EXPERIMENT – 3.3 (Mini Project)

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Branch: BE-CSE **Section/Group: KRG_IOT-3A**

Semester: 5 **Date of Performance: 29-10-2024**

Subject Name: Computer Networks Lab **Subject Code: 22CSH-312**

1. **Aim:**

   Create a Simple Network Using Packet Tracer.

2. **Objective:**

   Understand Routing Mechanism. To establish a reliable and secure Local Area Network (LAN) by configuring IP addresses, subnet masks, and default gateways, enabling efficient communication, resource sharing, and internet access among connected devices.

3. **Input/Apparatus Used:** Cisco Packet Tracer or NS2

4. **Github Link:** https://github.com/nikkhilmaurya/Computer-Network-Minor-Project

5. **Theory:**

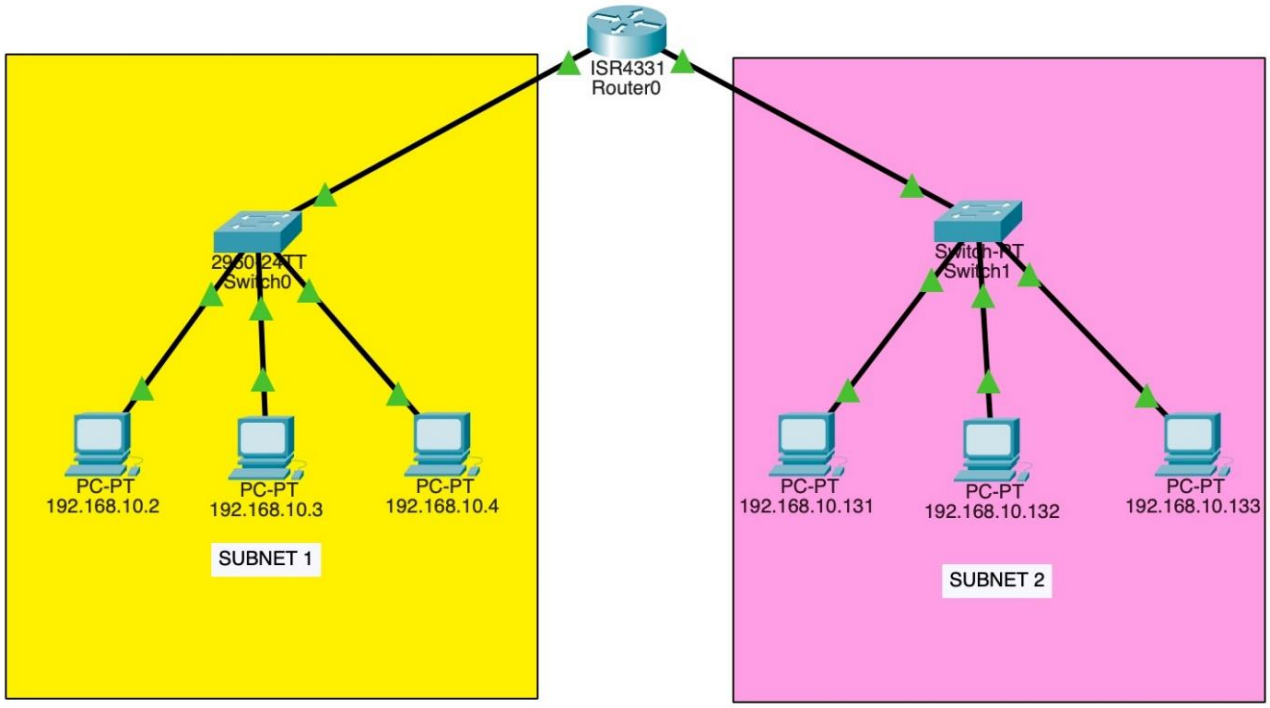
   A subnet, or subnetwork, is part of a larger network. Subnets divide an IP network into smaller, logical components. The Internet Protocol (IP) enables data transmission between computers over the internet. Each computer, or host, on the internet has at least one unique IP address. A gateway acts as an intermediary device that routes traffic from a local network to other networks, such as the internet or other subnets.

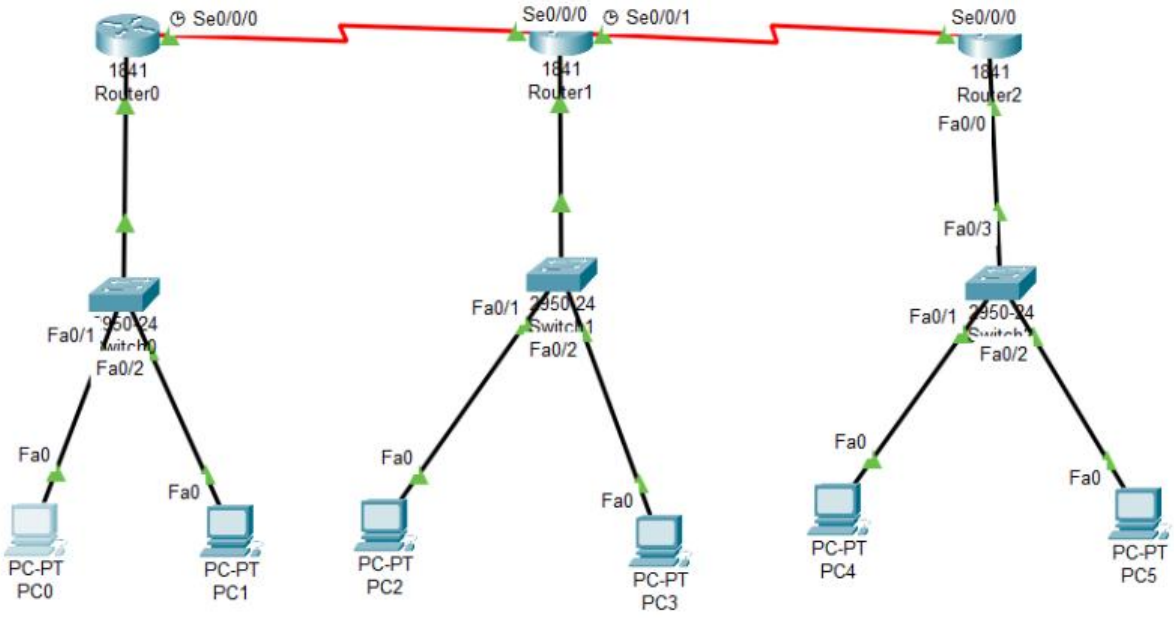
6. **Procedure:**

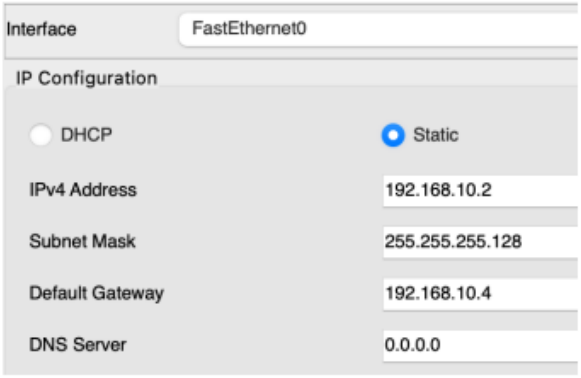
   1) Open Cisco Packet Tracer.

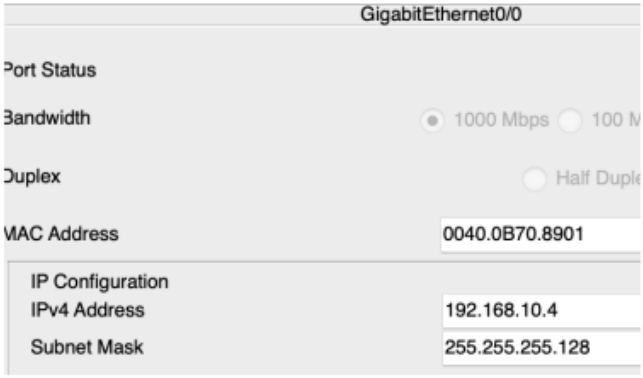
2) Add devices like PCs, switches, and routers to the workspace.
3) Connect devices using the appropriate cables (Straight-Through for PC to switch, CrossOver for similar devices).
4) Configure IP addresses on each PC by clicking on the device, navigating to the Desktop tab, and setting the IP address, subnet mask, and default gateway.
5) Optionally configure the switch using the CLI to enable ports or set up VLANs.
6) Test connectivity between devices using the Ping tool from the Desktop tab of each PC.
7) Troubleshoot any issues by checking cable connections, IP configurations, and ensuring there are no IP conflicts.

7. Outcome:









8. Learning Outcomes:

- Learned how subnets partition larger networks.
- Understood the role of IP addresses in network identification.
- Learned the significance of subnet masks for defining network size.
- Understood the gateway's role in connecting different networks.
- Learned how to configure devices with IP, subnet mask, and gateway.