NAME – SAARA ANAND

REG NO – 21BCE8156

CN LAB ASSIGNMENT 5-

Q1. What is a DHCP SERVER?

A **DHCP Server** is a network server that automatically provides and assigns IP addresses, default gateways and other network parameters to client devices. It relies on the standard protocol known as Dynamic Host Configuration Protocol or DHCP to respond to broadcast queries by clients.

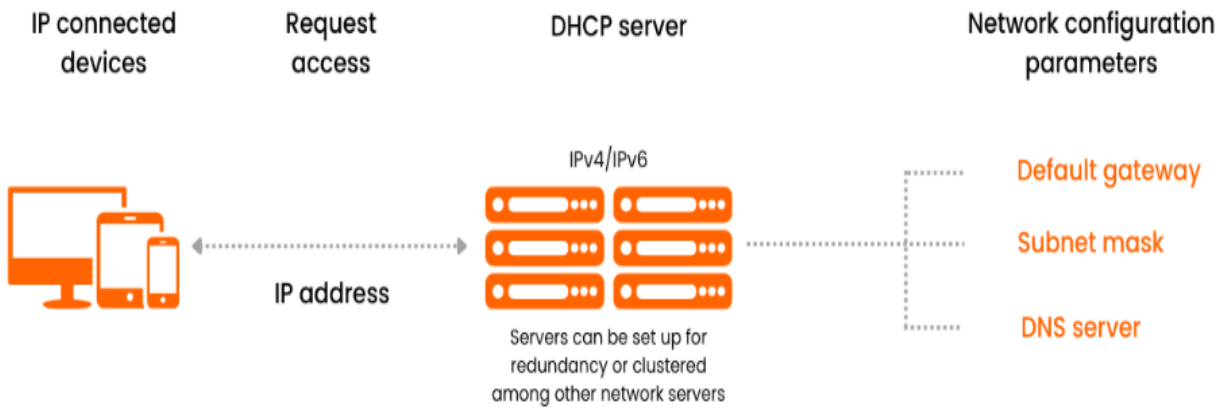
A DHCP server automatically sends the required network parameters for clients to properly communicate on the network. Without it, the network administrator has to manually set up every client that joins the network, which can be cumbersome, especially in large networks. DHCP servers usually assign each client with a unique dynamic IP address, which changes when the client's lease for that IP address has expired.

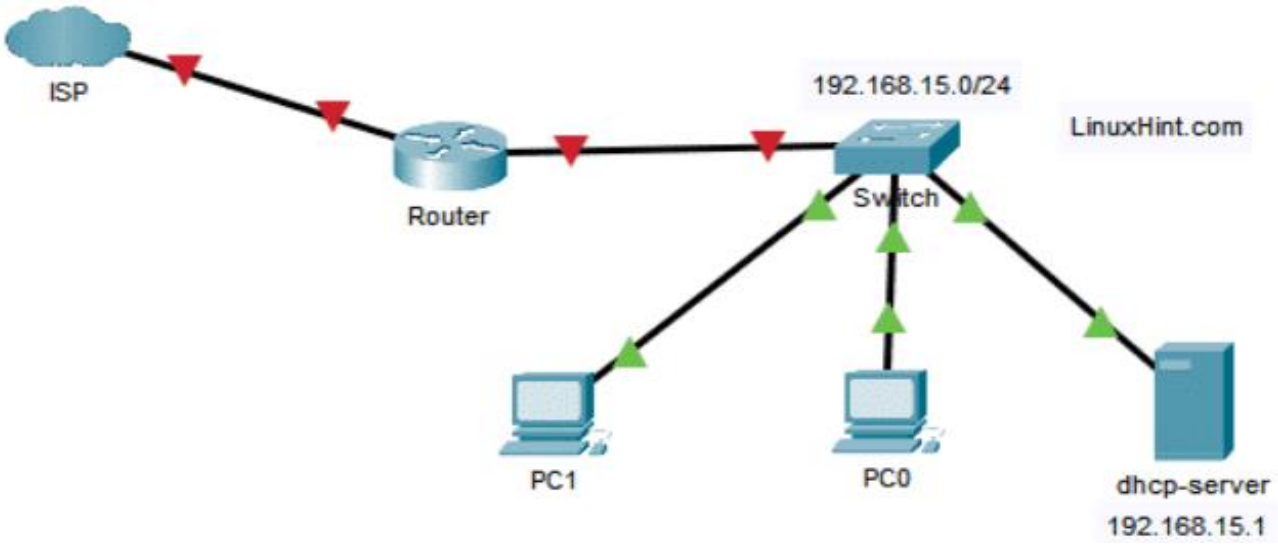
A better approach than trying to use DHCP on your router/switch is to use a centralized DHCP server. This is particularly true for network environments that require support of both DHCP for IPv4 and DHCP for IPv6 at the same time. Virtually all DHCP server vendors support both protocols so you can use the same management interface for IPv4 and IPv6.

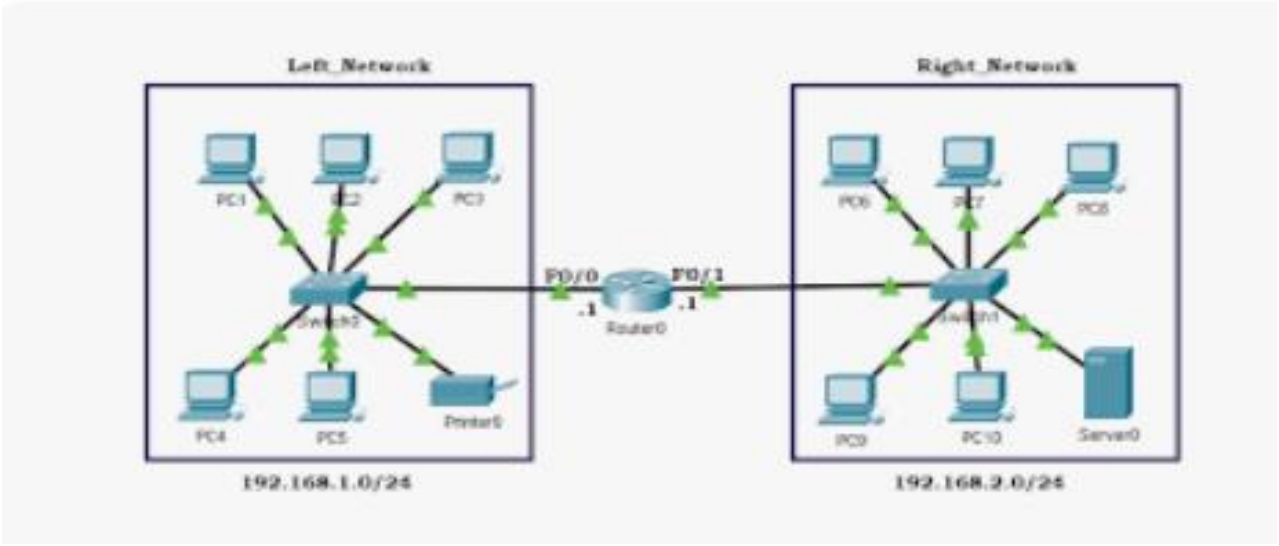
DHCP – Dynamic Host Configuration Protocol is a network management protocol that we use on TCP/IP network. The DHCP server, automatically assigns IP addresses and other network configurations like subnet mask, default gateway, DNS server, and more to the connected devices so they can exchange information. DHCP let the hosts get the necessary TCP/IP configuration data from the DHCP server.

A device makes a request for an IP address if it wants to gain access to a network that's utilizing DHCP. The server replies and provides an IP address to the device. After that, it monitors the use of the address, and when a defined period expires, or the device shuts down, it takes it back to its pool of available IP addresses. It is kept until it has to be reassigned to a different device that wants to access the network.

Using this protocol, the network administrators, don't need to set a static IP for each device, and later reassign it to another and keep an eye on all the available IPs. They will just set up the DHCP server with all the additional network information, and it will do its work dynamically.



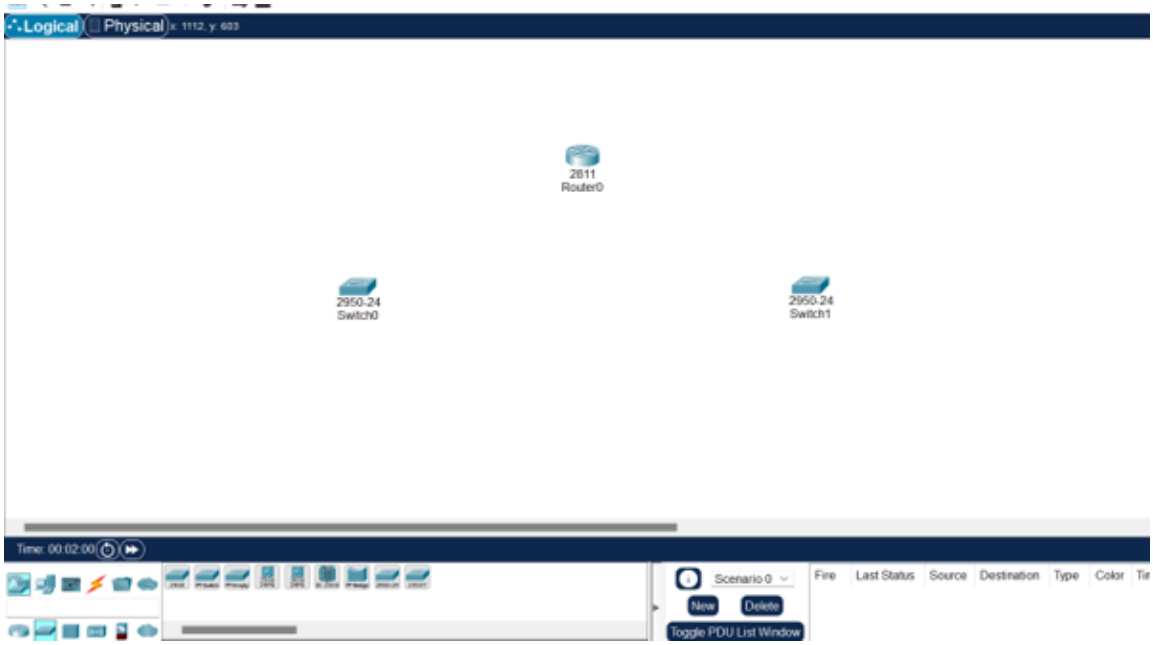




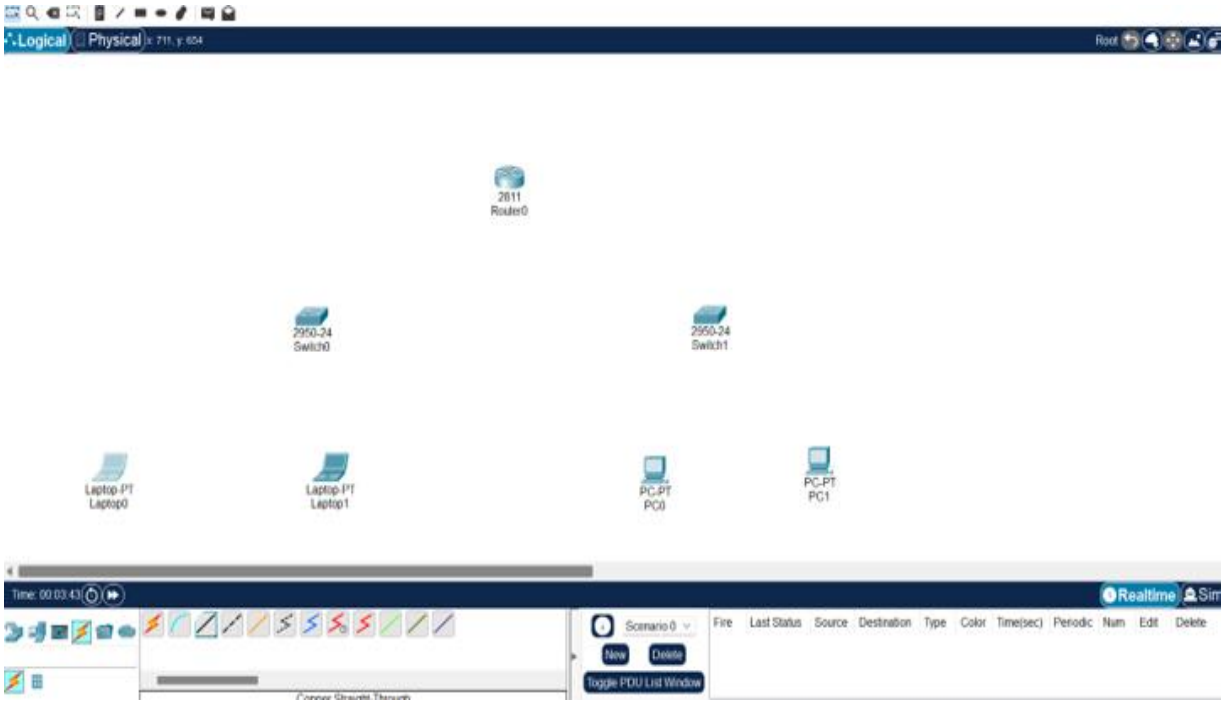
Q2. How to configure DHCP server using CISCO PACKET TRACER.

Steps-

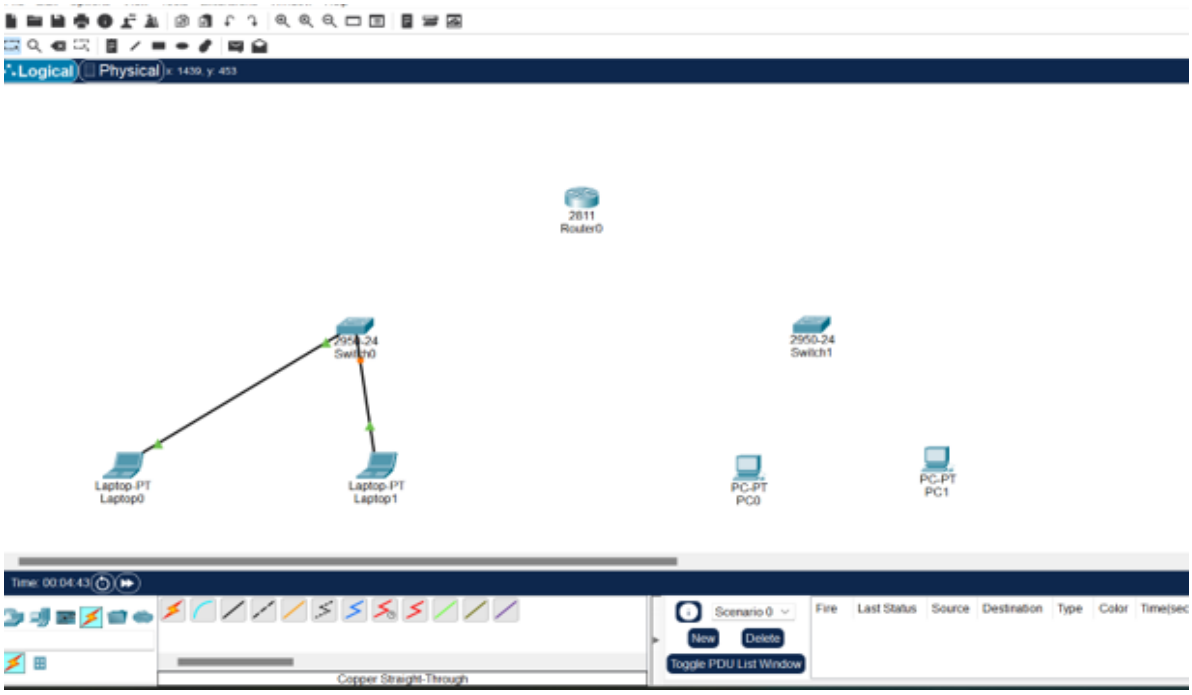
1) Place a router and two switches on the Cisco Packet Tracer Screen.



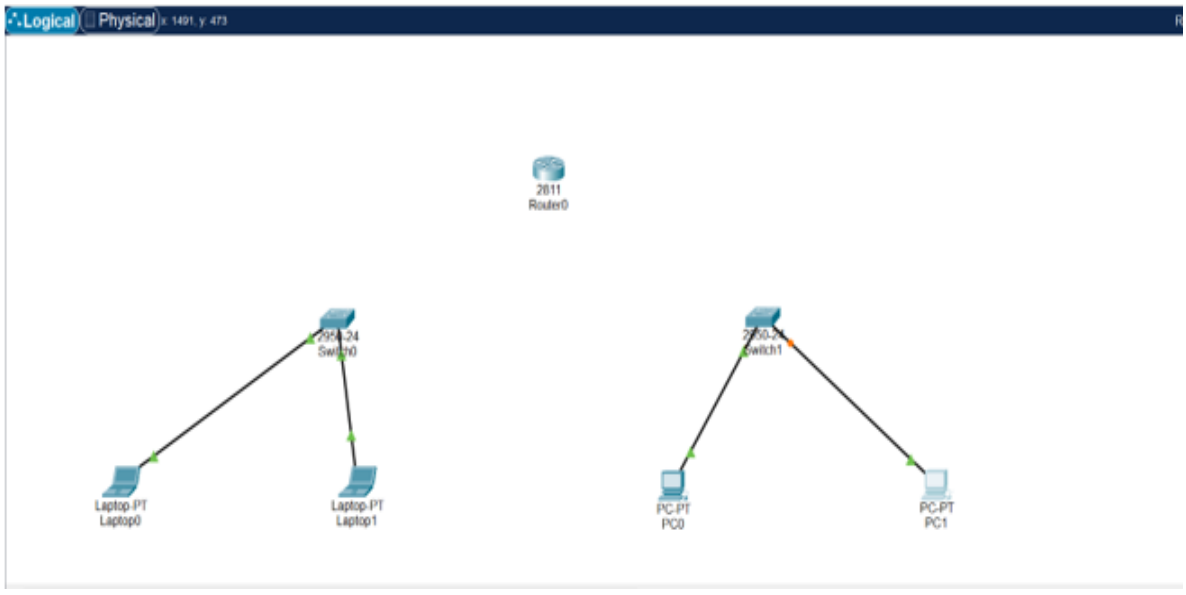
2)Place two more laptops and PC's below the switches.



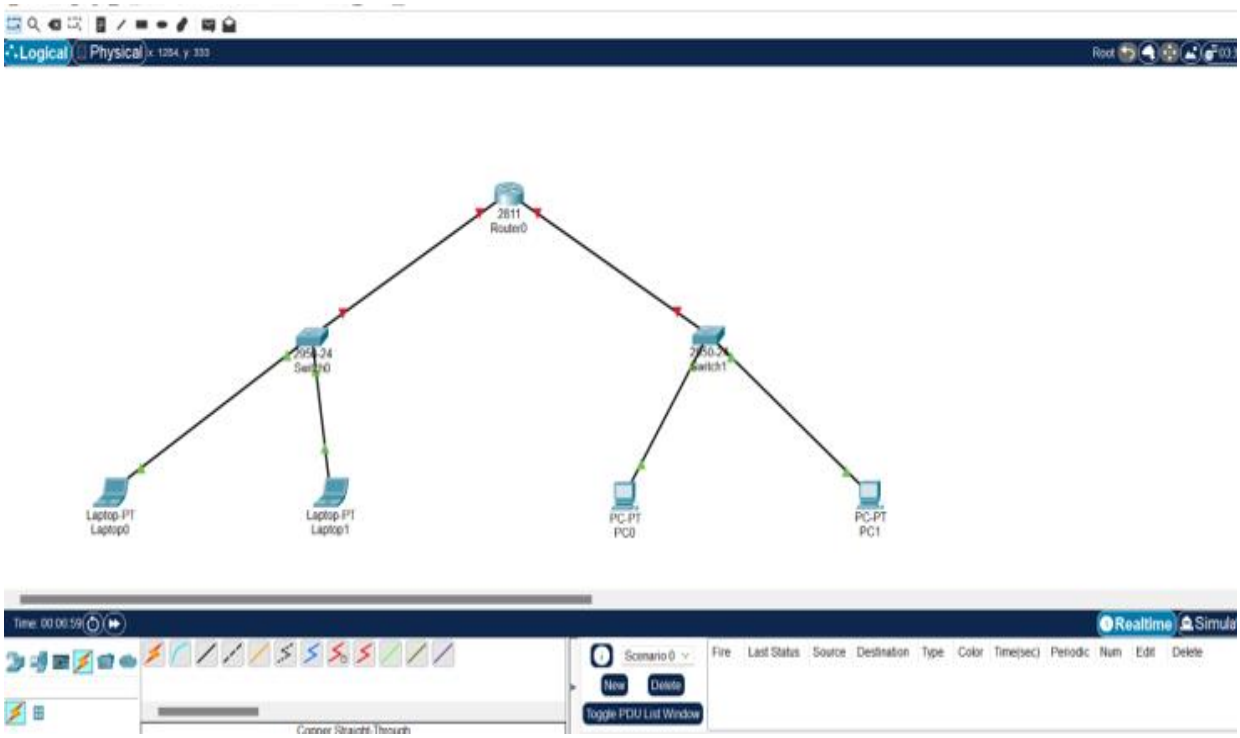
3)Connect the laptops to the Switch using a copper straight through cable.



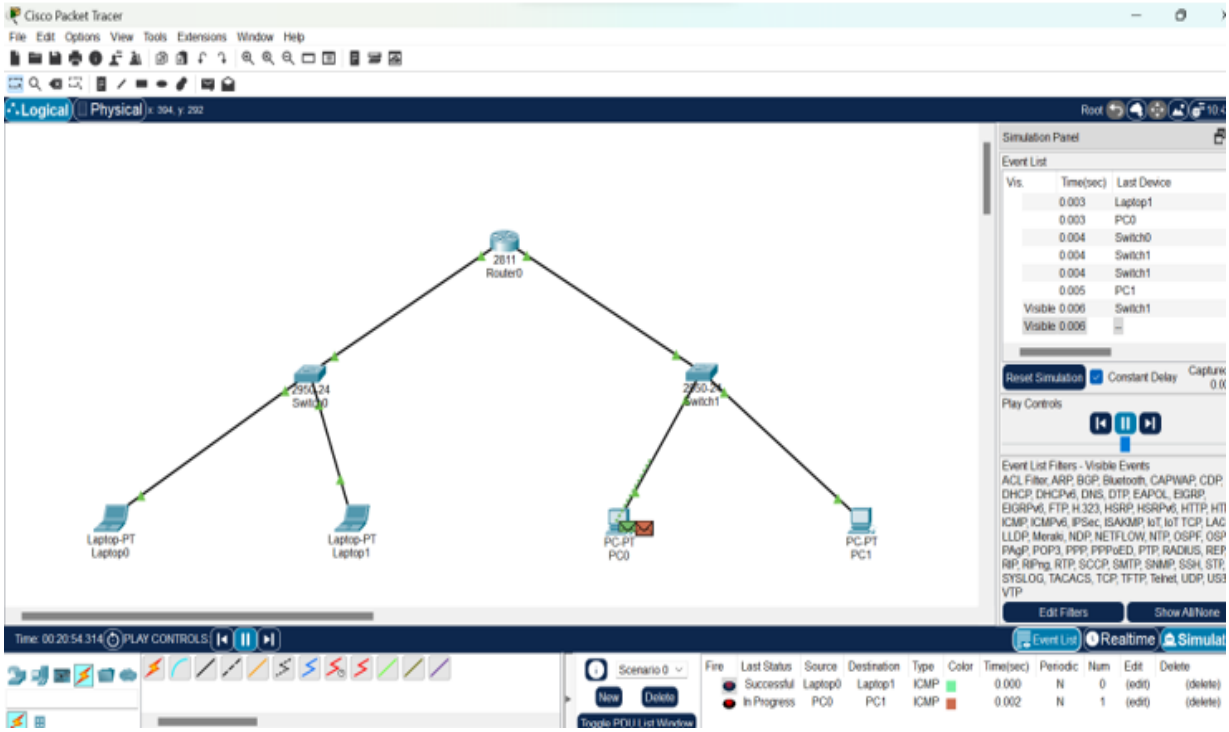
4)Connect the PC’s to the switch using a copper straight through cable.



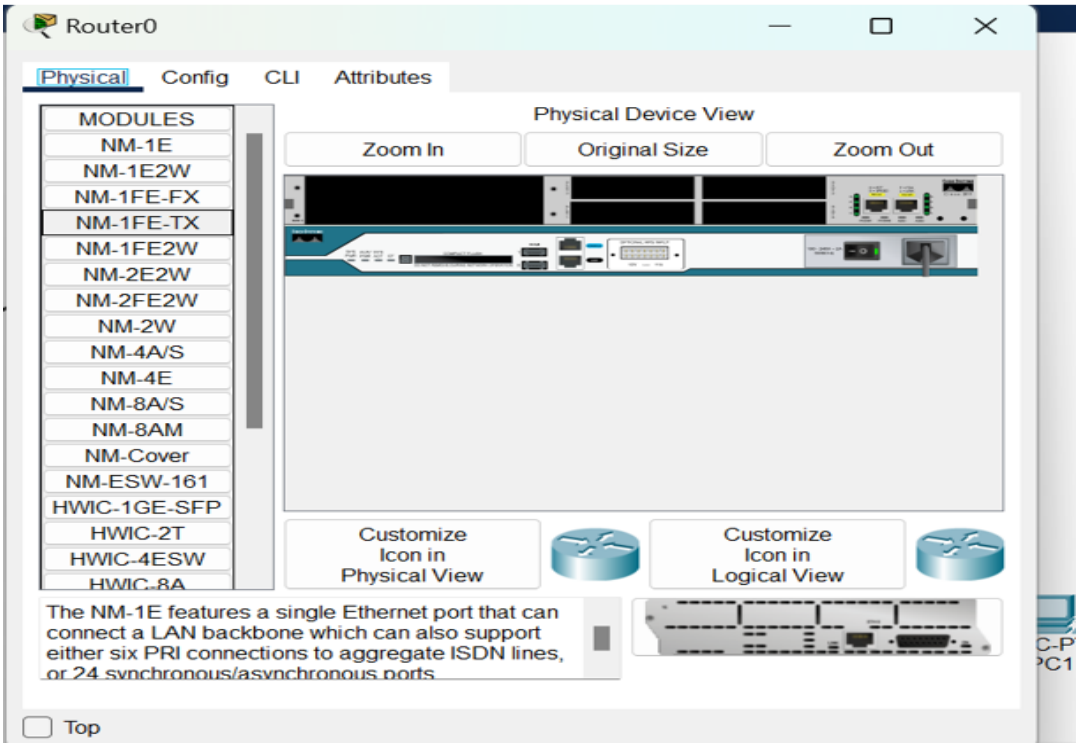
5)Connect both the switches to the router.



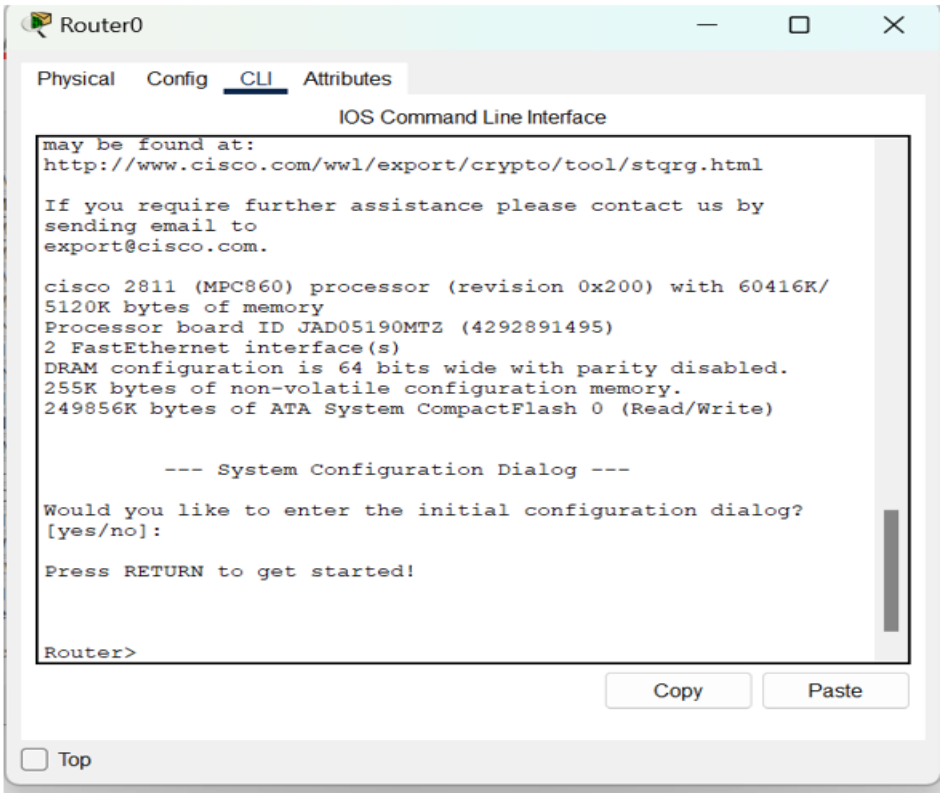
6)Add a simple PDU and run the simulation.



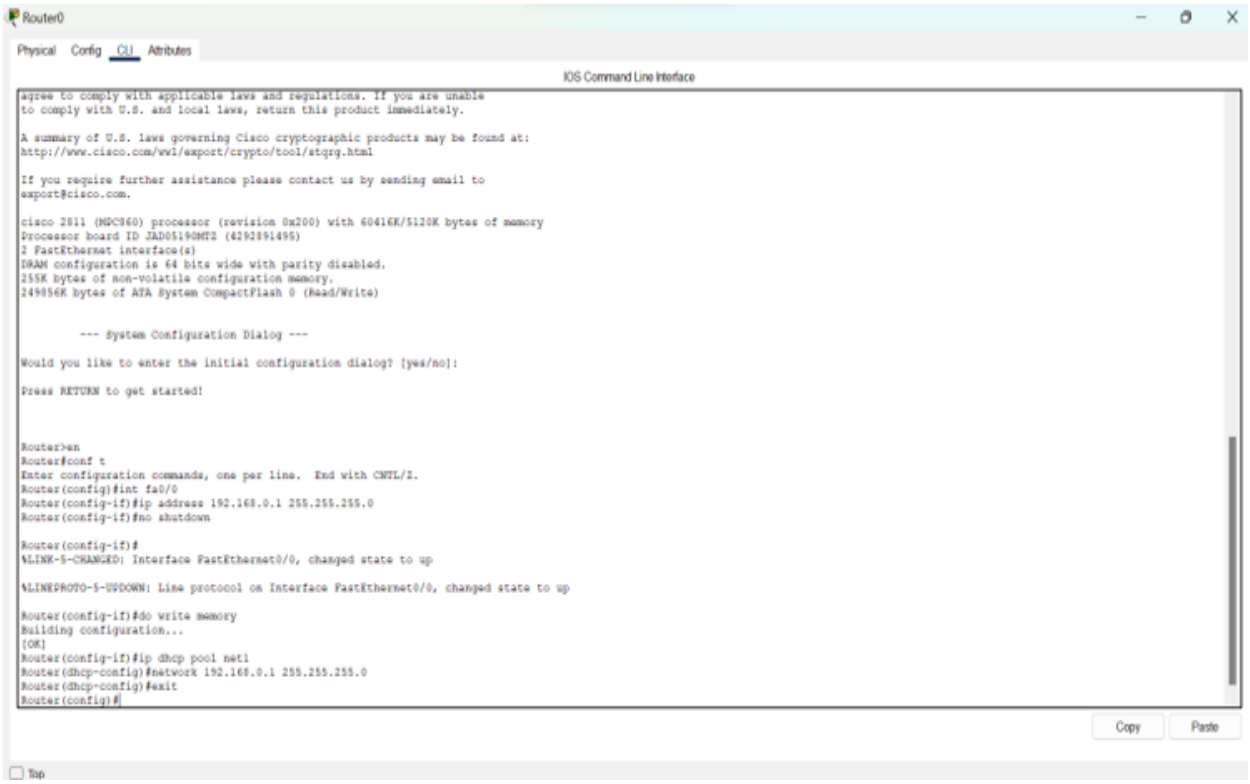
7)Check the physical configuration of the router.



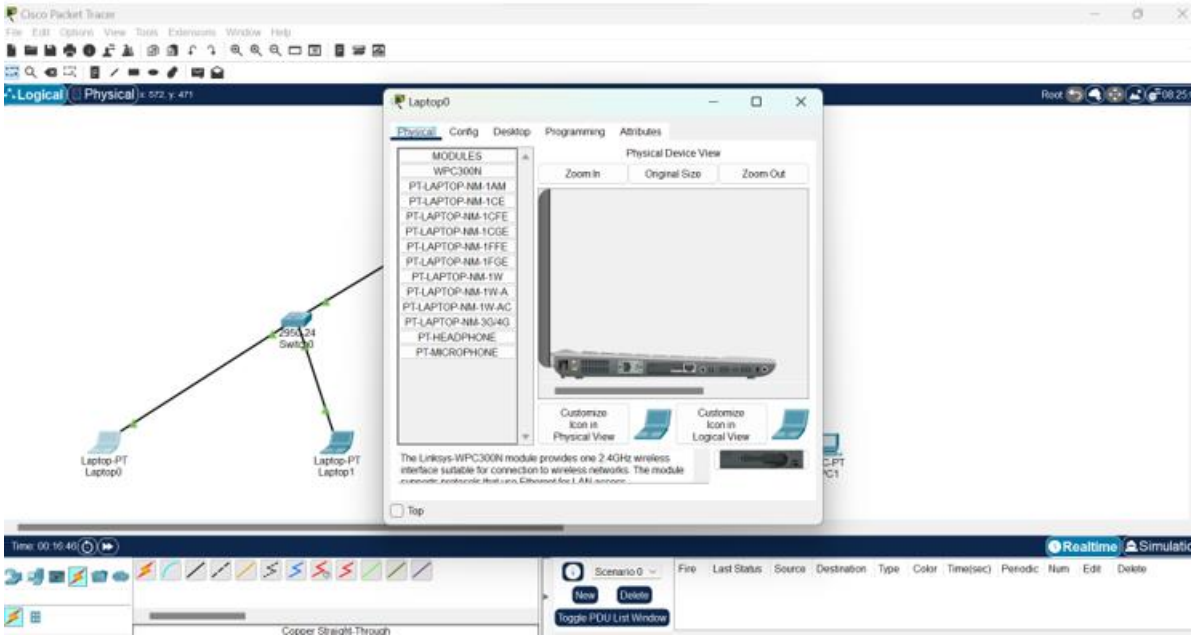
8)Open the command line interface(CLI) of the router.



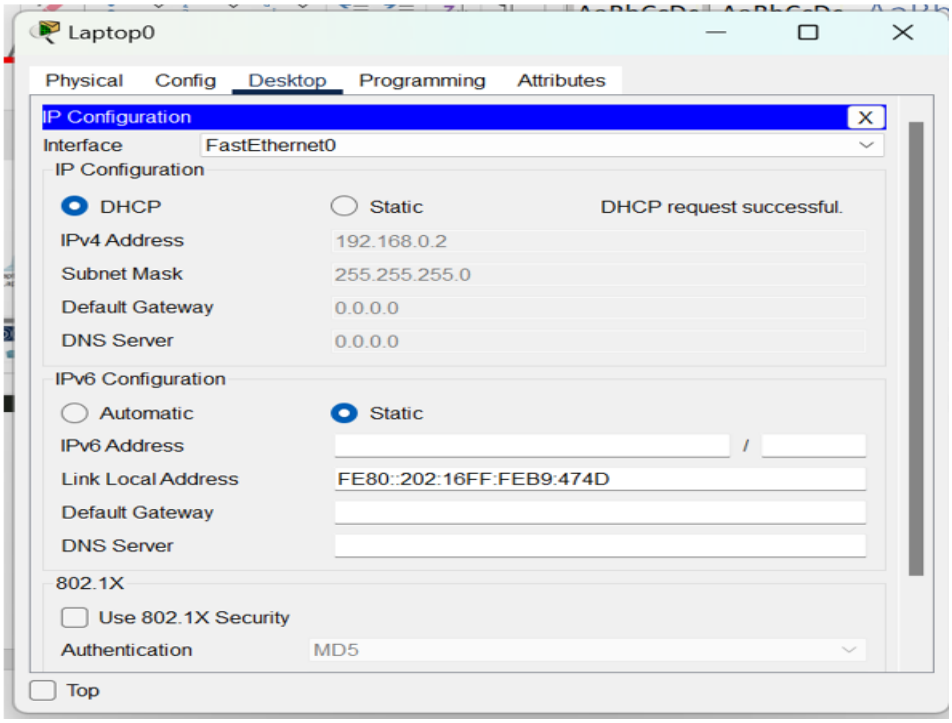
9)Enter the following commands in the Command Line Interface.



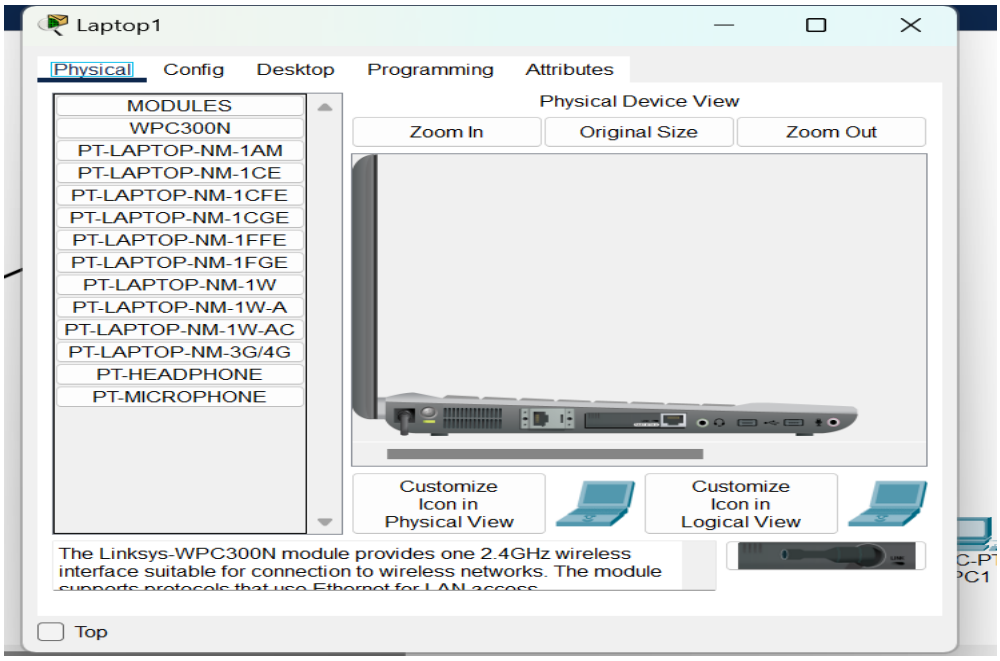
10)Check the configuration of the Laptop in the Physical Tab.

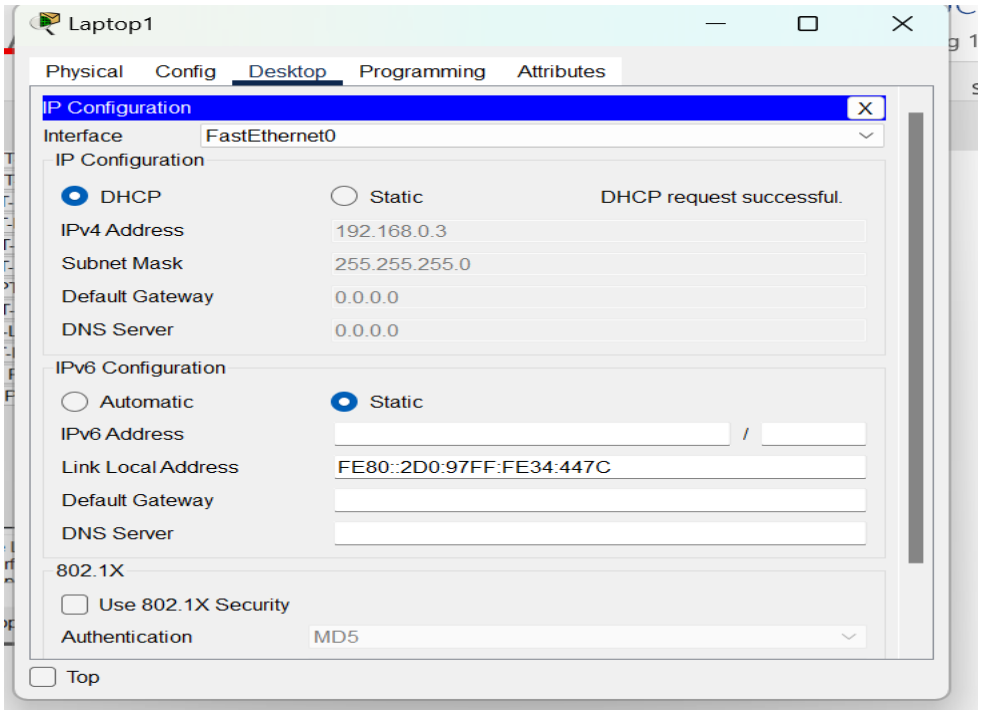


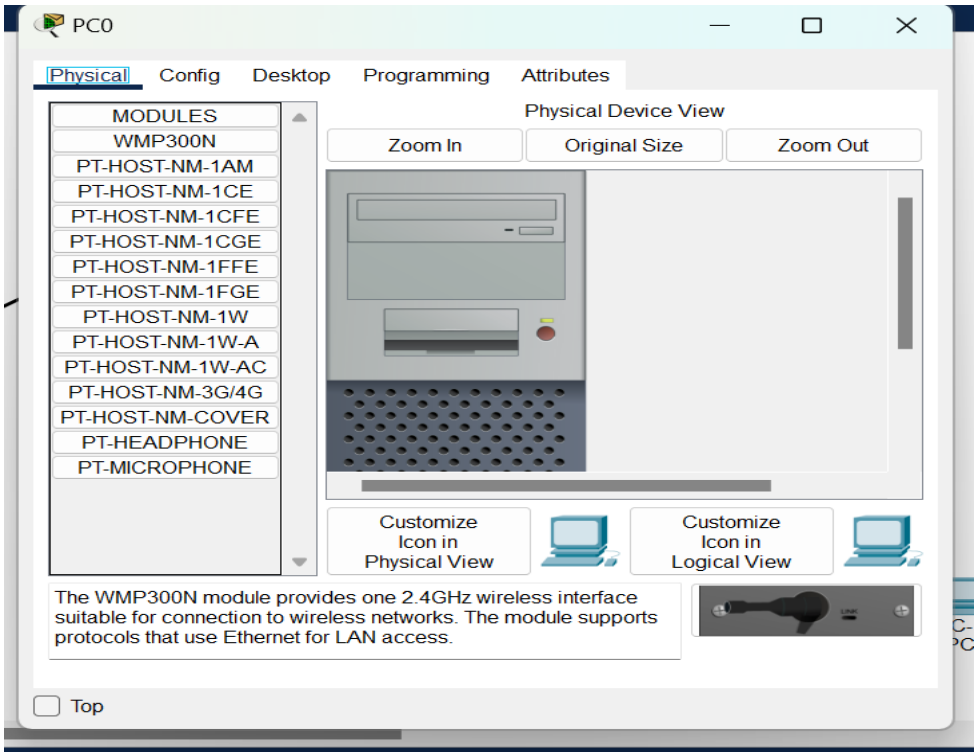
11)Open the Desktop tab of Laptop and select the DHCP Option in the IP Configuration.

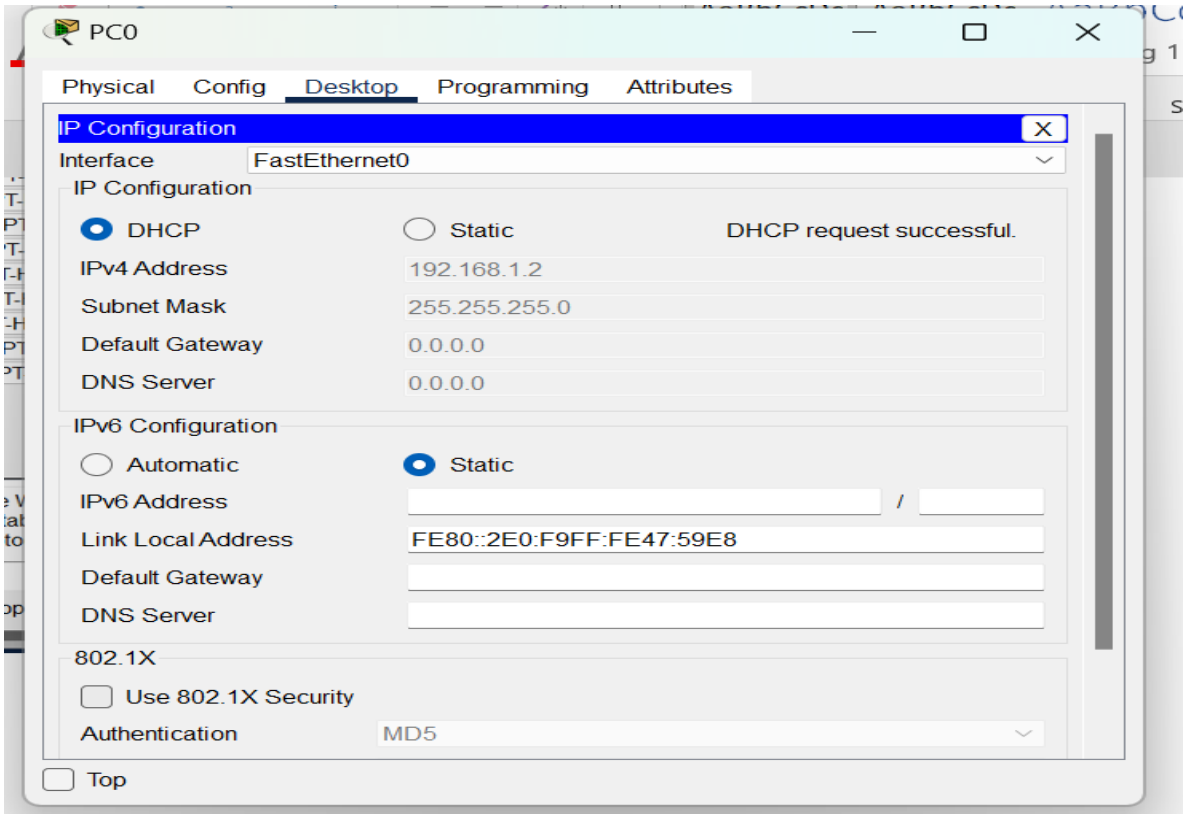


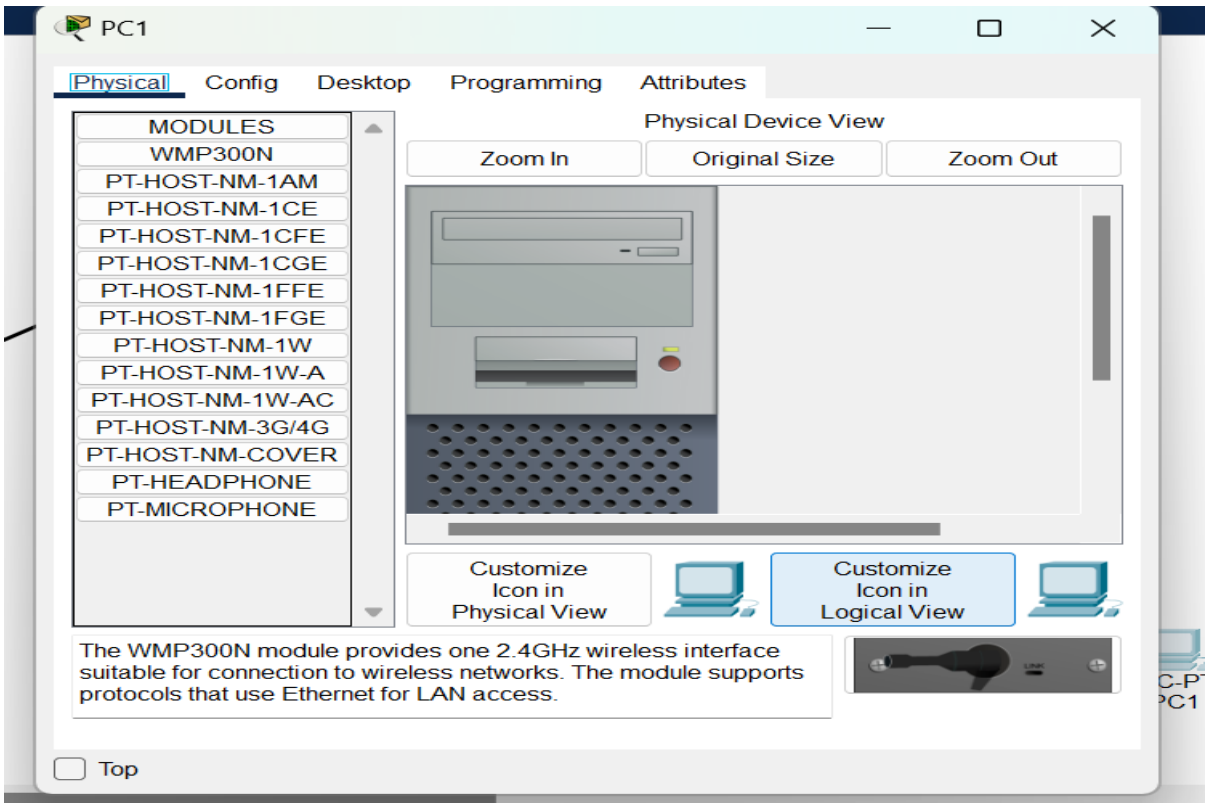
12)Follow the same steps for Laptop 1, PC 0 and PC 1 by entering the appropriate IP Address for each.

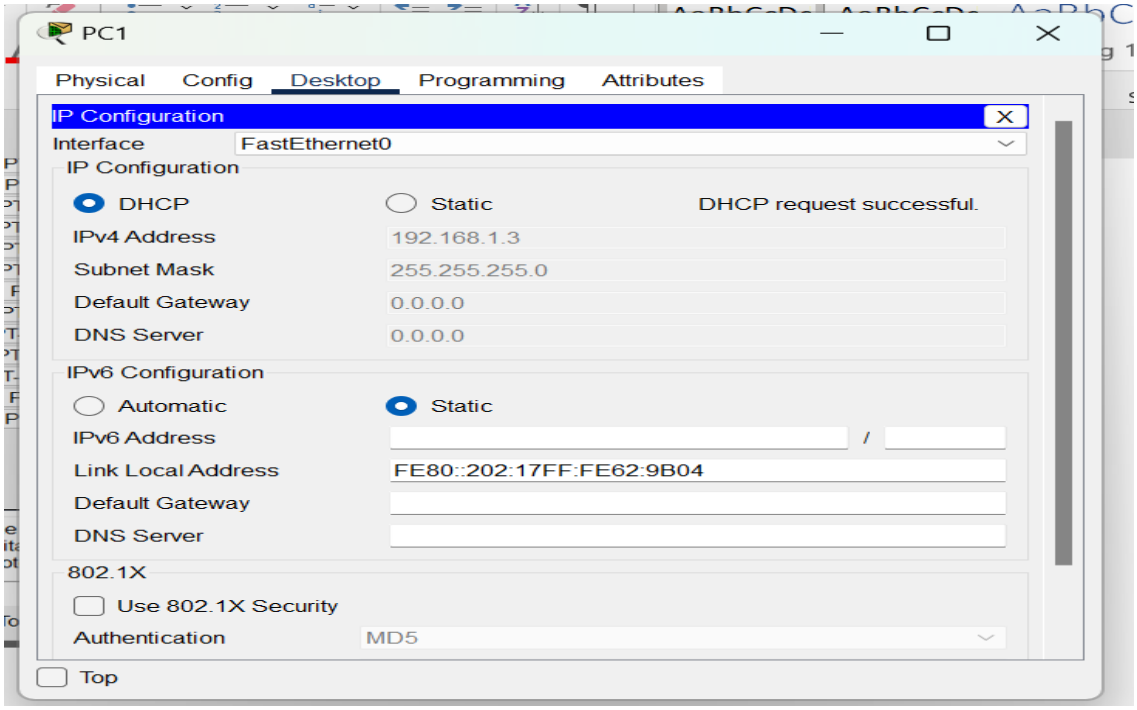



Laptop1
Physical
Config
Desktop
Programming
Attributes
IP Configuration
Interface
FastEthernet0
IP Configuration
DHCP
Static
DHCP request successful.
IPv4 Address
192.168.0.3
Subnet Mask
255.255.255.0
Default Gateway
0.0.0.0
DNS Server
0.0.0.0
IPv6 Configuration
Automatic
Static
IPv6 Address
Link Local Address
FE80::2D0:97FF:FE34:447C
Default Gateway
DNS Server
802.1X
Use 802.1X Security
Authentication
MD5
Top

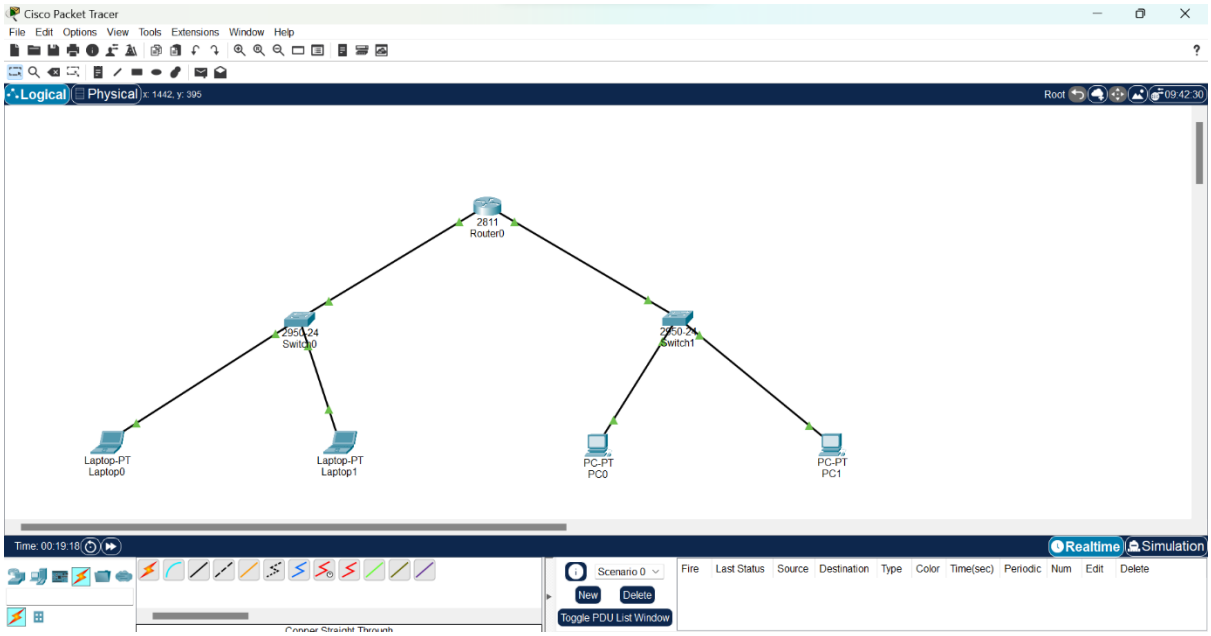

PC0
Physical
Config
Desktop
Programming
Attributes
MODULES
WMP300N
PT-HOST-NM-1AM
PT-HOST-NM-1CE
PT-HOST-NM-1CFE
PT-HOST-NM-1CGE
PT-HOST-NM-1FFE
PT-HOST-NM-1FGE
PT-HOST-NM-1W
PT-HOST-NM-1W-A
PT-HOST-NM-1W-AC
PT-HOST-NM-3G/4G
PT-HOST-NM-COVER
PT-HEADPHONE
PT-MICROPHONE
Physical Device View
Zoom In
Original Size
Zoom Out
Customize Icon in Physical View
Customize Icon in Logical View
The WMP300N module provides one 2.4GHz wireless interface suitable for connection to wireless networks. The module supports protocols that use Ethernet for LAN access.
Top


PC0
Physical
Config
Desktop
Programming
Attributes
IP Configuration
Interface
FastEthernet0
IP Configuration
DHCP
Static
DHCP request successful.
IPv4 Address
192.168.1.2
Subnet Mask
255.255.255.0
Default Gateway
0.0.0.0
DNS Server
0.0.0.0
IPv6 Configuration
Automatic
Static
IPv6 Address
Link Local Address
FE80::2E0:F9FF:FE47:59E8
Default Gateway
DNS Server
802.1X
Use 802.1X Security
Authentication
MD5
Top


PC1
Physical
Config
Desktop
Programming
Attributes
MODULES
WMP300N
PT-HOST-NM-1AM
PT-HOST-NM-1CE
PT-HOST-NM-1CFE
PT-HOST-NM-1CGE
PT-HOST-NM-1FFE
PT-HOST-NM-1FGE
PT-HOST-NM-1W
PT-HOST-NM-1W-A
PT-HOST-NM-1W-AC
PT-HOST-NM-3G/4G
PT-HOST-NM-COVER
PT-HEADPHONE
PT-MICROPHONE
Physical Device View
Zoom In
Original Size
Zoom Out
Customize Icon in Physical View
Customize Icon in Logical View
The WMP300N module provides one 2.4GHz wireless interface suitable for connection to wireless networks. The module supports protocols that use Ethernet for LAN access.
Top



13) The DHCP Configuration for the given setup is successful.



----------X----------

Thank you!