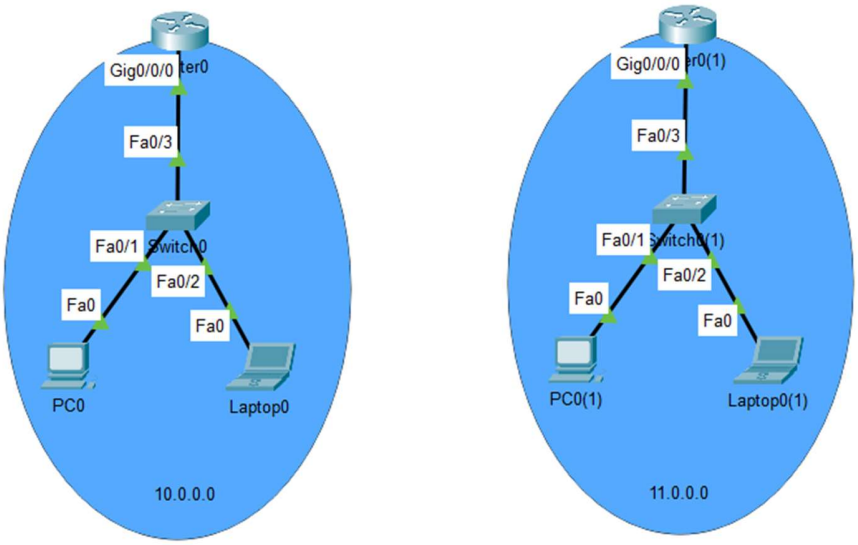
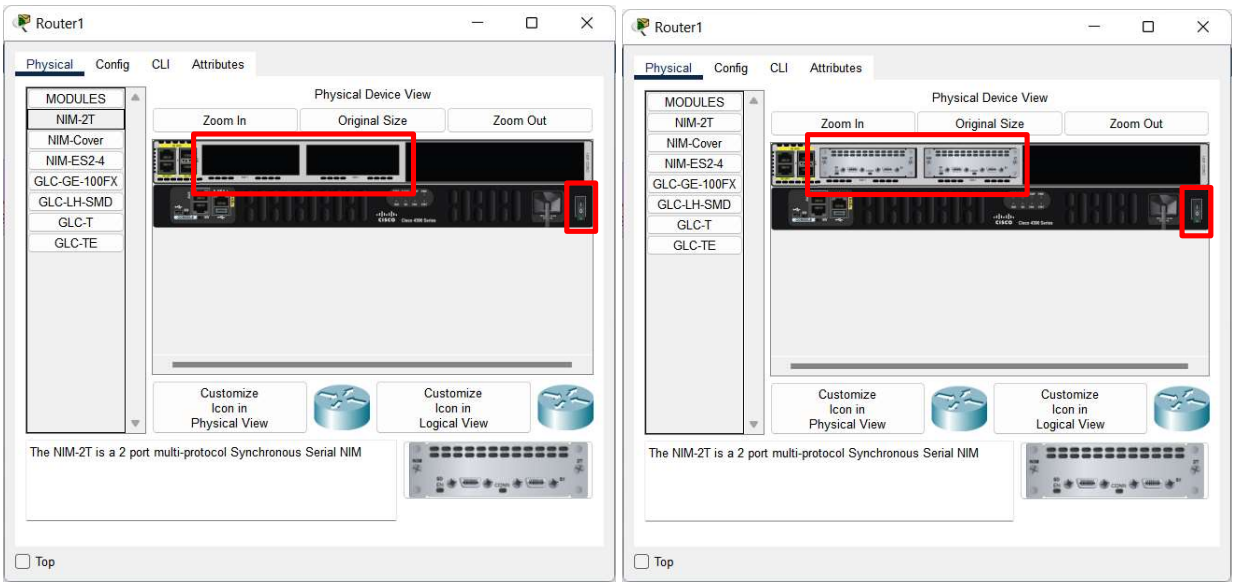
Marwadi University Marwadi Chandarana Group	**Marwadi University** **Faculty of Engineering and Technology** **Department of Information and Communication Technology**	
Subject: Computer Networks (01CT0503)	**Aim:** Perform static routing protocol and analyze the results.	
Experiment No: 05	**Date:** 11-09-2023	**Enrolment No:** 92210133006

Aim: Perform static routing protocol and analyze the results.

Step 1: Create a 2 small network with 1 router, 1 switch, and 2 devices and connect them using copper straight through cable.



Step 2: To long distance communication we need to connect router using Serial DTE cable. For the serial port we have to open router turn off it and drag and drop NIM-2T on router and turn on router.



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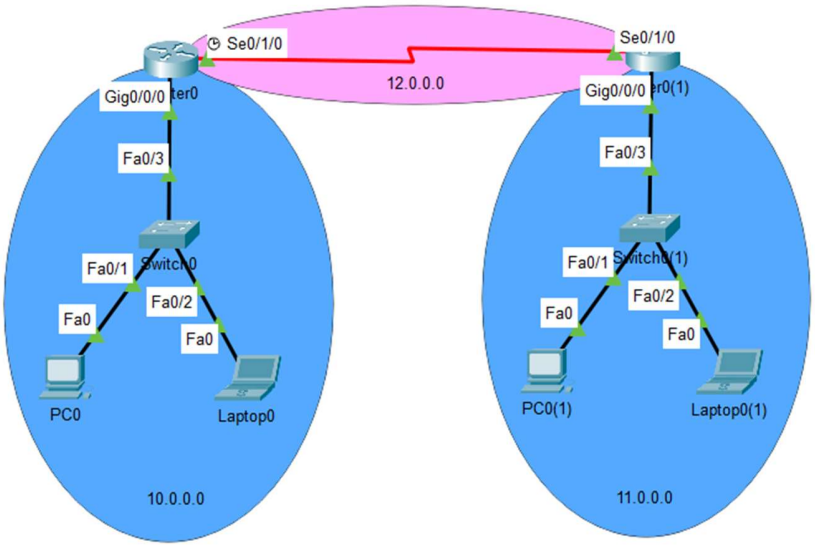
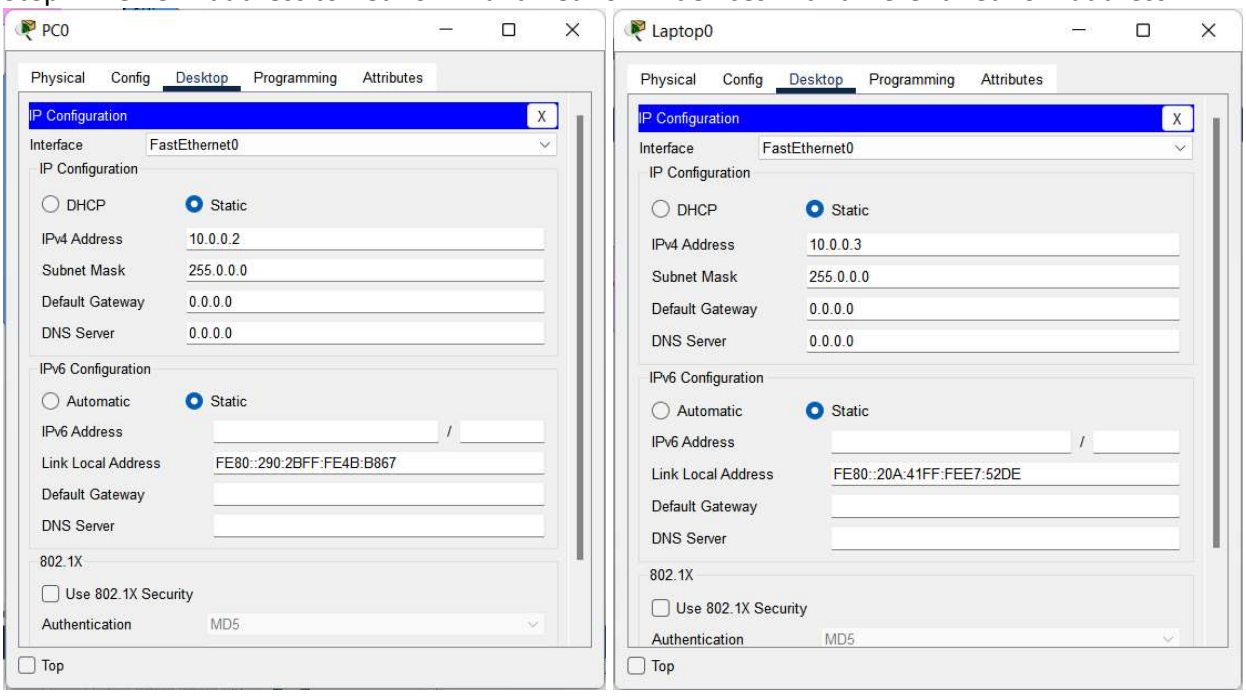
Step 3: Now connect both router using Serial DTE cable.



Step 4: Give IP address to network 1 and network 2 devices with different network address.



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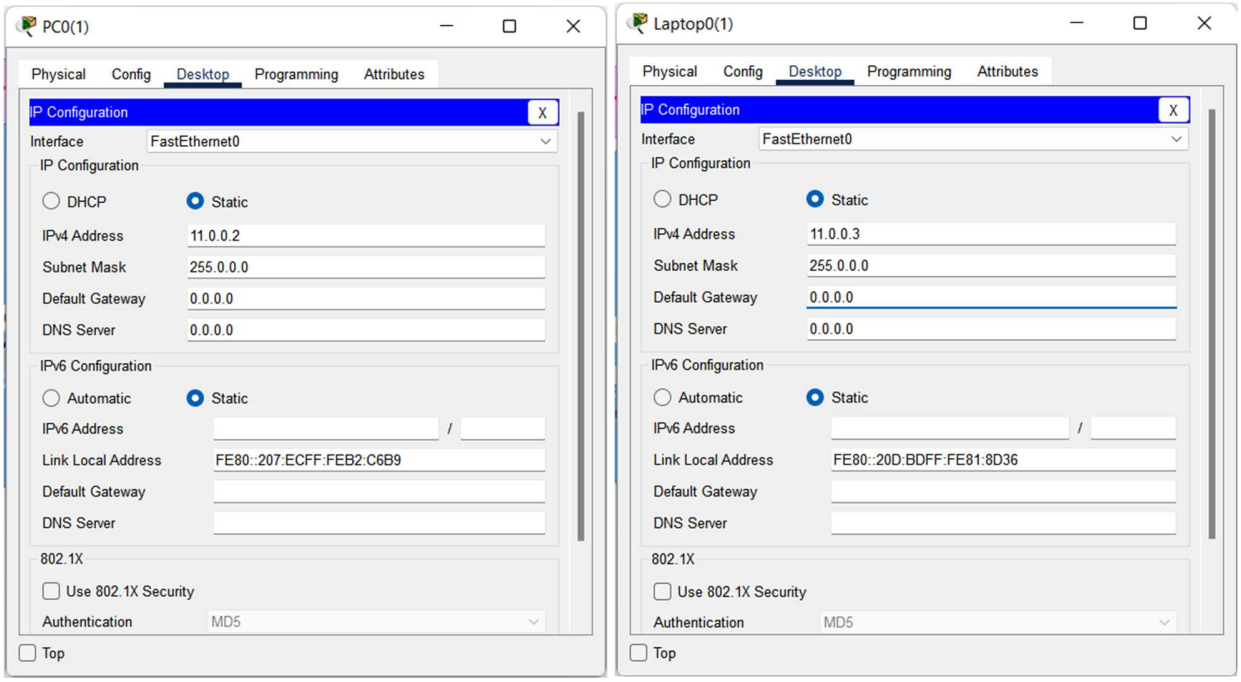
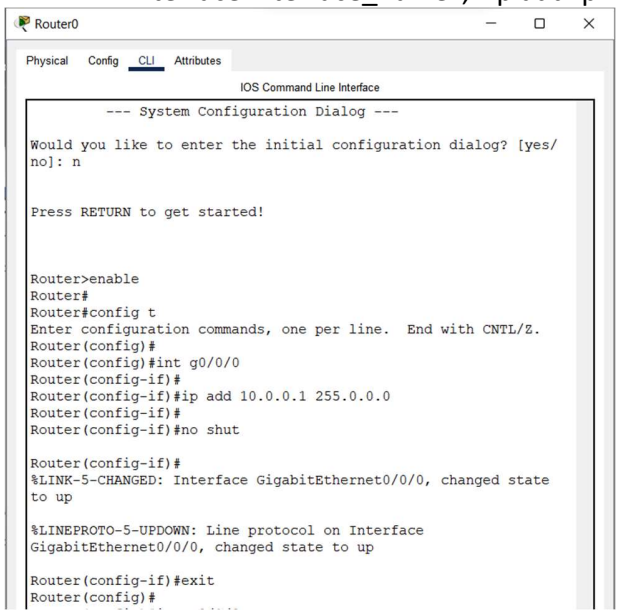
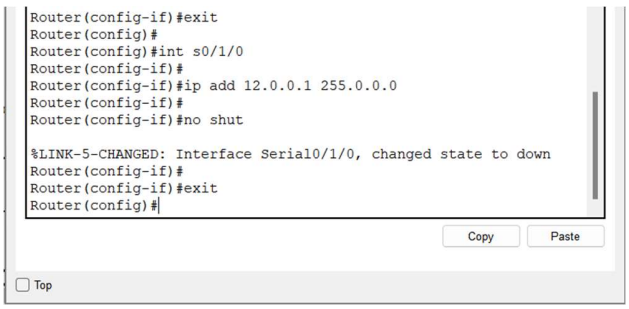


Step 5: Assign Ip addresses to Router.

Commands are "enable", "config t" or "configure terminal", "int interface_name" or "interface interface_name", "ip add ipv4_address subnet_mask", "no shut", "exit".





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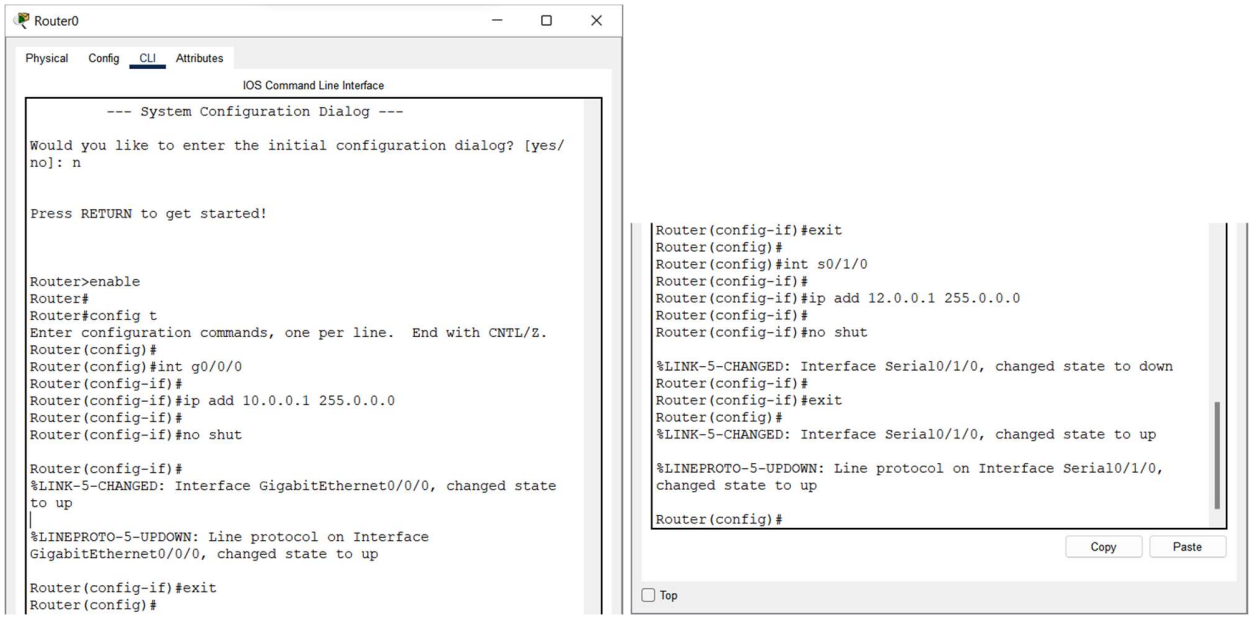
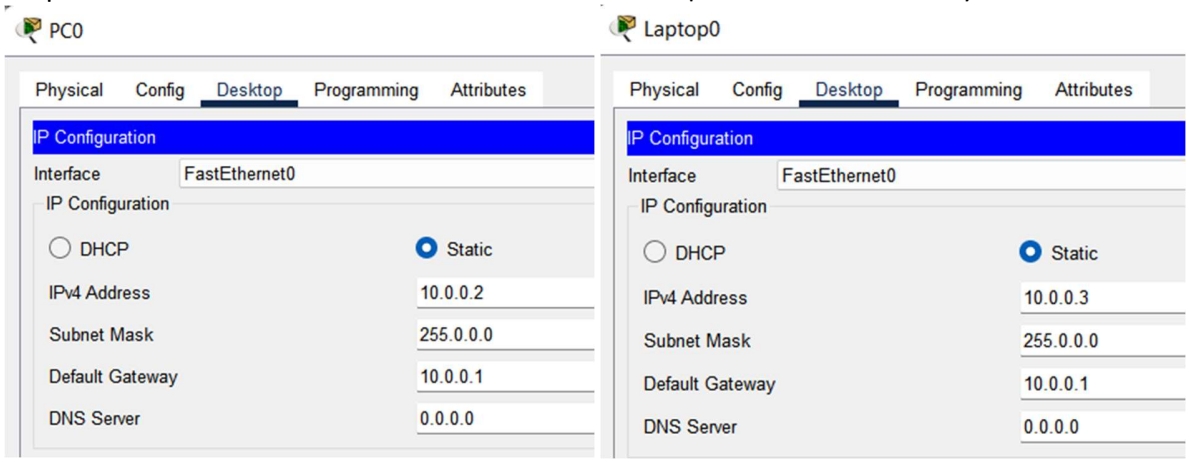


Step 6: Now for network-to-network communication we provide default Gateway of network to all PCs..



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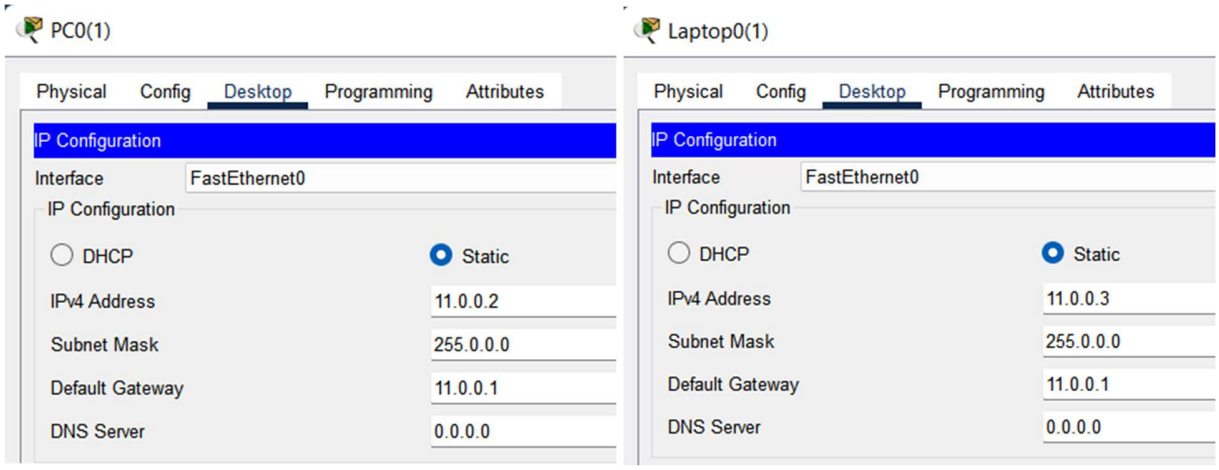
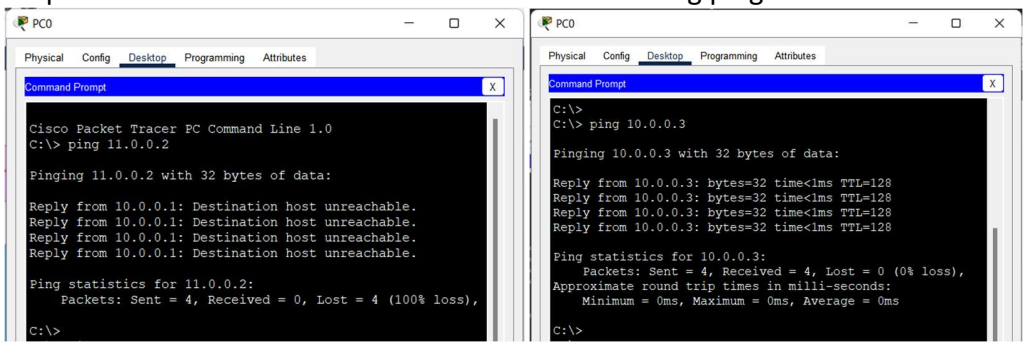
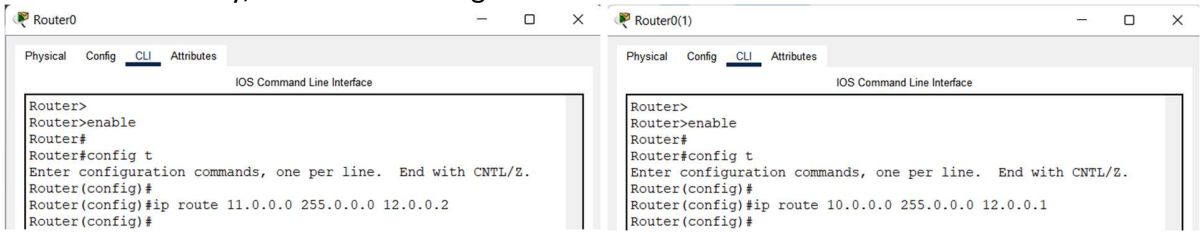


Step 7: Check connection between two network using ping command.



We can see that we only able to communicate with same network for other network destination host is unreachable because it not able to find route.

Step 8: We need to implement routing protocol onto routers so that router can find destination for another network, for that in static routing protocol we have command “ip route <network address> <subnet mask> <next hop IP address>”.
Same way, we need to configure all routers.



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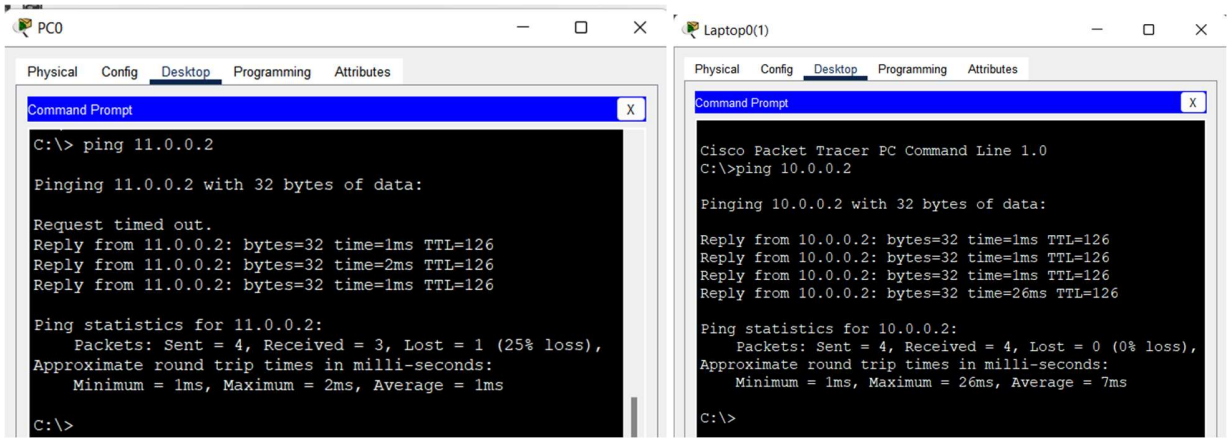
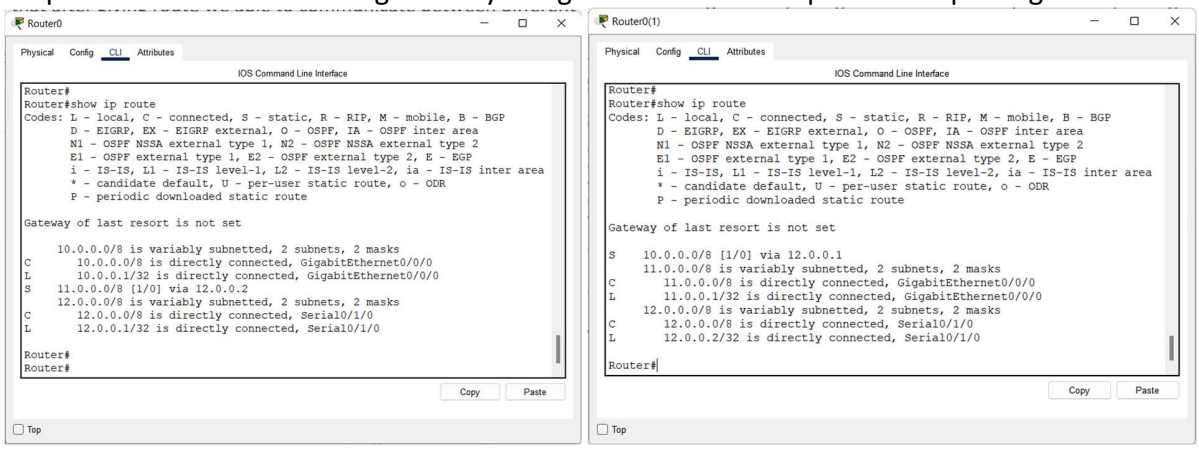
Step 9: Now again check that connection between two networks is established or not using ping command.



Now we can see that after giving route we able to communicate between different networks.

Step 10: We can check routing table by using command "show ip route" in privilege mode.



Conclusion:

Through this experiment, I learned that to enable communication between different networks, we need to implement routing protocols. Specifically, I learned how to use static routing with the "ip route" command and assign default gateways to devices. By using "show ip route," I analyzed the routing table and identified that:

"L" (Local) means the router is directly connected to the mentioned network or IP (e.g., 10.0.0.1 and 12.0.0.1).

"C" (Connected) confirms the router's direct physical interfaces to networks (e.g., 10.0.0.0/8 and 12.0.0.0/8).

"S" (Static) represents a manually configured route, such as the one for 11.0.0.0/8 via 12.0.0.2, enabling specific network communication.