AIM: -

Practical 8

1. Simulate Virtual LAN configuration using CISCO Packet Tracer Simulation.

# Step 1: Set Up Devices in Cisco Packet Tracer

* 1. **Add Devices**
     + Open Cisco Packet Tracer.
     + At the bottom left, find the **Switches** category.
     + Drag **2 switches (S1 and S2)** into the workspace.
     + Next, find the **End Devices** category and drag **2 PCs (PC-A and PC-B)** into the workspace.

# Connect Devices

* + - Click the **Connections** icon (lightning bolt) at the bottom left to see cable options.
    - Select **Copper Straight-Through Cable** and connect:
      * **PC-A to S1** (PC-A to S1’s FastEthernet0/1).
      * **PC-B to S2** (PC-B to S2’s FastEthernet0/1).
    - Choose **Console Cable** (also found under Connections) to connect:
      * **PC-A to S1’s console port**
      * **PC-B to S2’s console port Step 2: Configure Basic Switch Settings**

1. **Access Switch CLI via Console Connections**
   * Click **PC-A** > **Desktop** > **Terminal**.
   * Click **OK** in the Terminal settings window to access S1’s CLI (Command Line Interface).
   * Repeat this for **PC-B** to access **S2**’s CLI.

# Enter Configuration Mode on Each Switch

* + For each switch, enter the following commands:

enable

configure terminal hostname <SwitchName>

# Set Console and Enable Passwords

* + Still in global configuration mode, type: line console 0

password <console\_password> login

exit

enable secret <enable\_password>

# Set IP Address on Switch VLAN Interface

* + Type the following commands: interface vlan 1

ip address <IP\_address> <subnet\_mask> no shutdown

exit

# Save Configuration

* + Exit back to privileged EXEC mode by typing exit.
  + Save the configuration with write memory or copy running-config startup-config.

# Step 3: Configure IP Address on PCs

1. **Configure PC-A**
   * Click **PC-A** > **Desktop** > **IP Configuration**.
   * Set the **IP Address** to 192.168.1.2, **Subnet Mask** to 255.255.255.0, and **Default Gateway** to 192.168.1.1.

# Configure PC-B

* + Click **PC-B** > **Desktop** > **IP Configuration**.
  + Set the **IP Address** to 192.168.1.3, **Subnet Mask** to 255.255.255.0, and **Default Gateway** to 192.168.1.1.

# Step 4: Create VLANs on Each Switch

1. **Create VLANs on S1 and S2**
   * Access each switch’s CLI through **PC-A** and **PC-B** respectively, and enter the following commands:

enable

configure terminal vlan 10

name SALES exit

vlan 20 name HR exit

# Assign Ports to VLANs

* + For **S1**:

interface range fa0/1 - 12 switchport mode access switchport access vlan 10 exit

interface range fa0/13 - 24 switchport mode access switchport access vlan 20

exit

* + For **S2**:

interface range fa0/1 – 12 switchport mode access switchport access vlan 10 exit

interface range fa0/13 - 24 switchport mode access switchport access vlan 20 exit

# Verify VLAN Configuration

* + Type show vlan brief on each switch to verify that VLANs 10 and 20 have been created and that ports are correctly assigned.

# Step 5: Configure Trunking Between Switches

1. **Enable Trunk Ports on Both Switches**
   * Access **S1** through **PC-A** and **S2** through **PC-B**.
   * Set port **FastEthernet0/1** to trunk mode on both switches: interface fa0/1

switchport mode trunk exit

# Verify Trunking

* + Type show interfaces trunk to confirm that **FastEthernet0/1** is operating as a trunk port on each switch.

# Step 6: Testing Connectivity

1. **Ping Between PCs**
   * Click **PC-A** > **Desktop** > **Command Prompt**.
   * Type ping 192.168.1.3 (PC-B’s IP address) to test connectivity.

# Troubleshooting

* + If the ping fails, verify the VLAN and trunk configurations on each switch and ensure the correct IP settings on each PC.

OUTPUT:

