Assignment 5

Task 1: Establish a LAN network with switches and end devices. Configure IP addresses and verify connectivity between devices.
Generate and transmit

- 1) unicast packets from one device to another,
- 2) broadcast packets to all devices within the LAN.

Task 2:

1. Create a network layout with:
    - Switch: Add at least one Cisco switch.
    - End Devices: Connect PCs or laptops to switch ports.
2. Set up VLANs:
    - Create two or more VLANs on the switch.
    - Give each VLAN a name and an ID.
3. Assign Ports to VLANs:
    - Choose which switch ports belong to each VLAN.
    - Ensure devices are correctly assigned to VLANs for traffic separation.
4. Enable Inter-VLAN Communication:
    - Configure a router to allow communication between VLANs.
    - Create subinterfaces on the router for each VLAN.
    - Assign IP addresses to subinterfaces within the VLAN subnets.
5. Test Communication:
    - Check if devices in the same VLAN can communicate.
    - Ensure devices from different VLANs can communicate through the route**r.**

Task 3 :

1. Build a simple network topology consisting of PCs, switches, and routers.
2. Assign IP addresses to each device in the network.
3. Use the "arp -a" command on PCs to view the ARP cache table.
4. Initiate communication between two PCs within the network and observe the ARP process.
5. Discuss how ARP resolves IP addresses to MAC addresses and facilitates communication at the data link layer.
6. Explore the ARP protocol's significance in troubleshooting network connectivity issues.