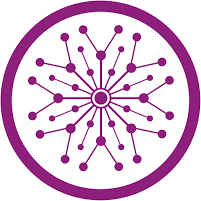
**Subject Name:**

**Computer Networks (Theory)**



**Submitted To:** Sir Rasikh

**Submitted By:** Hiba

**Roll no:** BSSEM-F22-295

# Section: 5B

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# DEPARTMENT OF SOFTWARE ENGINEERING

**SUPERIOR UNIVERSITY, LAHORE**

**DHCP (Dynamic Host Configuration Protocol):**

DHCP is a protocol used to automatically assign IP addresses and other network configurations (like subnet masks, gateway addresses, and DNS servers) to devices on a network. It simplifies network management by reducing the need for manual configuration.

**Example:**

A router or dedicated DHCP server assigns IP addresses to PCs, printers, and mobile devices on a network.

For example, a DHCP server in a small office assigns IP addresses from 192.168.1.2 to 192.168.1.100 to connected devices.

**VLAN (Virtual Local Area Network):**

VLAN is a network configuration that segments a physical network into multiple logical networks. It helps isolate traffic, improve security, and manage bandwidth more effectively. Each VLAN is identified by a unique ID.

**Example:**

A company has two VLANs:

**VLAN 10**: For the IT department.

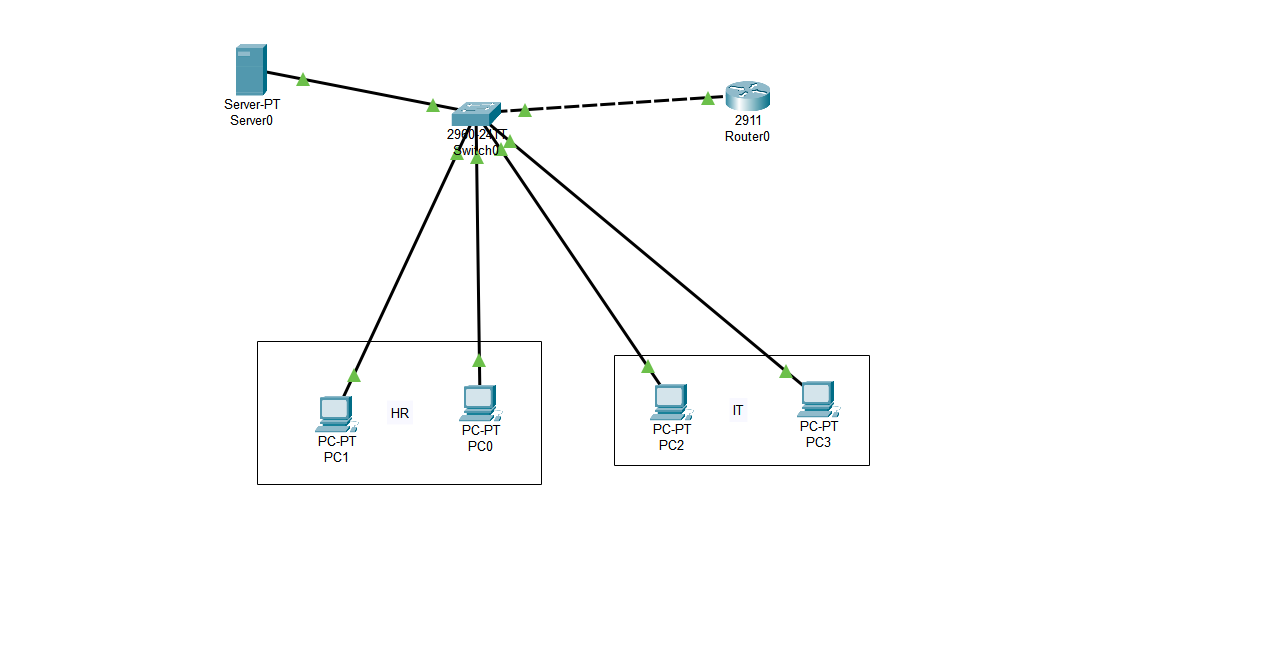
**VLAN 20**: For the HR department.  
Even though all devices are connected to the same switch, communication between VLANs requires a Layer 3 device (like a router).

3. **DNS (Domain Name System):**

DNS translates human-readable domain names (e.g., www.google.com) into IP addresses that computers use to communicate (e.g., 142.250.190.14).

**Example:**

When a user types www.company.com in a browser, the DNS server resolves it to 192.168.0.10, the web server's IP address.

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