Ex No: 1

Date:

CONFIGURING AND ACCESSING A SWITCH IN PACKET TRACER

Aim:

To simulate simple wired LAN networks using hubs, switches and basic router configurations, establish and test for successful communication between host devices, using Cisco Packet Tracer software

Theory:

Creating a Local Area Network (LAN) can involve wired components.

1. Required Equipment

- **Router**: Central device to manage both wired and wireless connections.
- **Ethernet Switch** (optional): Expands the number of Ethernet ports if needed.
- Hubs can also be used.
- **Ethernet Cables**: For wired connections (Cat5e, Cat6, or higher for better speeds).
- **Wireless Access Point (WAP)**: If the router doesn't have built-in Wi-Fi, or if you need to extend wireless coverage.
- **Network Devices**: PCs, laptops, smartphones, etc., to connect to the network.

2. Setting Up the Wired LAN

- **Position Your Router**: Place your router in a central location if possible. This will optimize the wireless coverage and minimize the length of cables for wired devices.
- **Connect to the Internet**: Connect the router to your modem (if separate) using an Ethernet cable. This provides internet access to the network.
- **Wired Device Connections**: Use Ethernet cables to connect your devices (e.g., computers, printers) to the router. If your router has limited Ethernet ports, connect an Ethernet switch to the router, then connect additional devices to the switch.
- **Configuration**: Access the router's web interface by entering the router's IP address in a browser (commonly 192.168.1.1 or 192.168.2.1). Follow the instructions to set up basic network settings like IP addressing (usually DHCP).

Procedure:

WIRED LAN

1. Launch Packet Tracer and Build the Topology:

1. Open Cisco Packet Tracer.

2. Select and drag end devices (like PCs and servers) to the workspace.
3. Select and drag a switch to the workspace.
4. Click on the "Connections" icon (lightning bolt) and choose a suitable cable type (usually copper straight-through).
5. Connect the PCs and server to the switch using the chosen cables.

2. Configure IP Addresses:

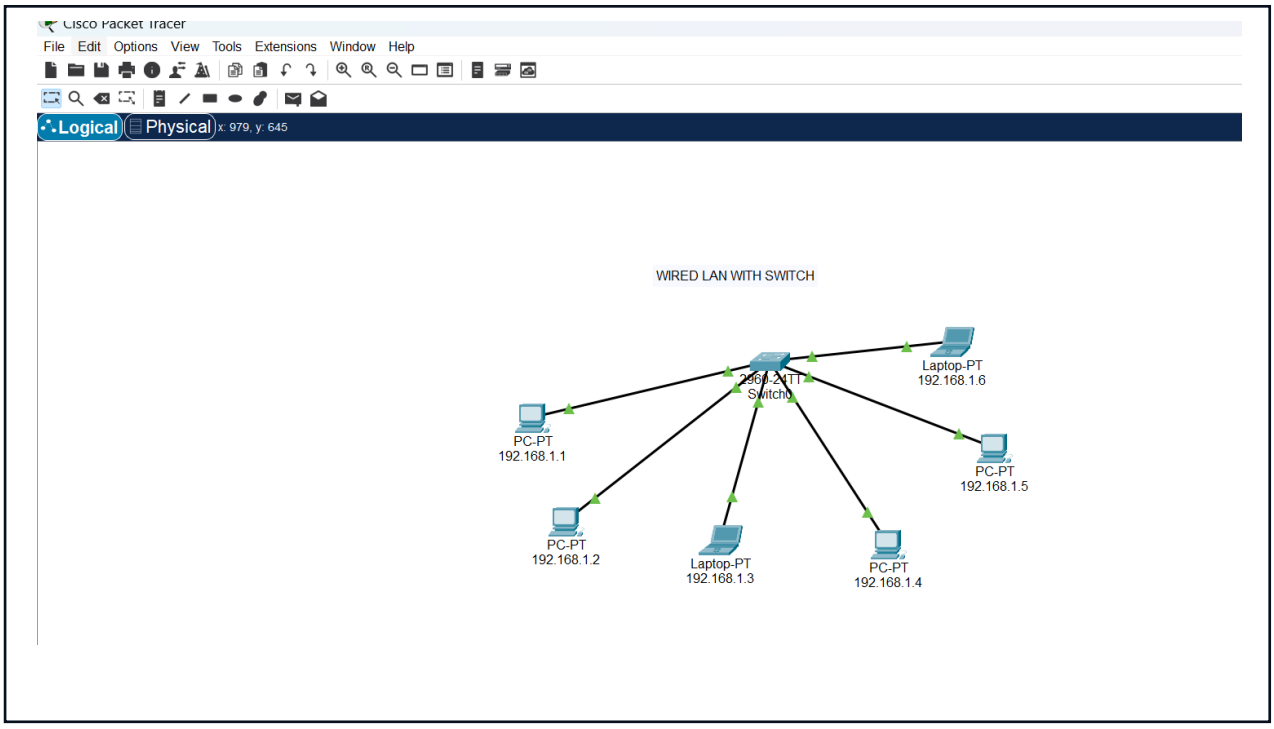
1. Click on a PC, go to the "Desktop" tab, and then "IP Configuration".
2. Assign a static IP address, subnet mask, and default gateway (if needed).
3. Repeat this process for each PC and server, ensuring each device has a unique IP address within the same network range.
4. For example, you might use:
    - PC1: 192.168.1.100, subnet mask 255.255.255.0, gateway 192.168.1.1
    - PC2: 192.168.1.101, subnet mask 255.255.255.0, gateway 192.168.1.1
    - Server: 192.168.1.102, subnet mask 255.255.255.0, gateway 192.168.1.1
5. The switch typically does not require an IP address for a simple LAN.

3. Test Connectivity:

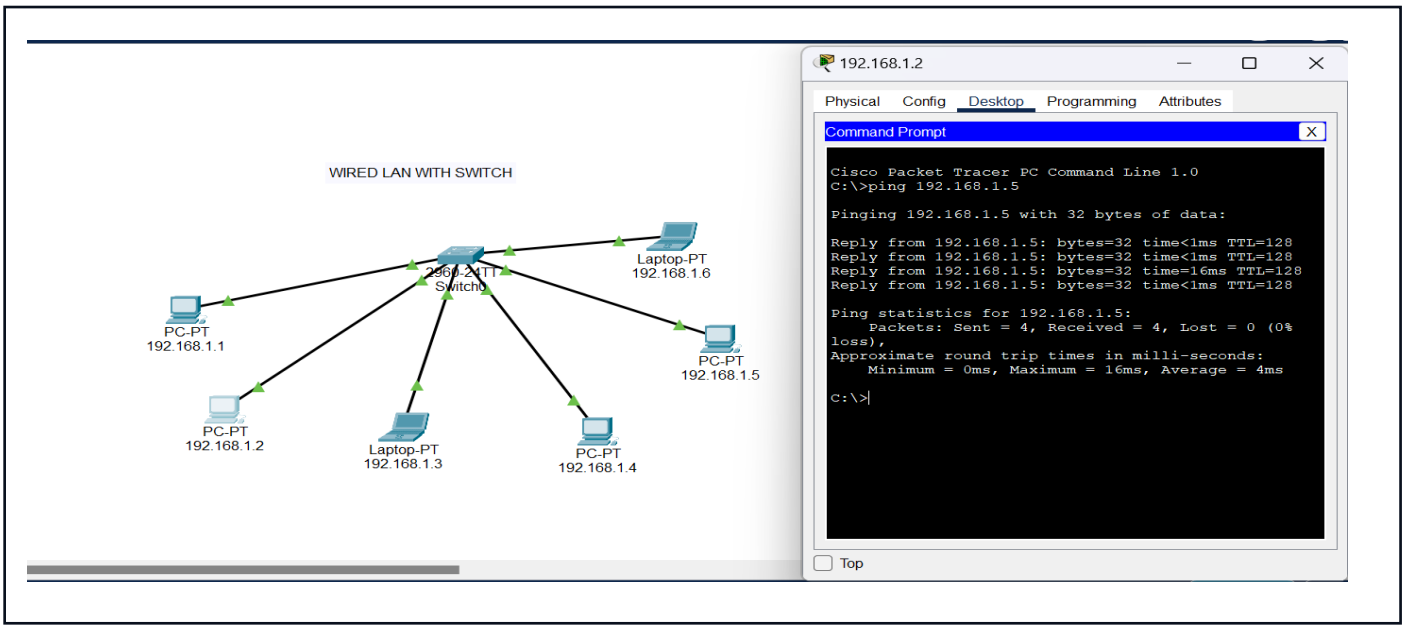
1. Click on a PC, go to the "Desktop" tab, and then "Command Prompt".
2. Use the ping command followed by the IP address of another device on the network to test communication.
3. For example, ping 192.168.1.101

MODEL OUTPUT:

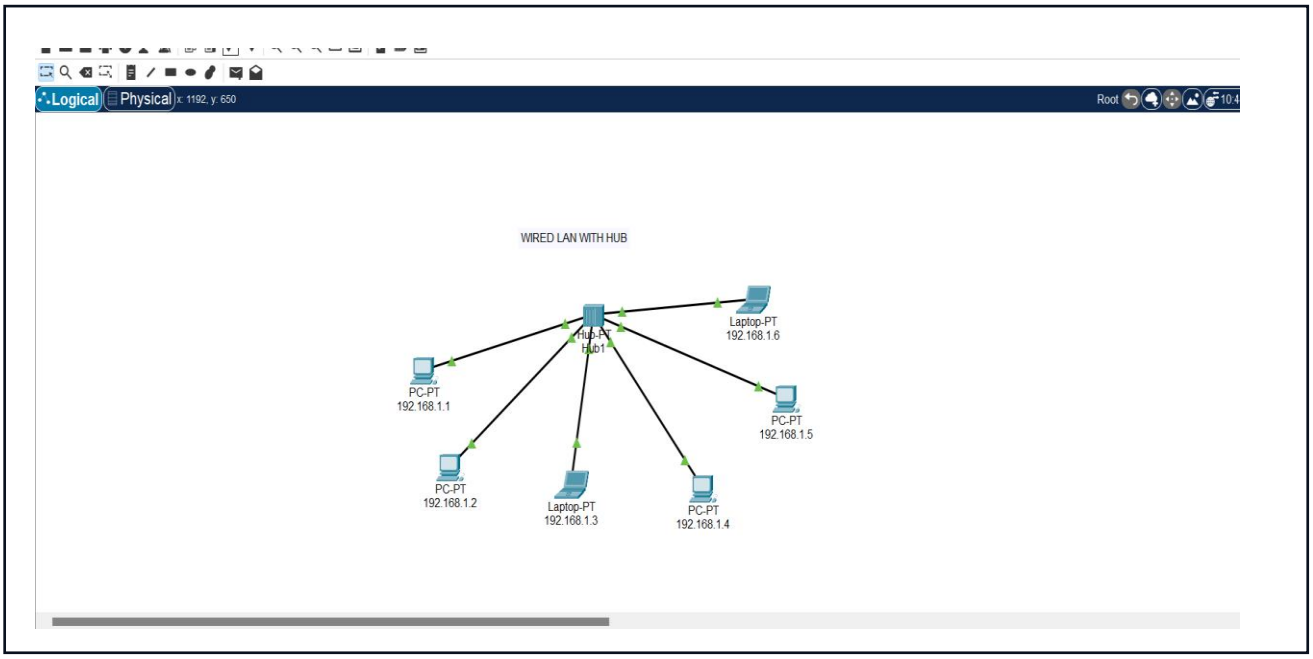
WIRED LAN USING SWITCH:



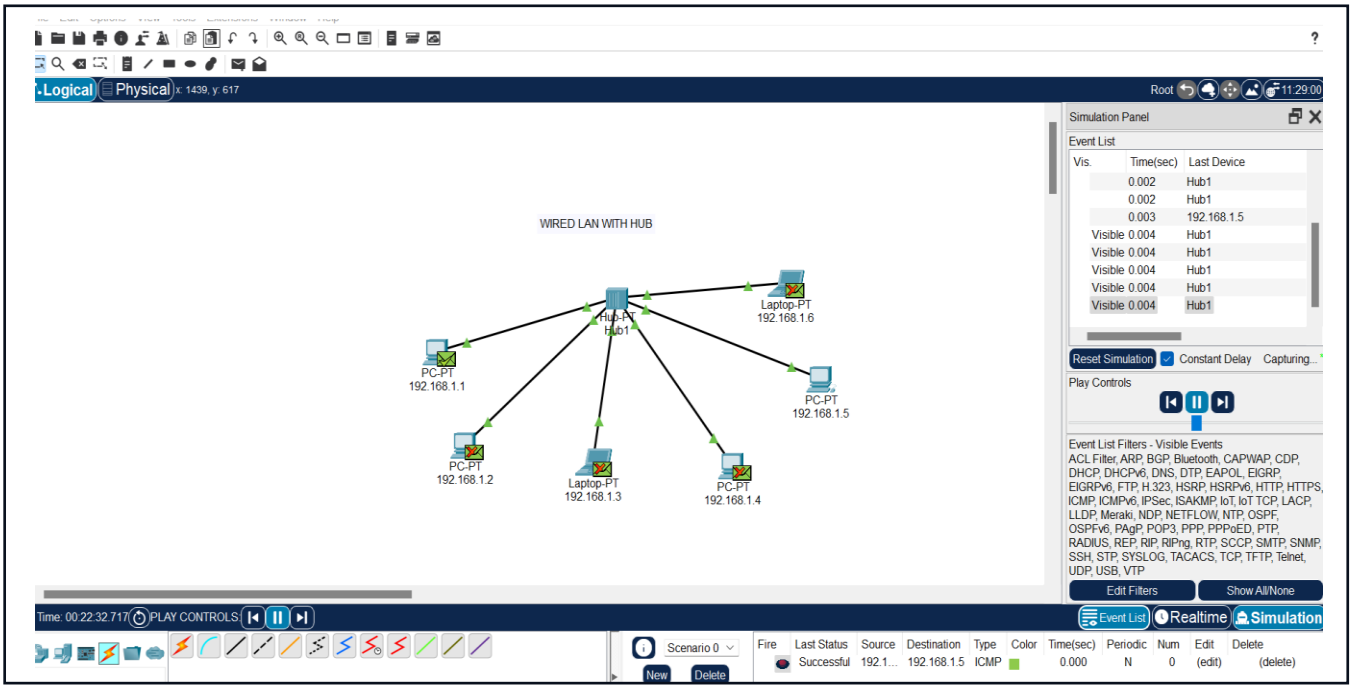
TEST THE CONNECTIVITY (Ping Command):



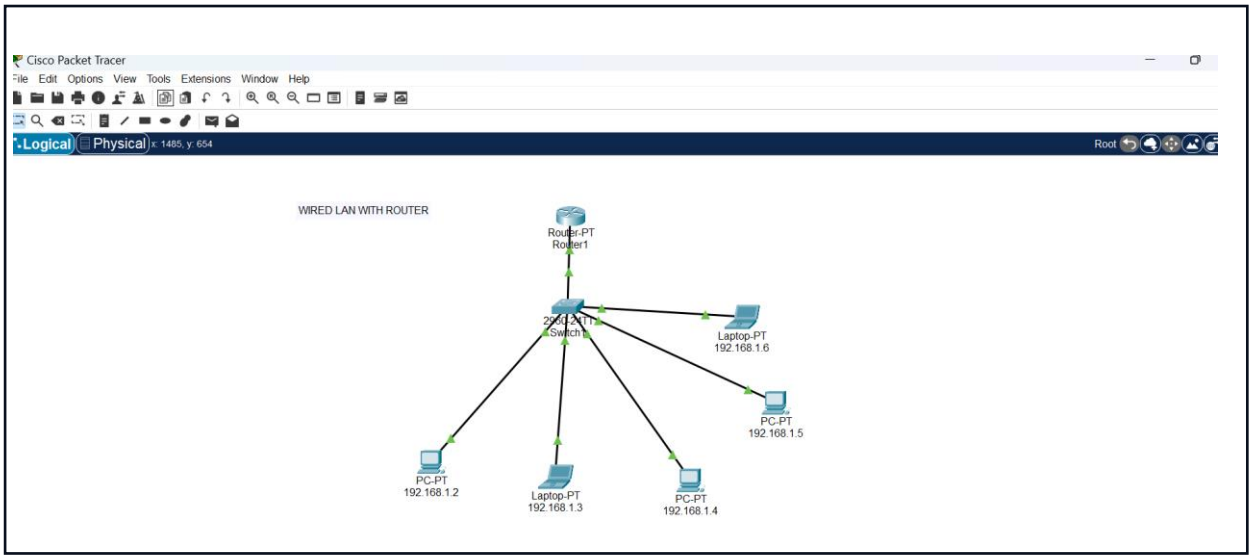
WIRED LAN USING HUB:



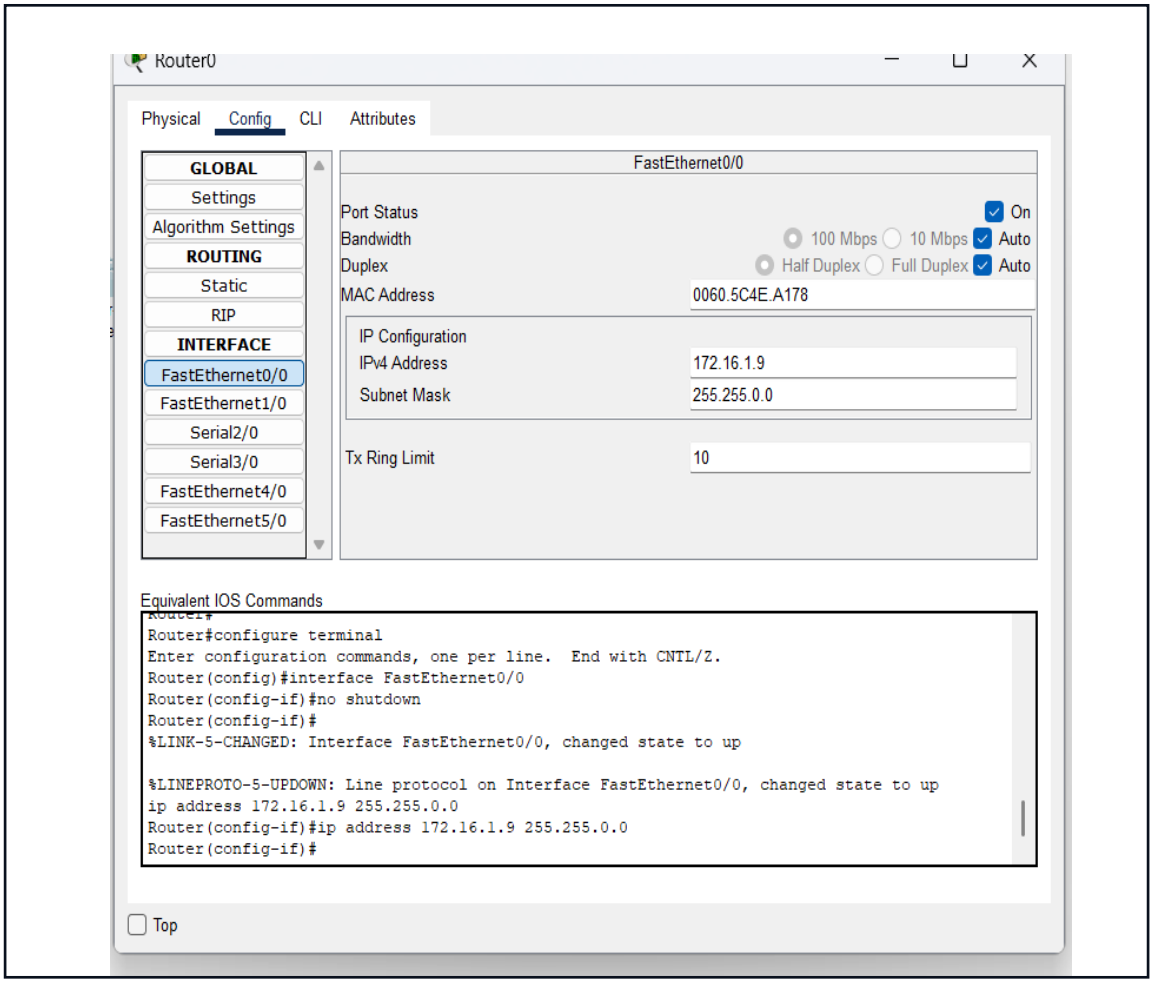
SIMULATION OF PACKET TRANSFER BETWEEN END USER:



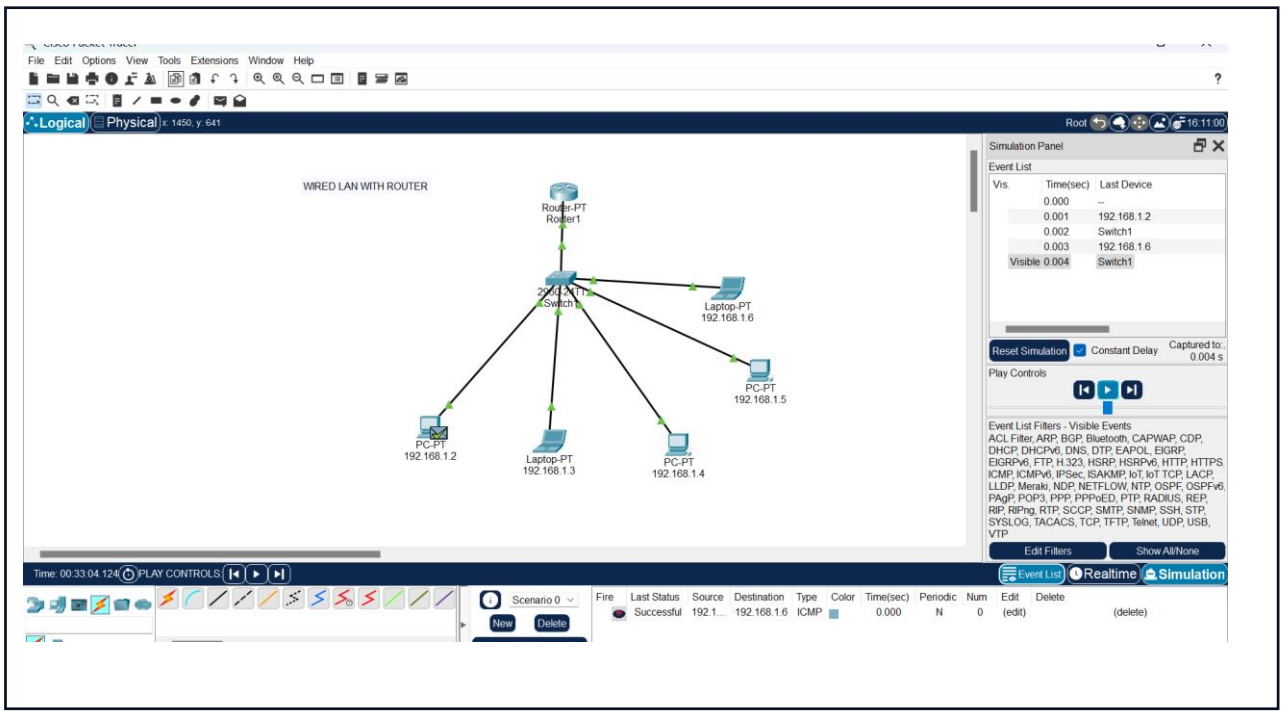
WIRED LAN USING ROUTER:



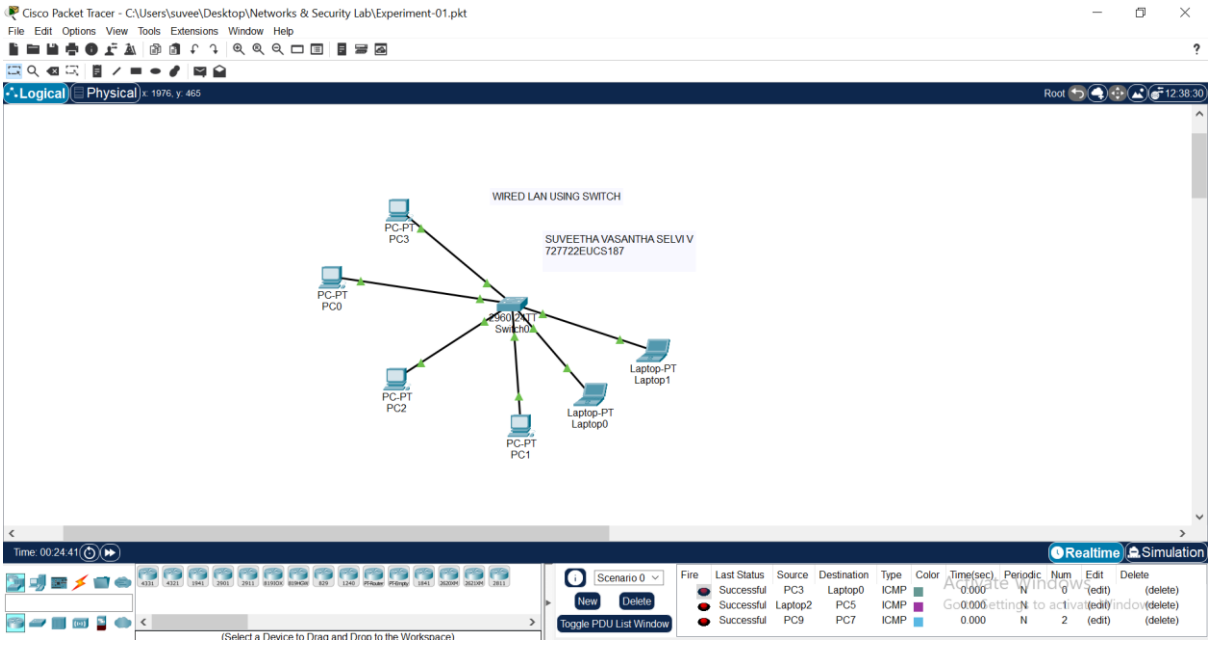
CONFIGURATION OF ROUTER

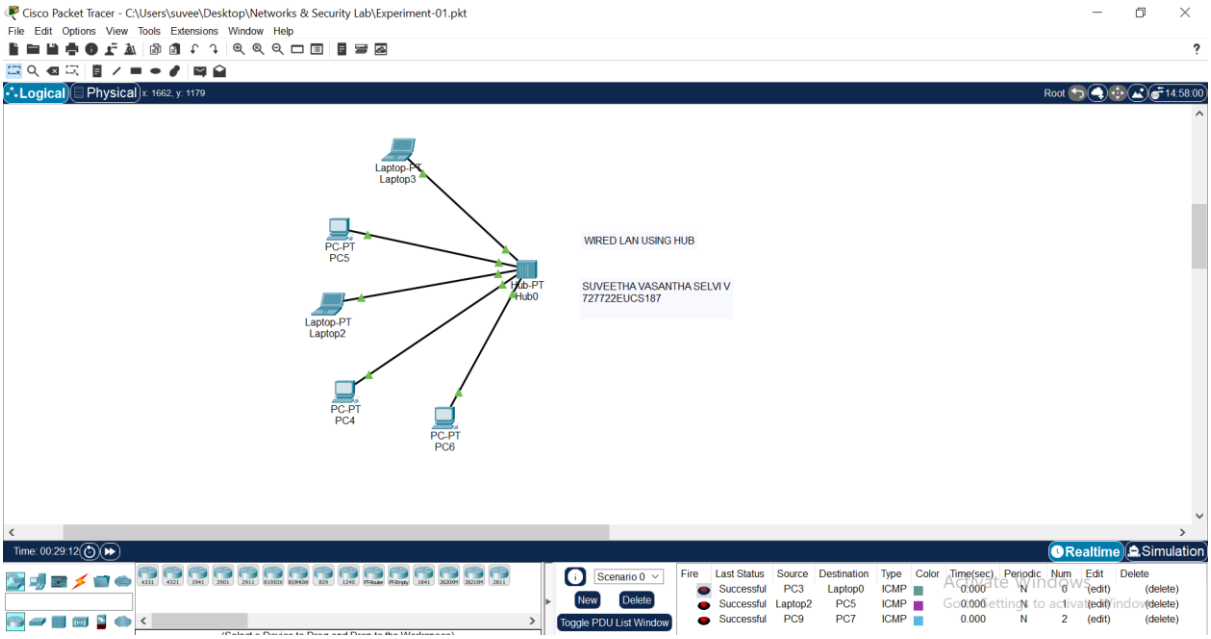


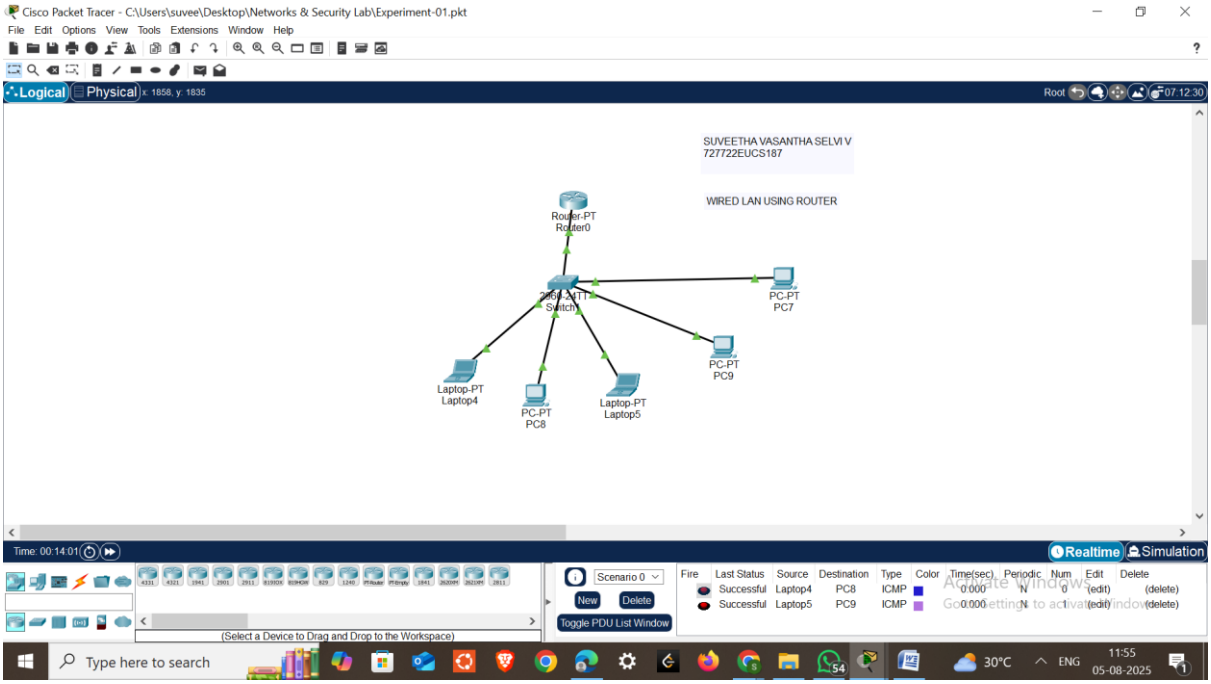
SIMULATION OF PACKET TRANSFER THROUGH ROUTER:



EXPERIMENTAL OUTPUT:







Result:

Thus, simple wired LAN networks using hubs, switches and basic router configurations were implemented and communication between host devices were established and tested successfully**.**