LAB 4 LAN

LAB 4.1
UNDERSTANDING, CREATING AND SIMULATING PEER-TO-PEER NETWORK COMMUNICATION BY USING PACKET TRACER.

OBJECTIVE: To understand the Peer-to-Peer network

TOOLS USED: Packet Tracer

BACKGROUND: Peer to peer network is a network in which there is a dedicated link between the devices in the network.

IP addressing Plan

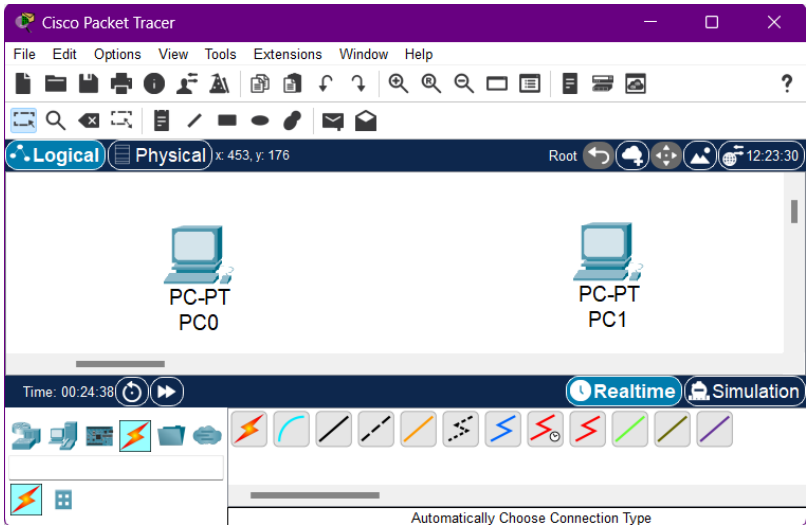
Device	Interface	IP Address	Subnetmask	VLAN	Default Gateway
PC0	NIC	192.168.7.7	255.255.255.0	-	-
PC1	NIC	192.168.7.13	255.255.255.0	-	-

PC0: 192.168.7.7 255.255.255.0

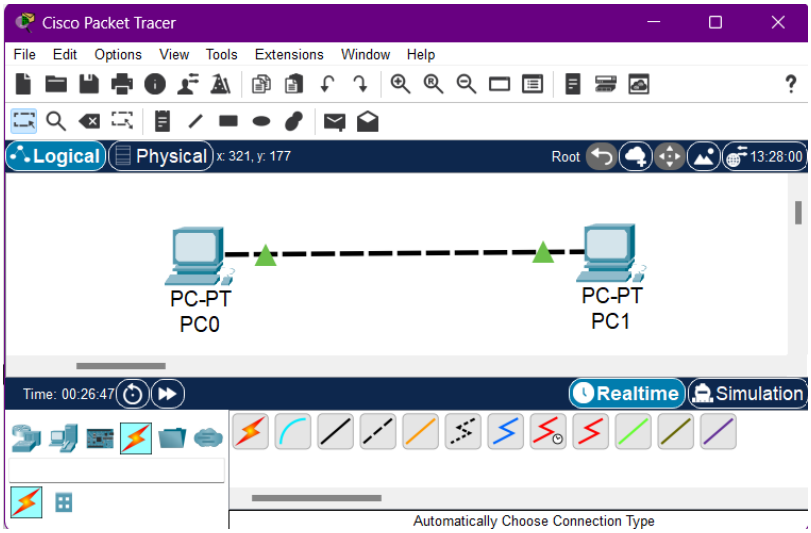
PC1: 192.168.7.13 255.255.255.0

Procedure:

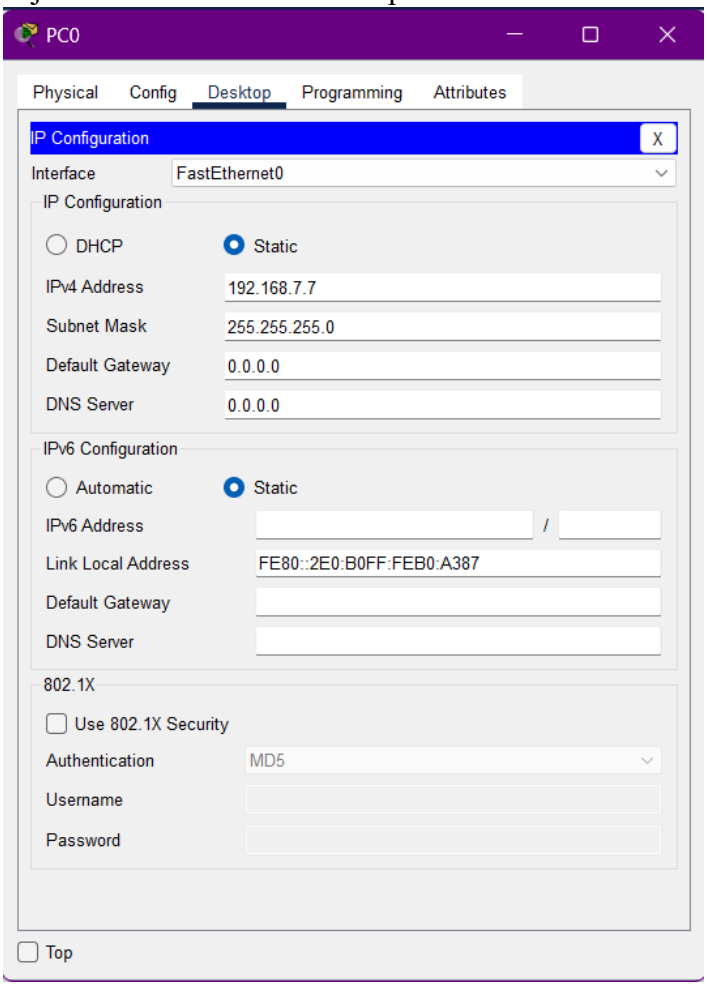
1. First, add two computers, by going to the [End device] menu and dragging the PC icon until it looks like this:



2. Then, connect the two PC using a cross-over cable or you can directly use an automatic cable so that it will look like this:

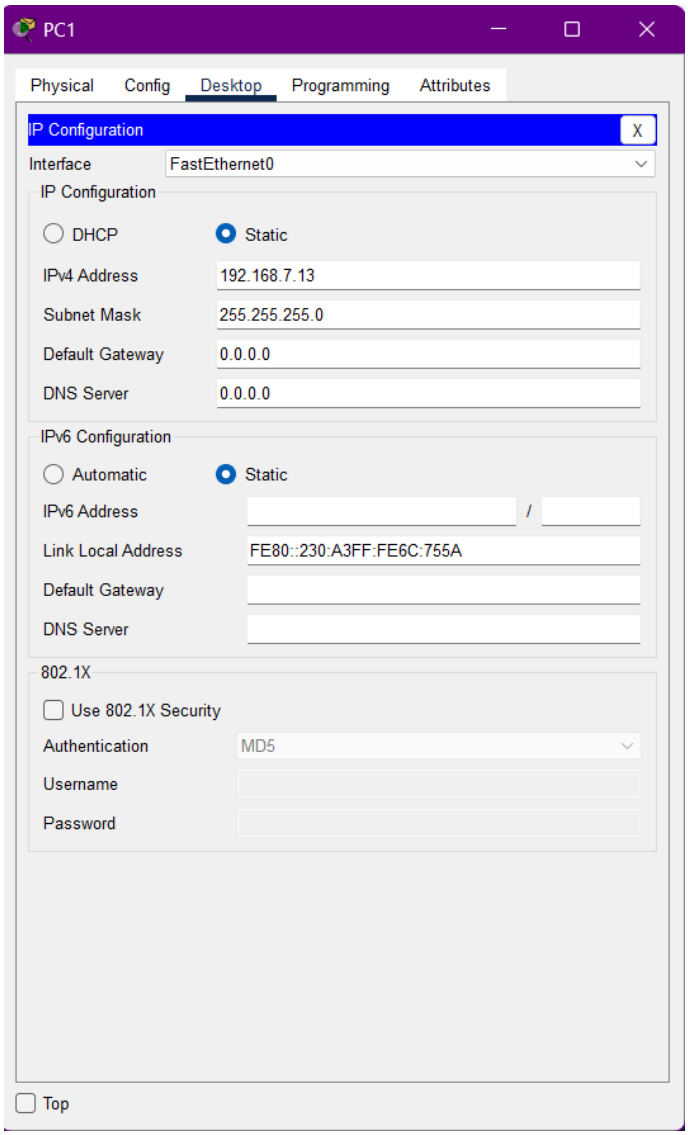


3. Then after the two PC are physically connected, the next step is to provide IP addresses to the two PCs. In this way, “click PC0 – Desktop – IP Configuration” and adjust the IP address for example:

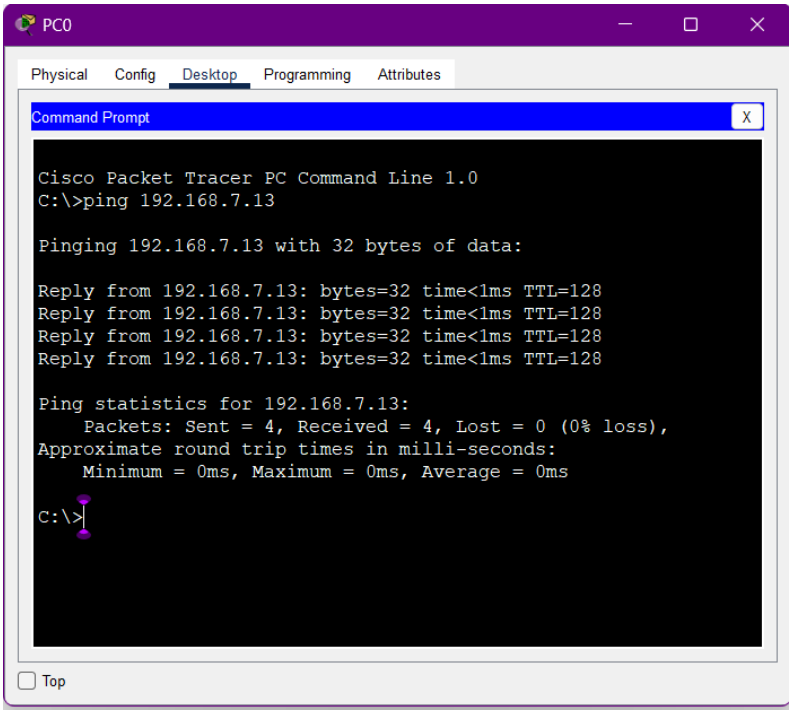


   a. IP address: 192.168.7.7
   b. subnet mask: 255.255.255.0

4. Do the same on another PC (PC1) with a different host IP address but on the same network for example (192.168.7.3) and subnet mask 255.255.255.0



Verification: So, giving the IP address on the two computers will result in the two computers being able to communicate with each other, we can test this by typing ping on one computer to the ip address on the other computer. For example, we will try to test the ping from PC0 (192.168.7.7) to PC1 (192.168.7.13). To do a ping test we can use the Command Prompt on virtual computers (PC0 and PC1), by clicking on one of the computers (PC0) then go to "Command Prompt" and
type:



So, if indeed the two computers are connected and can communicate with each other then PC1 will send a response back with the message “reply from 192.168.7.13” which is a sign of success. However, if the process does not occur (timed out) on your display, pay attention to the IP addresses of the two computers (PC0 and PC1) must be in one segment, namely 192.168.7. ... you can change the host number as long as the two hosts are different then the range of numbers that can be used is 1-255.

Conclusion

In order to communication computers in a peer-to-peer network need to have assigned IP address and computers should belong to the same network.

LAB 4.2
BUILD A LAN WITH A SWITCH AND HUB IN PACKET TRACER

OBJECTIVE: To understand the hub and switch

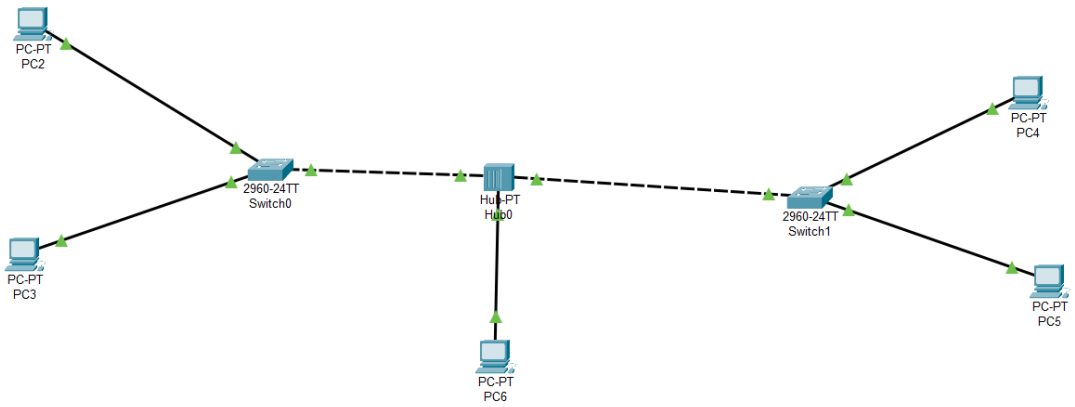
TOOLS USED: Packet Tracer

BACKGROUND:

Hubs are networking devices operating at a physical layer of the OSI model that are used to connect multiple devices in a network. They are generally used to connect computers in a LAN.

Switches are networking devices operating at layer 2 or a data link layer of the OSI model. They connect devices in a network and use packet switching to send, receive or forward data packets or data frames over the network.

TOPOLOGY



IP Assignment Plan

Device	Interface	IP Address	Subnetmask	VLAN	Default Gateway
PC2	NIC	192.168.15.1	255.255.255.0	-	-
PC3	NIC	192.168.15.2	255.255.255.0	-	-
PC4	NIC	192.168.15.3	255.255.255.0	-	-
PC5	NIC	192.168.15.4	255.255.255.0	-	-
PC6	NIC	192.168.15.5	255.255.255.0	-	-

PC2: 192.168.15.1 255.255.255.0

PC3: 192.168.15.2 255.255.255.0

PC4: 192.168.15.3 255.255.255.0

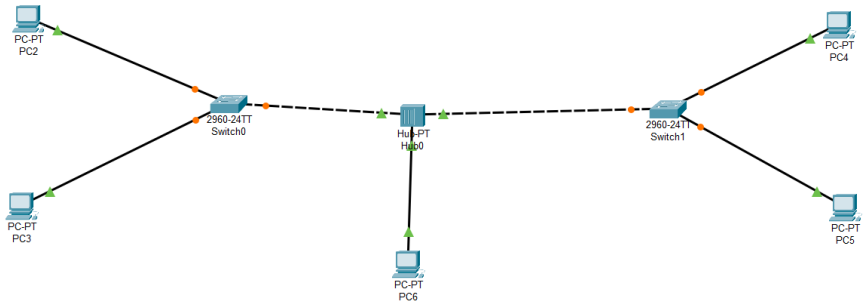
PC5: 192.168.15.4 255.255.255.0

PC6: 192.168.15.5 255.255.255.0

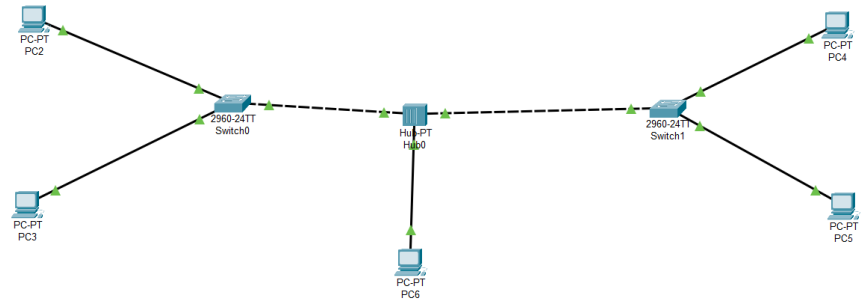
Procedure

1. First, take 6 end devices, 2switch and a hub.

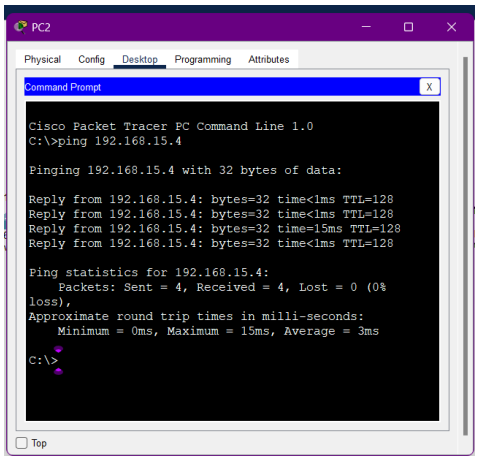
2. Connect them all with wires

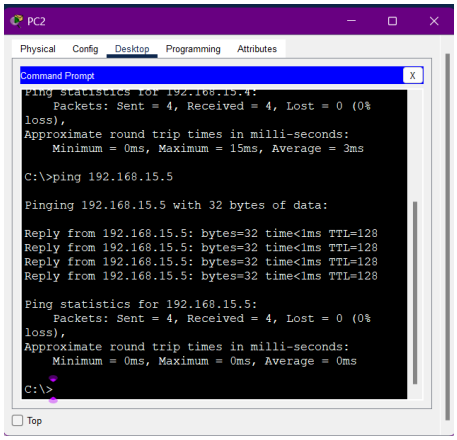


3. Configure them all with IP addresses and also configure PCs IP



Verification: So, checking whether two devices communicate with each other or not by using "ping" command in Command Prompt





Conclusion:

In order to communication with more than one computer in network we can need hub and switch with in the same network.

LAB 4.3

BUILD A WLAN WITH A SWITCH AND ACCESS POINTS IN PACKET TRACER

OBJECTIVE: To understand the hub and switch

TOOLS USED: Packet Tracer

BACKGROUND:

Switches are networking devices operating at layer 2 or a data link layer of the OSI model. They connect devices in a network and use packet switching to send, receive or forward data packets or data frames over the network.

An access point (AP) is a term used for a network device that bridges wired and wireless networks. Consumer APs are often called a “wireless router” because they typically also serve as both internet routers and firewalls. Commercial and industrial APs tend towards minimal network routing capabilities and rarely have firewalls.

TOPOLOGY

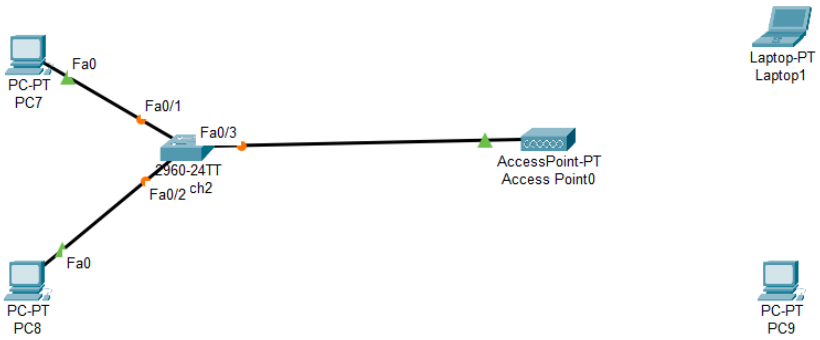
IP Assignment Plan

Device	Interface	IP Address	Subnetmask	VLAN	Default Gateway
PC7	NIC	192.168.16.1	255.255.255.0	-	-
PC8	NIC	192.168.16.2	255.255.255.0	-	-
Laptop1	NIC	192.168.16.3	255.255.255.0	-	-
PC9	NIC	192.168.16.4	255.255.255.0	-	-

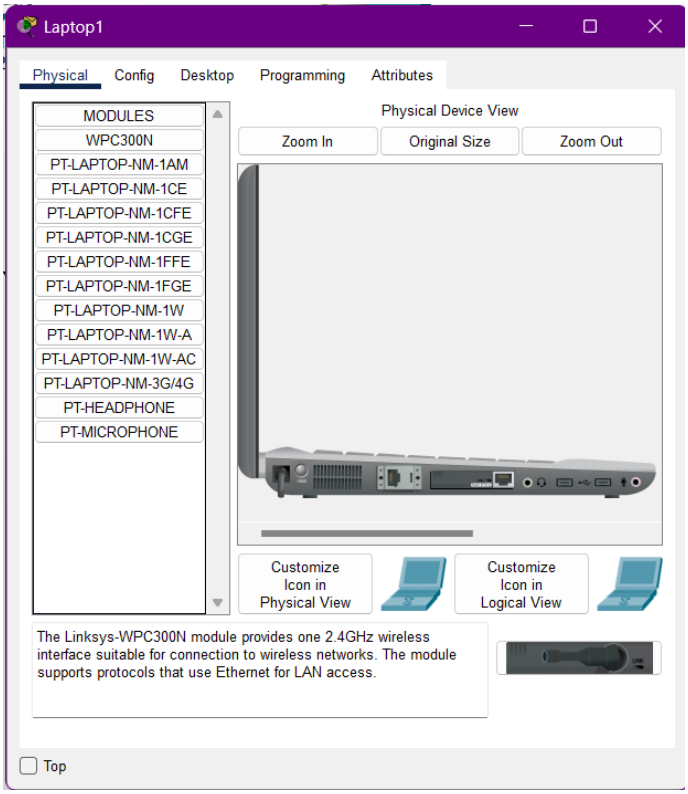
Procedure

1. First, take 4 end devices, 1 switch and an Access Point.

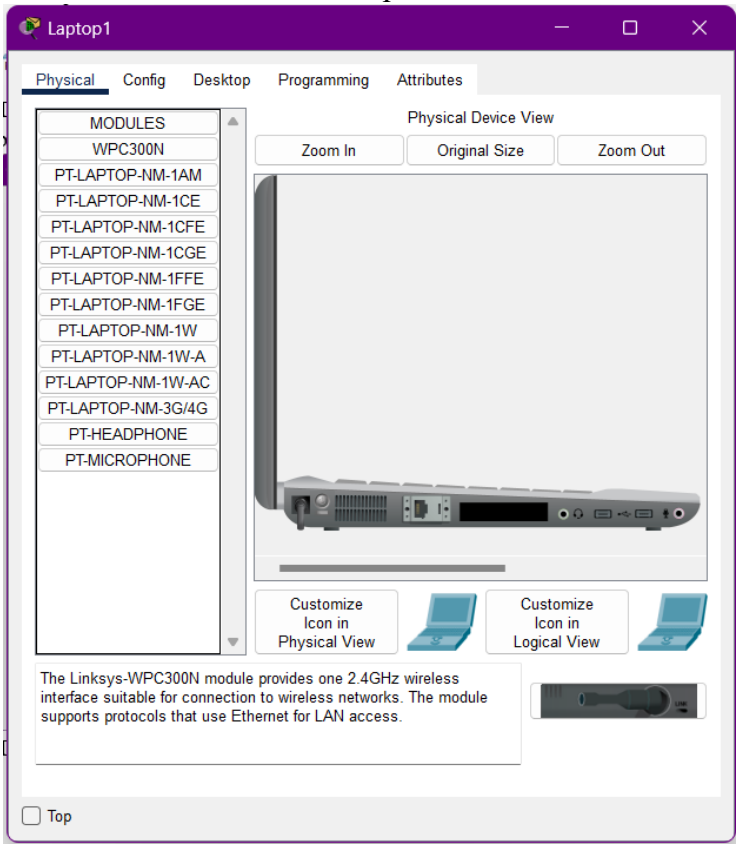
2. Connect them all with wires



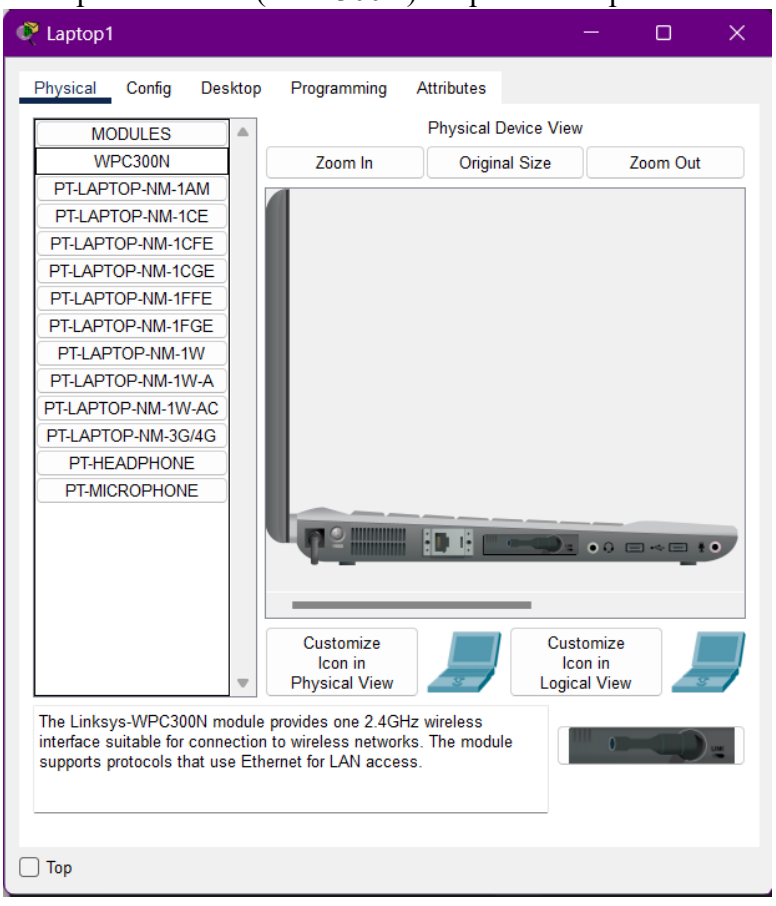
3. To connect with wireless in device at first turn off the device by clicking in the power button



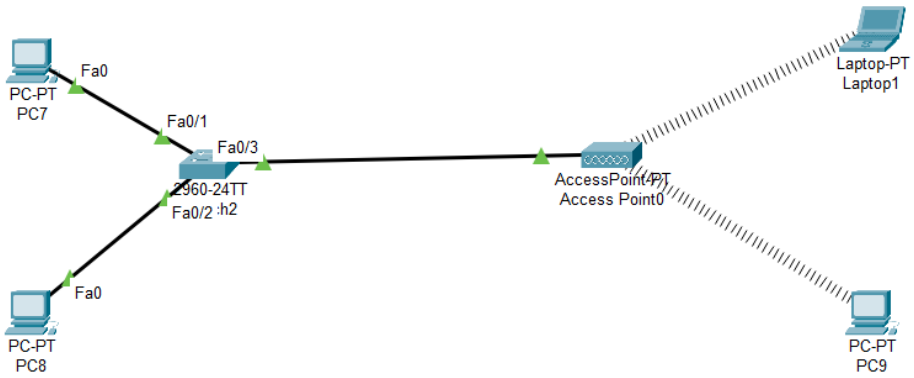
4. Then remove the ethernet adaptor



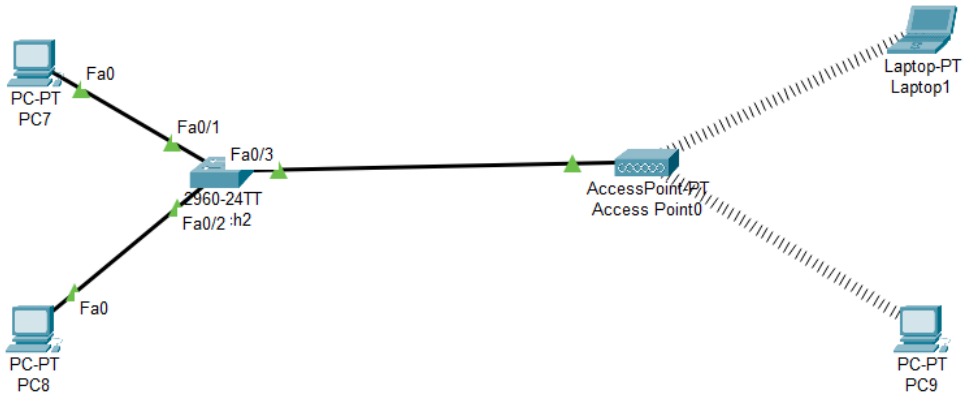
5. Then put the Wi-Fi (WPC300N) adaptor in the place of ethernet adaptor



6. Then turn on the device then it will connect to the Wi-Fi

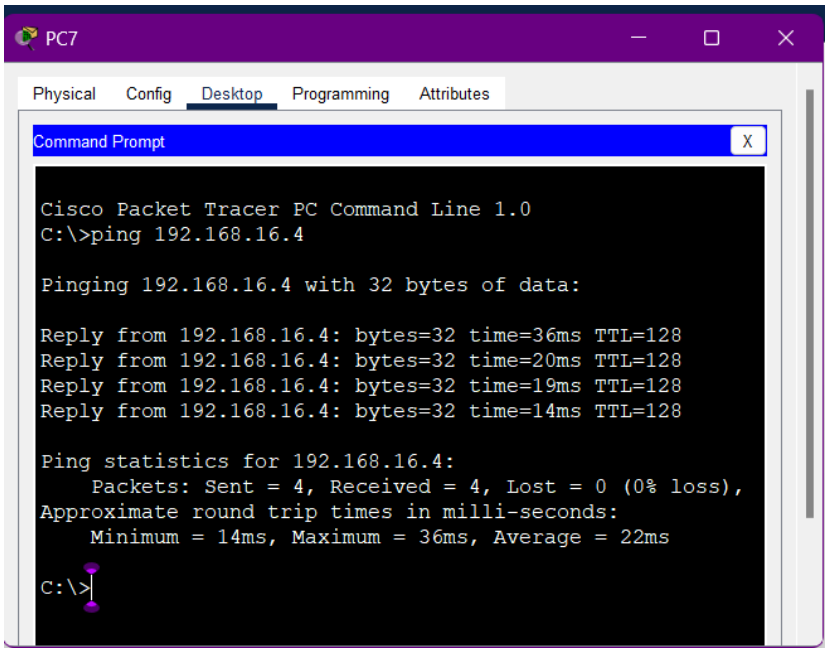


7. Configure them all with IP addresses and also configure PCs IP



Verification

So, checking whether devices communicate with each other or not which are connected with WLAN and wires by using “ping” command in Command Prompt



Conclusion:

In order to communication with more than one computer in network we also can use Access Point and switch with in the same network.