Information Security

Experiment – 2

D 12

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Aim – Connect computers in a Local Area Network with Switch and Router

Introduction -

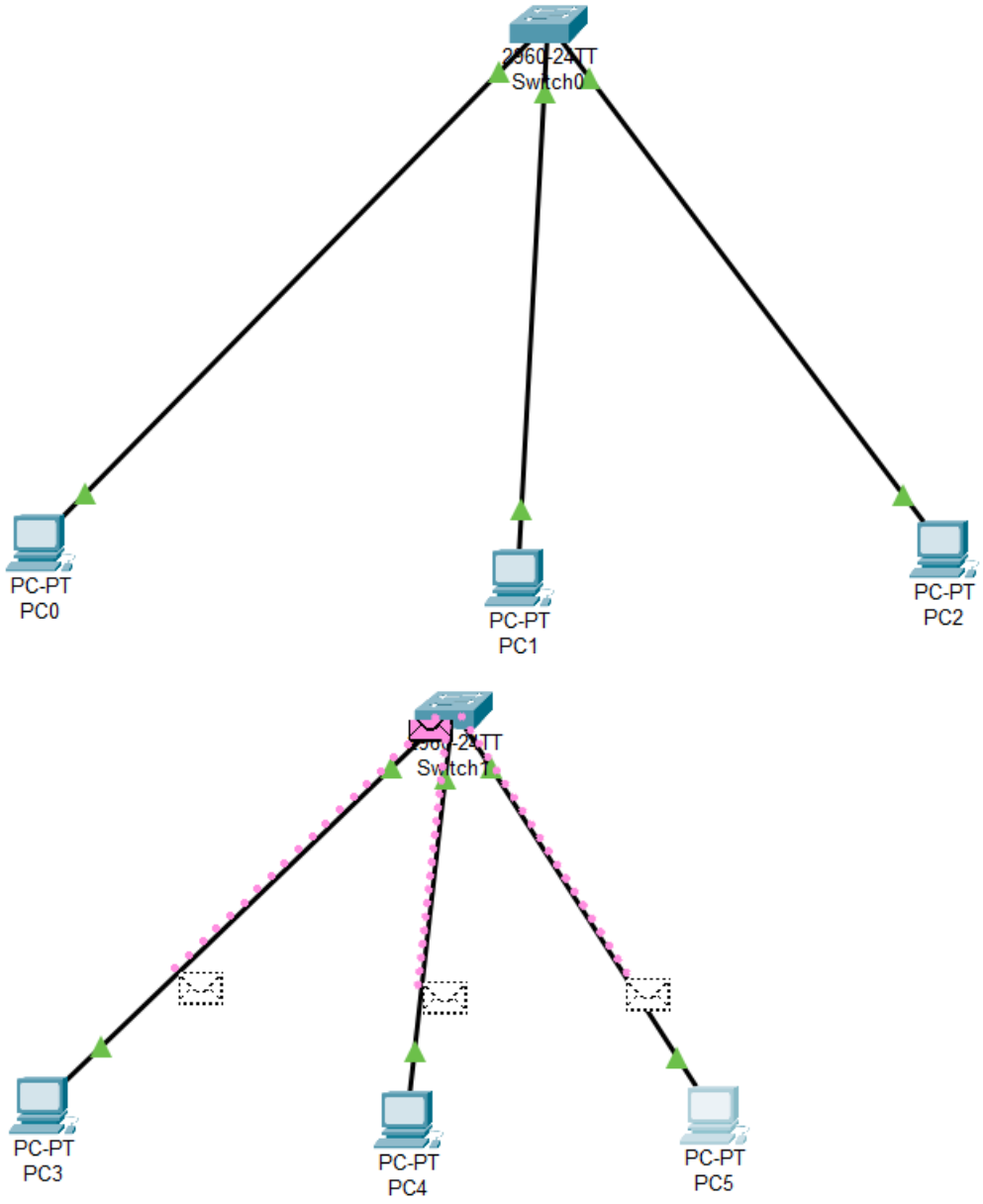
In this experiment, we will create a Local Area Network (LAN) using a network switch and a router. We will connect multiple computers to the LAN, assign IP addresses, and configure routing to enable communication between devices within the LAN and external networks.

Objectives -

1. Understand the role of a switch and a router in a LAN.
2. Create a basic LAN topology with multiple computers.
3. Configure IP addresses for devices within the LAN.
4. Configure routing on the router to enable communication between devices within the LAN and external networks.

Steps for performing first sub-experiment –

1. Launch the Cisco Packet Tracer application
2. Select three computers and a 2960 Switch
3. Connect the three computers with the switch
4. Configure the IP addresses of the three computers
5. Now you can ping any computer with the other two and see the simulation of transferring of the messages


2960-24TT
Switch0
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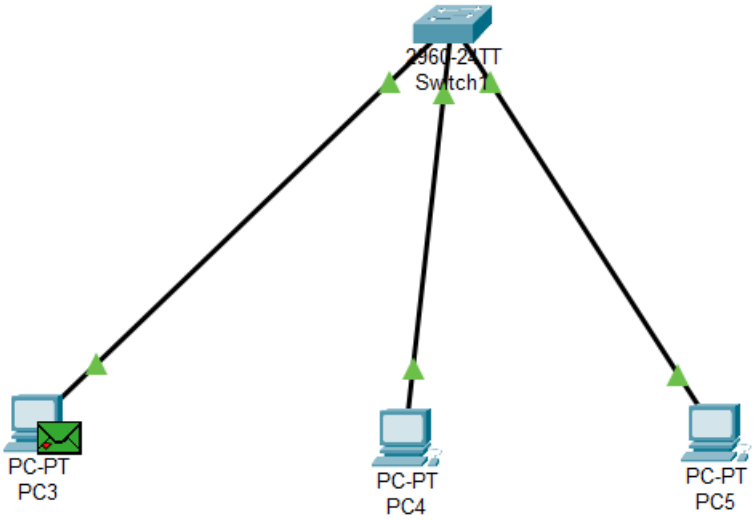
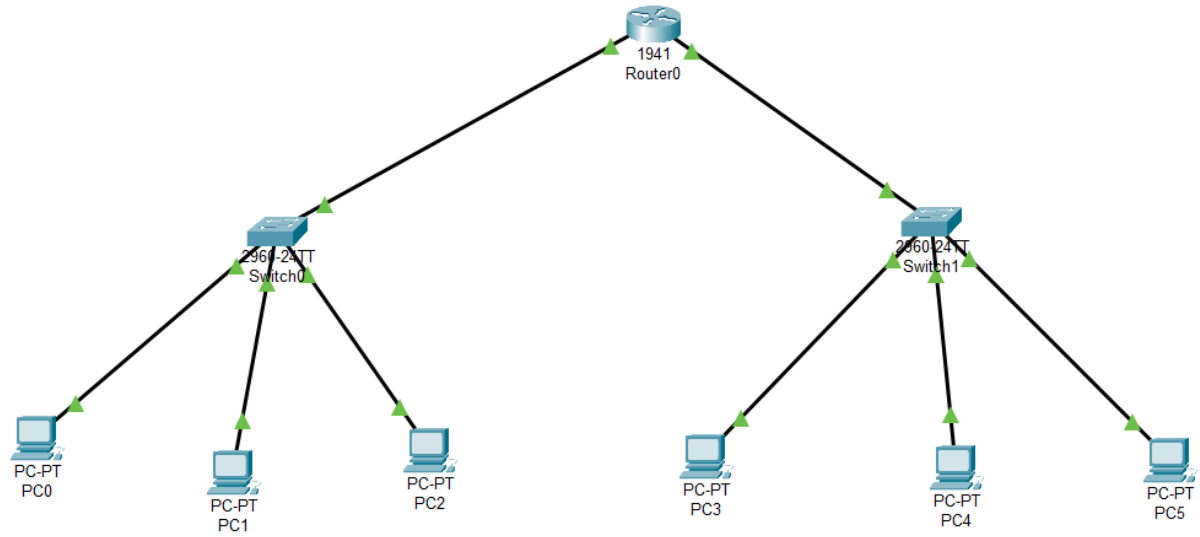


Steps for performing second sub-experiment –

1. Launch the Cisco Packet Tracer application
2. Select six computers, two 2960 switches and one 1941 Router.
3. Now connect the first three computers with the first switch and the other three computers with the second switch.
4. Now connect the two switches with the router.
5. Configure the IP addresses of the first three computers in a sequence and the other three computers in a second sequence.
6. Select the Router, go to Config -> GigaBitEthernet0/0 and GigaBitEthernet0/1 and enter the IP address as the ongoing sequence number of each of the two networks we made and press Enter and then press On the Port Status.
7. Now on each of the computers in the Default gateway enter the IP address of the Router respective of the network (GigaBitEthernet0/0 or GigaBitEthernet0/1).
8. Now you can ping any computer with the other and simulate them to see the message transfer.
9. Also you can select the Add Simple PDU (P) symbol in the upper bar and put them on the sending and the receiving computers to see the status of the transfer.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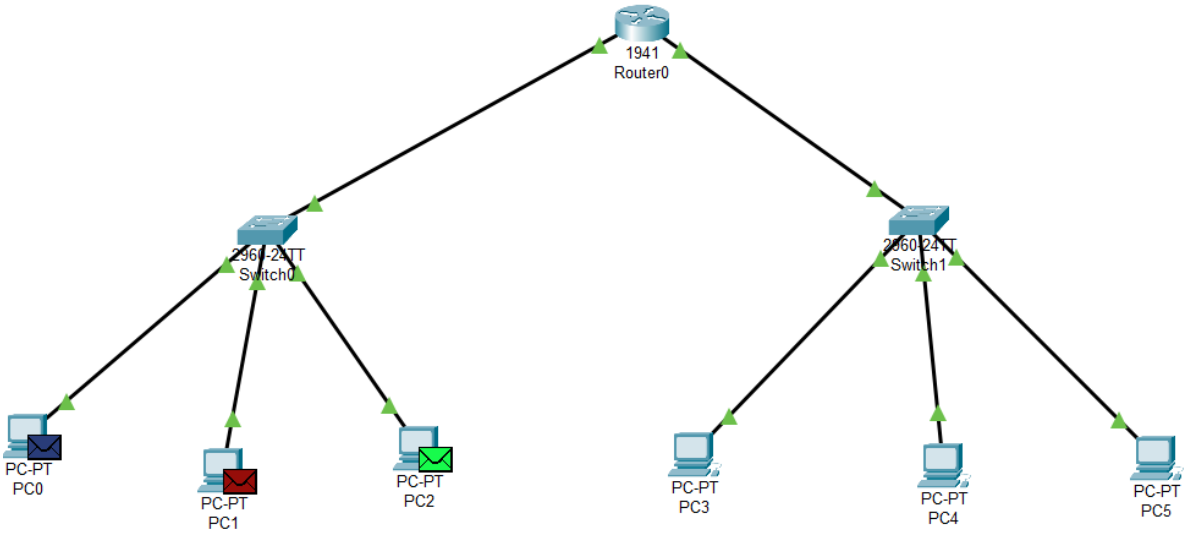
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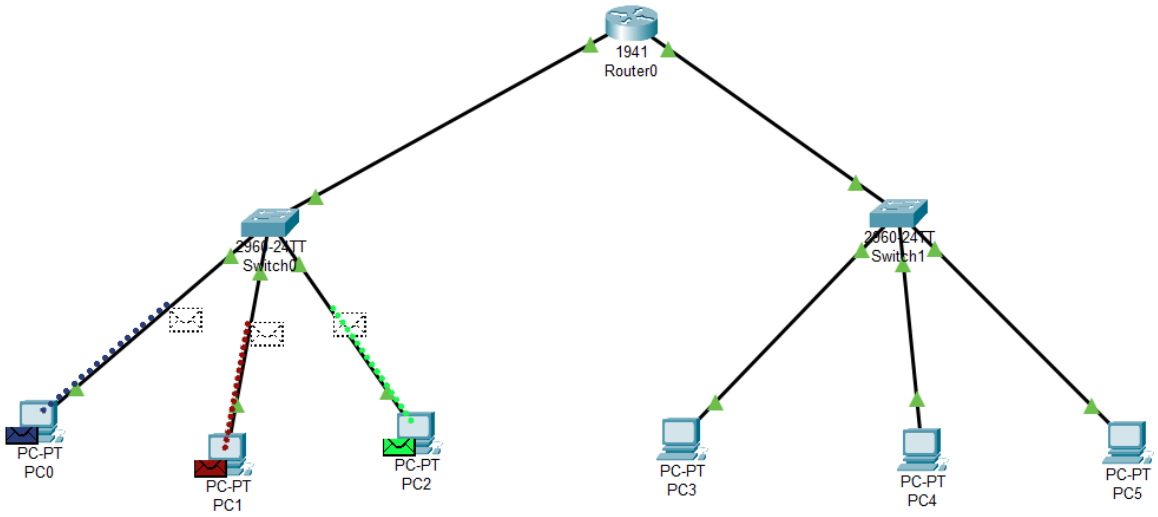
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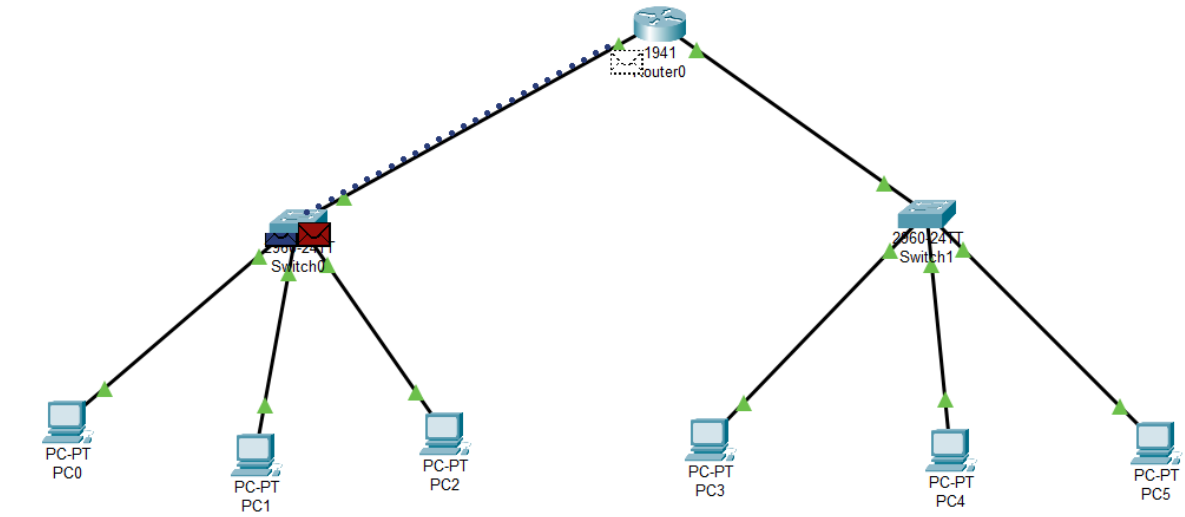
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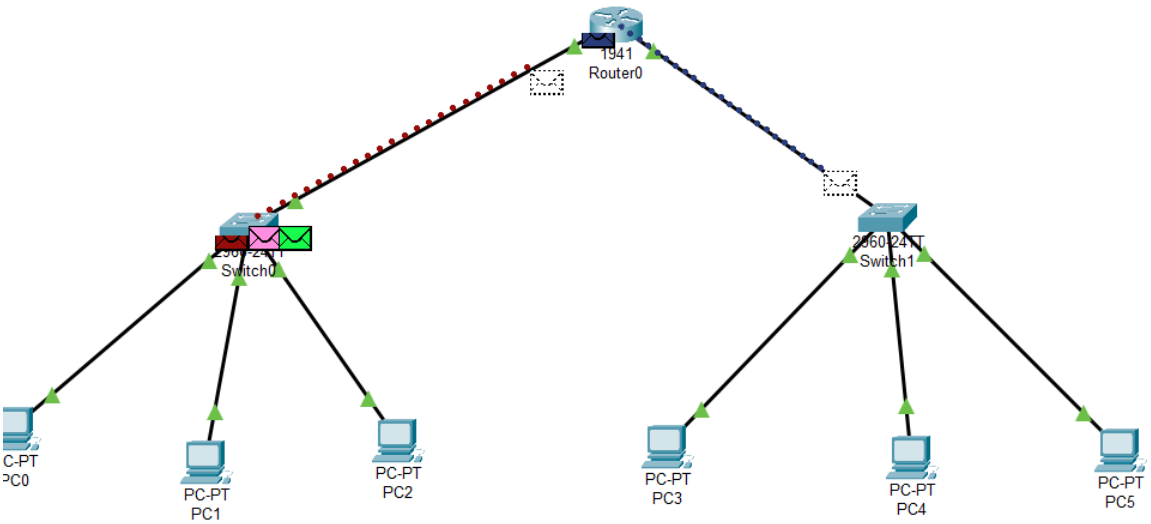
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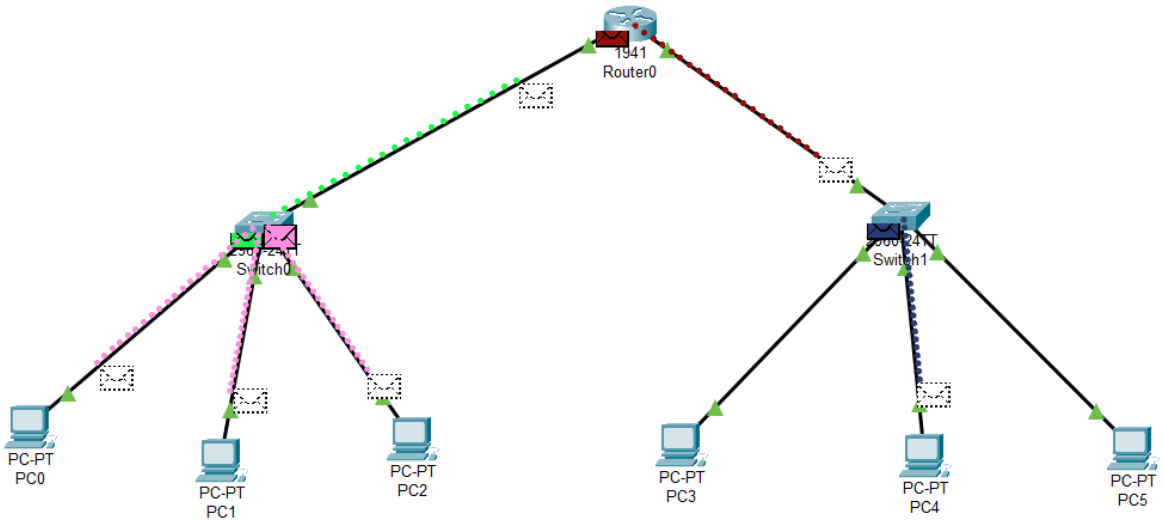
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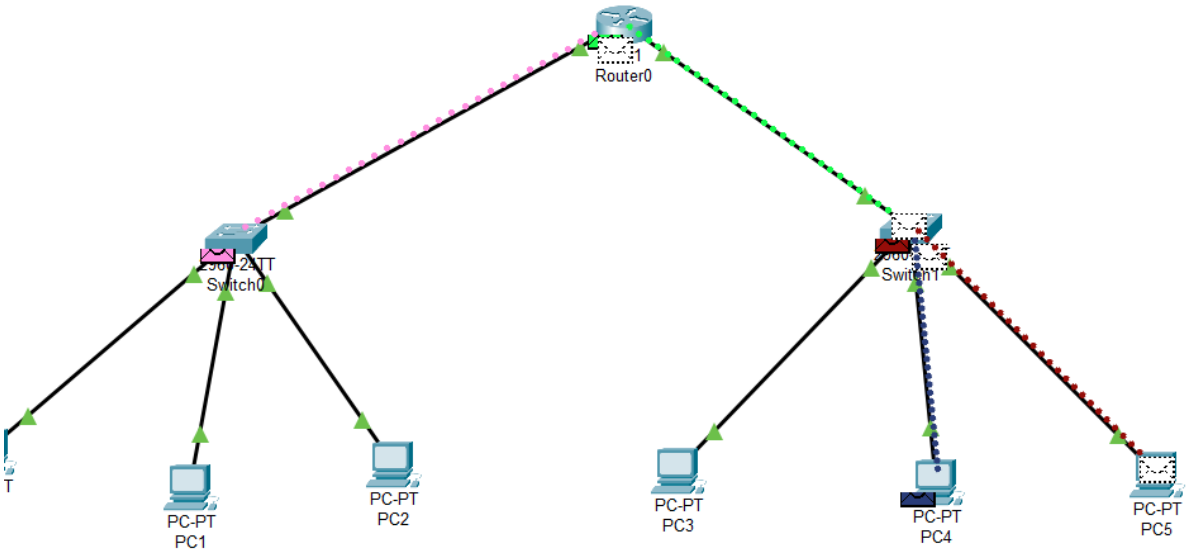
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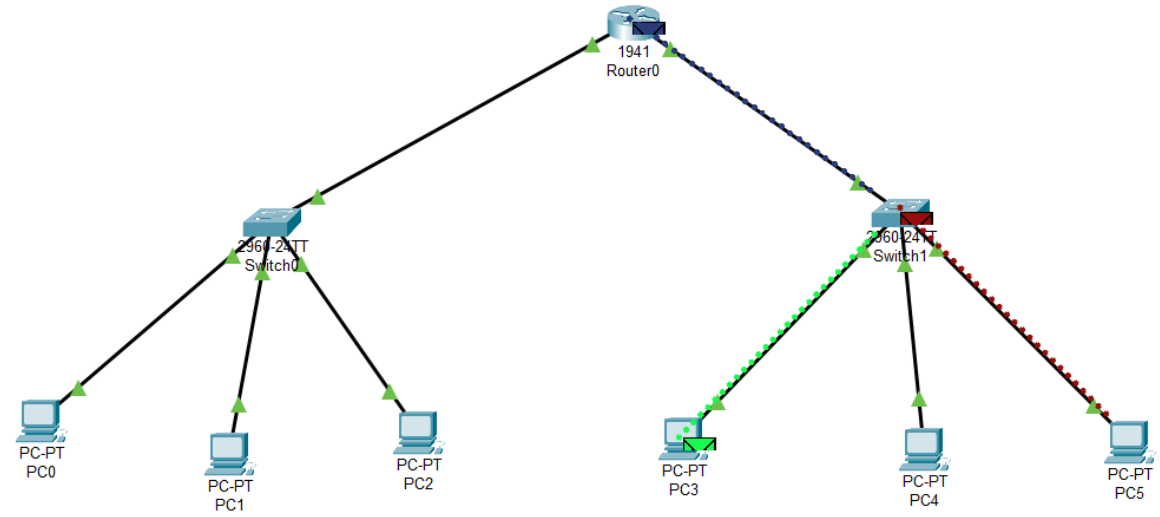
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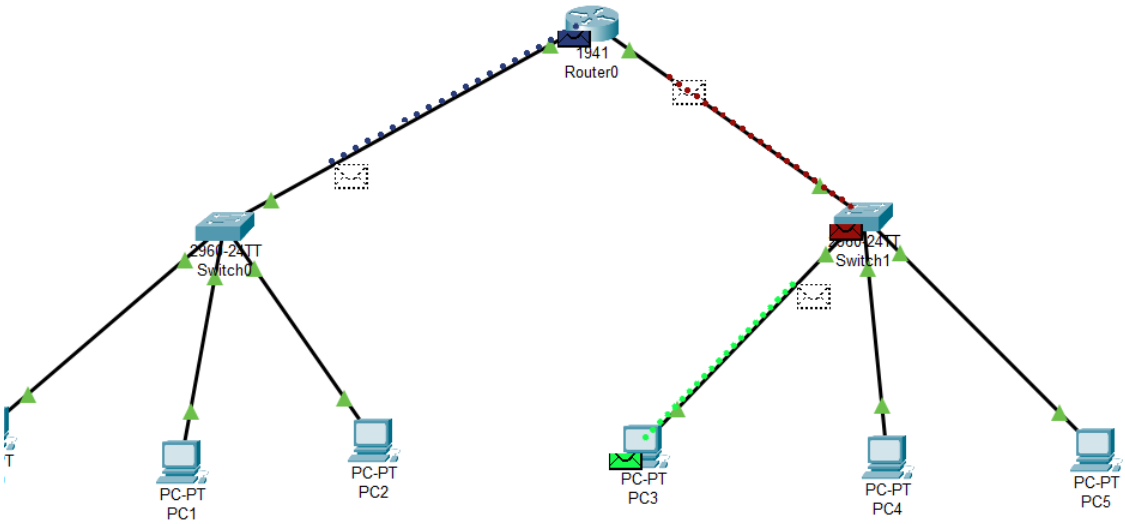
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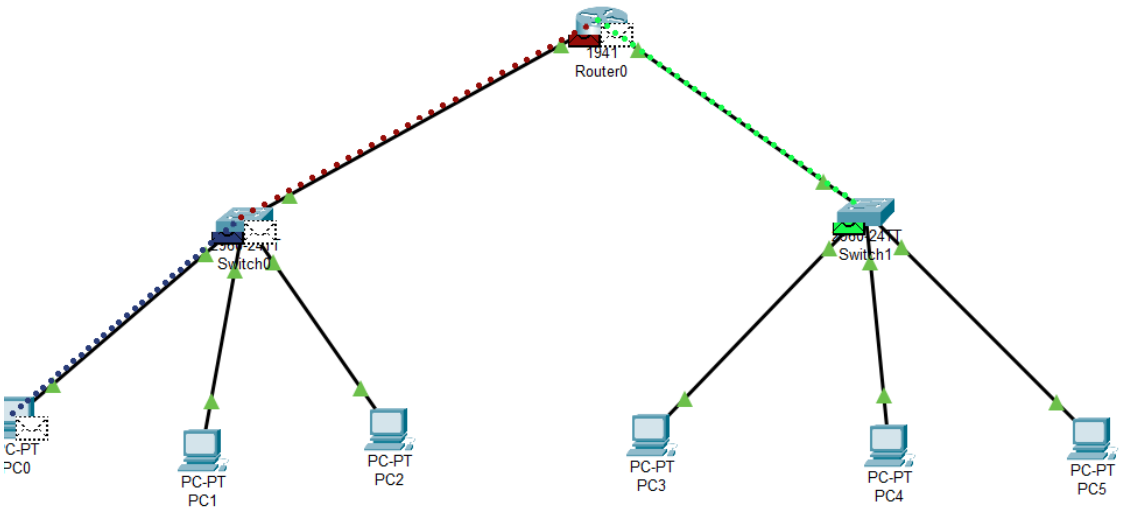
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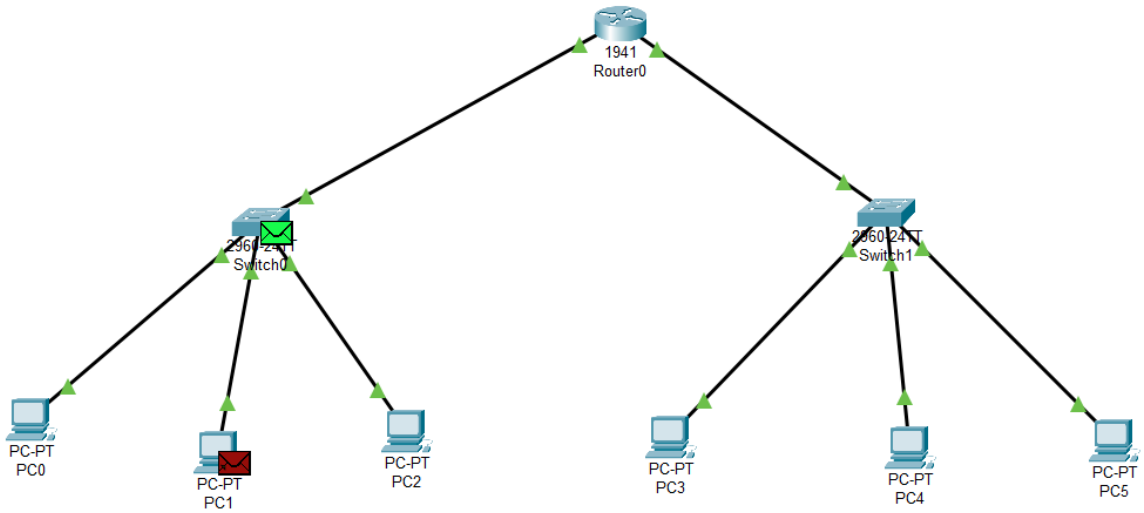
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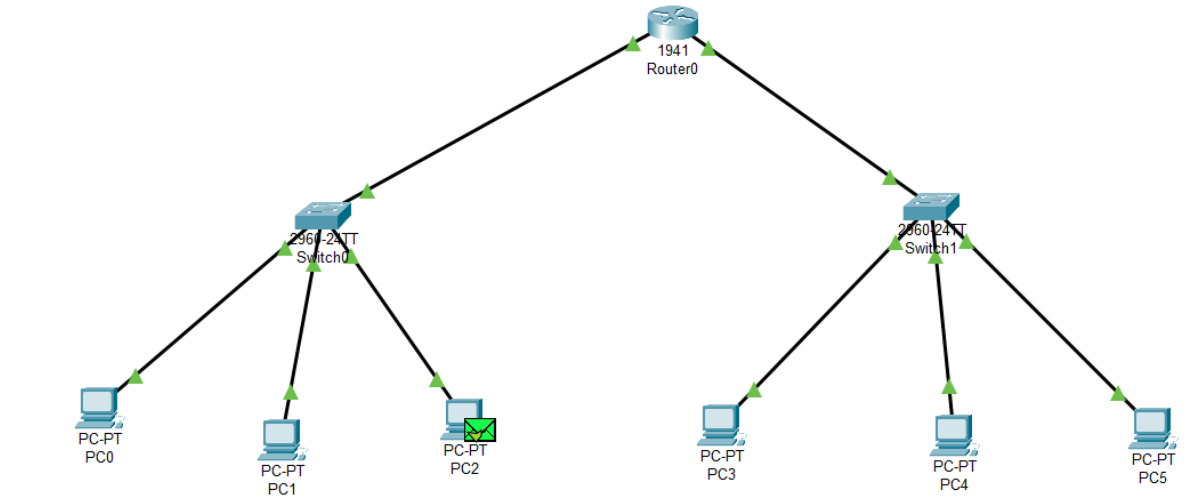

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit	Delete
	Successful	PC0	PC4	ICMP		0.000	N	0	(edit)	(delete)
	Successful	PC1	PC5	ICMP		0.000	N	1	(edit)	(delete)
	Successful	PC2	PC3	ICMP		0.000	N	2	(edit)	(delete)

Conclusion -

In this experiment, we successfully created a Local Area Network (LAN) using a network switch and a router. The objective was to understand the roles of these devices in a LAN, configure IP addresses for devices within the LAN, and set up routing to facilitate communication between devices within the LAN and external networks.