BERMAS, LESTER LANCE J.
BSIT-NS-3AB

COMPUTER NETWORKING
LABORATORY

NOVEMBER 27, 2022
PROF. VICENTE ESTEMBER

ACTIVITY 6

ACCESSING AND CONFIGURING ROUTER GATEWAY USING IOS IN CLI

OBJECTIVES:

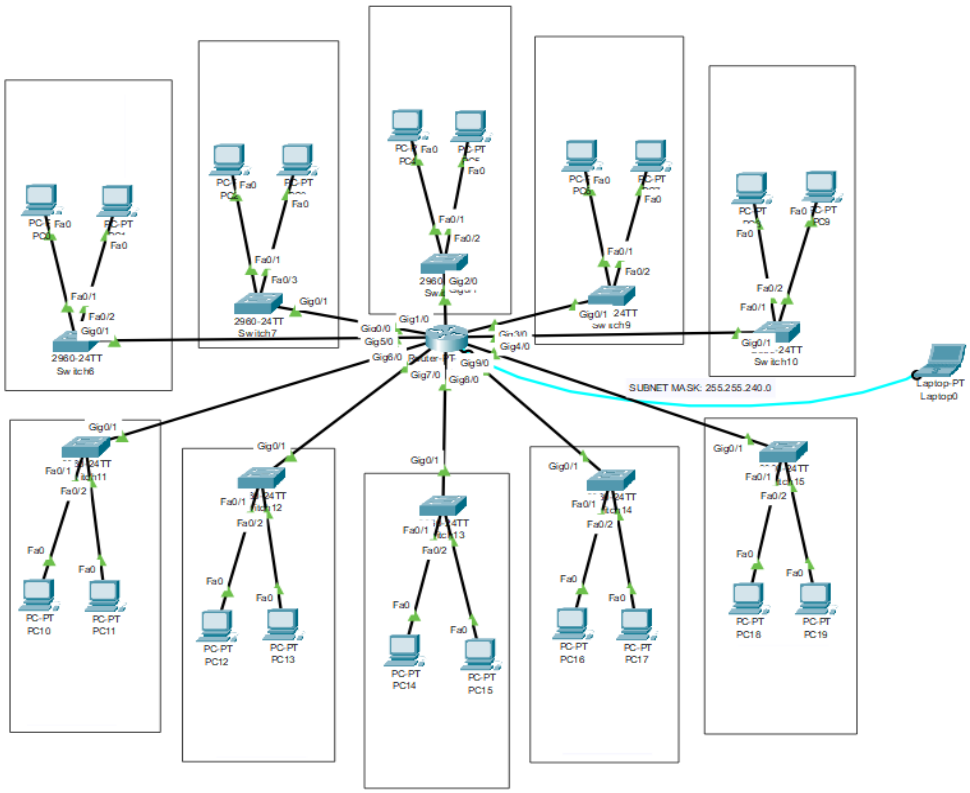
1. To access Cisco Switch and Router through console cable.
2. Familiarize the IOS CLI basic commands.
3. To understand the IOS modes of operation.
4. To understand the IOS environments.
5. To test initial configuration of router Gateway IP using Command-Line-Interface.

STEPS AND PROCEDURES:

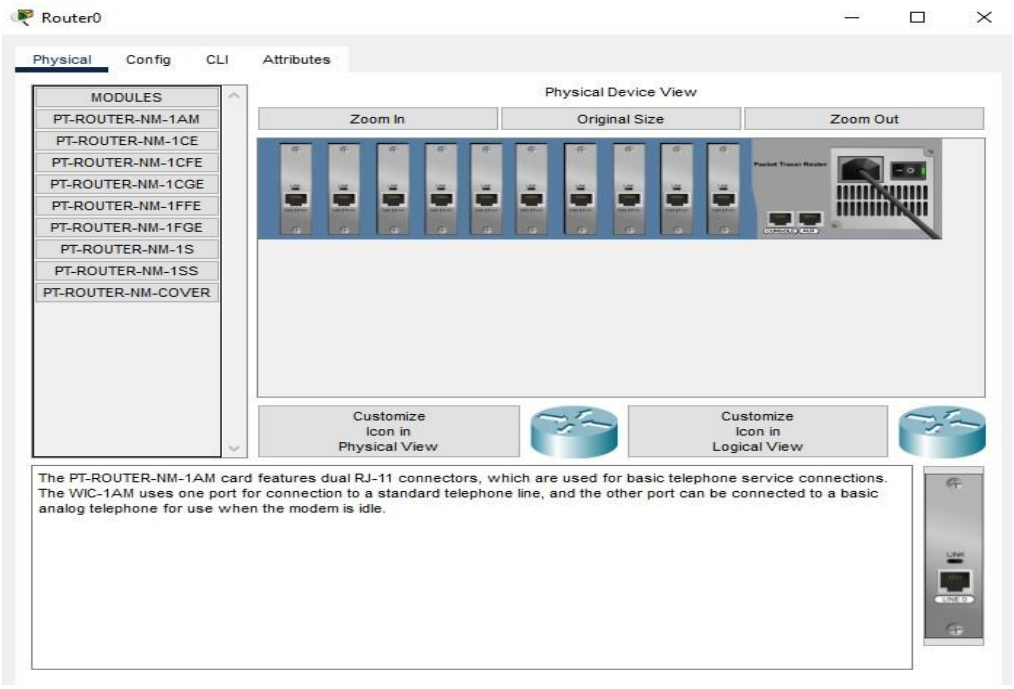
1. Prepare the following: IP address (Beginning and Last), subnet mask and its Default gateway for creating network topologies. Note that the IP address and default gateway must be different for each block, but the subnet mask must be used for every block.
SUBNET MASK: 255.255.240.0

Beginning IP Address	Last IP Address	Default Gateway
150.168.17.2	150.168.31.254	150.168.17.1
150.168.33.2	150.168.47.254	150.168.33.1
150.168.49.2	150.168.63.254	150.168.49.1
150.168.65.2	150.168.79.254	150.168.65.1
150.168.81.2	150.168.95.254	150.168.81.1
150.168.97.2	150.168.111.254	150.168.97.1
150.168.113.2	150.168.127.254	150.168.113.1
150.168.129.2	150.168.143.254	150.168.129.1
150.168.145.2	150.168.159.254	150.168.145.1
150.168.161.2	150.168.175.254	150.168.161.1

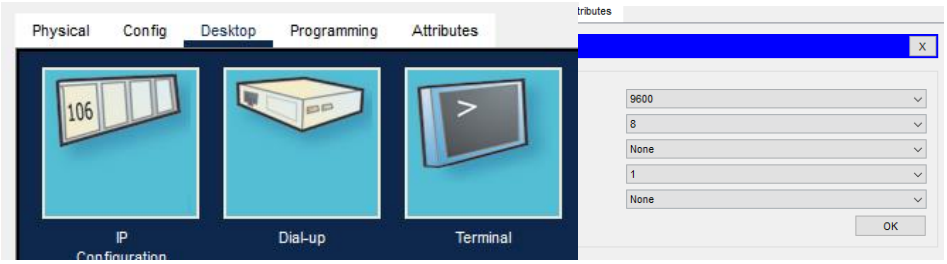
2. Use the table above to create your network topology in Cisco Packet Tracer.



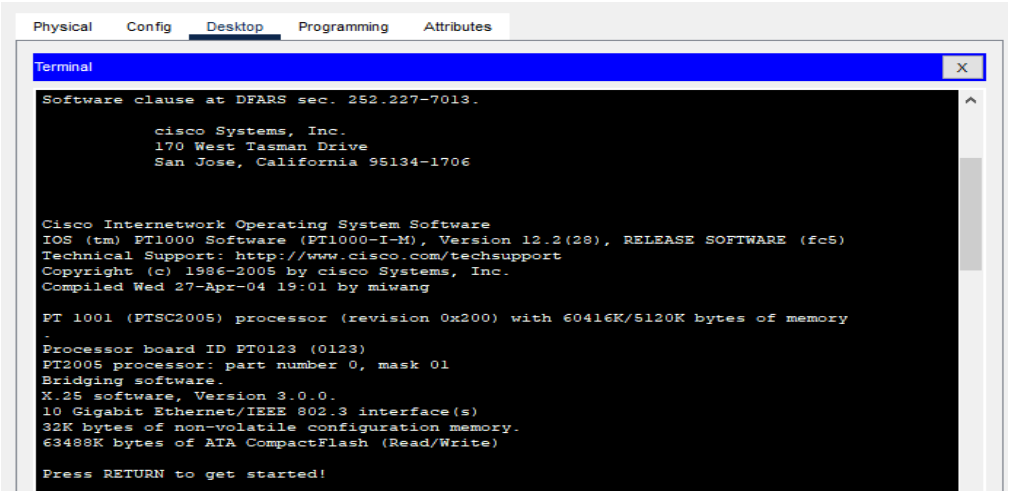
3. Apply the list of addresses and default gateways you created to the table. Place the ports inside the routers in the topology you created and press ON on the routers.



4. Then, go to the laptop and prepare its terminal to assign the following default gateways.



5. This is what the output looks like after clicking Terminal. Then proceed with the IP configuration assigned to the switch using the default gateway created in the table.



6. Enter the following command: These commands are assigned to switches with default gateways listed in the table. Note that it must be in your router path.

These are the following commands that I've used:

enable

conf t int (specify the cable used)

ip add (default gateway) (subnet mask)

no shut

exit

7. Topology automatically connects the following switches from the router: Then assign the following IP addresses (Beginning and Last) under each block (switch) along with the default gateway.

8. Test the network topology. Make sure that all the are successfully connected to each other.

OBSERVATION AND RESULTS:

From what I've observed, the following command I used in the CLI works based on the syntax and IP address assigned. The results are very accurate, found using the declared default gateways listed in the previous table. I also noticed that the command declared in step 6 has its own usage: 'enable' = command for privilege mode

- conf t = configuration mode
- int (cable used) = interface for the specified cable and its number
- ip add (default gateway) (mask) = assigns IP Address (Default Gateway) and a subnet mask
- no shut = brings up the interface
- exit = return to the privilege mode

Additionally, Figure 1 shows the commands reflected in the topology with IP addresses and masks assigned to each block. where the IP address is the default gateway, the mask is static (that is, 255.255.240.0), and Figure 2 shows the assignments. A starting and ending IP address for each block with a default gateway that serves as a complete step for a successful network topology. These are the outputs:

FIGURE 1:

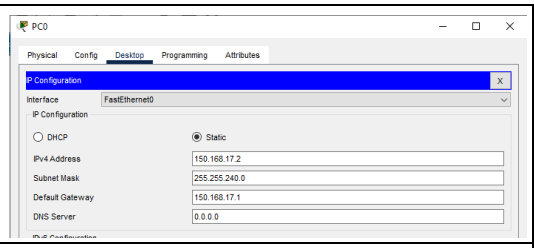
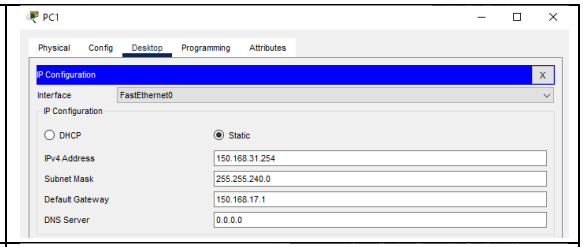
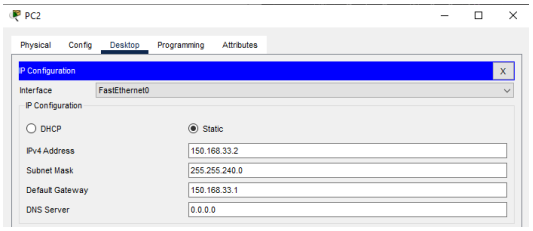
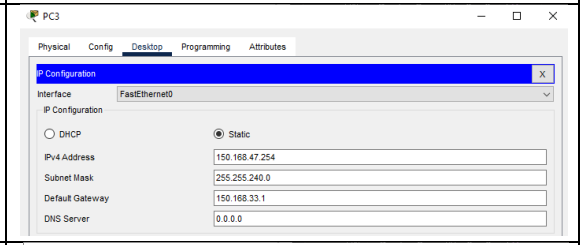
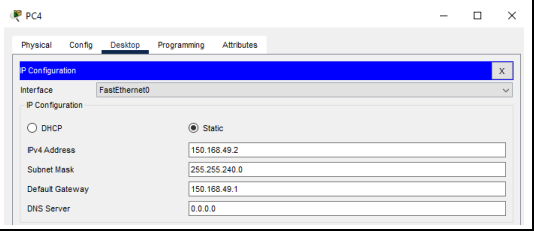
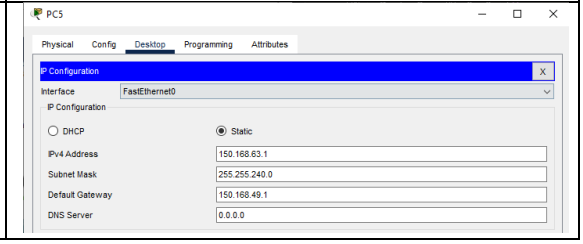
Default Gateway for Switch 1 (Gigabit 0/0): 150.168.17.1	`Router(config-if)#ip add 150.168.17.1 255.255.240.0`
	`Router(config-if)#no shut`
	
	`Router(config-if)#`
	`%LINK-5-CHANGED: Interface GigabitEthernet0/0, changed state to up`
	
	`%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0, changed state to up`

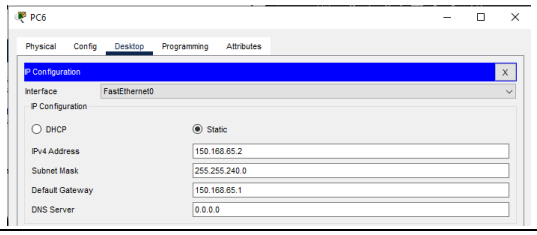
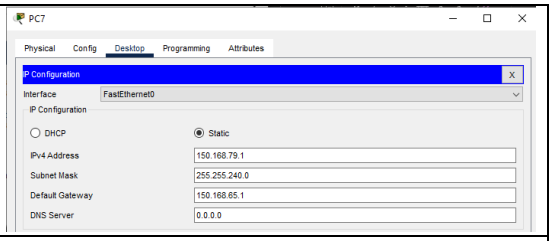
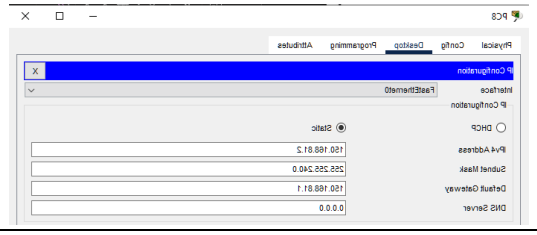
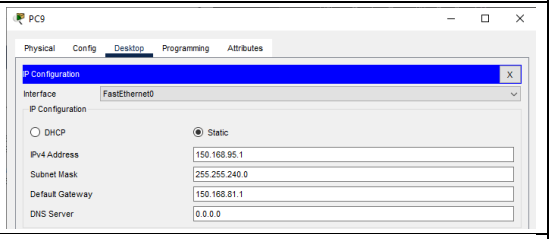
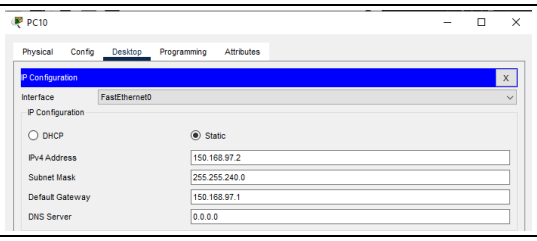
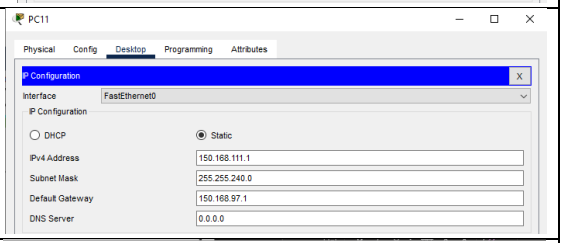
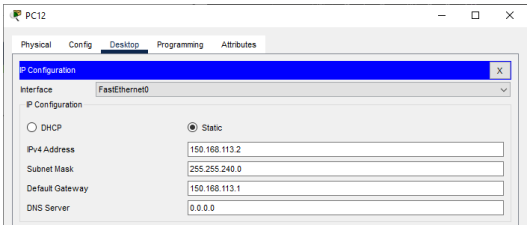
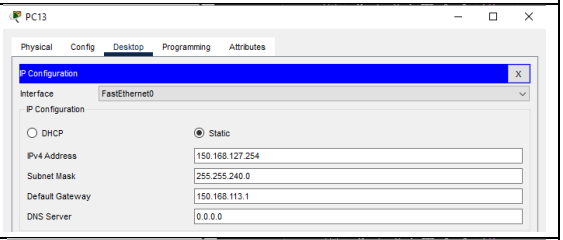
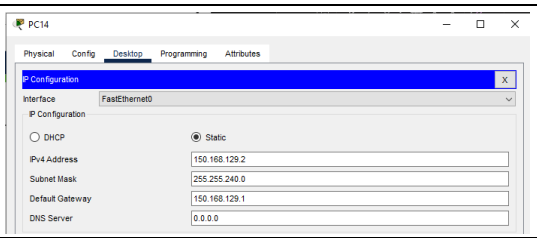
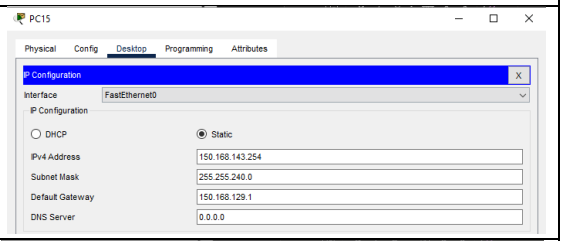
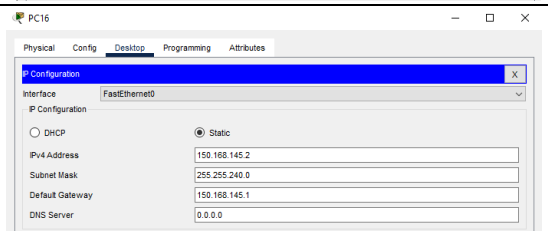
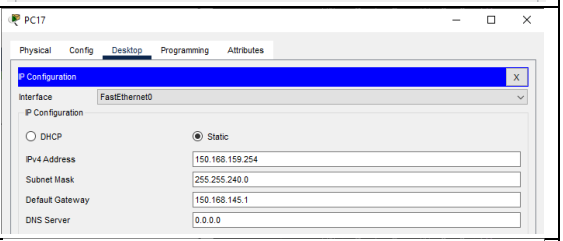
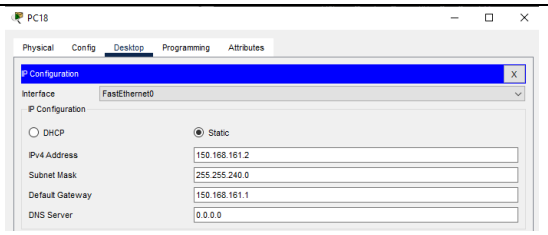
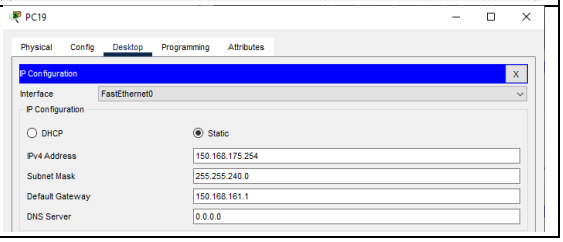
Default Gateway for Switch 2 (Gigabit 1/0): 150.168.33.1	`Router(config)#in gig1/0`
	`Router(config-if)#ip add 150.168.33.1 255.255.240.0`
	`Router(config-if)#no shut`
	
	`Router(config-if)#`
	`%LINK-5-CHANGED: Interface GigabitEthernet1/0, changed state to up`
	
	`%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet1/0, changed state to up`

Default Gateway for Switch 3 (Gigabit 2/0): 150.168.49.1	Router(config-if)#int gig2/0 Router(config-if)#ip add 150.168.49.1 % Incomplete command. Router(config-if)#ip add 150.168.49.1 255.255.240.0 Router(config-if)#no shut Router(config-if)# %LINK-5-CHANGED: Interface GigabitEthernet2/0, changed state to up %LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet2/0, changed state to up
Default Gateway for Switch 4 (Gigabit 3/0): 150.168.65.1	Router(config-if)#int gig3/0 Router(config-if)#ip add 150.168.65.1 255.255.240.0 Router(config-if)#no shut Router(config-if)# %LINK-5-CHANGED: Interface GigabitEthernet3/0, changed state to up %LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet3/0, changed state to up
Default Gateway for Switch 5 (Gigabit 4/0): 150.168.81.1	Router(config-if)#ip add 150.168.81.1 255.255.240.0 Router(config-if)#no shut Router(config-if)# %LINK-5-CHANGED: Interface GigabitEthernet4/0, changed state to up %LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet4/0, changed state to up
Default Gateway for Switch 6 (Gigabit 5/0): 150.168.97.1	Router(config-if)#int gig5/0 Router(config-if)#ip add 150.168.97.1 255.255.240.0 Router(config-if)#no shut Router(config-if)# %LINK-5-CHANGED: Interface GigabitEthernet5/0, changed state to up %LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet5/0, changed state to up
Default Gateway for Switch 7 (Gigabit 6/0): 150.168.113.1	Router(config-if)#int gig6/0 Router(config-if)#ip add 150.168.113.1 255.255.240.0 Router(config-if)#no shut Router(config-if)# %LINK-5-CHANGED: Interface GigabitEthernet6/0, changed state to up %LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet6/0, changed state to up

Default Gateway for Switch 8 (Gigabit 7/0): 150.168.129.1	Router(config)#int giga7/0 Router(config-if)#ip add 150.168.129.1 255.255.240.0 Router(config-if)#no shut Router(config-if)# %LINK-5-CHANGED: Interface GigabitEthernet7/0, changed state to up %LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet7/0, changed state to up
Default Gateway for Switch 9 (Gigabit 8/0): 150.168.145.1	Router(config-if)#int giga8/0 Router(config-if)#ip add 150.168.145.1 255.255.240.0 Router(config-if)#no shut Router(config-if)# %LINK-5-CHANGED: Interface GigabitEthernet8/0, changed state to up %LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet8/0, changed state to up
Default Gateway for Switch 10 (Gigabit 9/0): 150.168.161.1	Router(config-if)#int giga9/0 Router(config-if)#ip add 150.168.161.1 255.255.240.0 Router(config-if)#no shut Router(config-if)# %LINK-5-CHANGED: Interface GigabitEthernet9/0, changed state to up %LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet9/0, changed state to up

FIGURE 2:

1ST BLOCK	 
2nd BLOCK	 
3RD BLOCK	 

4th BLOCK		
5th BLOCK		
6th BLOCK		
7th BLOCK		
8th BLOCK		
9th BLOCK		
10th BLOCK		

CONCLUSIONS:

Finally, Activity 6, show how to use the command line interface to assign network topology in real computer networks. The Cisco IOS CLI provides an interface for configuring, monitoring, and maintaining Cisco devices that direct and execute commands in real-world computer network applications.