CS2091 – COMPUTER NETWORKS

كليـــة الهنـــدســـة
College of Engineering

Final Project – Spring 2023

Project Summary Report

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1. High level description of the organization for which the network plan is being created.

   Our idea is to establish a medium-sized, multi-branched company with two branches that provide logistics services, including shopping, transportation, courier services, and package delivery. The company will have regional offices, warehouses, and distribution centers to manage logistics services across different cities or regions. The company will have several departments and sections to manage different aspects of its operations, including:

   1. *Procurement department:* responsible for sourcing and purchasing materials, equipment, and supplies.
   2. *Sales and marketing department:* responsible for promoting the company's services and acquiring new customers.
   3. *Transportation and logistics department:* responsible for managing goods transportation and optimizing logistics operations.
   4. *Customer service department:* responsible for providing support to customers, addressing their queries and complaints, and ensuring customer satisfaction.
   5. *IT department (located at the main office):* responsible for managing the company's technology infrastructure, including its hardware, software, and network.
   6. *Finance department:* responsible for managing the company's financial operations, including budgeting, accounting, and reporting.

2. Description of end devices.

   In this project, we used three end devices—six PCs, one laptop, and one printer—in each LAN or branch. For every office, we placed one PC; except for the main office, there is a PC, a laptop, and a printer. Every end device is connected to the switch, and because of the DHCP server, every end device that enters the LAN will have its own IP address, and the IP address of its gateway will be given to it.

3. Description of intermediate devices.

   For the intermediary devices, we have three devices: a server, a router, and a switch. For every LAN, there is one of each. Here we considered the server as an intermediary device because it will provide the DHCP service, which gives every end device in the LAN an IP address and the IP address of its own gateway, which in this case is the router.

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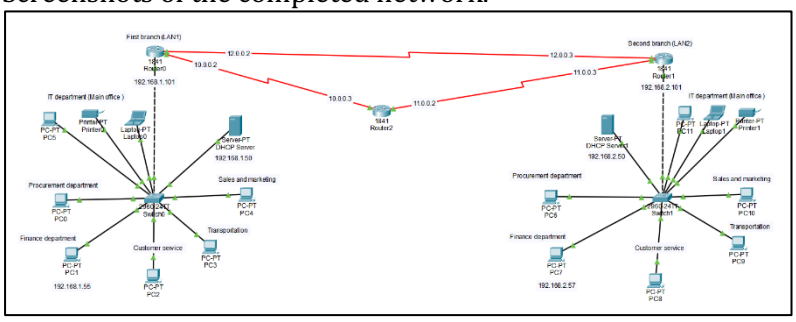
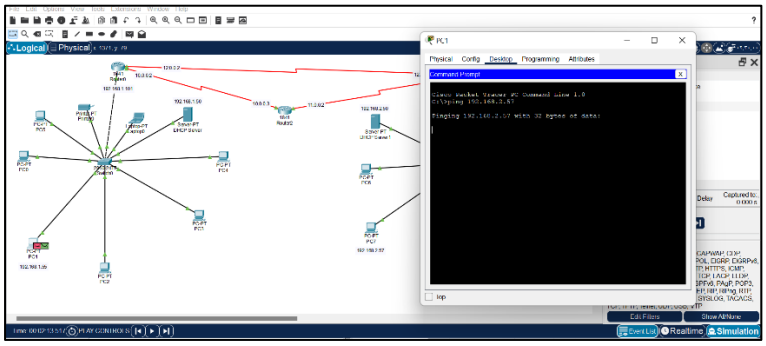
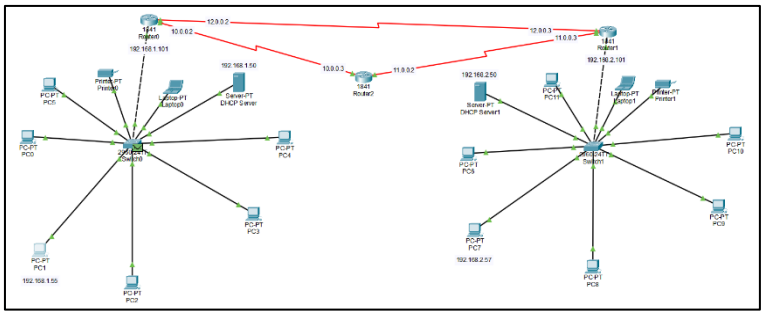
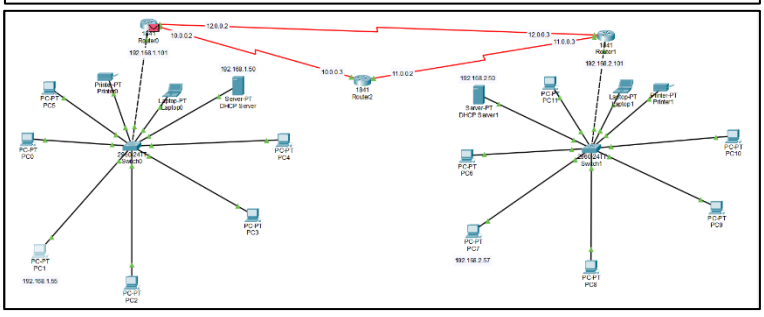
4. Screenshots of the completed network.

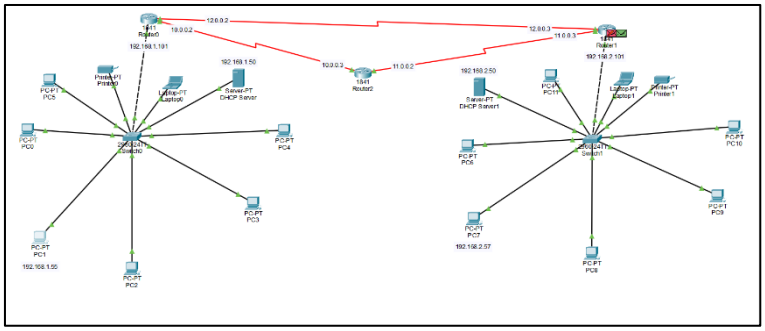


To test the network connectivity between two different LANs, perform a ping from PC1 (located in LAN1) to PC7 (located in LAN2) using the router's path. This involves sending a packet (or envelope) from PC1 to PC7 and observing the response to determine how well the network is functioning between the two LANs.









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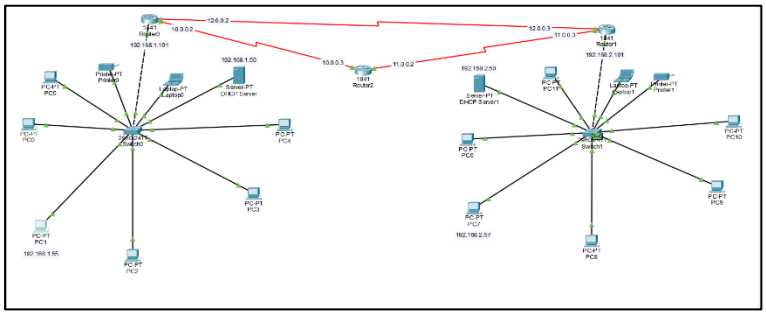

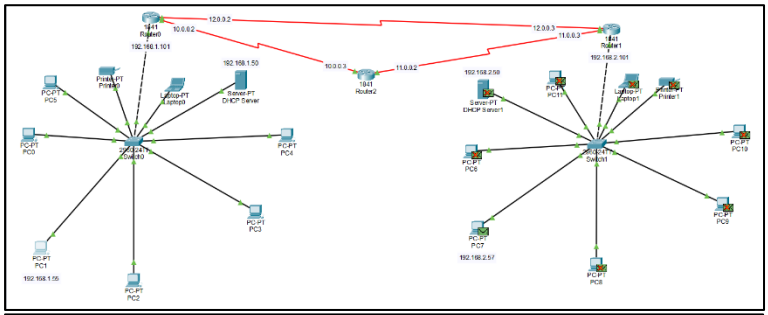

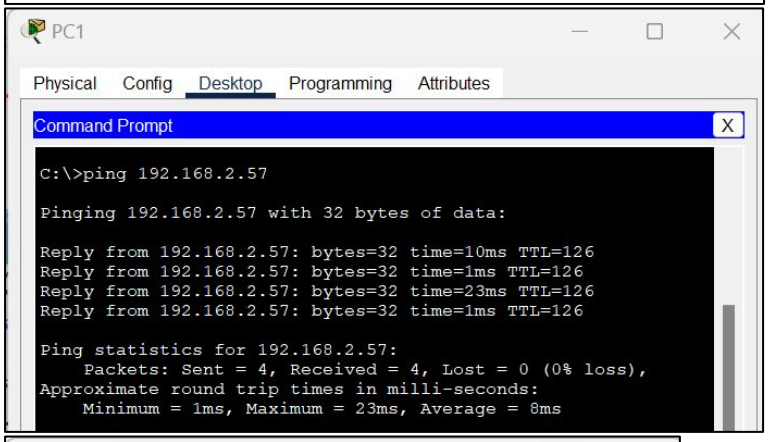

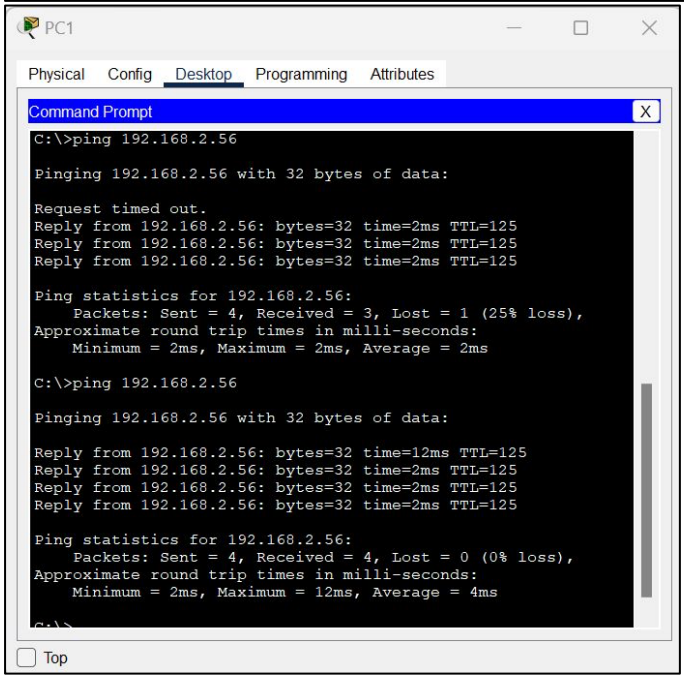

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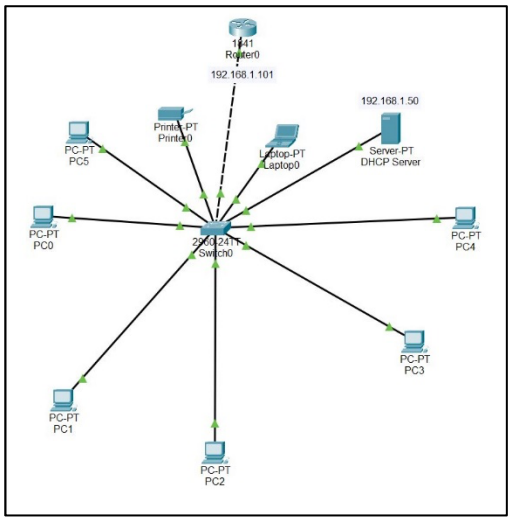
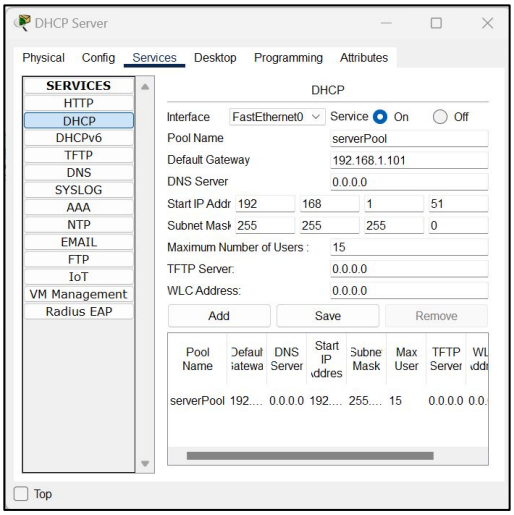
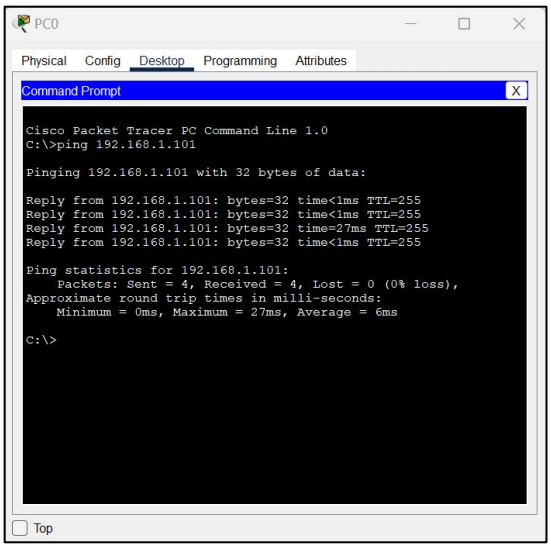
5. Screenshots demonstrating working of the network in packet tracer.
   We first turned the server to a DHCP server, to make setting the IP address easier, then after connecting the LAN, we tested it by sending ping from the pc to its gateway to ensure that the connection is working.

   LAN1:







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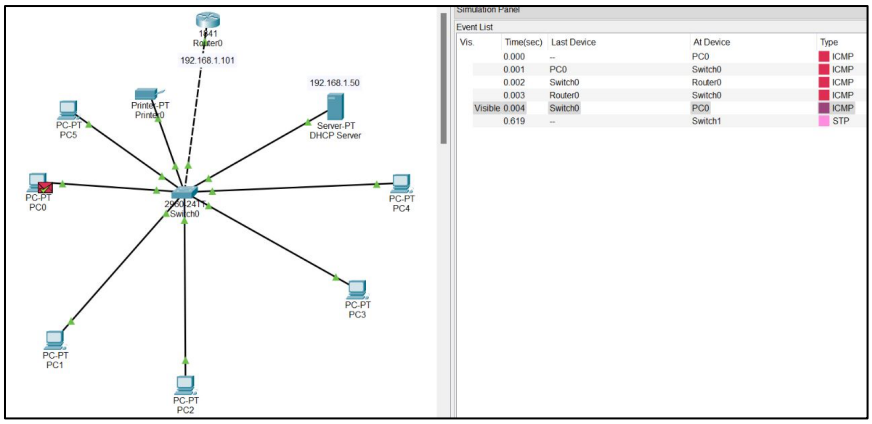
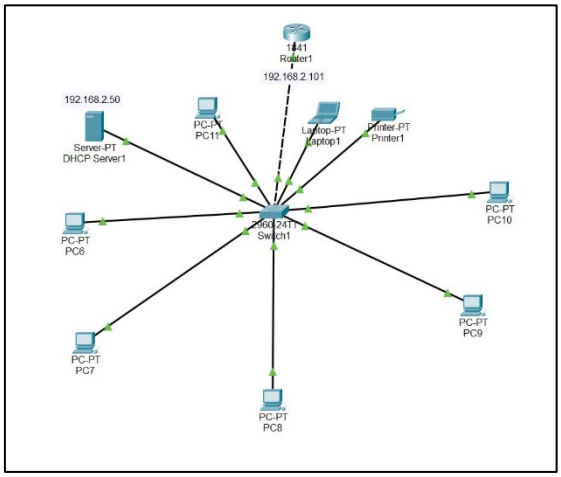
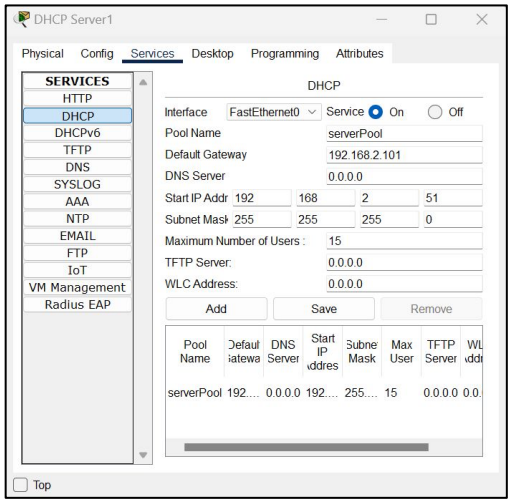
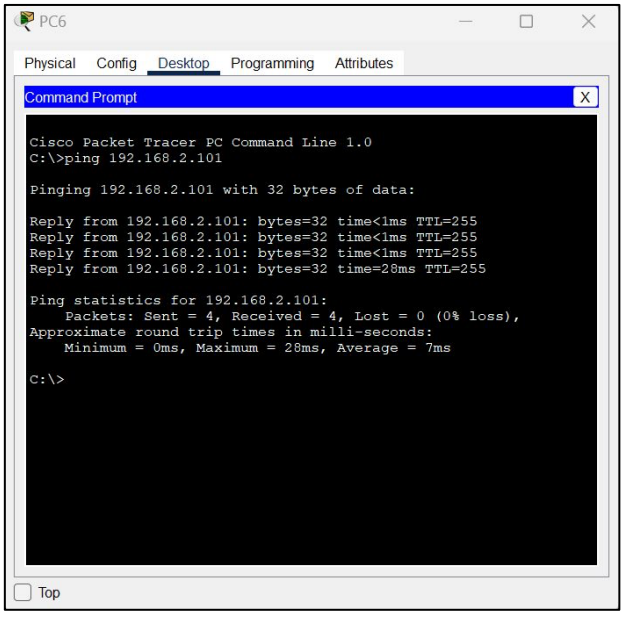


LAN2:







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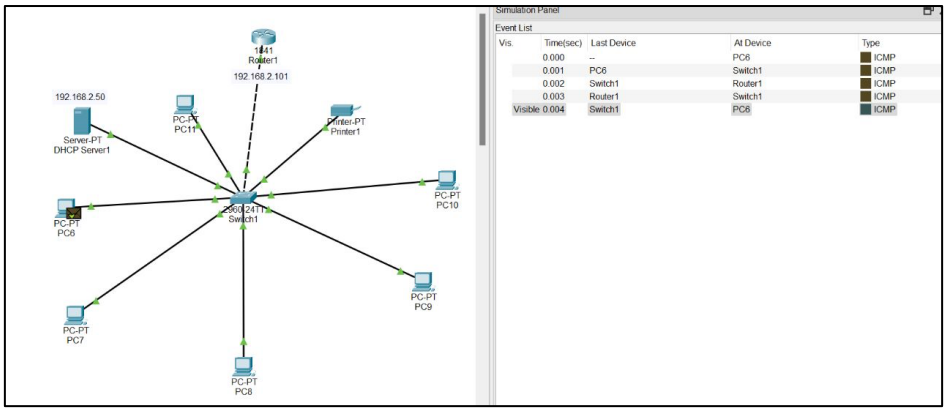
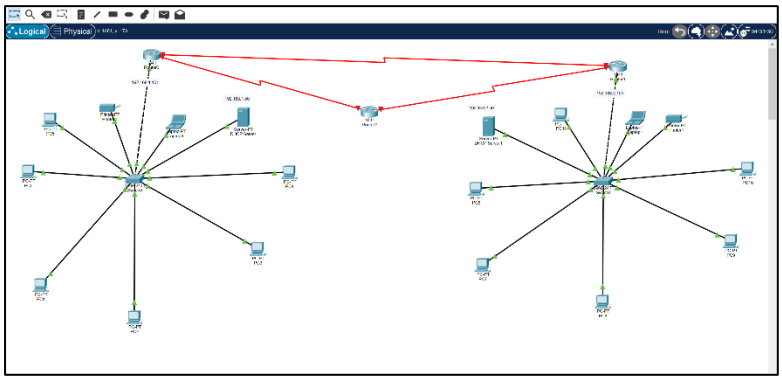
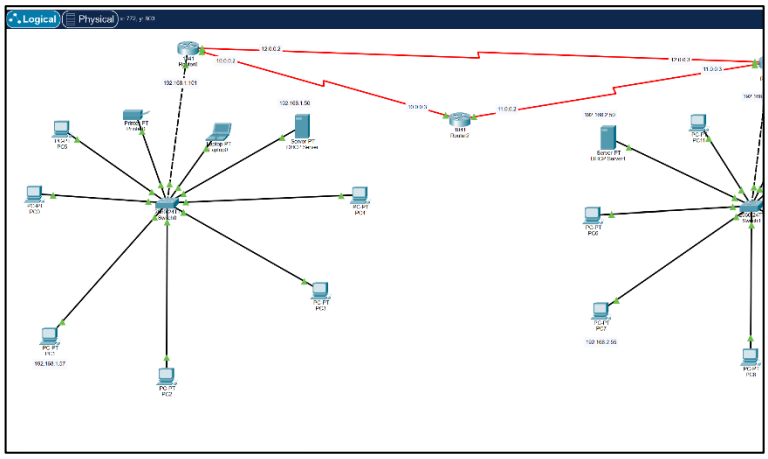


In this stage, we made some changes to the physical settings of each router to obtain new ports. Next, we connected the three routers together using a particular cable and assigned addresses to the interfaces. We then configure routing using the gateway's and interface's addresses. Configuring routing, such as RIP, on multiple routers allows for communication between different networks by enabling the routers to exchange routing information and determine the most efficient path for data to travel. This is crucial for networking to achieve efficient and effective communication.





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