Program 9

To demonstrate the working of Address Resolution Protocol for communication with the LAN.

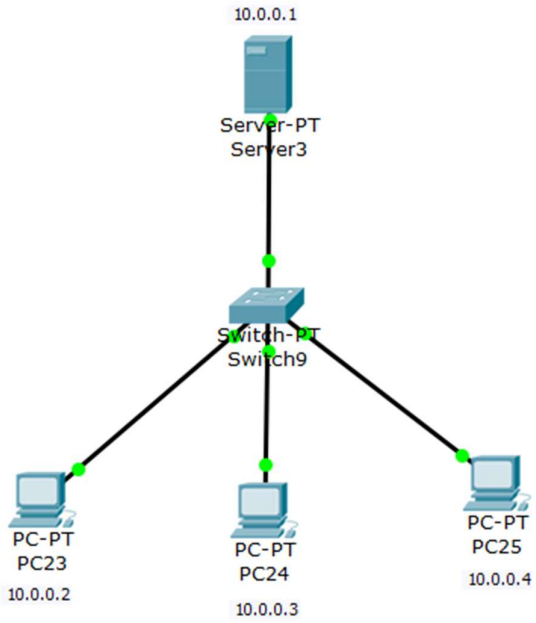


Figure 57: Topology

ARP Table for Server3

IP Address	Hardware Address	Interface
10.0.0.2	0001.C9A3.2E34	FastEthernet0
10.0.0.3	0001.96E7.5E01	FastEthernet0
10.0.0.4	0006.2A70.55DC	FastEthernet0

ARP Table for PC23

IP Address	Hardware Address	Interface
10.0.0.1	0030.A3B6.E2D2	FastEthernet0
10.0.0.3	0001.96E7.5E01	FastEthernet0
10.0.0.4	0006.2A70.55DC	FastEthernet0

ARP Table for PC24

IP Address	Hardware Address	Interface
10.0.0.1	0030.A3B6.E2D2	FastEthernet0
10.0.0.2	0001.C9A3.2E34	FastEthernet0
10.0.0.4	0006.2A70.55DC	FastEthernet0

ARP Table for PC25

IP Address	Hardware Address	Interface
10.0.0.1	0030.A3B6.E2D2	FastEthernet0
10.0.0.2	0001.C9A3.2E34	FastEthernet0
10.0.0.3	0001.96E7.5E01	FastEthernet0

Figure 58: ARP Tables of all PCs and Server

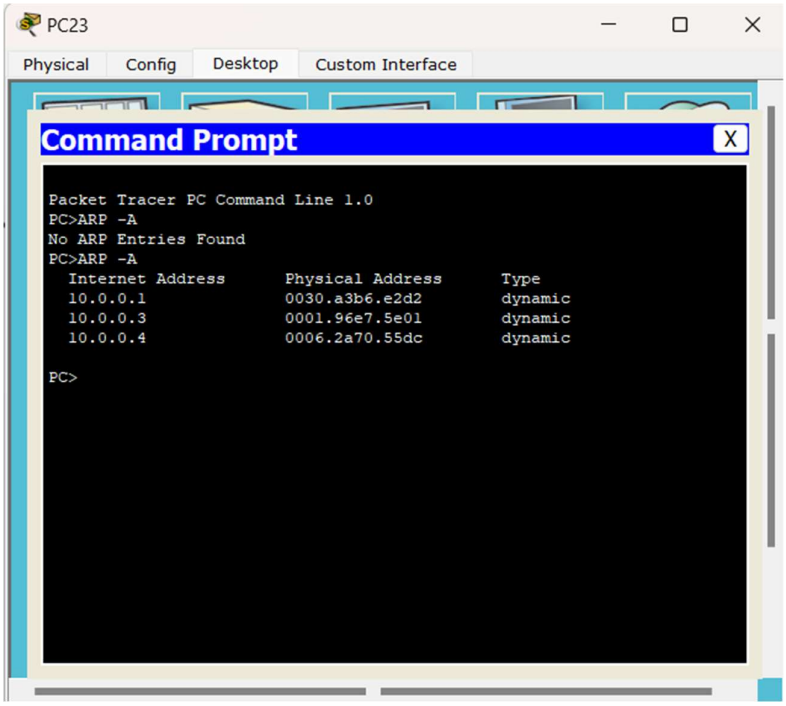


Figure 59: ARP command output of PC0

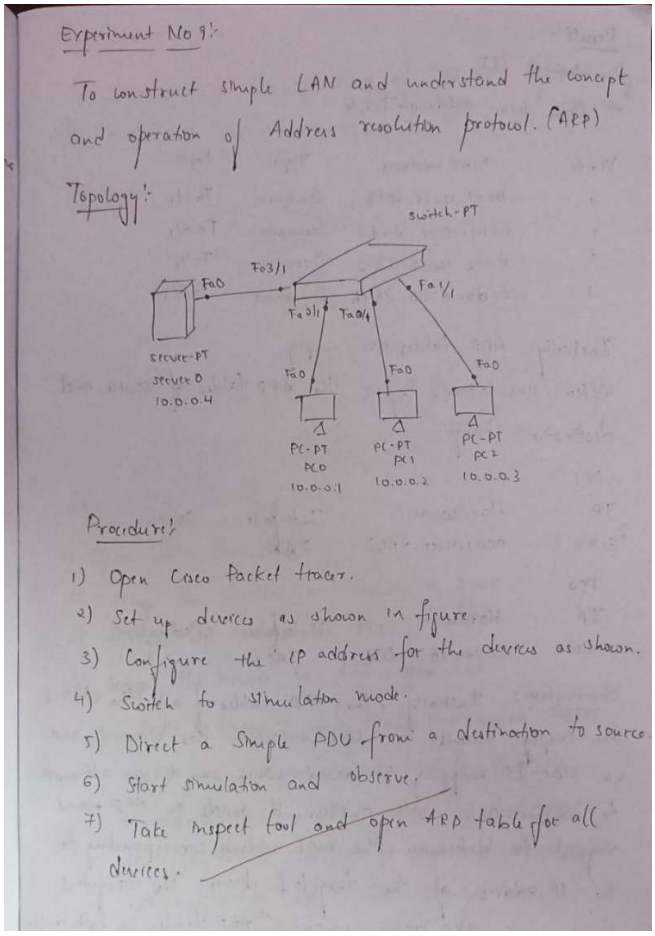
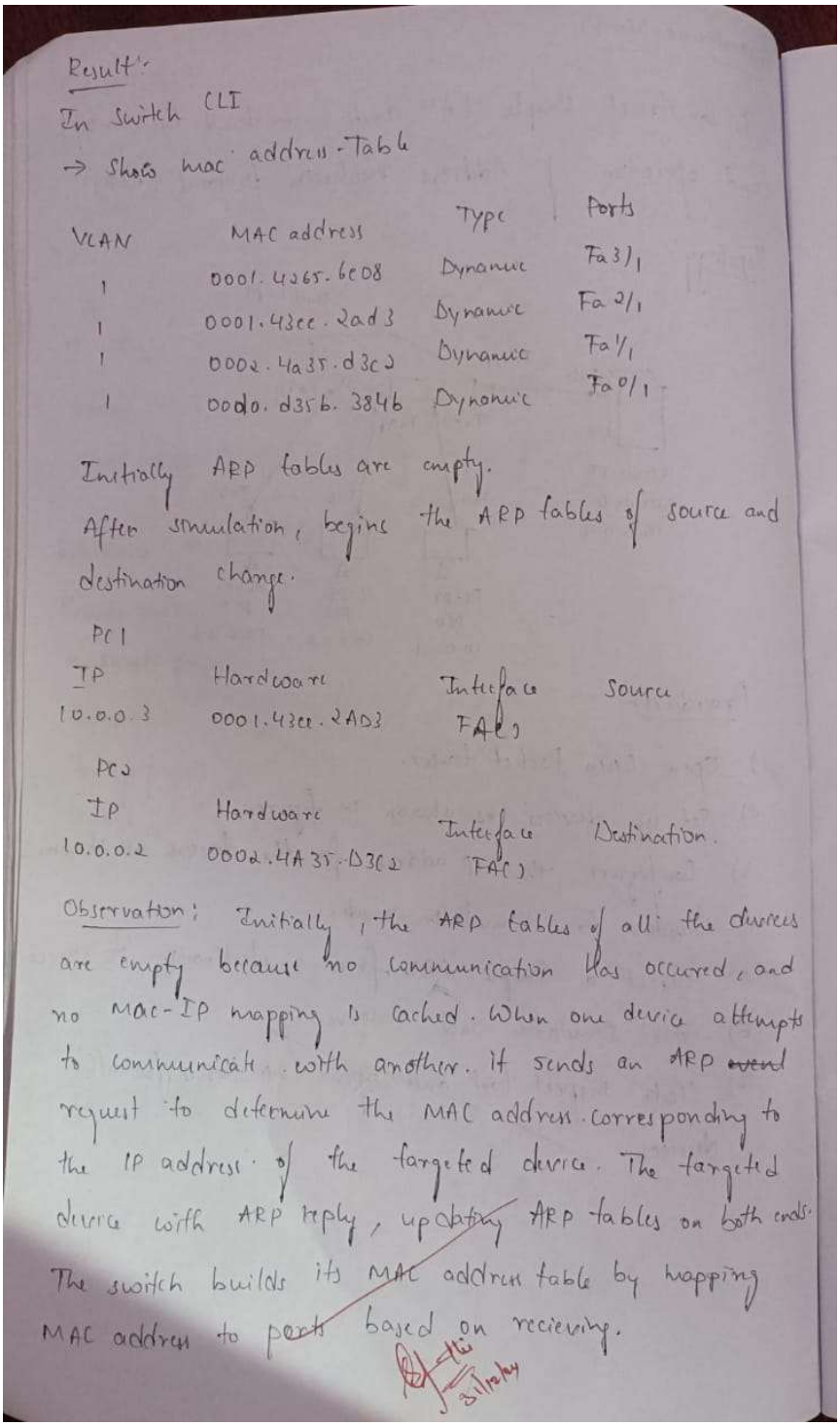


Figure 60: Observation Book 1



Result:

In Switch CLI

→ Shows mac address Table

VLAN	MAC address	Type	Ports
1	0001.4365.6e08	Dynamic	Fa3/1
1	0001.43ee.2ad3	Dynamic	Fa2/1
1	0002.4a35.d3c2	Dynamic	Fa1/1
1	00d0.d356.384b	Dynamic	Fa0/1

Initially ARP tables are empty.

After simulation, begins the ARP tables of source and destination change.

PC1

IP	Hardware	Interface	Source
10.0.0.3	0001.43ee.2AD3	FA0/1	

PC2

IP	Hardware	Interface	Destination.
10.0.0.2	0002.4A35.D3C2	FA0/1	

Observation: Initially, the ARP tables of all the devices are empty because no communication has occured, and no MAC-IP mapping is cached. When one device attempts to communicate with another. it sends an ARP ~~event~~ request to determine the MAC address corresponding to the IP address of the targeted device. The targeted device with ARP reply, updating ARP tables on both ends. The switch builds its MAC address table by mapping MAC address to port based on recieving.

Figure 61: Observation book 2