Batch: D-2	**Roll No.: 16010123325**
Experiment / assignment / tutorial No.__3___	
Grade: AA / AB / BB / BC / CC / CD /DD	
Signature of the Staff In-charge with date	

Experiment No.:3

TITLE: Building and configuring simple topology using Network tool - CISCO PACKET TRACER.

AIM: To build and configure simple network topology using CISCO Packet Tracer.

Packet Tracer is a network simulation program that allows students to experiment with network behaviour and ask "what if" questions. Packet Tracer provides simulation, visualization, and authoring, assessment, and collaboration capabilities and facilitates the teaching and learning of complex technology concepts.

Expected Outcome of Experiment:

CO:

Books/ Journals/ Websites referred:

1. http://www.google.com
2. A. S. Tanenbaum, "Computer Networks", Pearson Education, Fourth Edition
3. B. A. Forouzan, "Data Communications and Networking", TMH, Fourth Edition
4. CISCO PACKET TRACER 8.0.1 and Higher version (free download)

Pre-Lab/ Prior Concepts: Simple Network flow

New Concepts to be learned: Purpose of this lab is to become familiar with building topologies in Packet Tracer.

Stepwise-Procedure:

Creating a simple LAN network using packet tracer:
Step 1: Select two PCs (PC0 and PC1) from the end devices and one fast ethernet switch (2950/24 ports)

Step 2: Connect PCs and switch via copper cable from the panel. Connection can be verified by appearance of all green dots on the links.

Step 3: For PCs to communicate click on PC0.

- Dialog box for PC0 appears
- Click on desktop applications by packet tracer.
- Go to IP configuration.
- Enter IP address to identify host i.e. PC0 (for example: 192.168.1.1)
- Subnet mask-by default already set one can change it as per his/her specification.

Step 4: Repeat step 3 for PC1

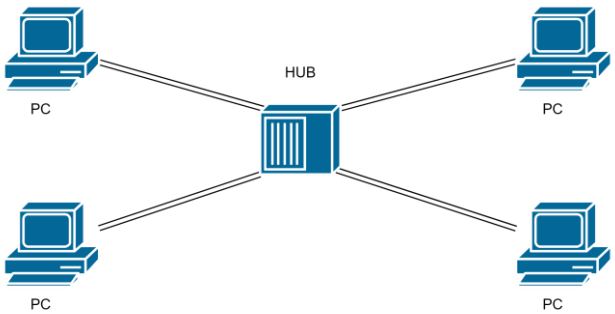
Step 5: Ping both the PCs and check their working status.

Step 6: Simple PDU (Protocol Data Unit) to simulate network traffic by sending ICMP PDU to assess the network traffic. View simulation in simulation mode

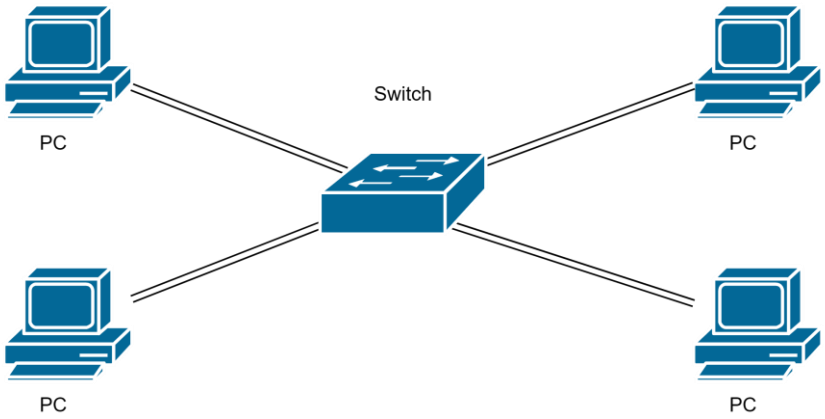
IMPLEMENTATION: (printout of simulation code)

Network Topologies:

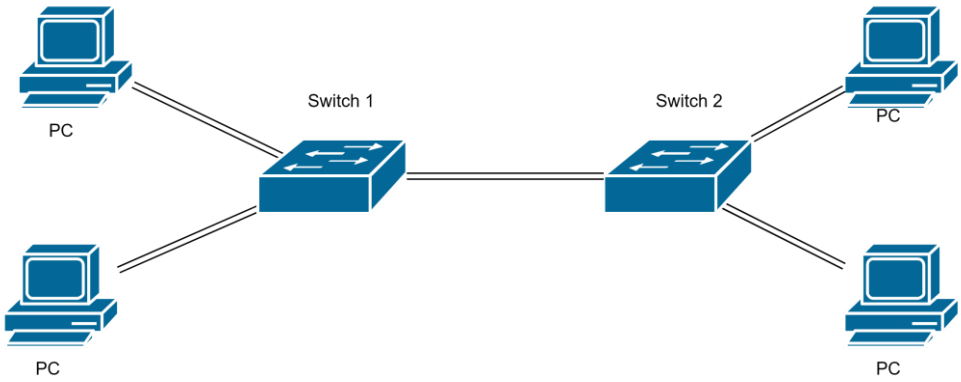
1. Topology with a HUB



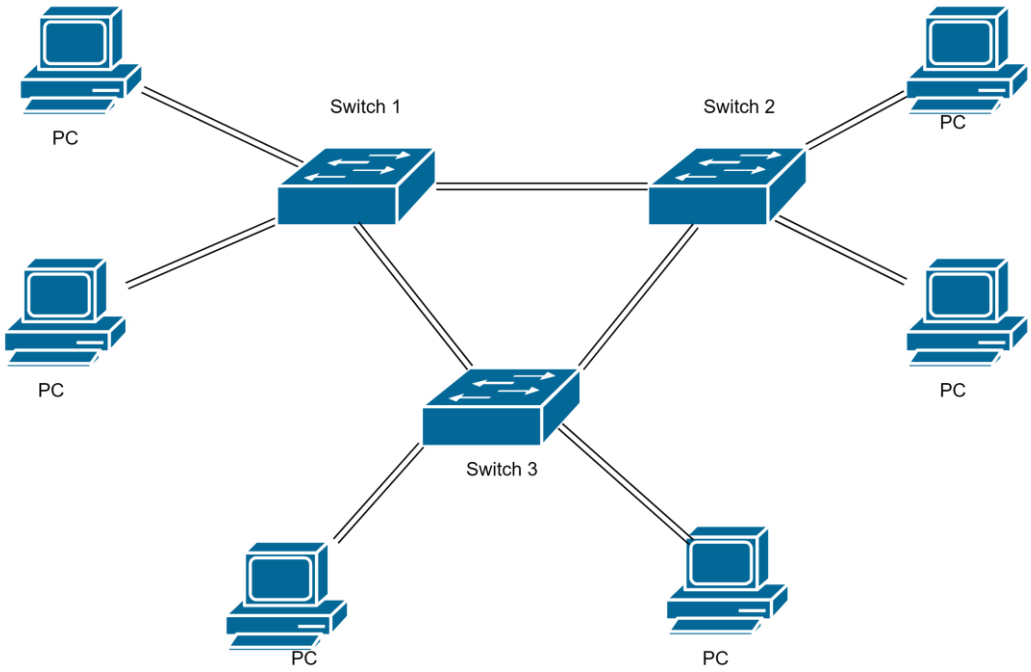
2. Topology with a Switch



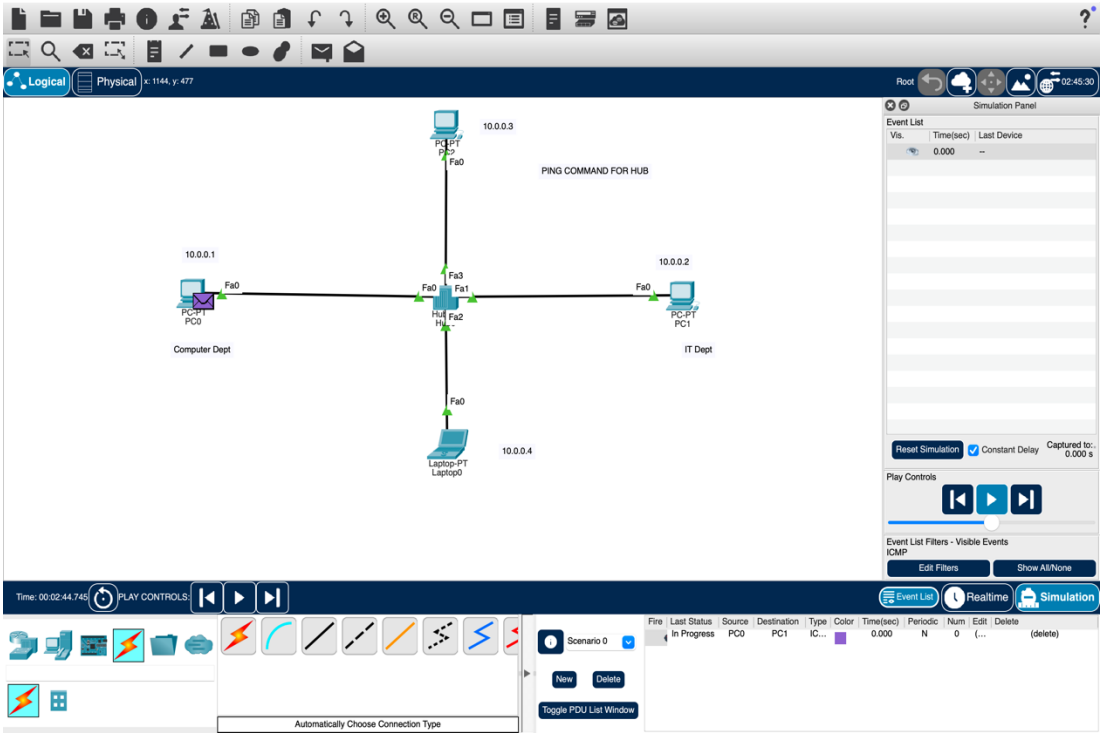
3. Topology with two switches

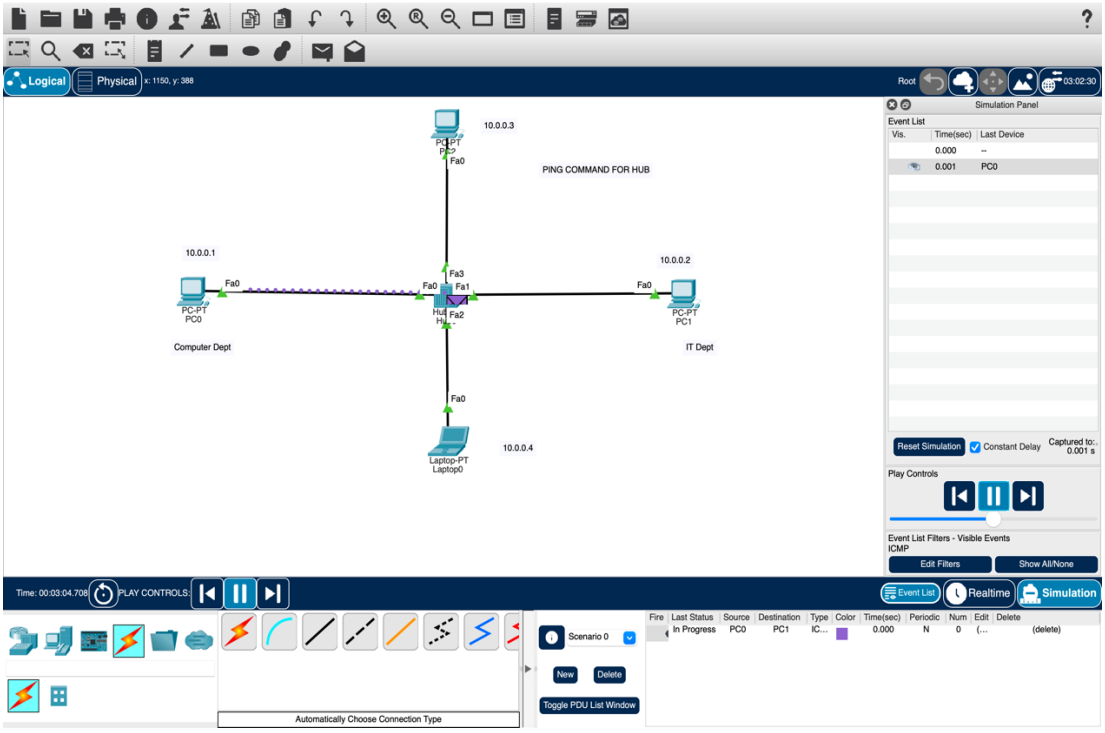


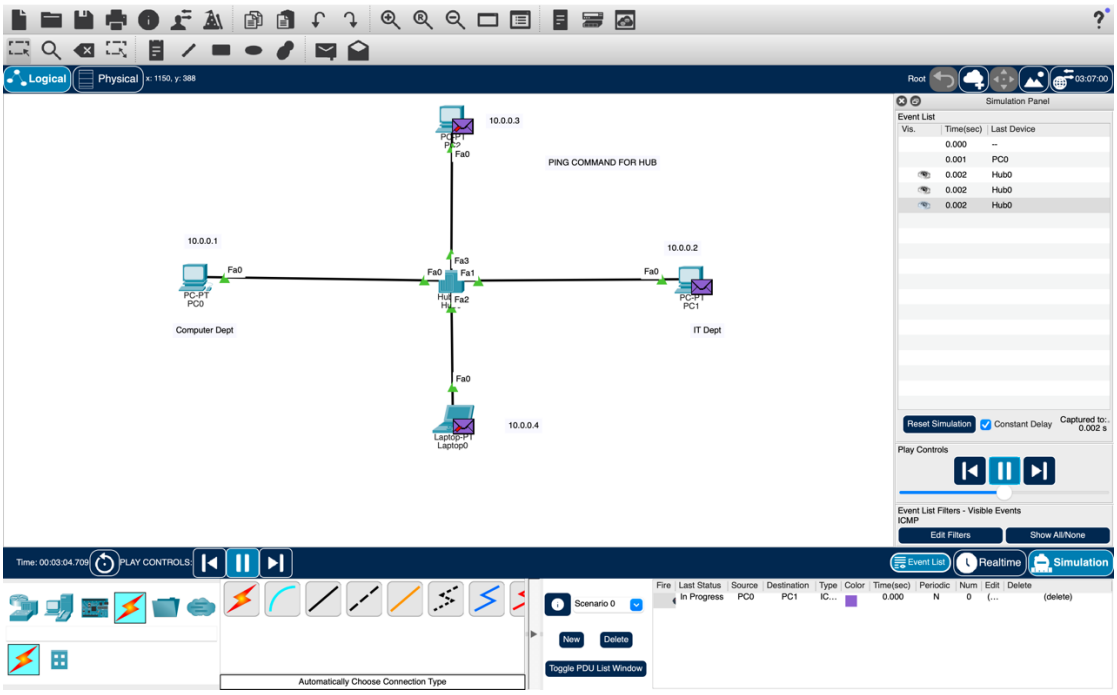
4. Topology with 3 switches in a loop (Concept of STP)


Switch 1
Switch 2
Switch 3
PC
PC
PC
PC
PC
PC

1. Topology with a HUB







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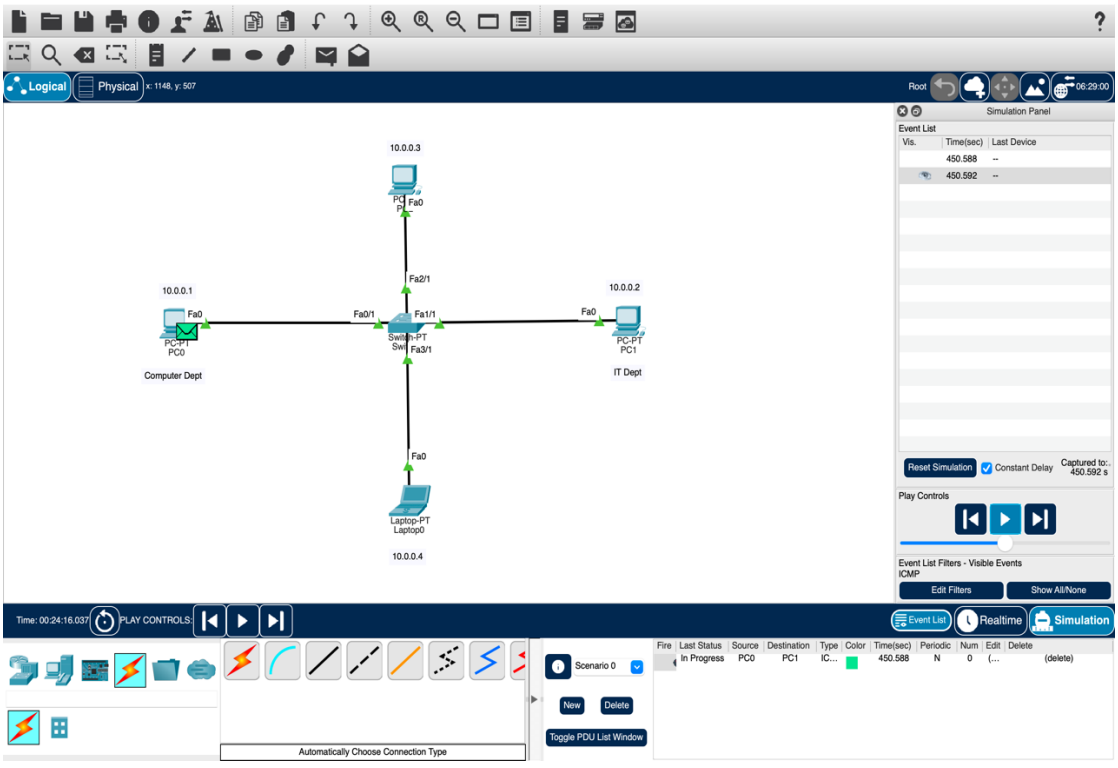
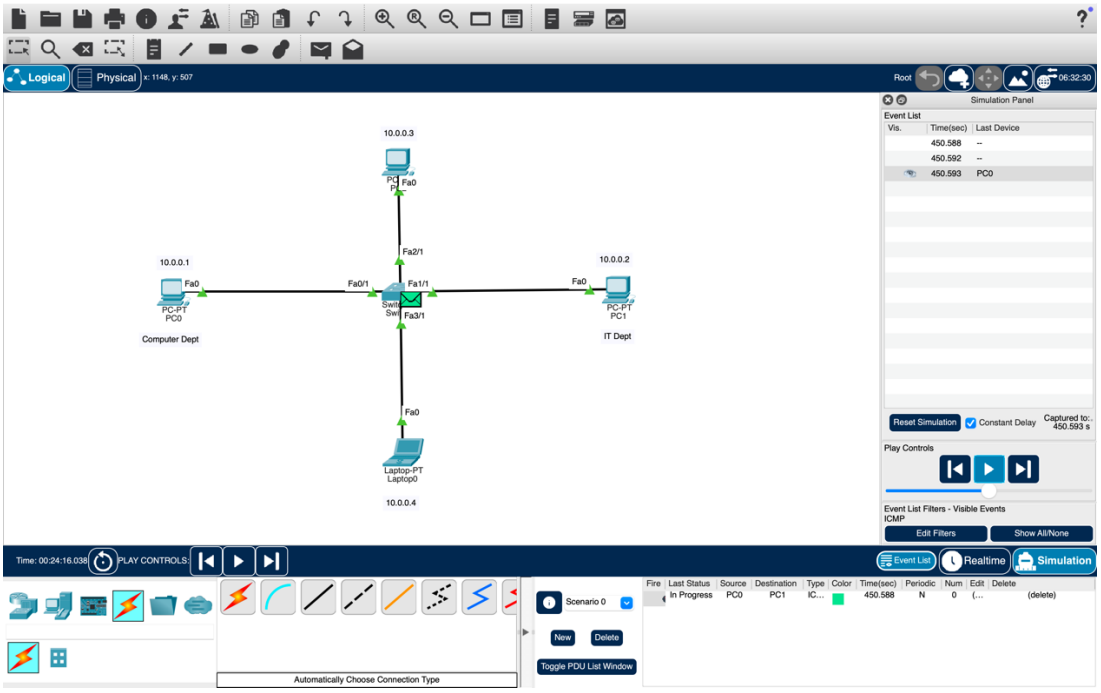
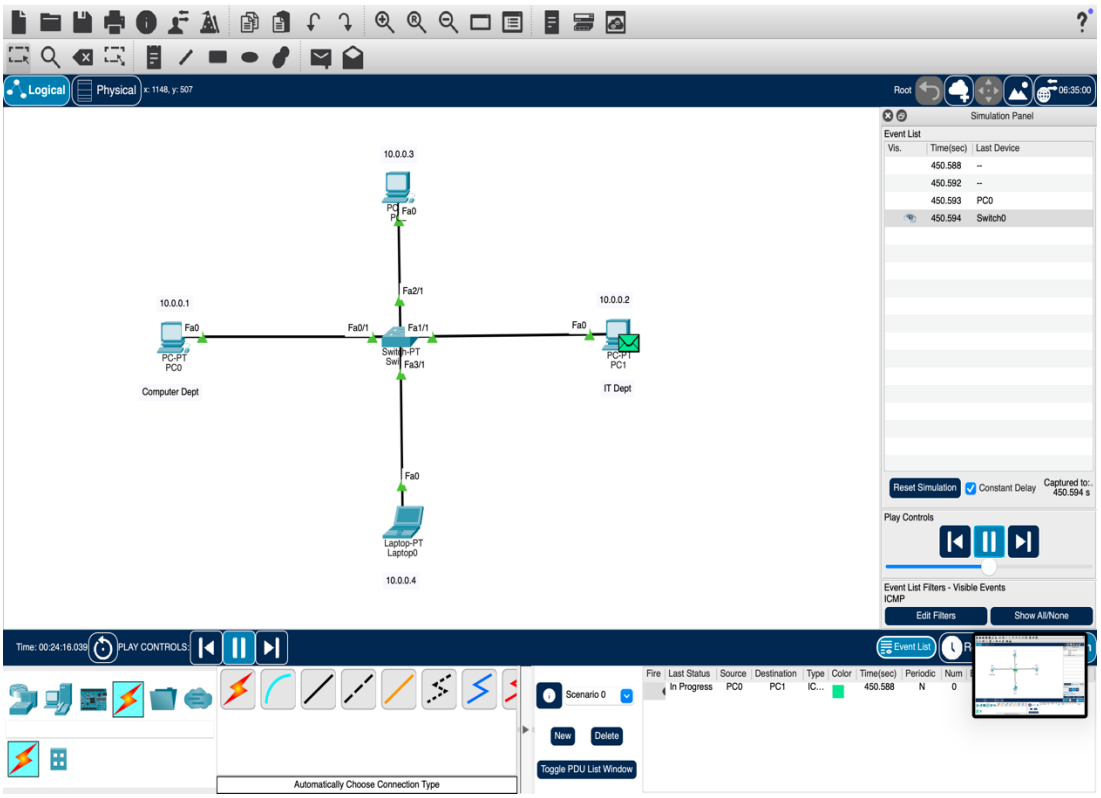



Logical
Physical
Simulation Panel
Event List
Reset Simulation
Constant Delay
Play Controls
10.0.0.3
10.0.0.1
10.0.0.2
10.0.0.4
Computer Dept
IT Dept
Laptop-PT
Laptop0
Automatically Choose Connection Type


Logical
Physical
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Reset Simulation
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Play Controls
10.0.0.3
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Computer Dept
IT Dept
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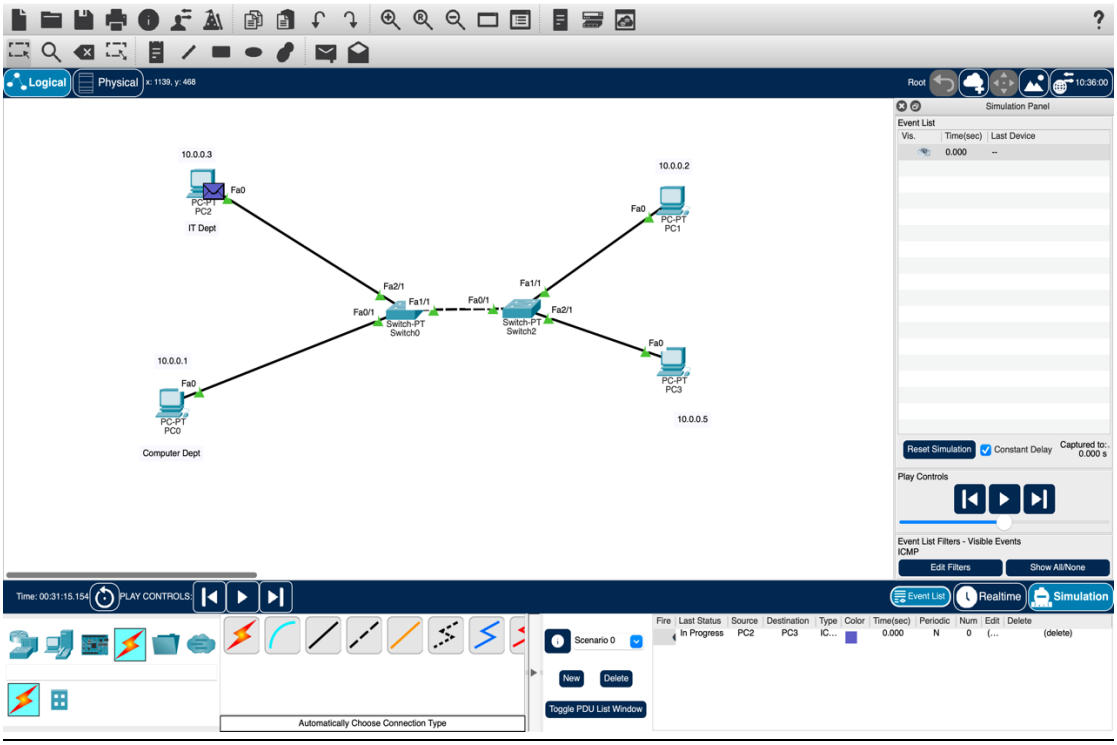
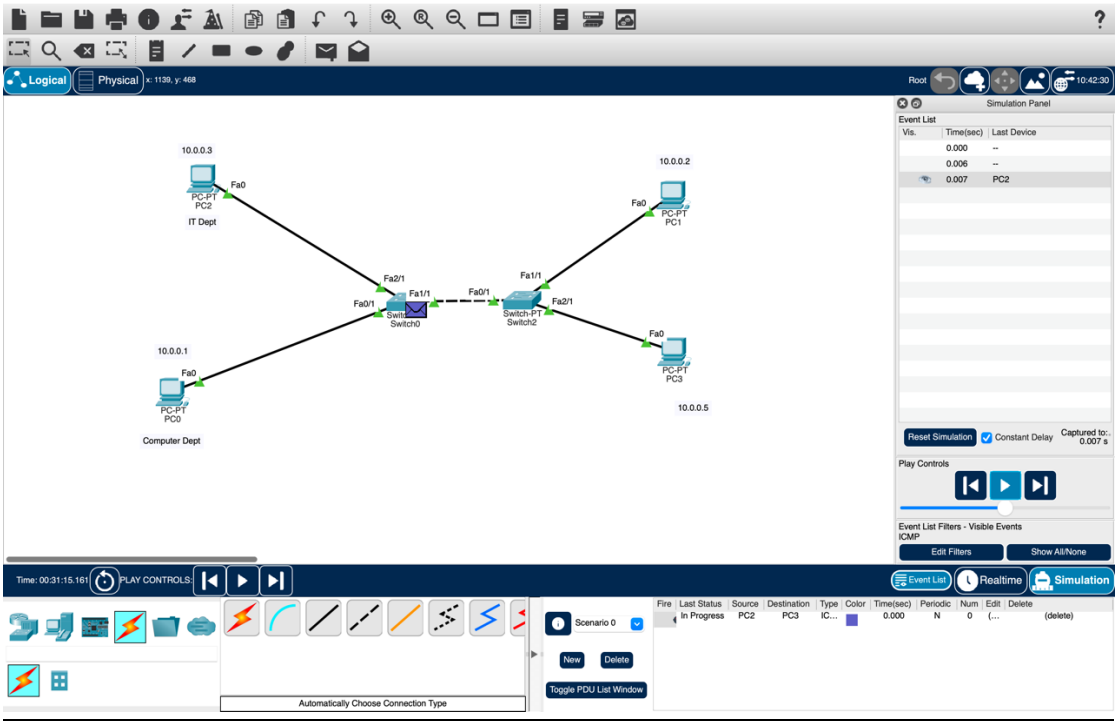
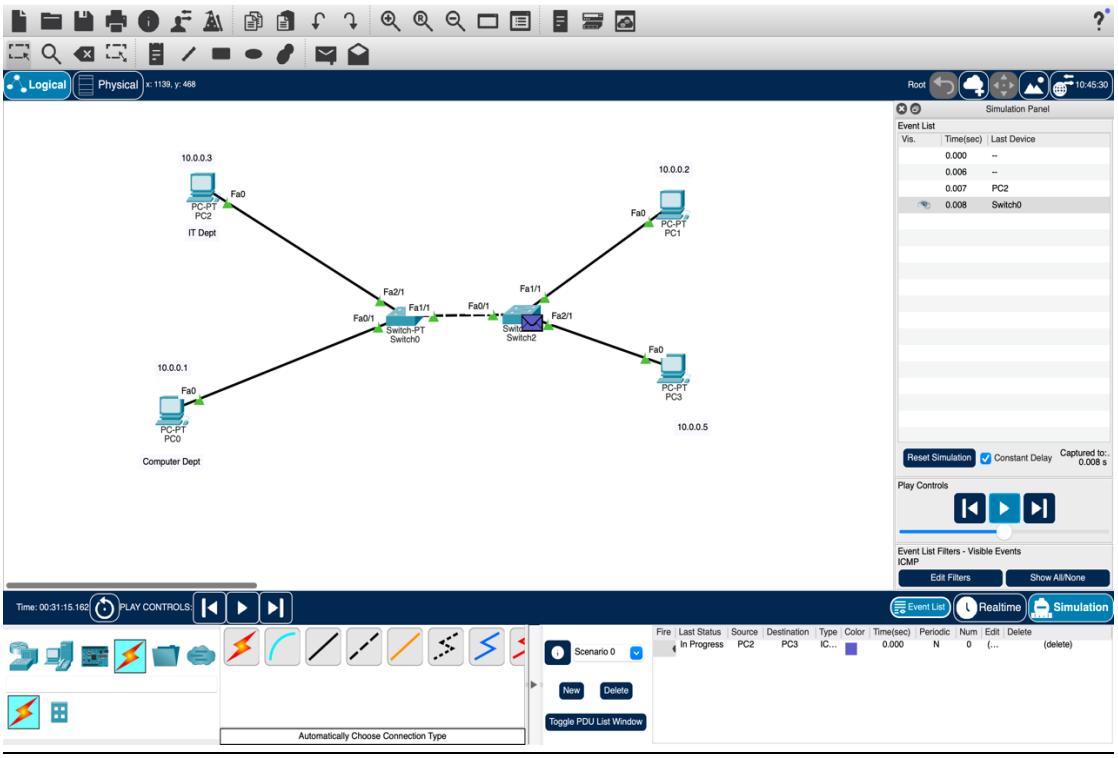
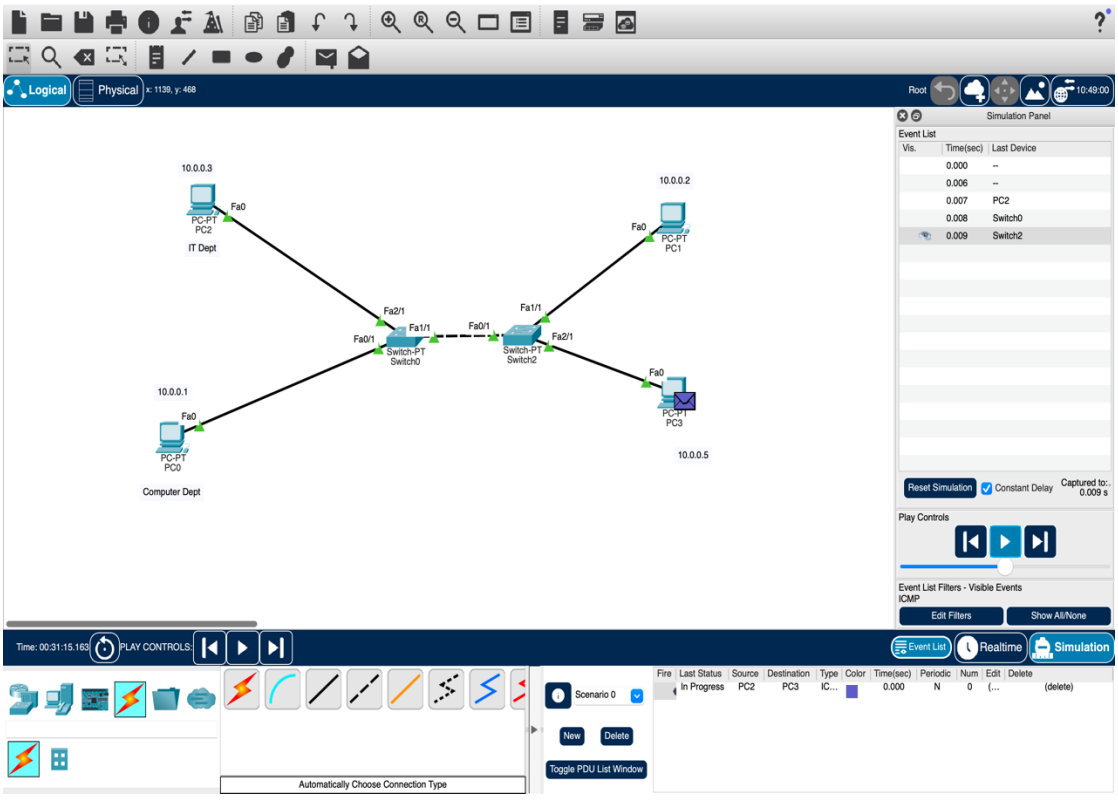
3. Topology with two switches






Logical
Physical
Root
Simulation Panel
Event List
Vis.
Time(sec)
Last Device
0.000
0.006
0.007
PC2
0.008
Switch0
10.0.0.3
PC-PT PC2
IT Dept
Fa0
10.0.0.2
PC-PT PC1
Fa2/1
Fa1/1
Fa0/1
Switch-PT Switch0
Switch-PT Switch2
10.0.0.1
PC-PT PC0
Computer Dept
PC-PT PC3
10.0.0.5
Reset Simulation
Constant Delay
Captured to:
0.008 s
Play Controls
Event List Filters - Visible Events
ICMP
Edit Filters
Show All/None
Time: 00:31:15.162
PLAY CONTROLS:
Event List
Realtime
Simulation
Scenario 0
New
Delete
Toggle PDU List Window
Automatically Choose Connection Type
Fire
Last Status
Source
Destination
Type
Color
Time(sec)
Periodic
Num
Edit
Delete
In Progress
PC2
PC3
0.000
N
0
(delete)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Switch2
10.0.0.3
PC-PT PC2
IT Dept
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PC-PT PC1
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(delete)

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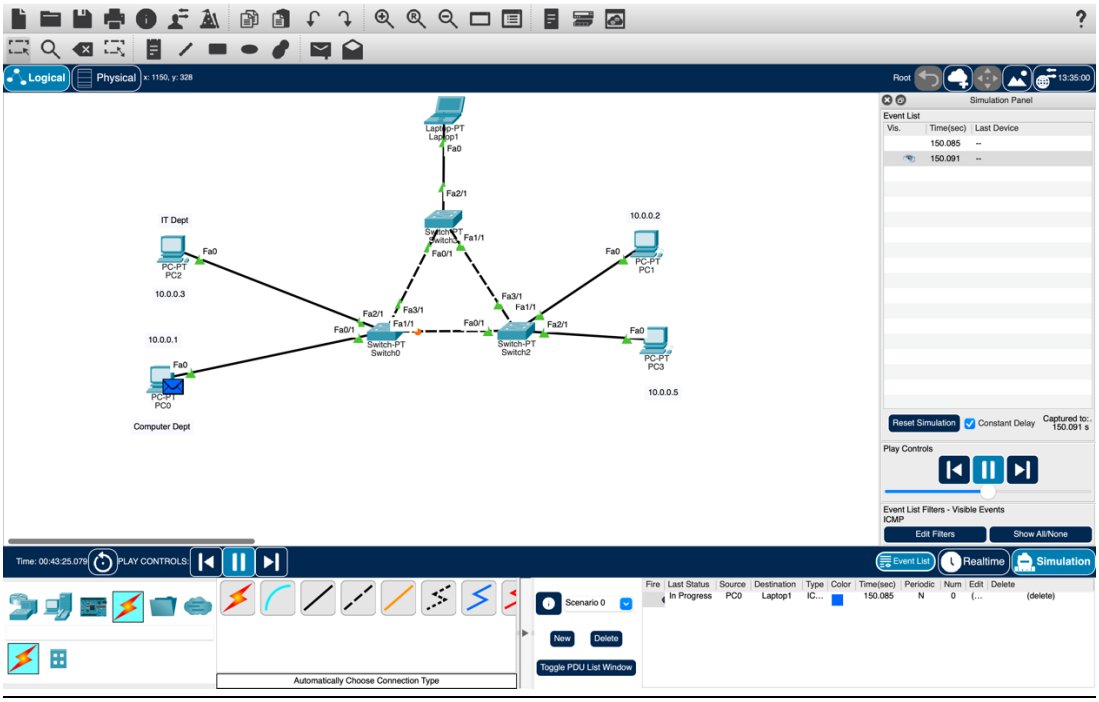

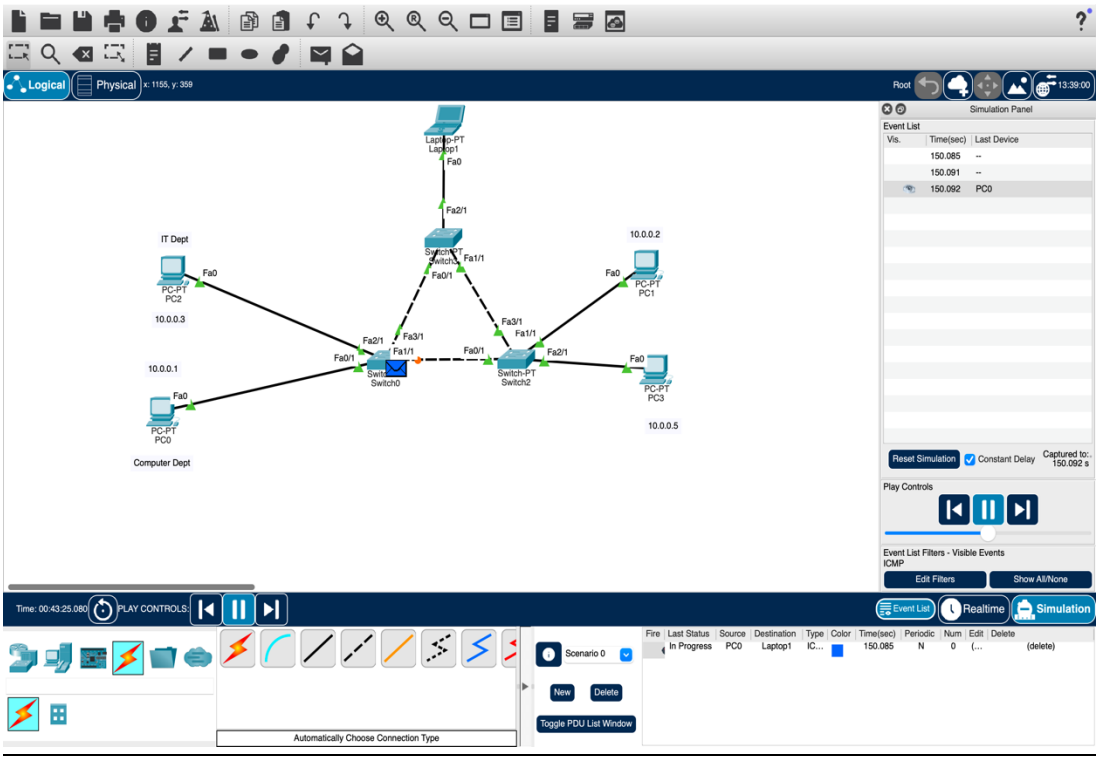

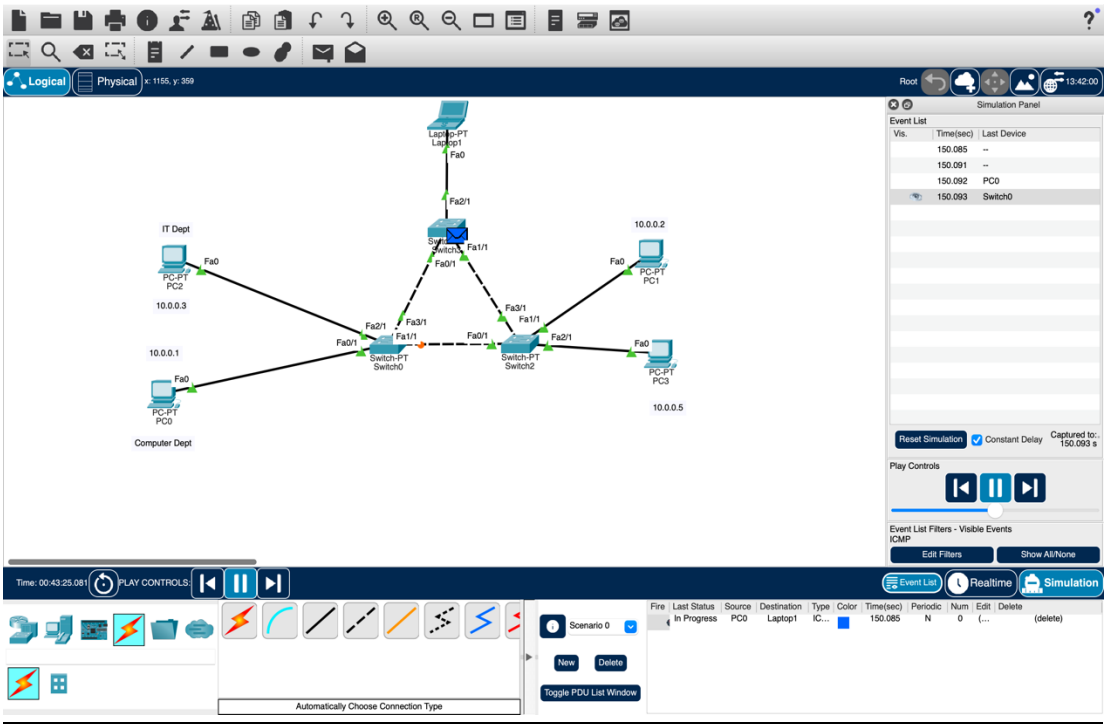
Logical
Physical
Root
Simulation Panel
Event List
Vis.
Time(sec)
Last Device
150.085
150.091
150.092 PC0
150.093 Switch0
IT Dept
Computer Dept
PC-PT PC2
PC-PT PC1
PC-PT PC3
PC-PT PC0
Switch-PT Switch0
Switch-PT Switch2
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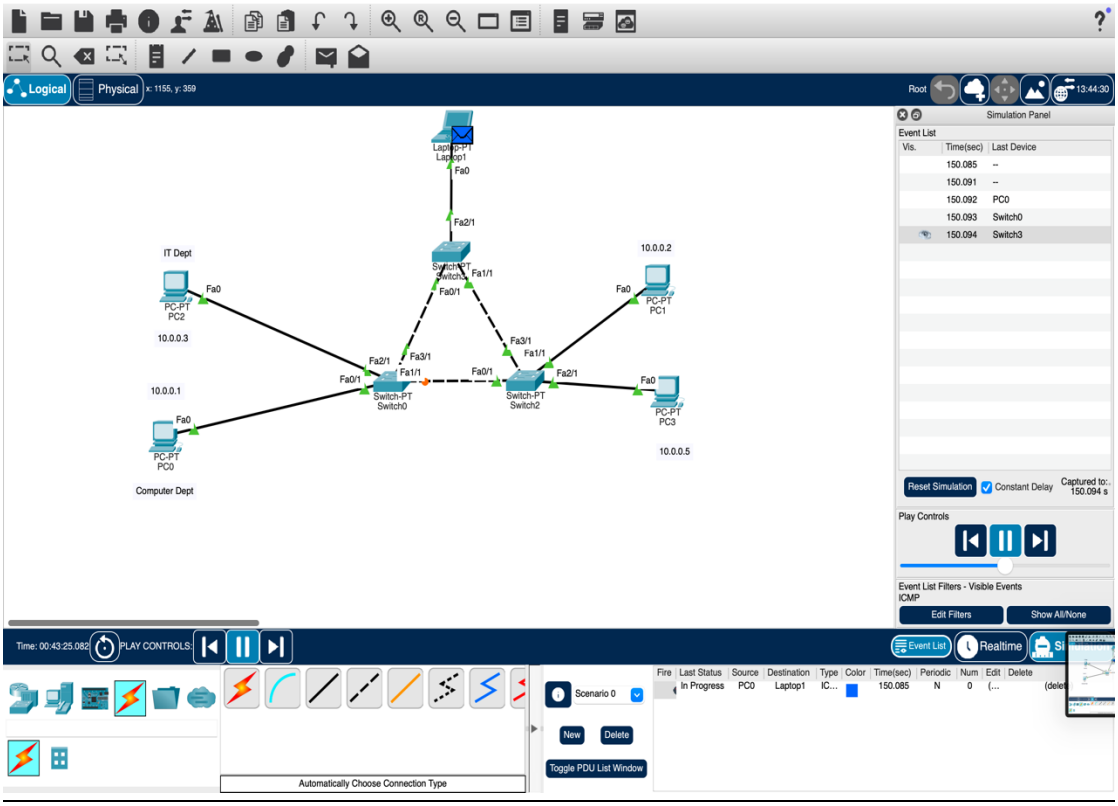
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CONCLUSION:

Cisco Packet Tracer enables hands-on learning by allowing users to easily build, configure, and simulate simple network topologies.

Post Lab Questions

1. List features of CISCO packet tracer.

- Simulates real network environments using drag-and-drop interface.
- Supports a wide range of Cisco devices and configurations.
- Offers real-time and simulation modes to observe packet flow.
- Allows multi-user collaboration for network design.
- Includes assessment and activity wizards for learning tasks.
- Provides a platform to practice CLI (Command Line Interface) skills.
- Supports IoT devices and programming with Python and JavaScript.

2. Explain difference between working of a Hub and a Switch in a given topology.

Feature	Hub	Switch
Function	Broadcasts data to all connected devices	Sends data only to the intended recipient device
Intelligence	No filtering or learning of MAC addresses	Learns MAC addresses and creates a MAC address table
Efficiency	Causes network congestion due to unnecessary traffic	Reduces traffic by sending data to specific ports
Layer	Operates at OSI Layer 1 (Physical)	Operates at OSI Layer 2 (Data Link)
Speed	Slower due to data collisions	Faster with full-duplex and collision-free communication

Date: _____ Signature of faculty in-charge