CERTIFICATE

This is to certify that Mr./Ms. .....HEMIL…CHOVATIYA..... with enrolment no. .....200303108003..... has successfully completed his/her laboratory experiments in the COMPUTER NETWORKS (20310525255) from the department of .....Information Technology(4ITA1)…….. during the academic year .....2021-2022.....

Date of Submission: .....

Staff In charge: .....

Head of Department: .....

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PRACTICAL:1

AIM: Experiments on Simulation Tools: (CISCO PACKET TRACER)

INTRODUCTION:

- Packet Tracer is a cross-platform visual simulation tool designed by Cisco systems that allow users to create network topologies and imitate modern computer networks
- Packet Tracer makes use of a drag and drop user interface, allowing users to add and remove simulated network devices as they see fit.
- Packet Tracer supports an array of simulated Application Layer protocols, as well as basic routing with RIP, OSPF, EIGRP, BGP, to the extents required by the current CCNA curriculum.
- Packet Tracer allows students to design complex and large networks, which is often not leasible with physical hardware, due to costs. Packet Tracer is commonly used by CCNA Academy students, since it is available to them for free.
- **Workspace**: workspace This is the main area where the devices are placed, designed and different information like router Name, interface names etc are seen
- **Network Component Box**: in this space you see all the devices and connections (Cables types) You can select the Device type ie router, switch etc and in the nearby bax, select the specific version of router or switch e g. 1841, 2620XM
- **Real-time Simulation Bar**: This is a toggle bar where you can move between Real time and Simulation mode. You can capture, forward, play packets using the simulation Mode
- We have dragged the devices le Router, Switch and PC on the man workspace and then put the interfaces for connectivity. The Green dots show that the connectivity is up
- In the network scenario, click on the PC and you get a window where you can configure the IP address Click on IP Configuration Option.

TOPOLOGY:

- Topology defines the structure of the network of how all the components are interconnected to each other. There are two types of topology: physical and logical topology.
- Physical topology is the geometric representation of all the nodes in a network.

Types of Topology:

1. Bus Topology
2. Mesh Topology
3. Star Topology
4. Ring Topology
5. Tree Topology
6. Hybrid Topology

1. Bus Topology:

Procedure:

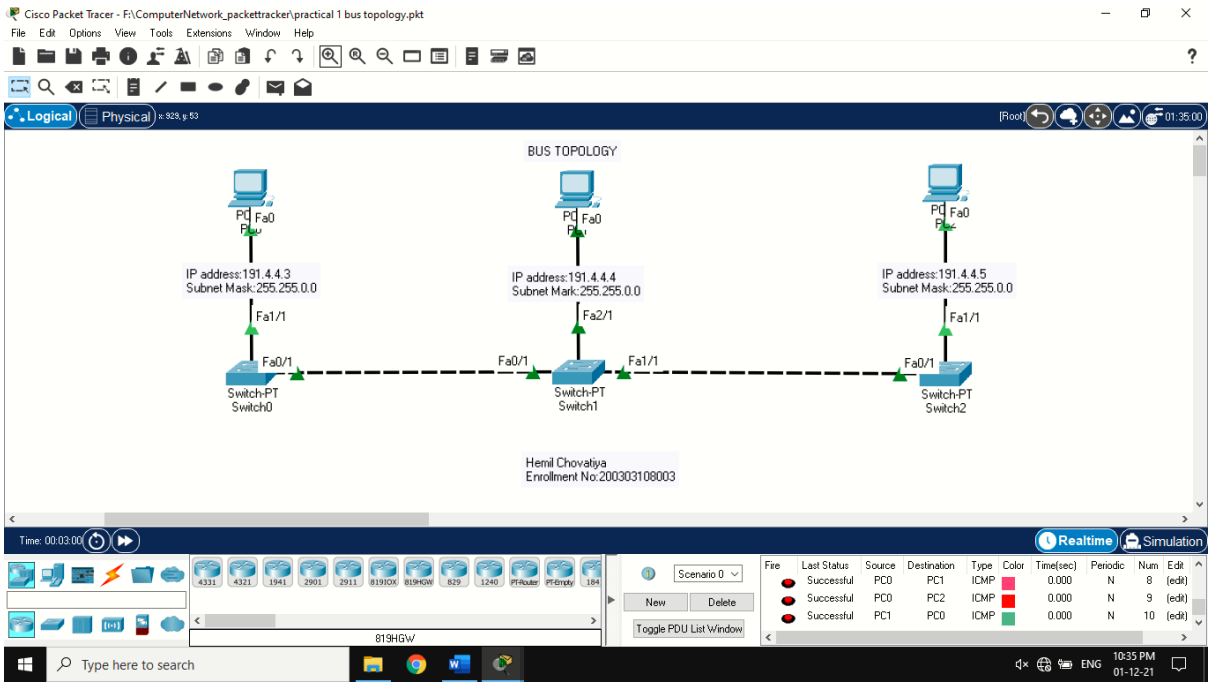
Step 1: Take 3 switches and 3 pc.

Step 2: Assign each pc to its individual switch

Step 3: Connect pc's in a vertical manner with copper straight-through wire and every switch connect with copper cross-over wire.

Step 4: Assign IP Address to every pc.

Step 5: Send the packet one pc to another pc.



2. Mesh Topology:

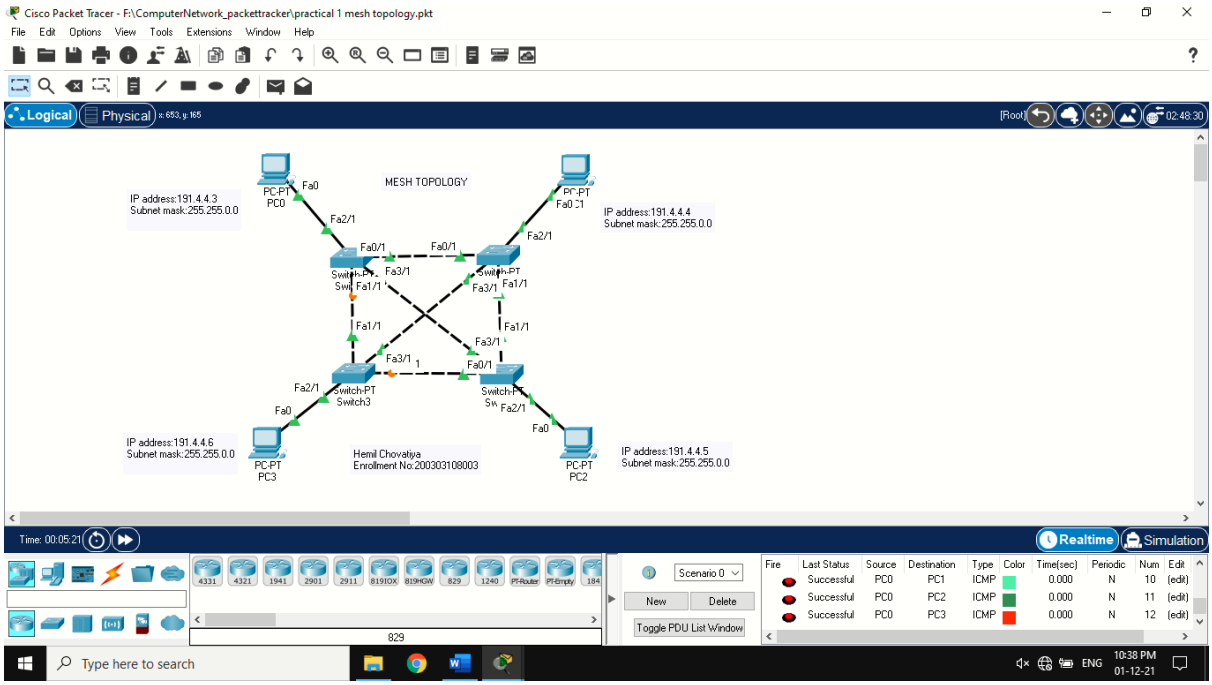
Procedure

Step 1: Take 4 switches and 4 PC.

Step 2: Connect pc's individual switch with copper straight-through wire and every switch connect with copper cross-over wire.

Step 3: Assign IP Address to every pc.

Step 4: Send the packet one pc to another pc



3. Star Topology

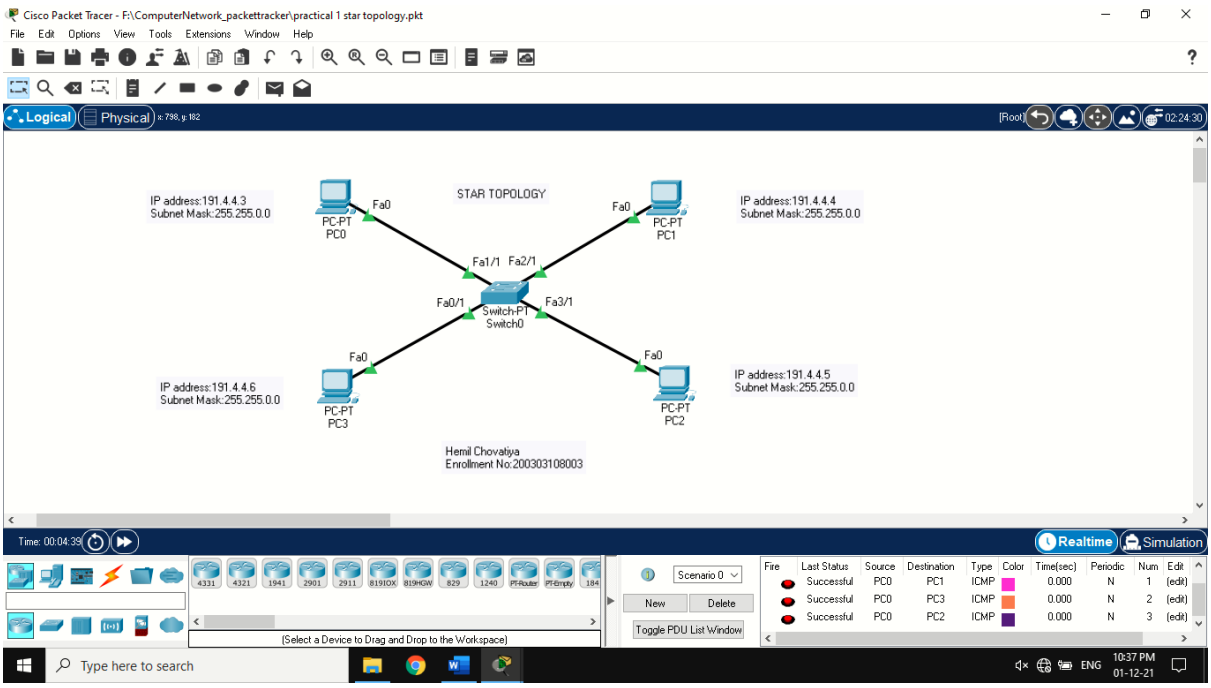
Procedure

Step 1: Take 1 switches and 4 pc.

Step 2: Connect pc's main switch with copper straight-through wire.

Step 3: Assign IP Address to every pc.

Step 4: Send the packet one pc to another pc



4. Ring Topology

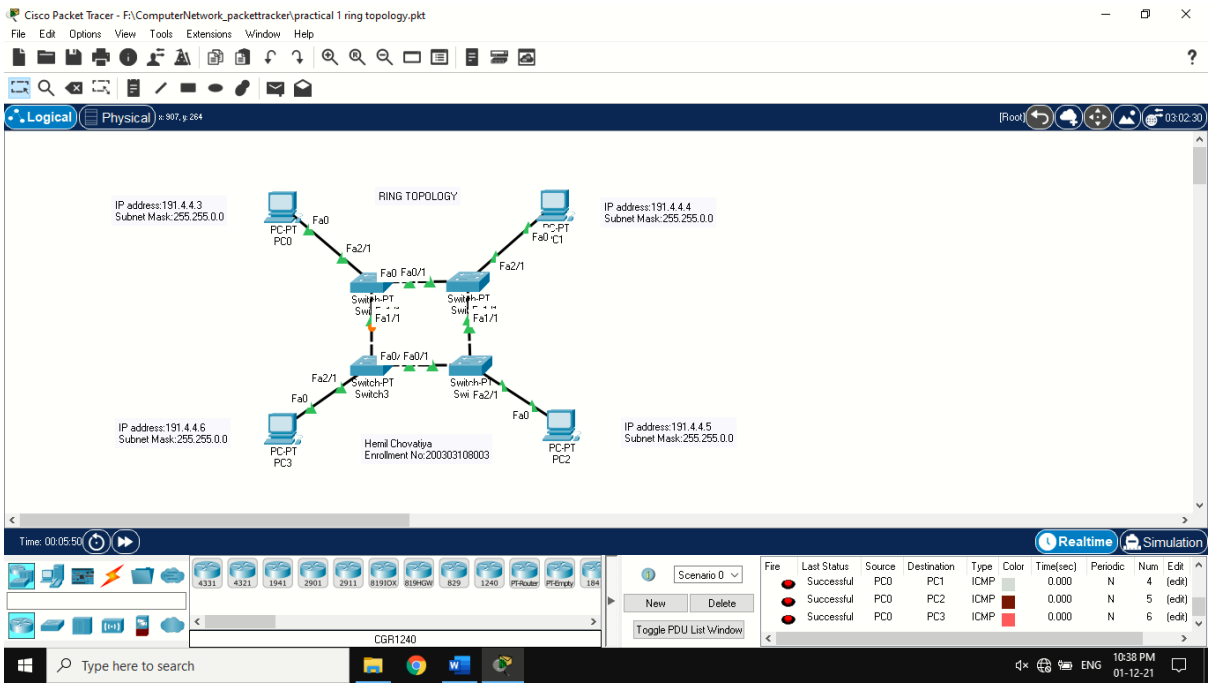
Procedure

Step 1: Take 4 switches and 4 PC.

Step 2: Connect pc's individual switch with copper straight-through wire and every switch connect with copper cross-over wire.

Step 3: Assign IP Address to every pc.

Step 4: Send the packet one pc to another pc.



5. Tree Topology

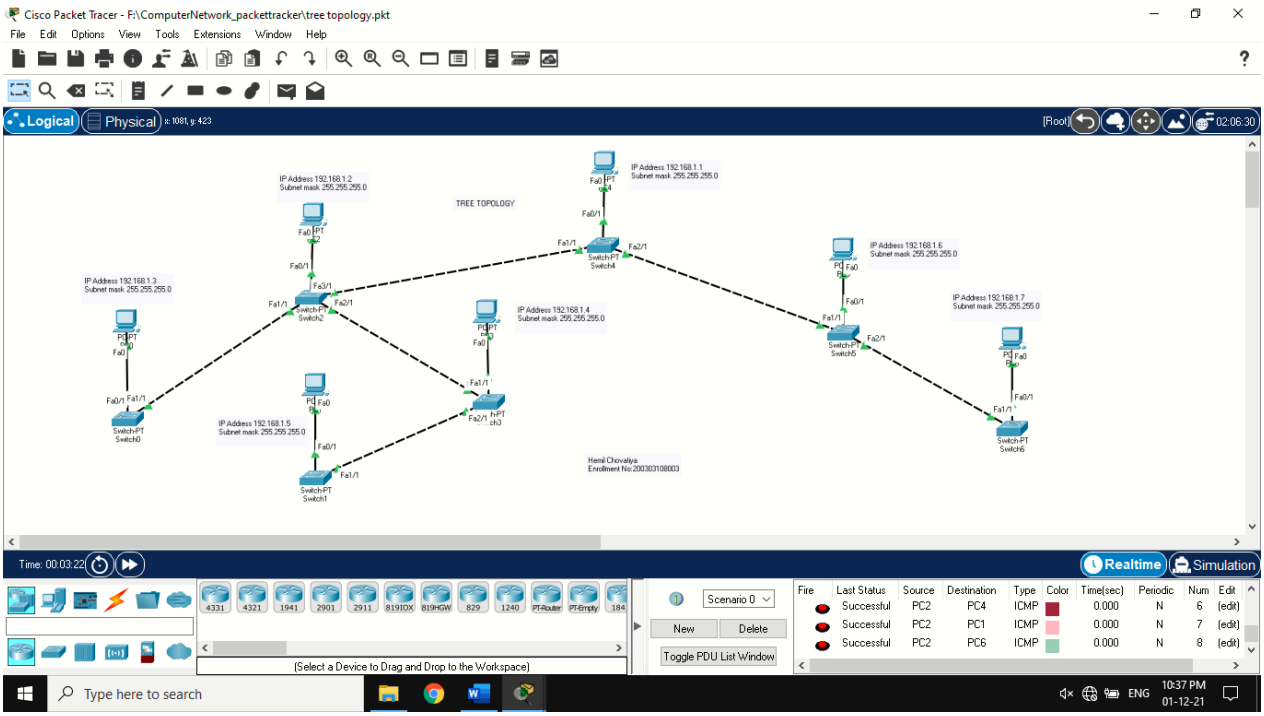
Procedure

Step 1: Take 7 switches and 7 PC.

Step 2: Connect pc's individual switch with copper straight-through wire and every switch connect with copper cross-over wire.

Step 3: Assign IP Address to every pc.

Step 4: Send the packet one pc to another pc.



6. Hybrid Topology

Procedure

- For bus topology

  Step 1: Take 3 switches and 3 PC.

  Step 2: Connect pc's individual switch with copper straight-through wire and every switch connect with copper cross-over wire.

  Step 3: Assign IP Address to every pc.

- For star topology

  Step 1: Take 1 switches and 3 PC.

  Step 2: Connect pc's main switch with copper straight-through wire.

  Step 3: Assign IP Address to every pc.

- Combine both topology with copper-crossover wire ➢ Send the packet one topology's pc to another.