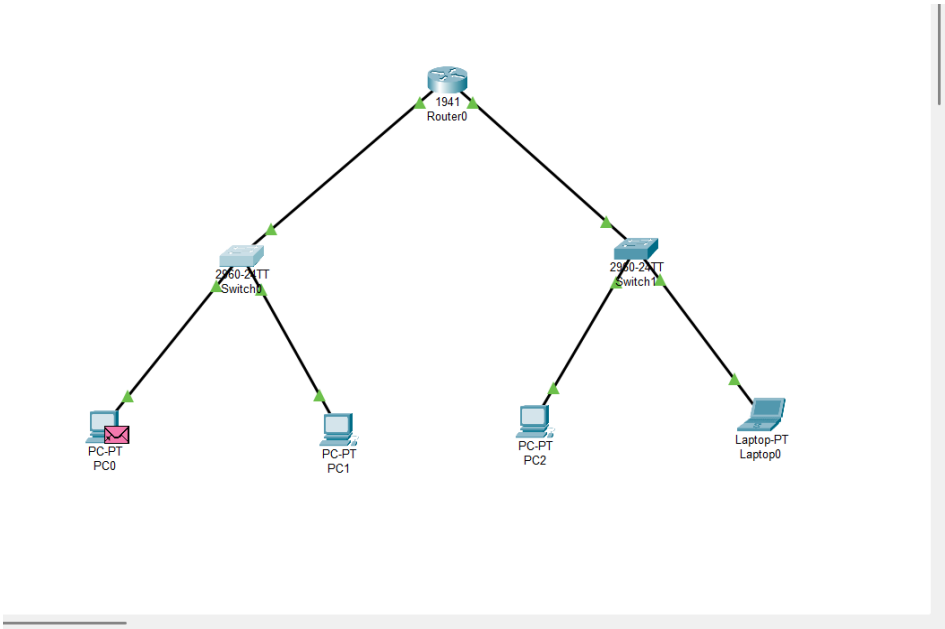
Question-1:

Simulate a small network with switches and multiple devices. Use ping to generate traffic and observe the MAC address table of the switch. Capture packets using Wireshark to analyze Ethernet frames and MAC addressing.

This is a network model that I have designed to simulate a small network with multiple devices and switches. The purpose of this simulation is to observe how devices communicate, analyze the MAC address table of switches, and capture packets to study Ethernet frames and MAC addressing.



Configuring the Devices:

Assigned static IP addresses to all devices

Configured the router interfaces with respective IP addresses

IP Addressing Scheme:

PC0: 192.168.1.10

PC1: 192.168.1.11

PC2: 192.168.2.10

Laptop0: 192.168.2.11

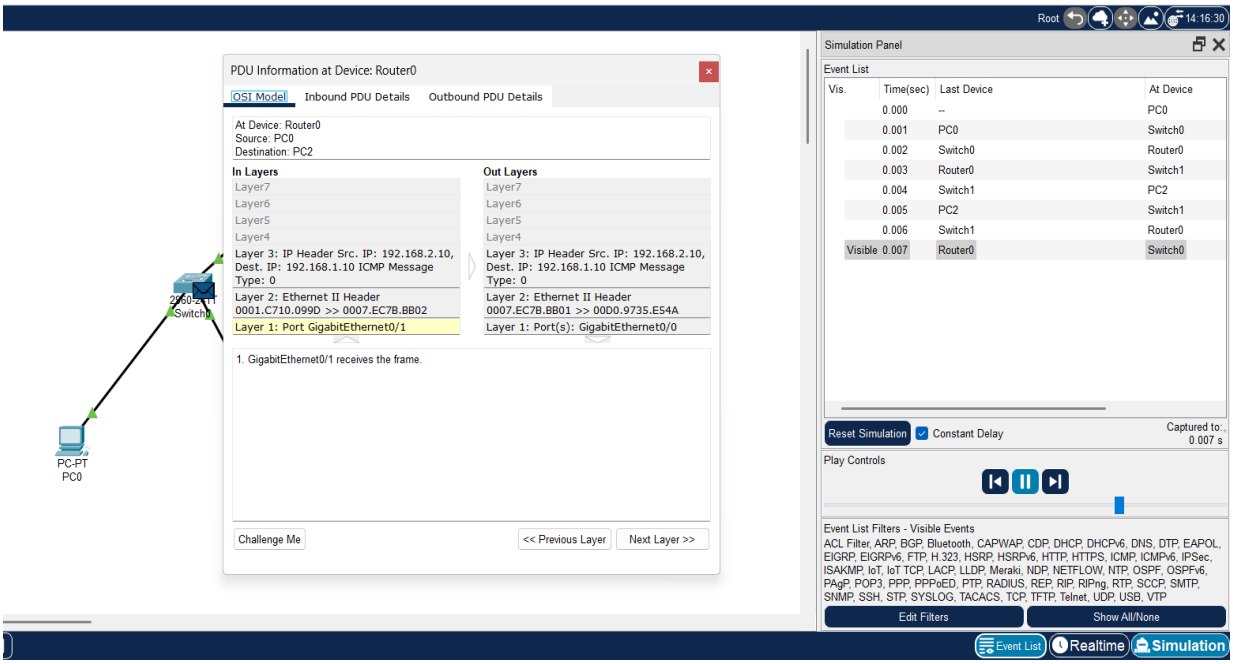
Switch0 Side: 192.168.1.1

Switch1 Side: 192.168.2.1

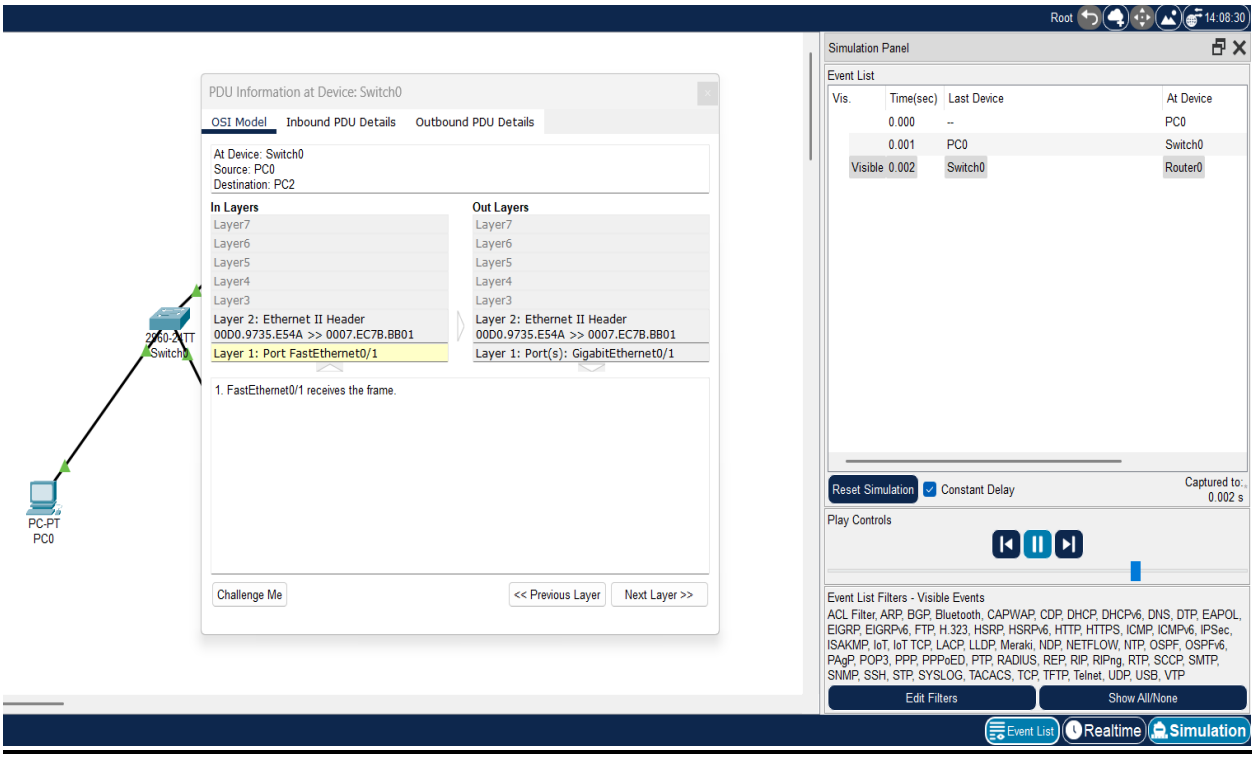
Generating Traffic:

Used **ping commands** to test connectivity between devices

Switch0 mac address table:



Switch1 mac address table:



Ethernet frames:

Transmitted a simple PDU from PC0 to the router: