LAB WEEK 8

a) To demonstrate communication between two devices using a wireless LAN

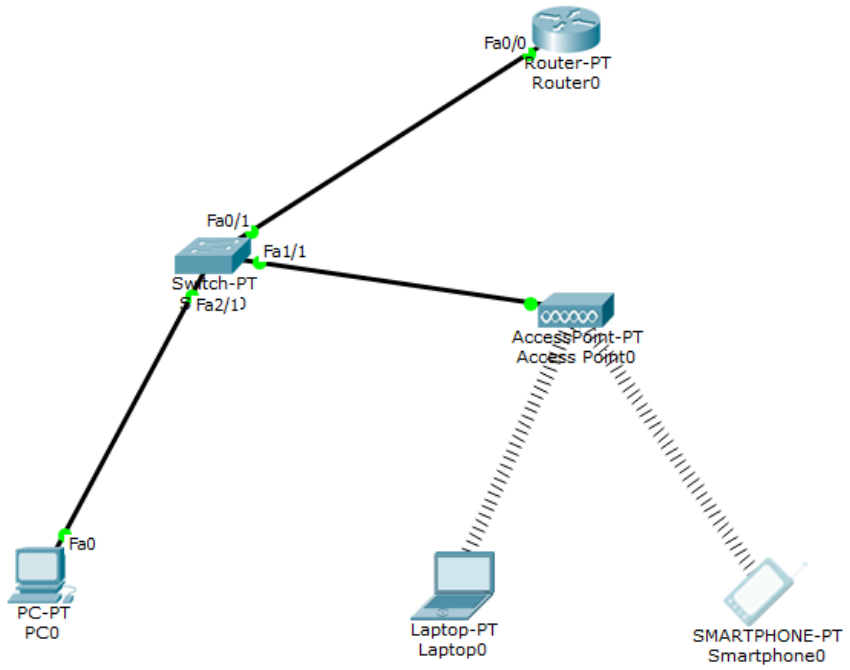

Figure 1: Topology

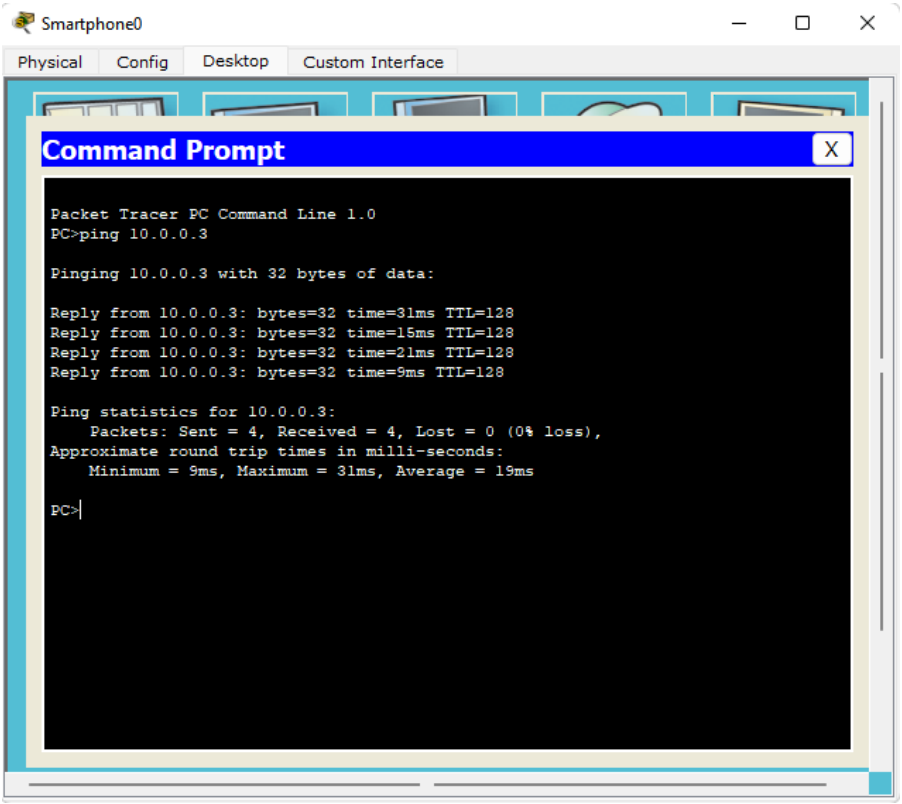

Figure 2: Output

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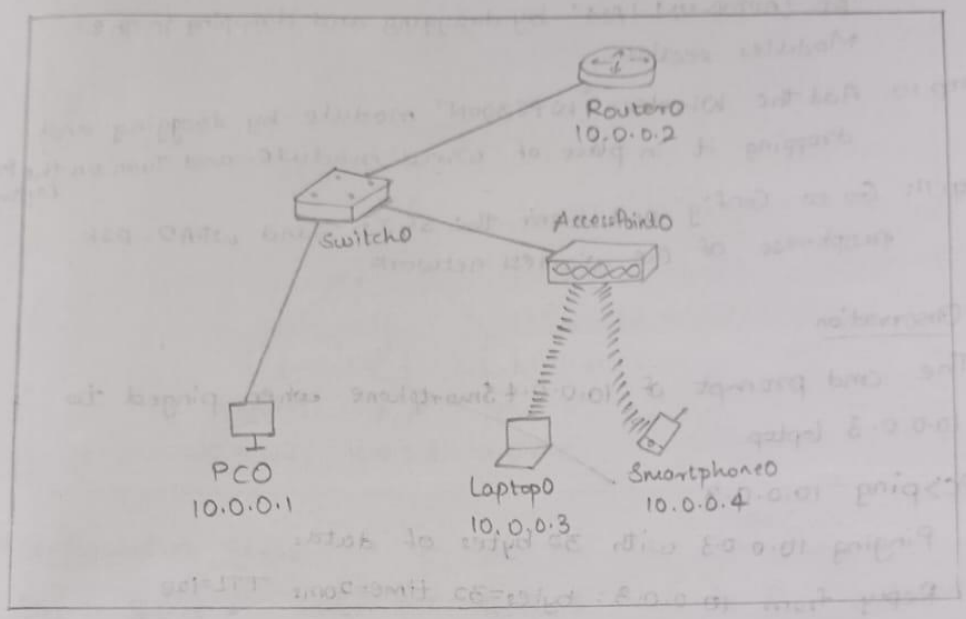
To demonstrate communication between two devices using a wireless LAN.

* Topology:



* Configuration Steps:

Step 1: Select a "Router-PT" from Routers, "Switch-PT" from Switches, "Generic PC-PT" from end devices, "AccessPoint-PT" from wireless devices, "Laptop", ~~from end~~ and "Smartphone" from end devices and connect them.

Step 2: Set IP addresses as:

Router: IP - 10.0.0.2 SM - 255.0.0.0

PC: IP - 10.0.0.1 SM - 255.0.0.0 Gateway - 10.0.0.2

Laptop: IP - 10.0.0.3 SM - 255.0.0.0 Gateway - 10.0.0.2

Smartphone: IP - 10.0.0.4 SM - 255.0.0.0 Gateway - 10.0.0.2

Step 3: Go to Access Point's Config and click on Port 0 from Interface.

Step 4: set the Bandwidth and duplex as Auto

Step 5: Click on Port 1, Set SSID as "WLAN 1" and select the "WPA2-PSK" from Authentication. PSK-pass phrase: 12345678

Step 6: ~~Click on Port~~ Select "Smartphone" and go to Wireless0 in Config.

Figure 3: Observation Book

Step 7: Enter the SSID and WPA2-PSK passphrase of which you want to connect.
WLAN1 : 10345678.

Step 8: Go to Laptop and choose the Physical view.

Step 9: Turn off the laptop and remove the wired interface "PT-LAPTOP-NM-1AM" by dragging and dropping in the Modules section.

Step 10: Add the Wireless "WPC300N" module by dragging and dropping it in place of wired module. and Turn on the laptop

Step 11: Go to Config and enter the SSID and WPA2-PSK passphrase of the wireless network

* Observation:

The cmd prompt of 10.0.0.4 Smartphone when pinged to 10.0.0.3 laptop

PC>ping 10.0.0.3

Pinging 10.0.0.3 with 32 bytes of data:

Reply from 10.0.0.3: bytes=32 time=20ms TTL=128

" " "

" " "

" " "

Ping statistics for 10.0.0.3:

Packets: Sent=4, Received=4, Lost=0 (0% Loss)

Approximate round trip times in milliseconds

Minimum=2 ms, Maximum=9ms, Average=4ms

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Figure 4: Observation Book 2

b) Demonstrate the working of Address Resolution Protocol for communication with the LAN

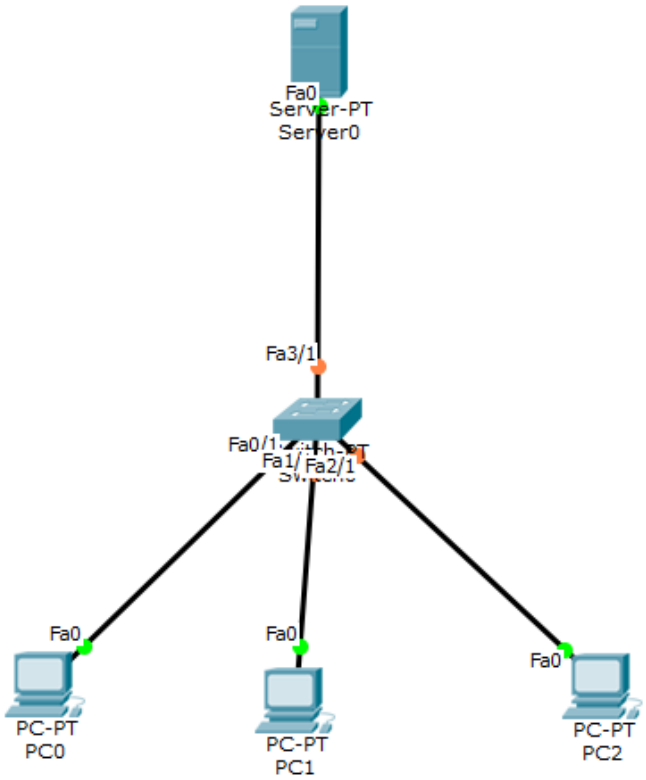

Figure 5: Topology

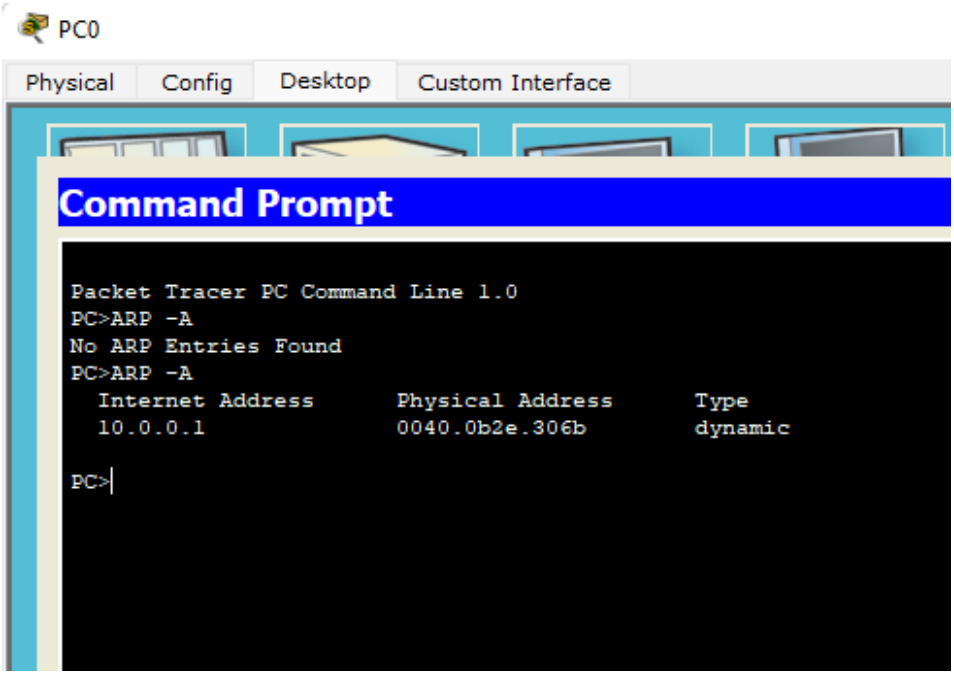

Figure 6: Output

ARP Table for Server0

IP Address	Hardware Address	Interface
10.0.0.2	0050.0FE6.B928	FastEthernet0
10.0.0.3	0006.2A43.09E6	FastEthernet0
10.0.0.4	0005.5E8B.248E	FastEthernet0

Figure 7: Output 2

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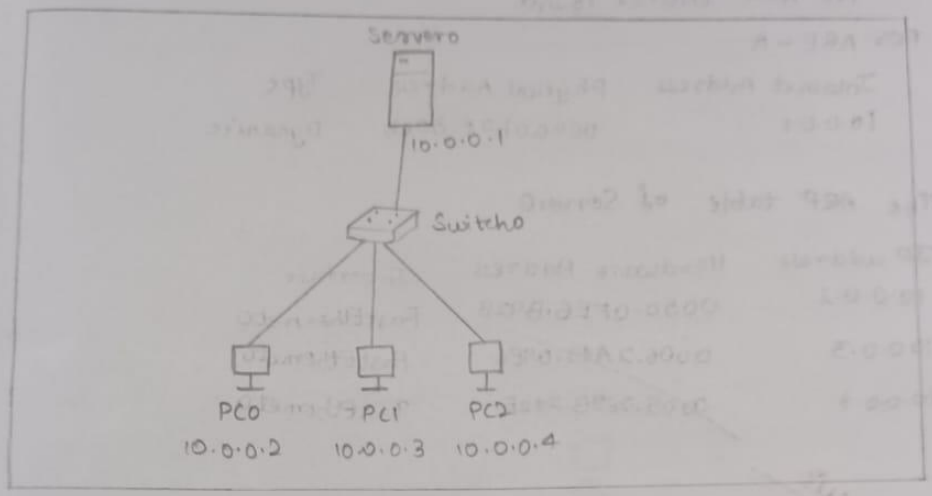
Demonstrate the working of Address Resolution Protocol for communication with the LAN.

* Topology:



* Configuration Steps:

Step 1: Select a "Server-PT", from 3 "PC-PT"s from end devices and a "Switch-PT" from Switches.

Step 2: Connect all of them and enter IP addresses:

Servero : IP - 10.0.0.1 , SM - 255.0.0.0
PC0 : IP - 10.0.0.2 , SM - 255.0.0.0
PC1 : IP - 10.0.0.3, SM - 255.0.0.0
PC2 : IP - 10.0.0.4, SM - 255.0.0.0

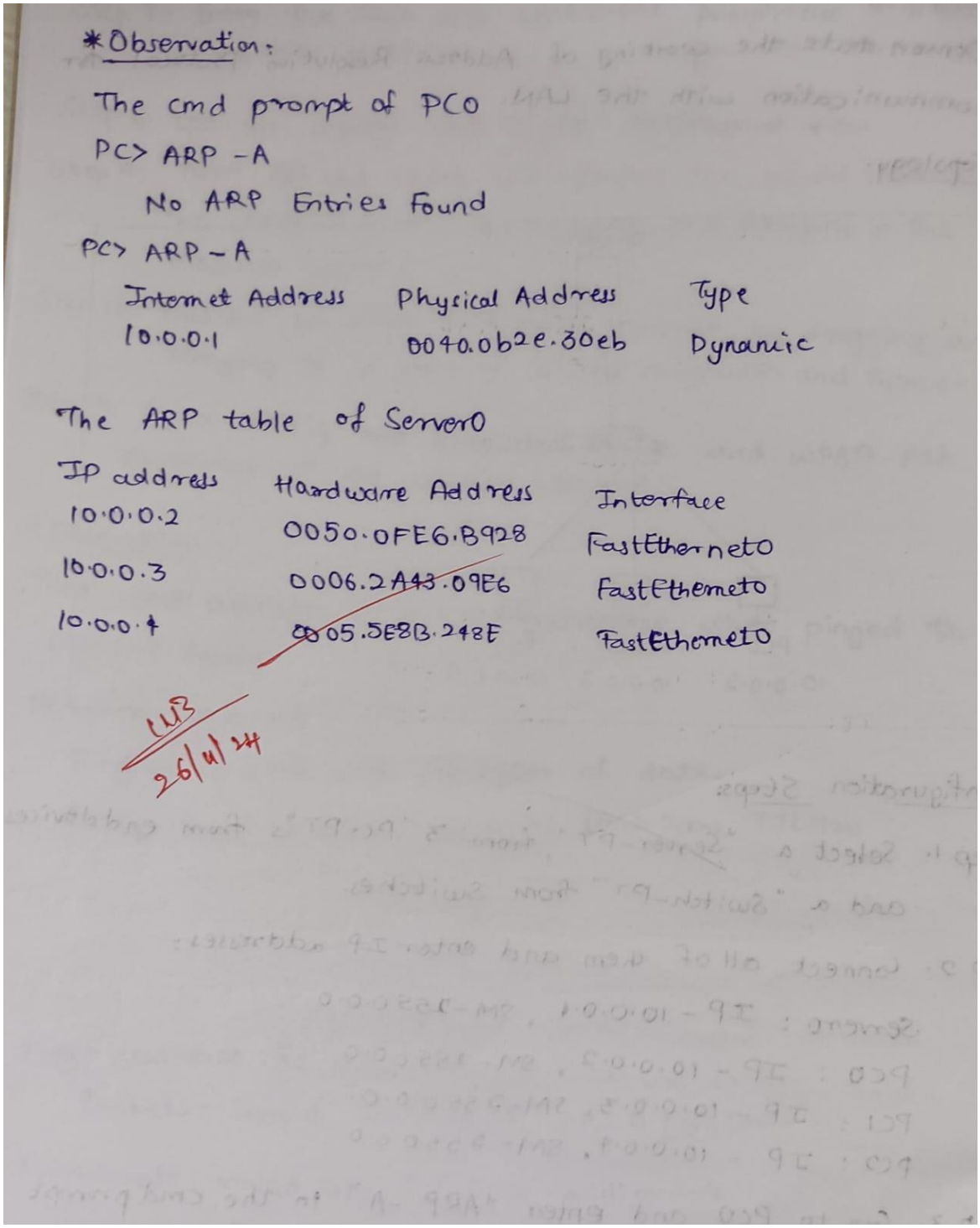
Step 3: Go to PC0 and enter "ARP -A" in the cmd prompt
It will show "No entries" as there is no communication

Step 4: Send a simple PDU packet from PCs to the server

Step 5: Select the "Q" inspect button and click on the server and PC, "ARP table" option will appear in the dropdown click on it to view the ARP table.

Step 6: Go to PC0 and enter "ARP-A" in the cmd prompt
It will show the ARP table entries.

Figure 8: Observation Book 1



*Observation:

The cmd prompt of PC0

PC> ARP -A

No ARP Entries Found

PC> ARP -A

Internet Address	Physical Address	Type
10.0.0.1	0040.0b2e.30eb	Dynamic

The ARP table of Server0

IP address	Hardware Address	Interface
10.0.0.2	0050.0FE6.B928	FastEthernet0
10.0.0.3	0006.2A43.09E6	FastEthernet0
10.0.0.4	0005.5E8B.248E	FastEthernet0

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Figure 9: Observation Book 2