**Lab 5 [VLAN Configurations]**

**Outline:**

1. Understand the basic concept of VLANs.
2. Learn how to configure VLANs on switches.
3. Assign PCs to different VLANs.
4. Verify communication within VLANs.
5. Implement inter-VLAN communication using Layer 3 switch.

**Tasks:**

1. You are tasked with setting up a network for a university that has four departments: Administration, Faculty, Students, and IT Support. Each department will be placed in its own VLAN, and communication should only happen within the VLAN. Inter-VLAN routing will be configured in later labs.

Create VLANs as per following information.

VLAN 10: Administration

VLAN 20: Faculty

VLAN 30: Students

VLAN 40: IT Support

Attach 2 PCs with each VLAN and assign IP addresses to them. After configurations, test the VLANs by using ping command. Observe the behaviour of pinging out of the VLAN.

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| Switch> enable  Switch# configure terminal  **vlans creation**  Switch(config)# vlan 10  Switch(config-vlan)# name Administration  Switch(config)# vlan 20  Switch(config-vlan)# name Faculty  Switch(config)# vlan 30  Switch(config-vlan)# name Students  Switch(config)# vlan 40  Switch(config-vlan)# name ITSupport  **Add an interface to a specific vlan**  Switch(config)# interface fastEthernet 0/1  Switch(config-if)# switchport mode access  Switch(config-if)# switchport access vlan 10  **Adding interface range to a specific vlan**  Switch(config)# interface range fastEthernet 0/1 - 12  Switch(config-if-range)# switchport mode access  Switch(config-if-range)# switchport access vlan 10 |

1. Design another network using Layer 3 switch and configure 2 VLANs. Configure the switch for inter-VLAN communication and test it.

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| **Enable IP routing on Layer 3 switch**  Switch(config)# ip routing  **Create Switch Virtual Interfaces (SVIs) like:**  Switch(config)# interface vlan 10  Switch(config-if)# ip address 192.168.10.1 255.255.255.0  Switch(config-if)# no shutdown  Switch(config-if)# exit |