**Liberty University**

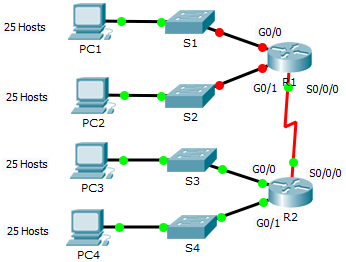
**CSIS 331**

**Lab 13 Instructions**

**Packet Tracer:**

*[Adapted from Cisco Networking Academy Routing and Switching v6 8.1.4.7]*

1. Topology



1. Objectives

Part 1: Design an IP Addressing Scheme

Part 2: Assign IP Addresses to Network Devices and Verify Connectivity

1. Scenario

In this activity, you are given the network address of 192.168.100.0/24 to subnet and provide the IP addressing for the network shown in the topology. Each LAN in the network requires enough space for, at least, 25 addresses for end devices, the switch and the router. The connection between R1 to R2 will require an IP address for each end of the link.

NOTE: Lab 13 Subnetting Worksheet is your Answer Sheet for this lab.

1. Design an IP Addressing Scheme
   1. Subnet the 192.168.100.0/24 network into the appropriate number of subnets.

Complete Step 1 in your Lab 13 Subnettting Worksheet.

* 1. Assign the subnets to the network shown in the topology.
     1. Assign Subnet 0 to the LAN connected to the GigabitEthernet 0/0 interface of R1. Mark your answer in your Lab 13 Subnettting Worksheet Step 2.
     2. Assign Subnet 1 to the LAN connected to the GigabitEthernet 0/1 interface of R1. Mark your answer in your Lab 13 Subnettting Worksheet Step 2.
     3. Assign Subnet 2 to the LAN connected to the GigabitEthernet 0/0 interface of R2. Mark your answer in your Lab 13 Subnettting Worksheet Step 2.
     4. Assign Subnet 3 to the LAN connected to the GigabitEthernet 0/1 interface of R2. Mark your answer in your Lab 13 Subnettting Worksheet Step 2.
     5. Assign Subnet 4 to the WAN link between R1 to R2. Mark your answer in your Lab 13 Subnettting Worksheet Step 2.
  2. Document the addressing scheme.

Fill in the**Addressing Table in your Lab 13 Subnetting Workshee Step 3** using the following guidelines:

* + 1. Assign the first usable IP addresses to R1 for the two LAN links and the WAN link.
    2. Assign the first usable IP addresses to R2 for the LANs links. Assign the last usable IP address for the WAN link.
    3. Assign the second usable IP addresses to the switches.
    4. Assign the last usable IP addresses to the hosts.

1. Assign IP Addresses to Network Devices and Verify Connectivity

Most of the IP addressing is already configured on this network. Implement the following steps to complete the addressing configuration. Using your Assignment Table

* 1. Configure IP addressing in Lab 13.pkt on R1 LAN interfaces.
  2. Configure IP addressing on S3 Lab 13.pkt, including the default gateway.
  3. Configure IP addressing on PC4 Lab 13.pkt, including the default gateway.
  4. Verify connectivity.

You can only verify connectivity from R1, S3, and PC4. However, you should be able to ping every IP address listed in the **Addressing Table**.

1. **Complete the Ping Table in your Lab 13 Subnetting Worksheet**