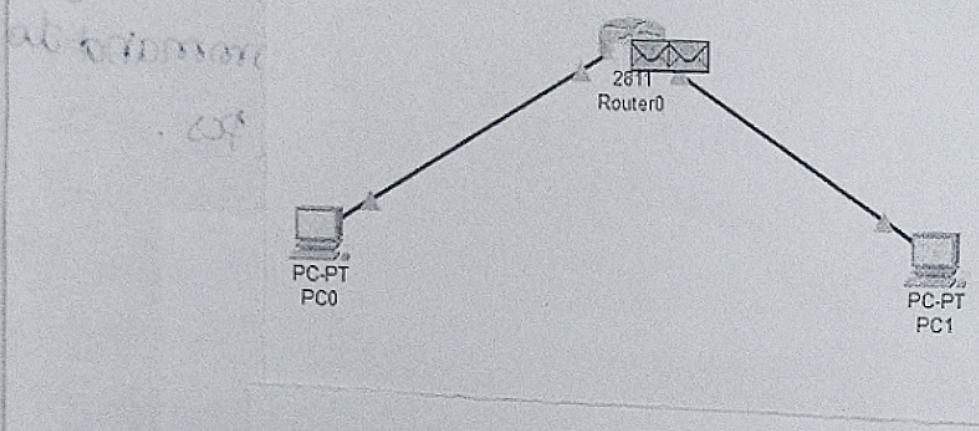
\* Efficient IP Address Utilization.

\* Improved network performance.

\* Enhanced security.

\* Simplified N/w management.

\* Scalability.



Result:

Thus, Subnetting is successfully implemented in CISCO PACKET TRACER simulation.