Experiment 4

Student Name: Zatch **UID:**
Branch: BE-CSE **Section/Group:**
Semester: 5th **Date of Performance:**
Subject Name: Computer Networks **Subject Code: 22CSH-312**

1. **Aim:** Configure and Understand working of network devices Hub, Switch, Routers

2. **Objective:** The objective of this experiment is to configure and understand the operational roles and functions of network devices such as hubs, switches, and routers in a network environment.

3. **Requirements:** Packet Tracer.

4. **Procedure:**

Step 1. Setup Devices:

- Connect devices to the hub, switch, and router using Ethernet cables.

Step 2. Configure IP Addresses:

- Access the router's web interface to set IP ranges and enable DHCP.
- Ensure connected devices obtain IP addresses automatically or set static IPs.

Step 3. Verify Connectivity:

- Check device communication via the hub, switch, and router.
- Use ping to test network connections and ensure internet access.

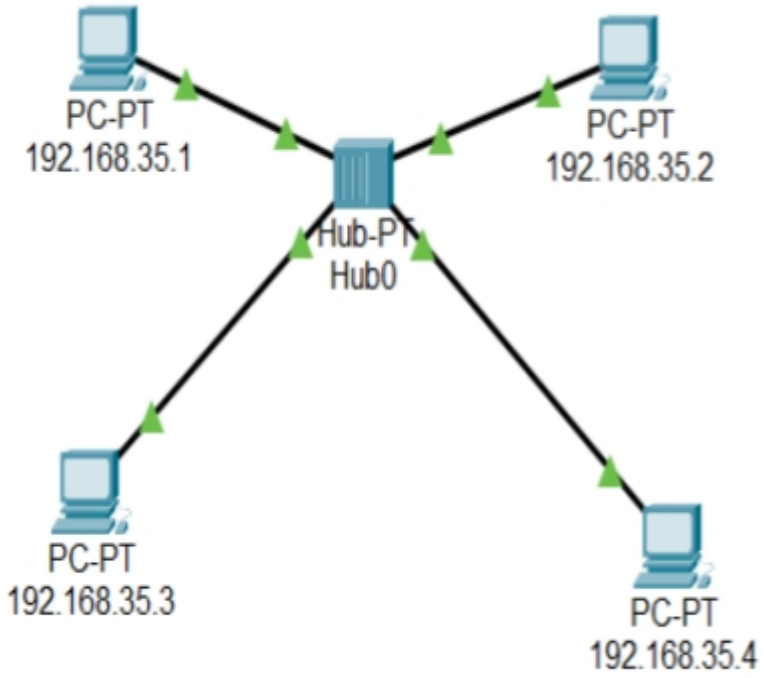
Step 3. Analyze Traffic:

- Observe how the hub broadcasts, the switch forwards efficiently, and the router manages traffic and internet access.

Step 4. Document Findings:

- Record observations on device functionality and network performance.

5. Output: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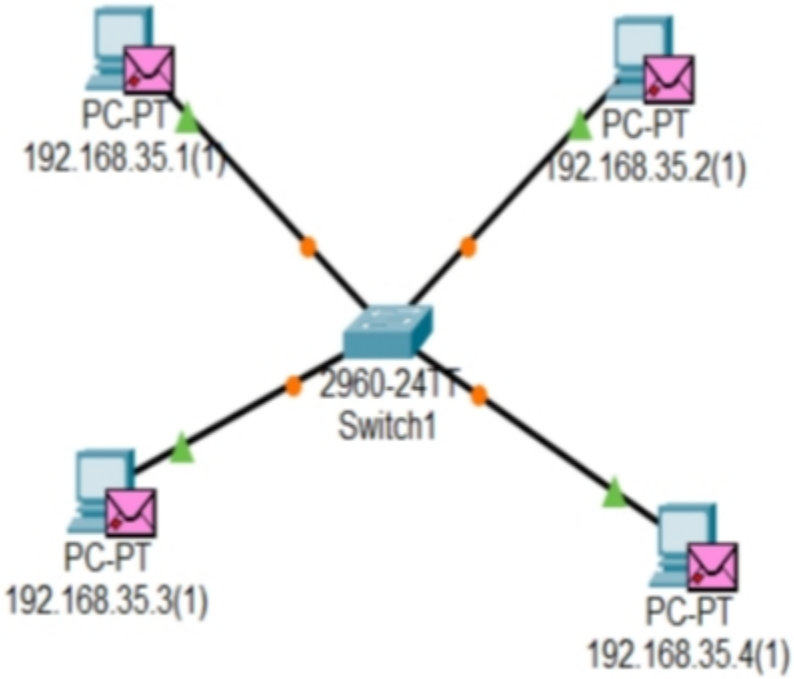
PC-PT
192.168.35.2
Hub-PT
Hub0
PC-PT
192.168.35.3
PC-PT
192.168.35.4


PC-PT
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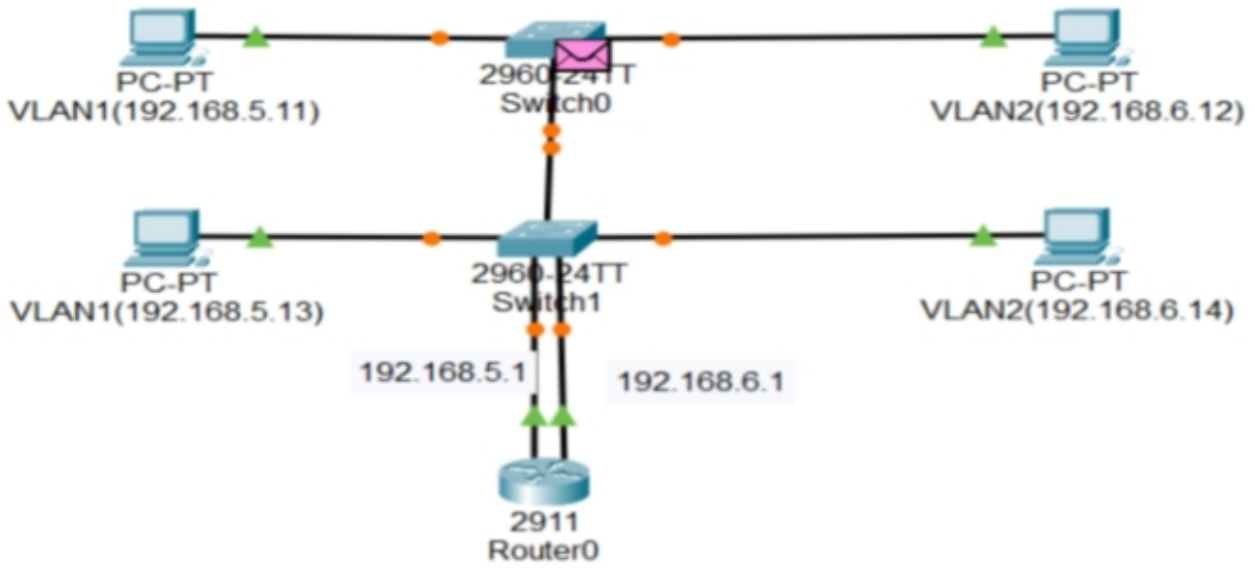
PC-PT
192.168.35.2(1)
2960-24TT
Switch1
PC-PT
192.168.35.3(1)
PC-PT
192.168.35.4(1)



6. **Learning Outcomes:**

a. **Understanding Device Roles:** Gain insight into the distinct functions of hubs, switches, and routers in a network, including how they manage and direct network traffic.
b. **Device Configuration Skills:** Learn to configure network devices, including setting up IP addresses, enabling DHCP, and adjusting device settings to ensure proper network operation.
c. **Network Connectivity Verification:** Develop skills in verifying network connectivity through tools like ping and understanding how different devices affect communication within a network.
d. **Traffic Analysis:** Acquire the ability to analyze and interpret network traffic using monitoring tools like Wireshark, identifying how data is transmitted and managed.
e. **Practical Troubleshooting:** Enhance problem-solving skills by diagnosing and troubleshooting network issues, and understanding how device configurations impact overall network performance.