# COMPUTER NETWORK LAB

## <u>Lab 1</u>

**Designing and Simulation of Network Topology using Cisco Packet Tracer**

**Objectives:**

· To understand the purpose of Cisco Packet Tracer.

· To navigate, choose network and end devices and customize them.

· To interconnect devices and configure them using simple interface.

· To become familiar with building topologies in Packet Tracer.

· To simulate data interactions traveling through a network.

**Prerequisites:**

This lab assumes some understanding of the building blocks of communication networks and internet. At this point, we haven't discussed other protocols but you may use Packet Tracer in later labs to discuss those as well. Several types of devices and network connections can be used. For this experiment we will keep it simple by using end devices, switches, routers, and connections.

Steps to install Cisco Packet Tracer:

1. **Go to the download page**:
   Visit this link: [Download Cisco Packet Tracer](Download Cisco Packet Tracer)
2. **Download Packet Tracer**:
   Scroll down and download the version compatible with your operating system (Windows or Linux).
3. **Install Packet Tracer**:
   Once the download is complete, run the installer and follow the on-screen instructions to complete the installation.
4. **Disable your internet connection**:
   Before launching Packet Tracer for the first time, turn off your internet connection. This will prevent it from asking for registration.
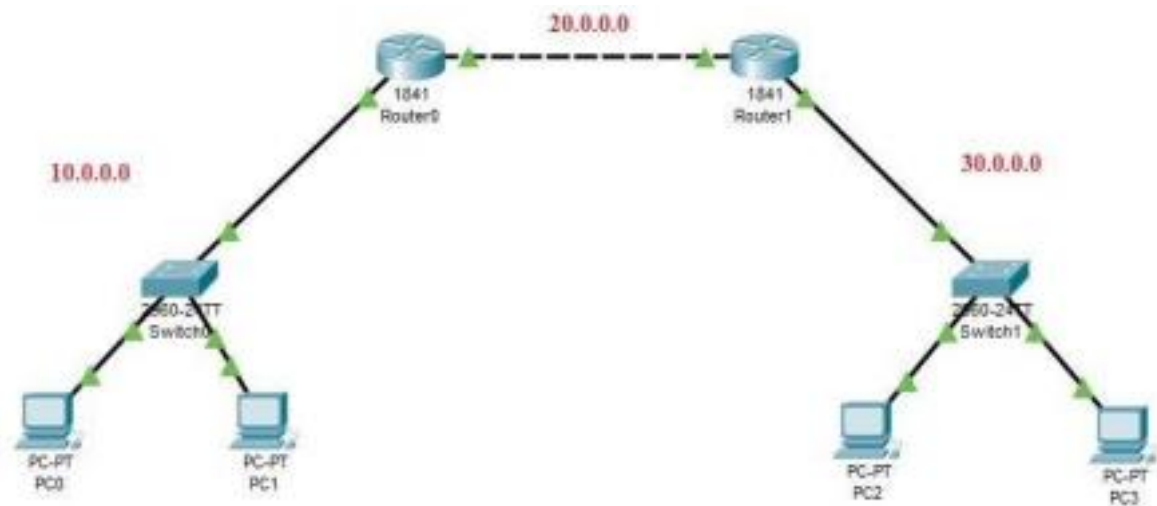5. **Launch Packet Tracer**:
   Open the installed Cisco Packet Tracer. Since you are offline, it will allow you to use the program without requiring registration.

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**Task 1 (Demo)**

**Network Topology:**

To replicate given scenario, create a topology in packet tracer, as shown in following image.



**PC & Router Configuration Details:**

> **PC0:**
>
>> IP Address ---> 10.0.0.1
>>
>> Gateway ---> 10.0.0.3
>
> **PC1:**
>
>> IP Address ---> 10.0.0.2
>>
>> Gateway ---> 10.0.0.3
>
> **Router 0:**
>
>> FastEthernet0/0 ---> 10.0.0.3
>>
>> FastEthernet0/1 ---> 20.0.0.1
>
> **Router 1:**
>
>> FastEthernet0/0 ---> 20.0.0.2
>>
>> FastEthernet0/1 ---> 30.0.0.1

**PC2:**

        IP Address ---> 30.0.0.2

        Gateway ---> 30.0.0.1

**PC3:**

        IP Address ---> 30.0.0.3

        Gateway ---> 30.0.0.1

**Routing Table Entries:**

**Router Network Next Hop** Router 0

30.0.0.0 20.0.0.2 Router 1 10.0.0.0 20.0.0.1

**Execution Procedure:**

**Task 1:** Design a network topology with desktops, switches and routers similar to the network depicted in the above diagram.

**Task 2:** Configure the PCs and routers with the details provided above.

**Task 3:** Send a simple PDU from any PC on network 10.0.1.0 to any other PC on other network 10.0.3.0 and vice-versa.

**Task 4:** Simulate the network and observe the packet flow from one network to other.

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**Task 2 (Mandatory)**

**In this task, students should explore how to add interfaces to the router.**
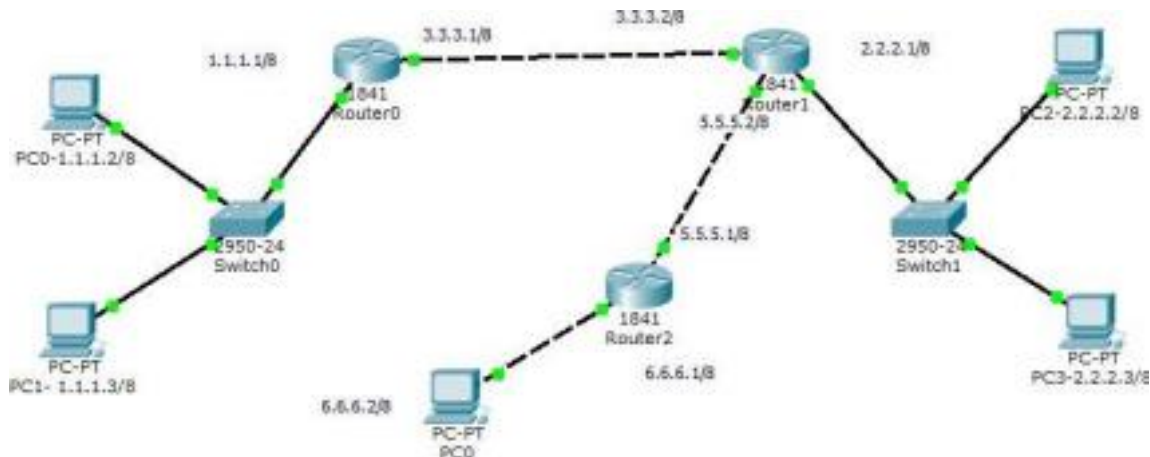


**Submission:**

Students are expected to take the screenshot of both the Topologies with the successful message after packet transmission.

You are to Provide:
1. Screenshots of successful Transmission across all.
2. All the addresses through a well defined routing table including hop table.

The routing tables in all the routers in Topology -2.

Submissions will be through google forms/ google classroom