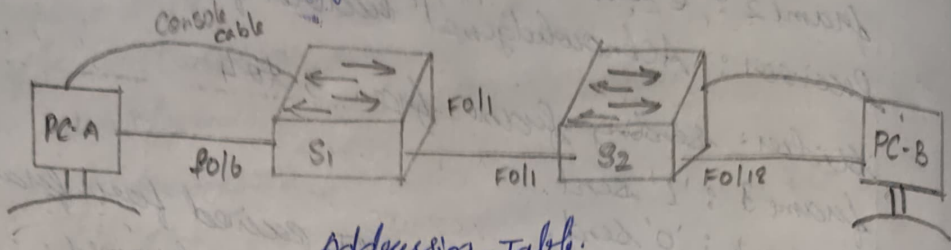
EXNO: 08
DATE:
10/09/24

Pratical - 8a

AIM:

a] Stimulate virtual LAN configuration using CISCO Packet Tracer stimulation.

Packet Tracer - Configure VLANs and Trunking - Physical Mode.



Addressing - Table.

Device	Interface	IP Address	Subnet Mask	Default Gateway
S1	VLAN-1	192.168.1.11	255.255.255.0	N/A
S2	VLAN-1	192.168.1.12	255.255.255.0	N/A
PC-A	NIC	192.168.10.3	255.255.255.0	192.168.10.1
PC-B	NIC	192.168.10.4	255.255.255.0	192.168.10.1

Objectives.

Part 1:
Build a Network and configure the basic device settings.

Part 2:
Create VLANs and assign Switch Ports.

Part 3:
Maintain VLAN Port Assignments and VLAN of the Database.

Part 4:
Configure an 802.1Q Trunk between the Switches.

Instructions.

Part 1: Build the network and configure Basic Device settings.

Step 1: Build the network as shown in the Topology.

a] click and switch and drag it to Rack.
b] click and drag three PC1 and PC2 and use power button to turn on.
c] connect PC1 to switch1 and PC_2 to switch2 using copper straight through cable.

Step 2: configure basic setting for each switch.

a] In the desktop open PC terminal to console into each switch and enable it.
b] Enter configuration mode.
c] Assign device name to switch.
d,e] Assign class and cisco to console.
f] Encrypt the plaintext password.
h] create a banner that warns anyone access the device.
g] configure the IP address listed in the Addressing table for VLAN1 on switch.
i] Shut down all interfaces that will not used.
k] set the clock on the switch.
l] Save the configuration.

Step 3: configure PC hosts.

from the desktop tab to each PC, click IP configuration and enter the addressing information as displayed in the ~~Addresses~~ table.

Step 4: Test connectivity.

Test connectivity by attempting to ping between three PC's of enabled devices.

can PC-A ping PC-B
can PC-B ping S_2
close the configuration windows

Part 2: create VLANs and Assign switch ports.

In part 2 you will create Management, operation parking lot, and native VLANs on both switches.

Step 1: create VLANs on switches.

open terminal in PC

a] create VLANs on S1

```
S1(config)# vlan 10
S1(config-vlan)# name operation
S1(config-vlan)# vlan 20
S1(config-vlan)# name Parking_lot
S1(config-vlan)# vlan 99
S1(config-vlan)# name Management
S1(config-vlan)# vlan 1000
S1(config-vlan)# end
```

b] create the same VLANs on S2.

c] Issue the show VLAN brief command to view VLANs

```
S1# show VLANs brief
```

Questions:-

1] what is default VLAN?

→ The default VLAN is VLAN 1.

2] which ports are assigned to default VLAN?

- Fa0/1 to Fa0/24 (Fast Ethernet Ports).
- Gi0/1 to Gi0/2 (Gigabit Ethernet Ports).

Step 2: Assign VLANs to correct switch interfaces.

Questions:-

1] what is the status of VLAN 99?

- The status of VLAN 99 is likely down if no active ports are assigned to it, or up if it has active ports.

2] Is S1 able to ping S2?

- Yes if both switches are correctly configured with VLAN 99, IP addresses are in the same subnet and proper trunking is enabled.

3] Is PC-A able to ping PC-B.
• Yes if both PC's are in VLAN 10 correctly is configured on their respective switches and trunking is set up between S1 and S2.

Part 3: Maintain VLANs Ports assignment and the VLANs Database.

Step 1: Assign a VLAN to multiple interfaces.
Assign interface F0/11 - 24 to VLAN 99.

Step 2: Remove VLAN assignment from interface.

Question:
1] which VLAN is F0/24 now associated with?
After removing the VLAN assignment from F0/24 it is now associated with VLAN 1.

Step 3: Remove VLAN ID from the VLAN Database

Question:-
1] what is default name of VLAN 30?
The default name of VLAN 30 is VLAN0030.

2] what VLAN is port F0/24 now assigned to?
After VLAN 30 is deleted and the no switchport access VLAN command is issued F0/24 will be assigned to VLAN 1.

3] To which VLAN is F0/24 assigned after issuing the no switchport access VLAN command.
After issuing no switchport access VLAN command F0/24 is assigned to VLAN 1.

Part 4: Configure an 802.1q Trunk between switches.

Step 1: use DTP to initiate Trunking F0/1.

Step 2: Manually configure a trunk interface F0/1.
The switch port mode trunk command is used to manually configure port as trunk.

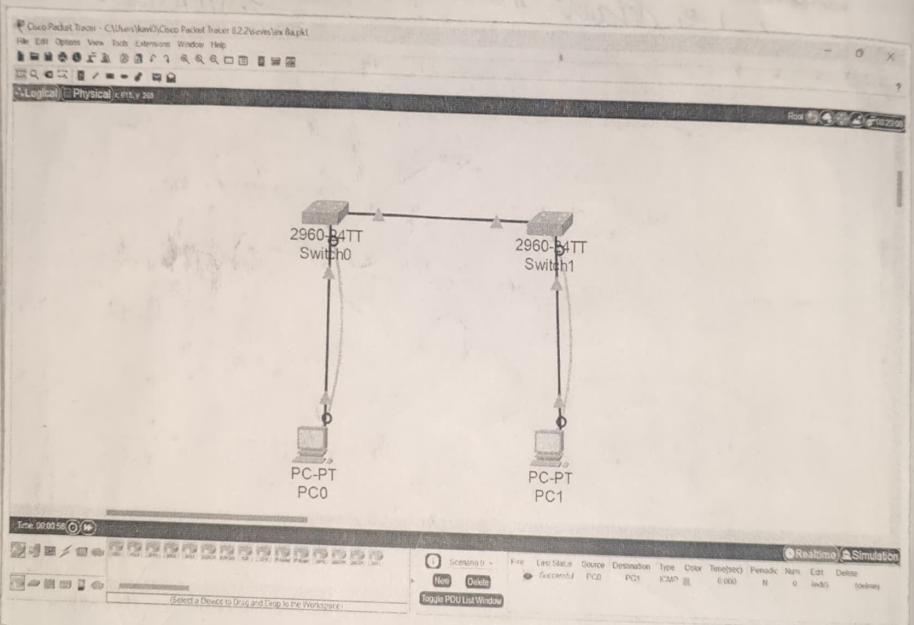
Reflection Question.

1] what is needed to allow hosts on VLAN 10 to communicate to hosts on VLAN 90?

- A layer 3 switch or router with routing capabilities to route traffic between VLANs.
- The interface for VLAN 10 and VLAN 90 need to be changed or configured IP addresses on router or layer 3 switch to facilate communication between the two VLANs.

2] what are some benefits that an organization can receive through effective use of VLANs.

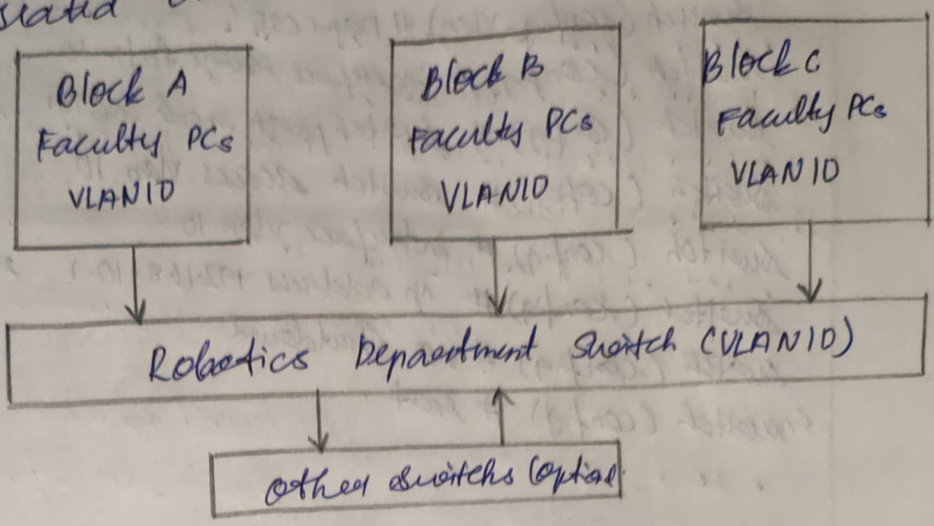
- Improved network security
- Enhanced network performance.
- Better management of devices.
- Reduced congestion.



Student observation:

a] Draw and label VLAN for Qb).

To visualise the VLAN setup, imagine three blocks (A, B, C) with 110 faculty members are seated on it.



b] Show IP configuration for each device.

Device	IP address	Subnet mask	Gateway	VLAN
PC1	192.168.10.2	255.255.255.0	192.168.10.1	VLAN 10
PC2	192.168.10.3	255.255.255.0	192.168.10.1	VLAN 10
PC-3	192.168.10.4	255.255.255.0	192.168.10.1	VLAN 10
PC-4	192.168.10.5	255.255.255.0	192.168.10.1	VLAN 10
PC-5	192.168.10.6	255.255.255.0	192.168.10.1	VLAN 10
PC-6	192.168.10.7	255.255.255.0	192.168.10.1	VLAN 10

c] write the commands used for VLAN configuration in Switch.

```
Switch > enable
Switch # configure terminal
Switch (config) # vlan 10
Switch (config-vlan) # name CSE
Switch (config) # interface range fa0/1-10.
Switch (config) # switch port mode access
Switch (config) # switch access vlan 10
Switch (config) # interface vlan 10.
Switch (config) # ip address 192.168.10.1 255.255.255.
Switch (config) # no shutdown
Switch (config) # exit.
```

Result:-

Thus virtual LAN configuration using CISCO Packet Tracer is executed.