WIA1005 Lab Task 1 (Week 3 – 5%)

Objective:

In this activity, you will perform basic PC, switch, and router configuration tasks. The goal is to configure and ensure connectivity between devices in the topology, where one router is connected to a switch, and two PCs are connected to the switch.

Instructions:

1. **Rack Setup:**
   (a) Connect the devices as follows:
   - The Router (R1) is connected to the Switch (SW1).
   - PC1 and PC2 are connected to SW1.
   - The router's interface connects to the switch, and each PC is connected to the switch.

2. **IP Configuration:**
   (a) Configure the IP addressing for both PCs, the switch, and the router according to the assigned IP addressing scheme:
   a. PC1: Configure the IP address as 10.100.0.1 and the subnet mask as 255.255.255.0.
   b. PC2: Configure the IP address as 10.100.0.2 and the subnet mask as 255.255.255.0.
   c. SW1: Set the IP address for SW1 as 10.100.0.100.
   d. R1: Configure the router's gateway IP address as 10.100.0.X, where X is the last two digits of your matrix number. Ensure that the router's interface GigabitEthernet0/1 is connected to the subnet for PC1 and PC2.

3. **Configure the Router and Switch:**
   (a) Password Configuration: Set the password for both the router and the switch using your matrix number. The password must be secured and encrypted.
   (b) Banner Configuration:
   a. For the router, configure the banner to display: "This is matrix_number router, please login"; (where matrix_number is your matrix number).
   b. For the switch, configure the banner to display: "This is matrix_number switch, please login"; (where matrix_number is your matrix number).

(c) Hostname Configuration: Set the hostname for the router to `matrix_number_R1` and for the switch to `matrix_number_SW1`, where `matrix_number` is your matrix number.
(d) Router Gateway Configuration: On the Cisco 2901 router, configure the gateway on interface GigabitEthernet0/1 with the appropriate IP address.

4. Connectivity Verification:

(a) Step 1: Ensure that PC1 can ping PC2. Verify connectivity by checking that the ICMP packets are successfully received.
(b) Step 2: Ensure that PC1 can ping R1 (router). Test this by sending a ping from PC1 to the router's interface IP (10.100.0.X) and checking for a reply.
(c) Step 3: Ensure that PC1 can ping SW1 (switch). Verify that there is no issue with the connectivity.

5. Submission Instructions:

You need to submit the following three files:

1. matrix_number.pkt – The PKT file containing the topology simulation. This file will include the setup of the devices (PCs, switch, and router) and their connections in Packet Tracer.
2. matrix_number_switch.conf – The configuration file for the Switch (SW1). This file should contain all the relevant switch configurations you applied for, including the IP address of the switch (10.100.0.100) and any VLAN or interface configurations.
3. matrix_number_router.conf – The configuration file for the Router (R1). This file should contain the router configurations, including the gateway IP address (10.100.0.X, where X is the last two digits of your matrix number) and any routing or interface configurations for connectivity.

Note:

1. Ensure that all configurations are saved, and the topology is correctly set up before submission.
2. Double-check that your configuration files are saved with the correct names: matrix_number_switch.conf and matrix_number_router.conf where 'matrix_number' is your assigned matrix number.
3. If any issues arise during the lab, document them and submit your troubleshooting steps along with the configuration files.