Expt: 9
Date: 18.9.25

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 for each IP class.

CREATING A NETWORK TOPOLOGY

Created a network topology in Cisco Packet Tracer

ADDING THE DEVICES:

Added devices like PCs, Switches, Routers. Connected the devices by dragging a cable from one's port to another device's port

SUBNETTING:

To subnet the network address of 192.168.1.0/24 - use a /27 subnet mask This will give us 8 subnets with 30 hosts address each

IP addressing

Router 1

Gigabit Ethernet 0/0 : 192.168.1.1

Gigabit Ethernet 0/1 : 192.168.2.1

Router 2

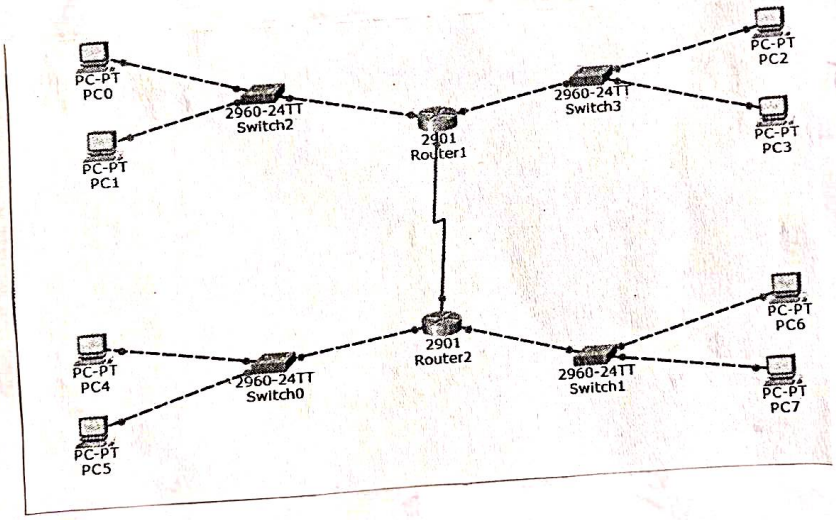
Gigabit Ethernet 0/0 : 192.168.3.1

Gigabit Ethernet 0/1 : 192.168.4.1

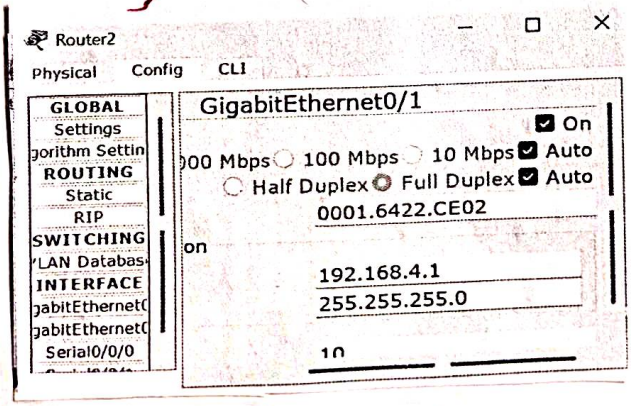
switch S3

Pc P2: 192.168.2.11 PC P3: 192.168.2.12

output of address allocation :-

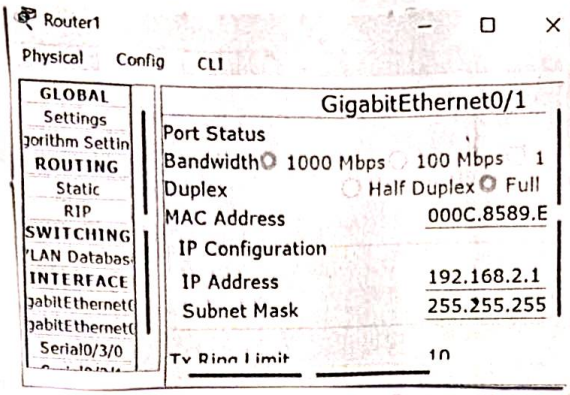


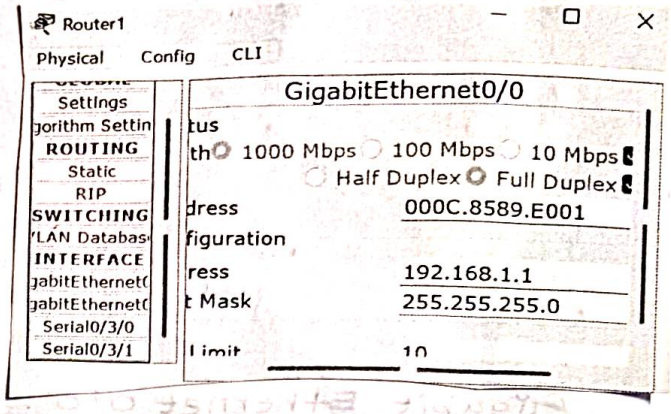
Network topology



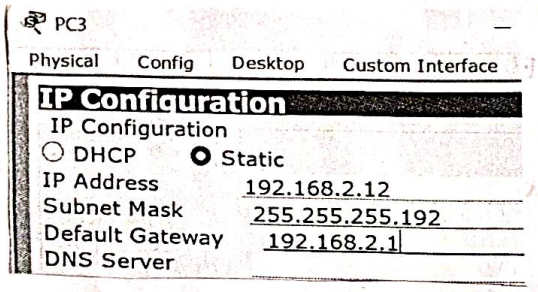
Router 2
address allocation

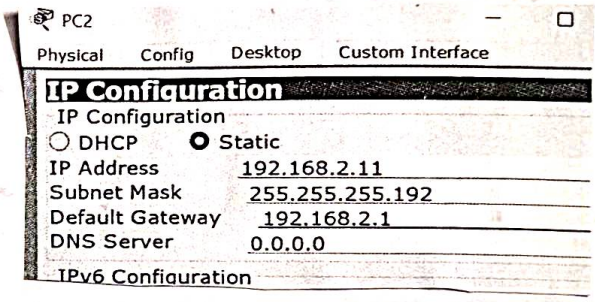
Router 1:



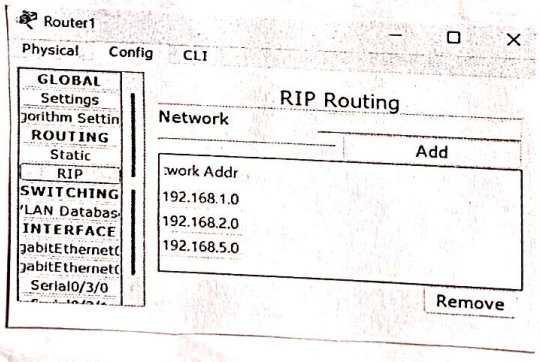


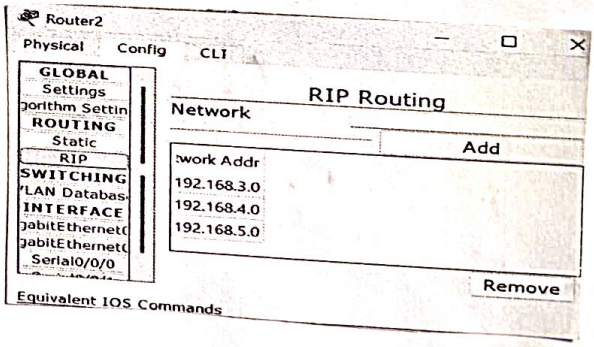
PC3 and PC2:



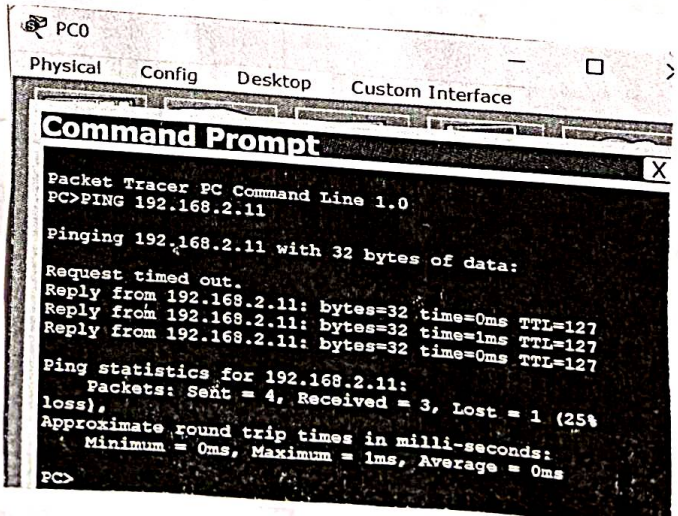


RIP routing of Router1 and Router2





Testing the network :-



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PC>ping 192.168.3.11

Pinging 192.168.3.11 with 32 bytes of data:

Request timed out.
Reply from 192.168.3.11: bytes=32 time=1ms TTL=126
Reply from 192.168.3.11: bytes=32 time=2ms TTL=126
Reply from 192.168.3.11: bytes=32 time=9ms TTL=126

Ping statistics for 192.168.3.11:
    Packets: Sent = 4, Received = 3, Lost = 1 (25%
loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 9ms, Average = 4ms
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Student Observation

a) Write down your understanding of subnetting

- Subnetting is the process of devideng a larger network onto smaller, managable sub networks to improve efficiency.

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

1. Reduces network congestion
2. Enhancing security
3. Semplifies management and troubleshooting

RESULT:

The implementation of subnetting on Cisco Packet Tracer is successfully completed.

9/10/25