**Networking: Session 1 Lab**

**Task 1: Answer all questions and publish them in the Padlet link.**

1. What are the main components of a computer network, and how do they function together to enable communication between devices?
2. Describe the different types of networks (LAN, WAN, PAN, MAN, CAN, WLAN, VPN) and provide real-world examples of their usage.
3. What are the differences between a hub, switch, and router in terms of their function and operation in a network?
4. How do wireless access points (WAPs) enable wireless communication, and what challenges can arise when setting up a WLAN?
5. What role do firewalls and network proxies play in securing a network, and how do they differ in terms of functionality?
6. What are the key steps involved in designing a simple local area network (LAN) and troubleshooting common network issues?

**Task 2: create a simple first lab in Packet Tracer**

**Lab Objective:**

Create a simple network with two PCs connected through a switch and test connectivity using ping.

**Steps:**

1. **Open Packet Tracer**: Launch the Cisco Packet Tracer application.
2. **Add Devices:**

* In the devices section at the bottom, find the **End Devices**.
* Drag and drop **two PCs** onto the workspace.
* Go to the **Network Devices** section and choose **Switches**.
* Drag and drop a **switch** (e.g., 2960 switch) onto the workspace.

1. **Connect Devices:**

* Select the **Connections** tool (lightning symbol) from the toolbar.
* Click on **Copper Straight-Through Cable**.
* Click on **PC0**, choose **FastEthernet0**, and then click on the switch (connect to any available port, e.g**., FastEthernet0/1**).
* Repeat the process for **PC1** to the switch (e.g., connect to **FastEthernet0/2**).

1. **Assign IP Addresses:**
   * Click on **PC0**, go to the **Desktop** tab, then click **IP Configuration**.
     + Assign the following IP: 192.168.1.1
     + Subnet mask: 255.255.255.0
   * Click on **PC1**, go **to IP Configuration**, and assign:
     + IP: 192.168.1.2
     + Subnet mask: 255.255.255.0
2. **Test Connectivity:**
   * Click on **PC0**, go to **Command Prompt**, and type: ping 192.168.1.2.
   * You should receive successful ping replies indicating that the two PCs are connected.