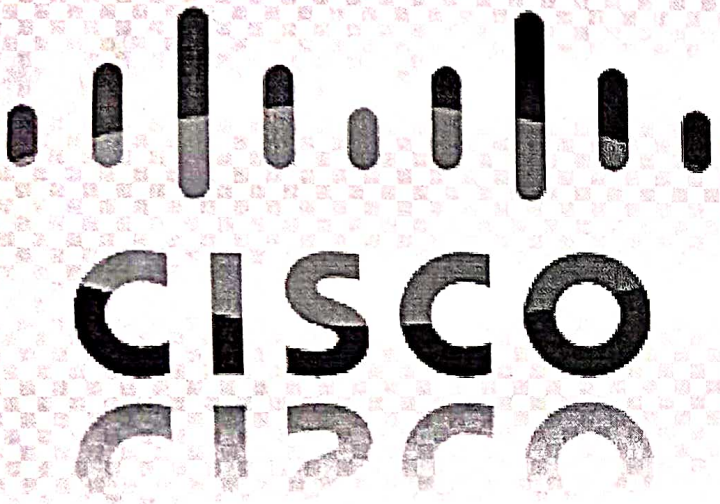

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Experiment - 1.a

Objective : Introduction to Network simulator CISCO Packet tracer.

Theory :- Cisco-Packet Tracer is a widely-used network simulation tool that helps network ~~simulation to~~ professionals to design, configure, and troubleshoot network in a safe, virtual environment. This tool simulates network protocols and devices, allowing users to experiment with different network topologies, configurations, and scenarios without needing physical hardware.

Cisco Packet Tracer gets used by network professionals, students, and educators.

Features of Cisco Packet Tracer:

- Supports multiple protocols and technologies such as TCP/IP, OSPF, EIGRP, BGP.
- Provides a comprehensive set of networking tools
- Includes a range of network devices and topologies
- Allows for multi-user collaboration.
- Provides a safe and virtual environment for network experimentation
- Reduces the need for physical hardware
- Helping to develop essential network skills and knowledge.

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Installation:

Step1. Visit the Cisco Networking Academy website at netacad.com.

Step2. Log in OR create an account if new user.

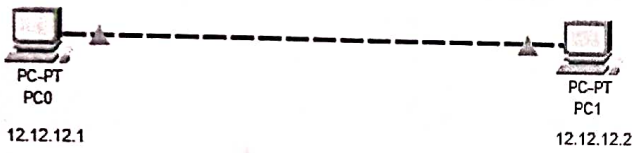
Step3. Click on the "Resources" tab at the top of the page.

Step4. Click on "Packet Tracer" in drop down menu.

Step5. Click on "Download Packet Tracer".

Step6. Select the Packet Tracer version and click "Download".

Result: Understood the benefits and features of Cisco packet tracer and installed it Succesfully.



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Experiment 1.b

Objective: Establish Peer to Peer Network.

Required tools: Cisco Packet Tracer.

Theory: A peer-to-peer network is a distributed network architecture where all connected devices, or "peers", have equal status and can communicate directly with each other without ~~saying~~ relying on a central server. Each device in the network can both request and provide resources, services or information to other devices. This decentralized structure enables efficient sharing of data, files and computing resources among peers without the need for centralized authority or infrastructure.

Procedure:

Step1. Launch the cisco packet Tracer application on our computer.

Step2. Started by creating a new network topology by dragging routers, switches, PCs, or other network devices onto the workspace.

Step3. Connect the devices using appropriate cables. For P2P network, we typically connets PCs using Ethernet

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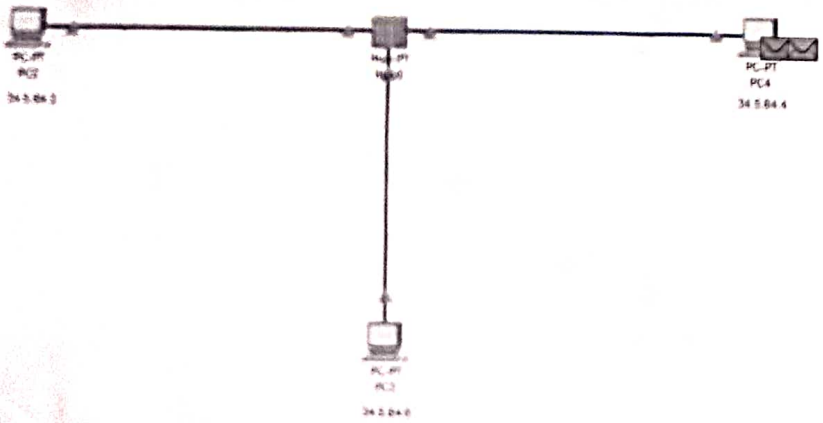
cables

Step4. ~~Configure~~ Assign IP address to each PC in the network. Go to each PC's configuration and set the IP address, subnet mask and default gateway. IP network are different and subnet mask are same for each PC.

Step5. We can test connectivity between the PCs by pinging each other's IP address. Type "ping (PC's IP)" in command Prompt.

Result: Successfully established Peer-to-Peer network in Cisco Packet Tracer.



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Experiment - 2

Objective: To establish a network using switch and hub.

Required tool: Cisco Packet Tracer.

Theory:

Switch

1. Efficiently forwards data packets to their intended destinations based on MAC address, reducing network congestion & improving performance.

2. Creates dedicated communication paths between devices, allowing simultaneous data transmission without interference, thereby enhancing network reliability.

Hub

1. Broadcasts incoming data to all connected devices indiscriminately, lacking the ability to target specific recipients, which can lead to unnecessary traffic & network slowdowns.

2. Operates at the Physical layer of OSI model, simply repeating incoming signals to all connected devices, without the intelligence to filter or manage data traffic efficiently.

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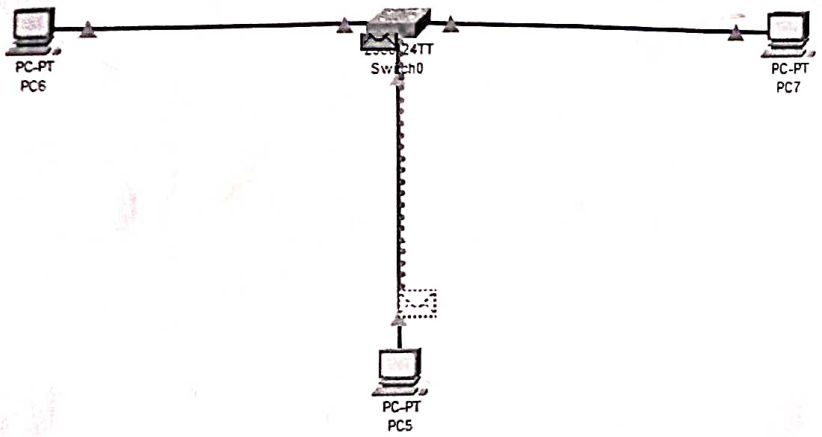

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Procedure:

Step1. Open Cisco Packet Trace.

Step2. Start a new topology by dragging hub/Switch and PCs onto the workspace.

Step3. Connect the PCs to the hub/Switch using Ethernet cables

Step4. Make sure that all devices are powered on

Step5 Go to each PC's configuration and set the IP address and subnetmask.

Step6. Test connectivity between PCs.

Result: Successfully established the connections through hub and switch with PCs and understood the working through stimulation.

CLASSTIME