Experiment No.: 4

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Branch: ECE
Section/Group: 1-A
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Subject Name: Computer Networks Lab
Subject Code: 20ECP-374

- **Aim/Overview of the practical:** To configure and troubleshoot a switched network and configuration of IP address in switched network.

- **Apparatus/Tool Used:** Cisco Packet Tracer.

Theory:

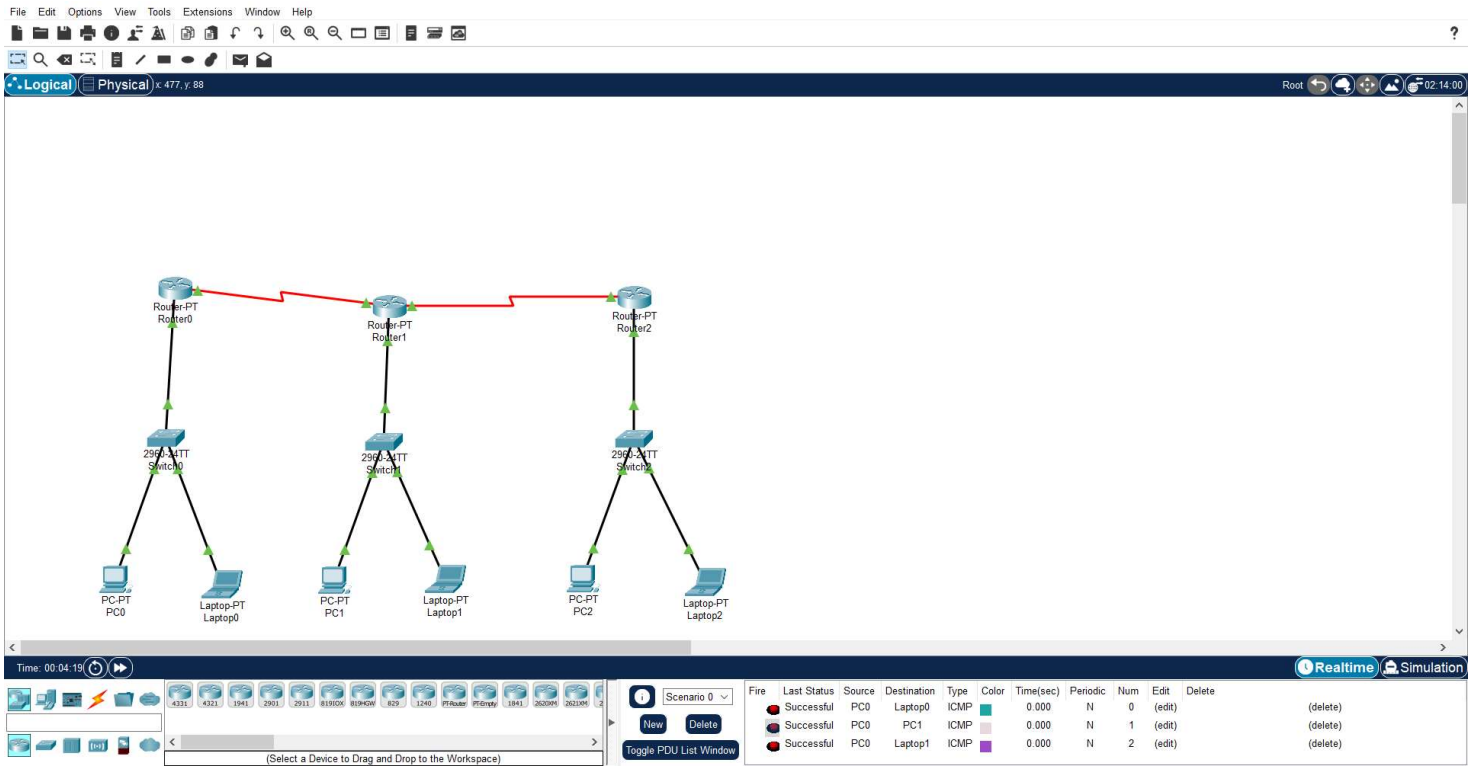
A switch network is a type of computer network that connects devices together in a local area network (LAN). It is a networking device that operates at the data link layer (Layer 2) of the OSI model and uses MAC addresses to forward data packets between devices.

In a switch network, each device (such as a computer or printer) is connected to a switch port. The switch then uses its internal switching fabric to forward data packets between the devices, based on the destination MAC address in the packet header. This allows devices to communicate with each other directly, without the need for intermediate devices like routers.

Switch networks offer several advantages over other types of networks, such as better performance and security. Since the switch forwards packets only to the intended destination, it reduces network congestion and improves overall network speed. Additionally, since devices are isolated from each other, it increases network security by reducing the risk of unauthorized access or data breaches.

Switches come in different types and sizes, ranging from small switches used in home networks to large enterprise switches used in data centers. They can also be managed or unmanaged, with managed switches offering more advanced features like VLANs, port mirroring, and quality of service (QoS) settings.

CIRCUIT DIAGRAM & SIMULATION:



Steps for experiment/practical:

1. Open Cisco Packet Tracer and then login with your register id.
2. Then click on end devices and select the PC and place it in the logical window.
3. Now click on network device and select required devices.
4. Then click on connection and make the required connection for PC's with the network devices.
5. Now change the IP addresses of each and every PC. Remember to give unique IP to the devices manually.
6. Now we can add simple PDU in between the PC's.
7. Check the movement of packets in simulation.
8. Repeat the same process for other devices too.
9. Now in simulation window we can run the network.
10. Check for errors (if any).

Result and Summary:

- We have observed practically how the data is being transferred from one device to another when connected with other network devices.
- We have learn about how to write code in command line interface.
- We have learn how to do static routing.

Additional Creative Inputs (If Any):

NA

Learning outcomes (What I have learnt):

- Learnt about various networking devices.
- Learnt about switched network and its advantages.
- Learnt about how to do static routing and dynamic routing.

Evaluation Grid (To be filled by Faculty):

Sr. No.	Parameters	Marks Obtained	Maximum Marks
1.	Worksheet completion including writing learning objectives/Outcomes. (To submit at the end of the day)		
2.	Viva		
3.	Student Engagement in Simulation/Demonstration/Performance and Controls/Pre-Lab Questions.		
	Signature of Faculty (with Date):	**Total Marks Obtained:**	