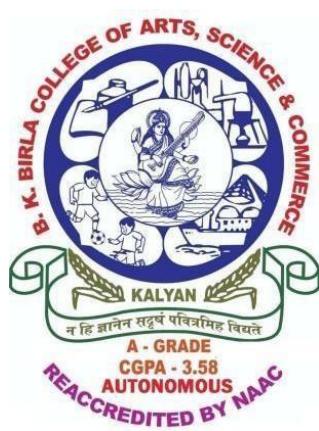


# **B. K. BIRLA COLLEGE OF ARTS, SCIENCE & COMMERCE (AUTONOMOUS), KALYAN**

## **DEPARTMENT OF INFORMATION TECHNOLOGY**



<b>Student Name:</b>	
<b>Student ID:</b>	
<b>Class:</b>	
<b>Subject:</b>	

**B. K. BIRLA COLLEGE OF ARTS, SCIENCE & COMMERCE  
(AUTONOMOUS), KALYAN**

*(Affiliated to University of Mumbai)*

**KALYAN-MAHARASHTRA-421301**

**DEPARTMENT OF INFORMATION TECHNOLOGY**



**CERTIFICATE**

This is to certify that Mr./Ms. \_\_\_\_\_ bearing Seat. No: (\_\_\_\_\_), in class \_\_\_\_\_ has successfully completed practical of the subject \_\_\_\_\_

Teacher's Signature: \_\_\_\_\_

Place:

Date:

College Seal

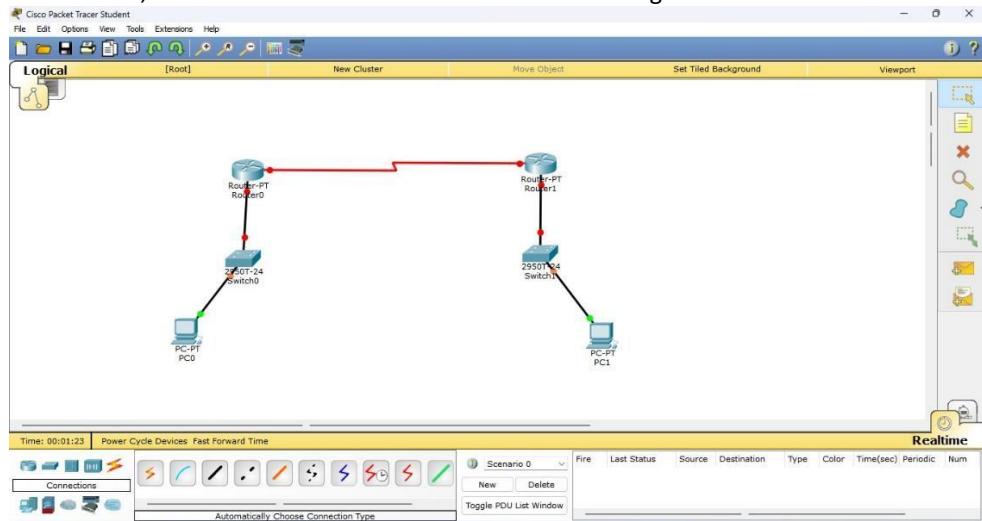
## **INDEX**

<b>SR. NO</b>	<b>PRACTICAL NAME</b>	<b>DATE</b>	<b>SIGNATURE</b>
1.	Simulating RIP	11-12-2023	
2.	Simulating OSPF	11-12-2023	
3.	Simulating BGP	12-12-2023	
4.	Routing Redistributions	13-12-2023	
5.	Configure TCP	14-12-2023	
6.	Configuring DHCP Server	15-12-2023	
7.	Configuring VLAN	18-12-2023	
8.	Configure IP static routing using 3 routers, 3 switches, 6 PC's	19-12-2023	

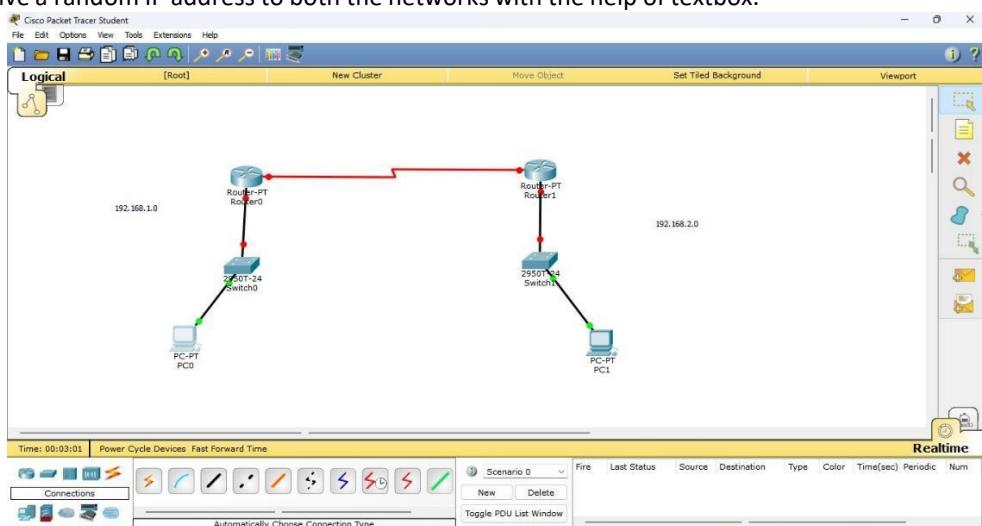
## Practical No. 1

**Aim:** Simulating RIP.

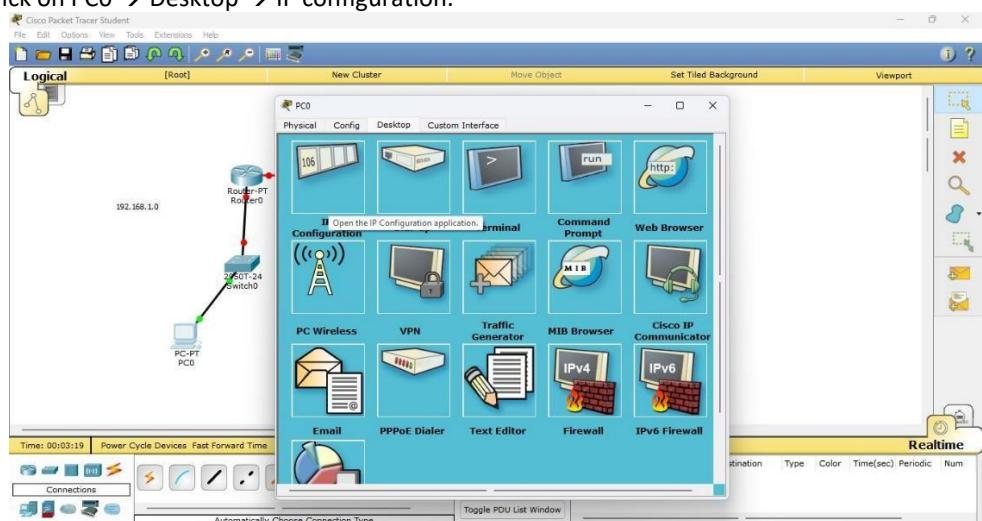
**Step 1:** Take 2 Routers, 2 Switches and 2 PC's and connect them through a wire as shown below.



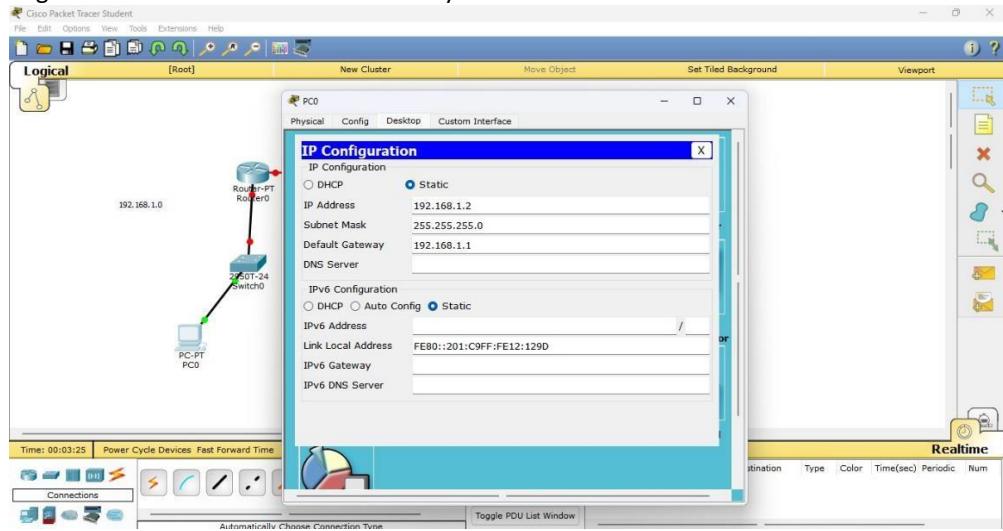
**Step 2:** Give a random IP address to both the networks with the help of textbox.



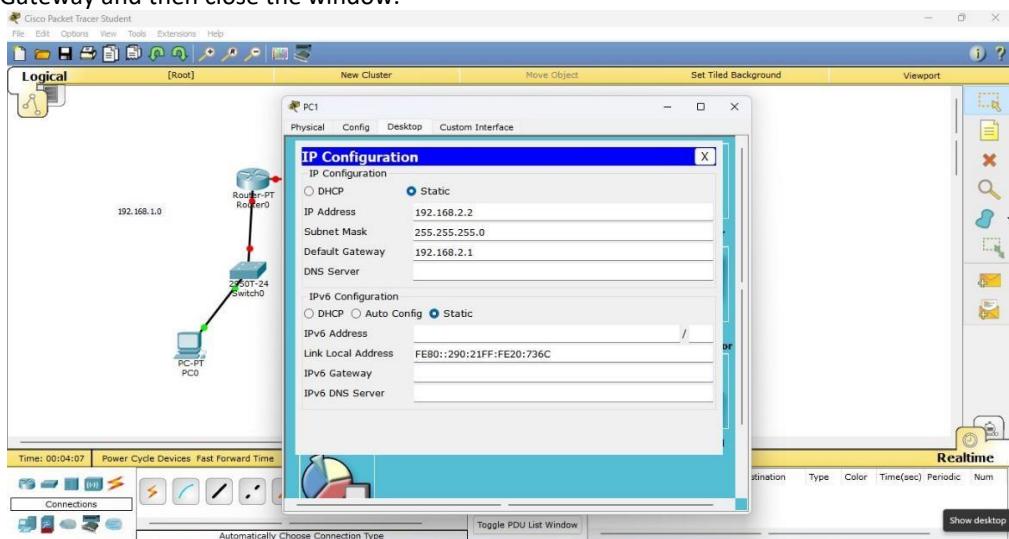
**Step 3:** Click on PC0 → Desktop → IP configuration.



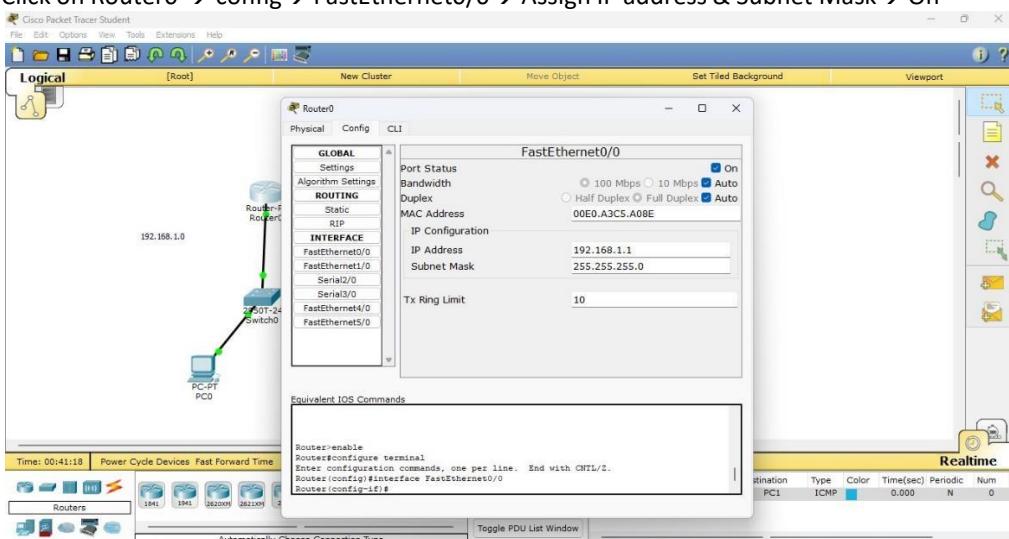
**Step 4:** Select Static IP and define IP address, Subnet Mask and Default Gateway and then close the window this will assign the IP address and Default Gateway to the PC.



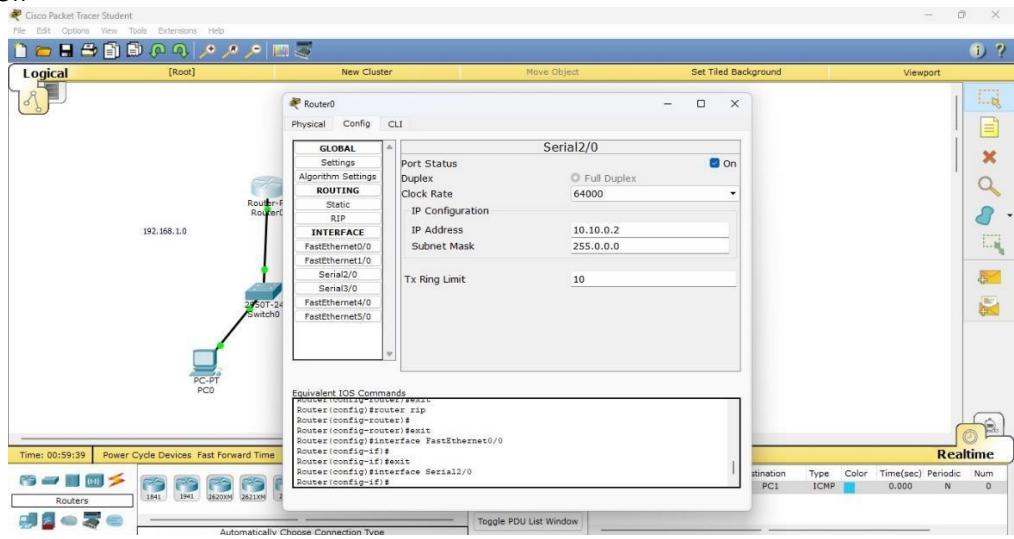
**Step 5:** Click on PC 1 → Desktop → IP Configuration. Select Static IP and define IP address, Subnet Mask and Default Gateway and then close the window.



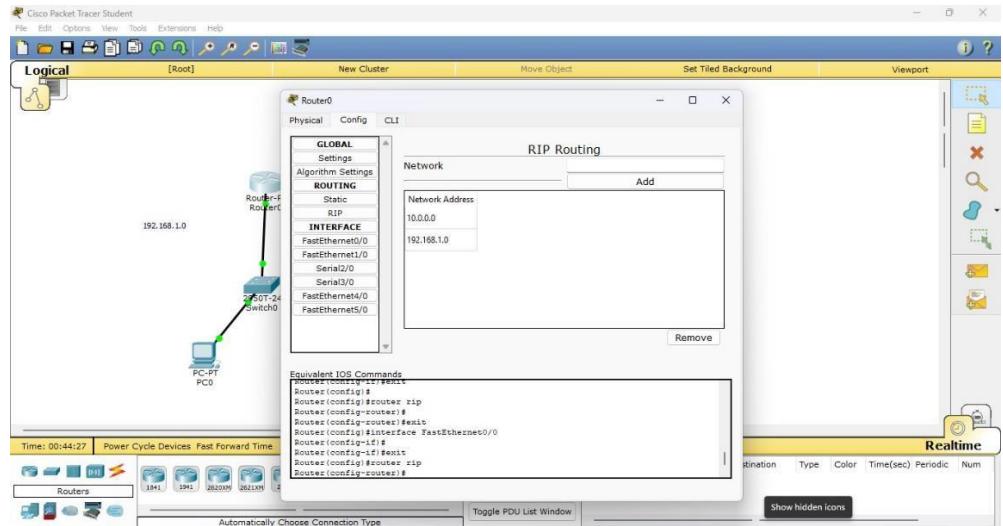
**Step 6:** Click on Router0 → config → FastEthernet0/0 → Assign IP address & Subnet Mask → On



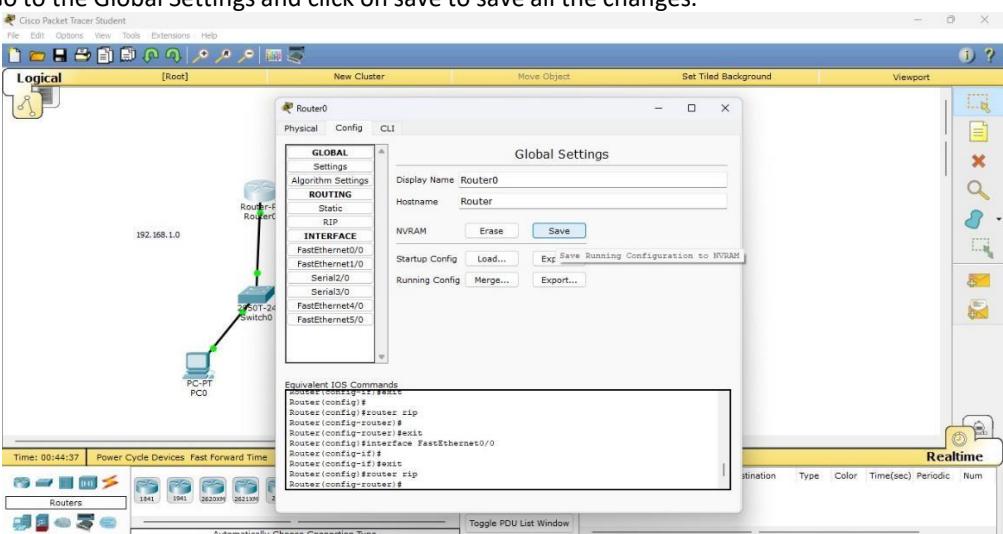
**Step 7:** Click on Router0 → config → Serial2/0 → Select Clock Rate=64000 → Assign the IP address and Subnet Mask → On



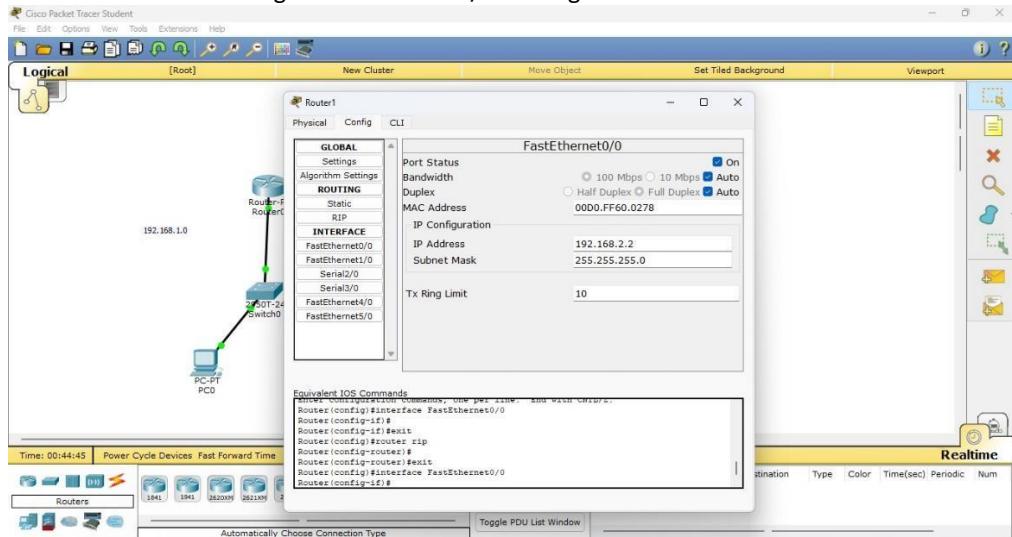
**Step 8:** Click on Router0 → config → RIP → Write the IP address that we had written in FastEthernet0/0 & Serial2/0 → Add



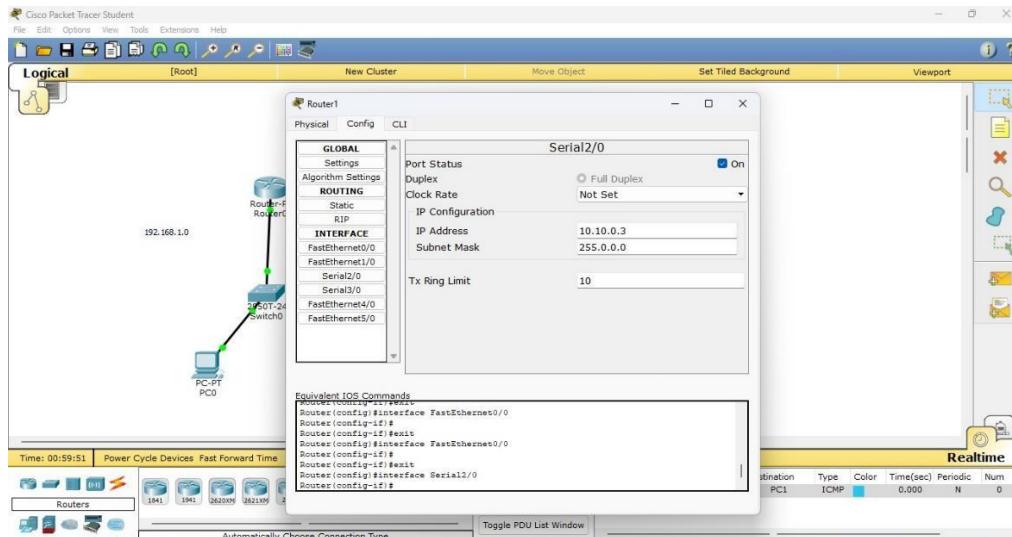
**Step 9:** Go to the Global Settings and click on save to save all the changes.



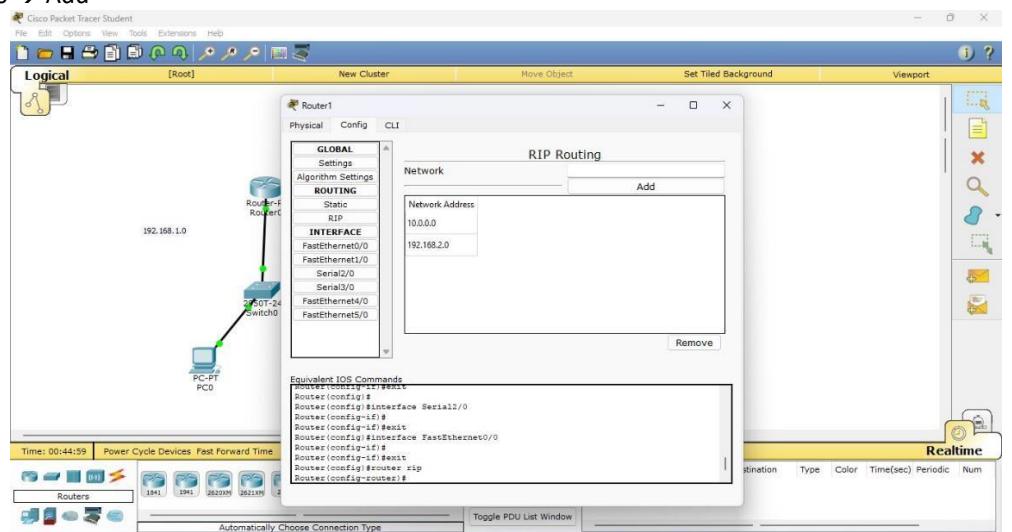
**Step 10:** Click on Router1 → config → FastEthernet0/0 → Assign IP address & Subnet Mask → On



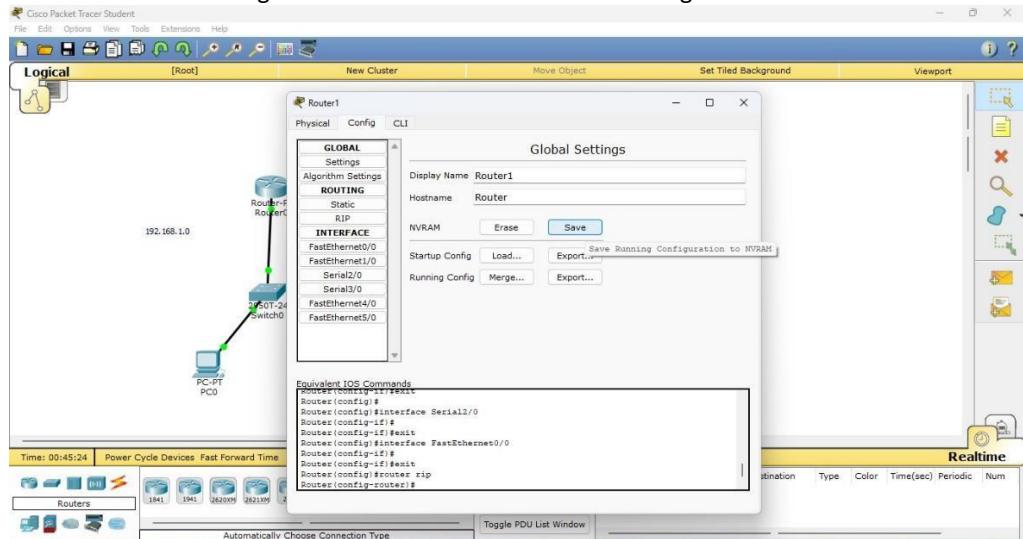
**Step 11:** Click on Router0 → config → Serial2/0 → Select Clock Rate=Not Set → Assign the IP address and Subnet Mask → On



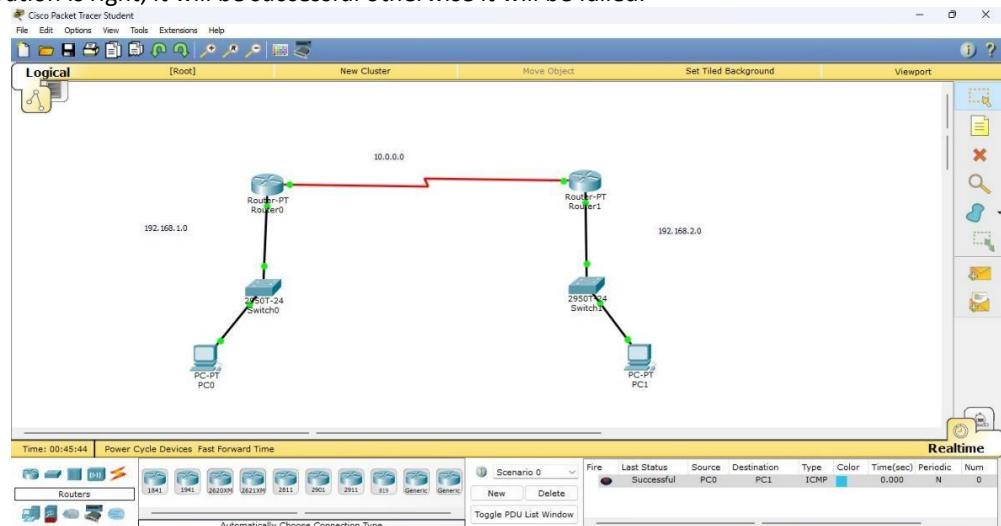
**Step 12:** Click on Router1 → config → RIP → Write the IP address that we had written in FastEthernet0/0 & Serial2/0 → Add



**Step 13:** Go to the Global Settings and click on save to save all the changes.



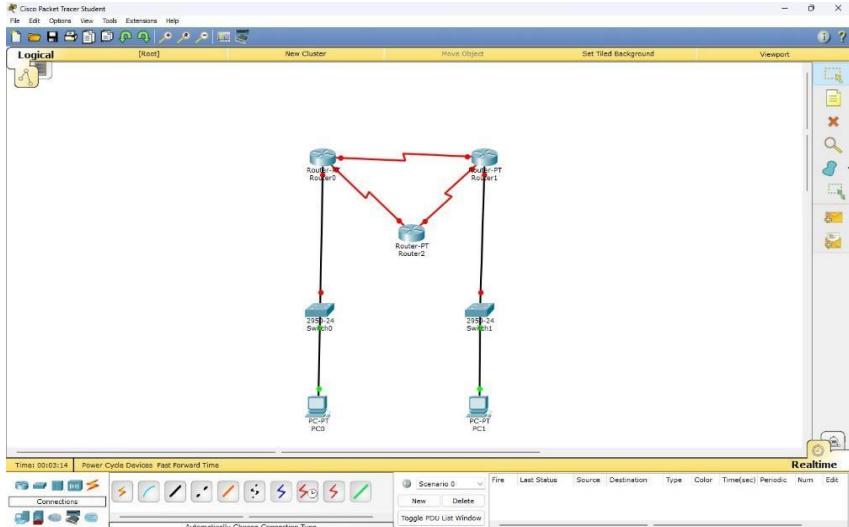
**Step 14:** Click on a message option present at the right side and drop the message from PC0 to PC1. If our configuration is right, it will be successful otherwise it will be failed.



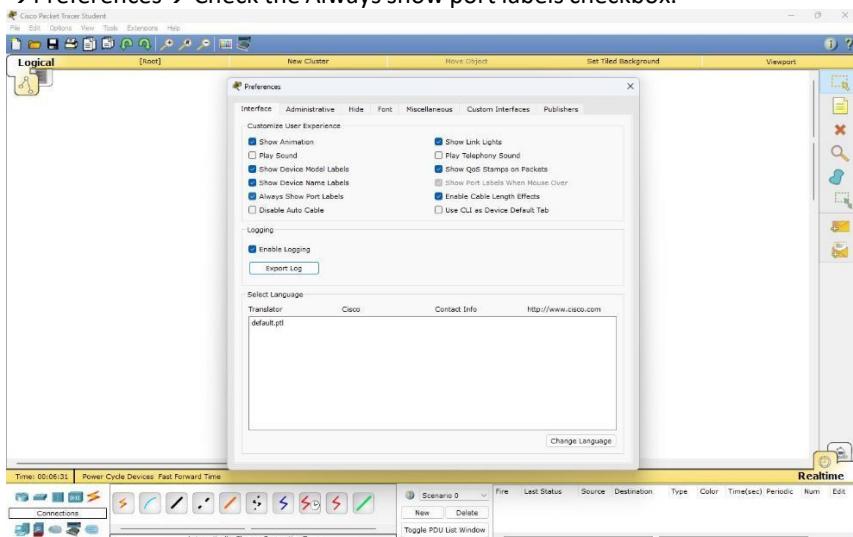
## Practical No. 2:

Aim: Simulating OSPF.

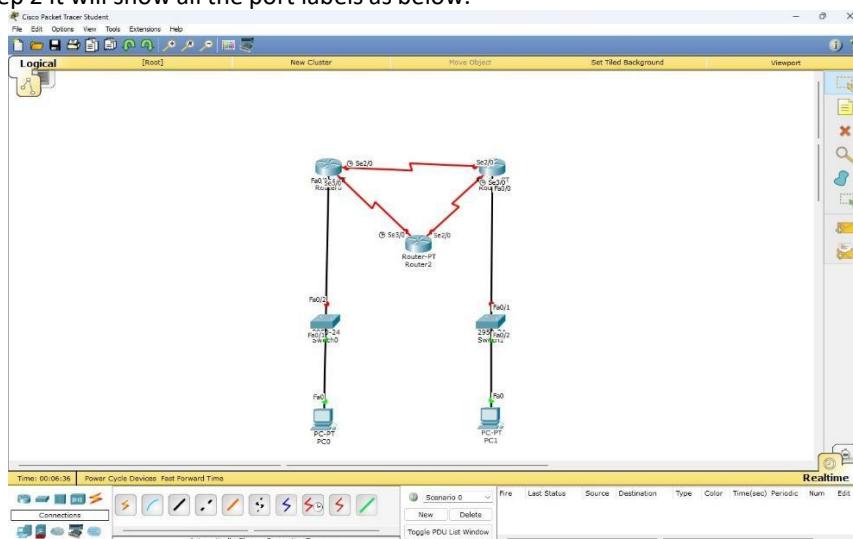
Step 1: Take 3 Routers, 2 Switches, 2 PC's and connect them through wire as shown below.



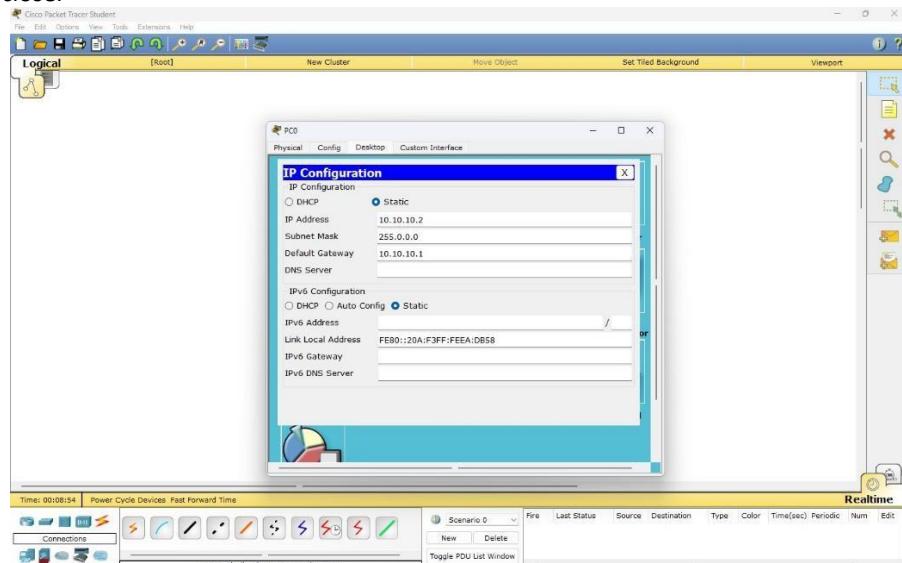
Step 2: Options → Preferences → Check the Always show port labels checkbox.



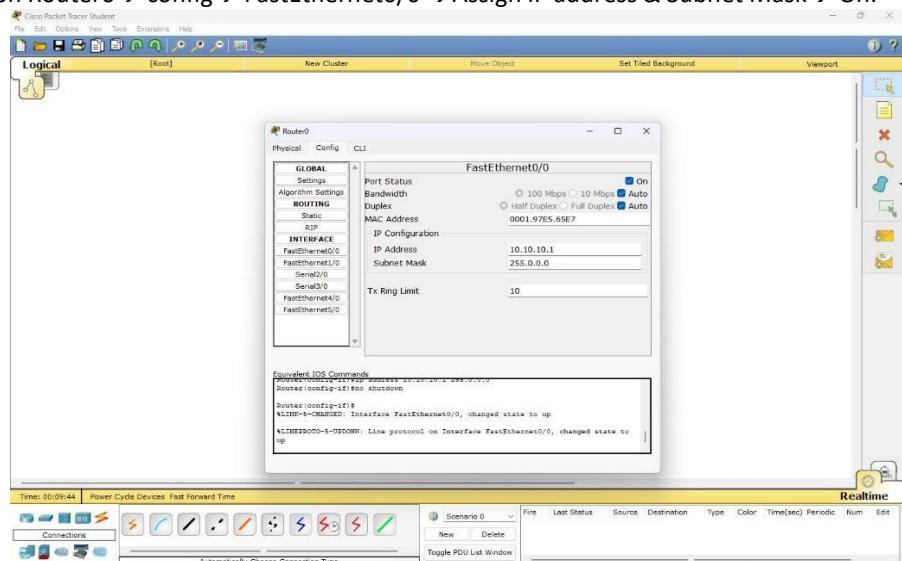
Step 3: After step 2 It will show all the port labels as below.



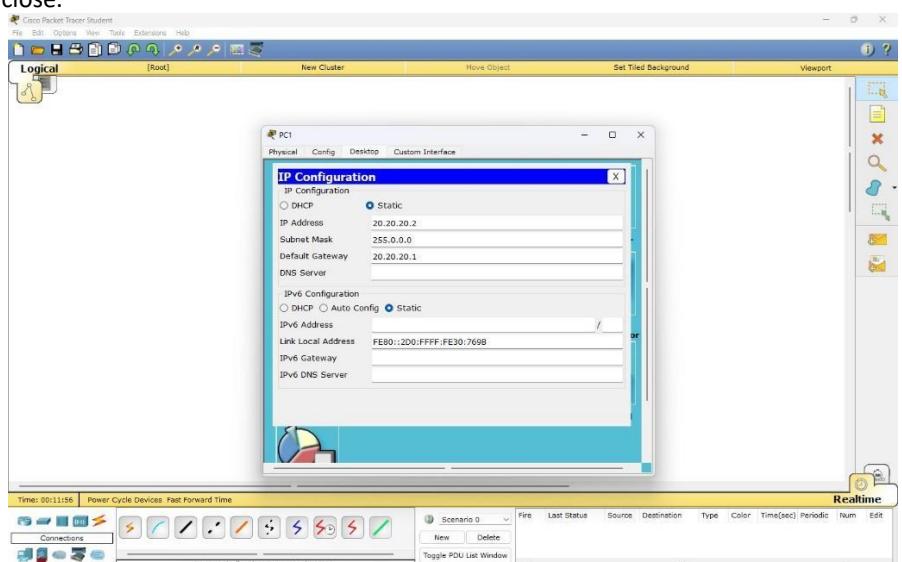
**Step 4:** Click on PC0 → Desktop → IP Configuration → Select Static → Assign IP address, Subnet mask & Default gateway and close.



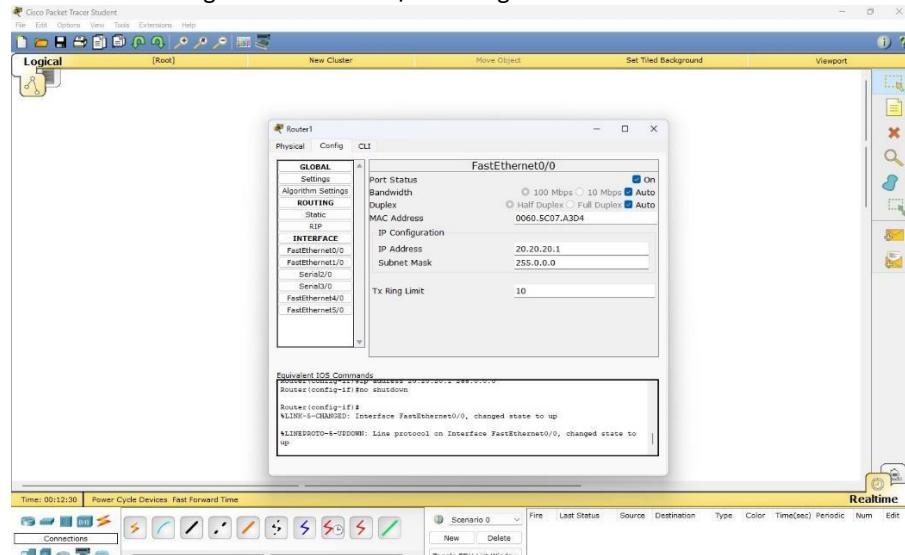
**Step 5:** Click on Router0 → config → FastEthernet0/0 → Assign IP address & Subnet Mask → On.



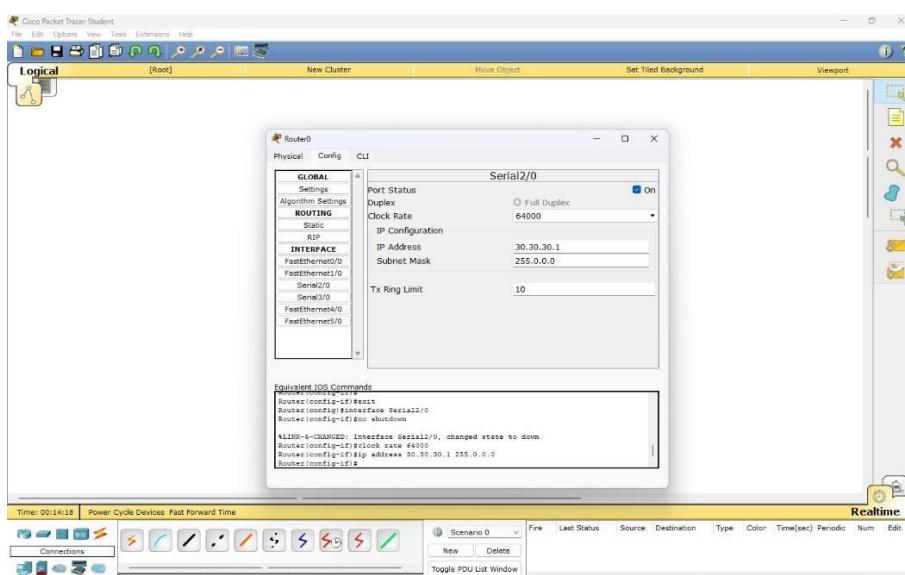
**Step 6:** Click on PC0 → Desktop → IP Configuration → Select Static → Assign IP address, Subnet mask & Default gateway and close.



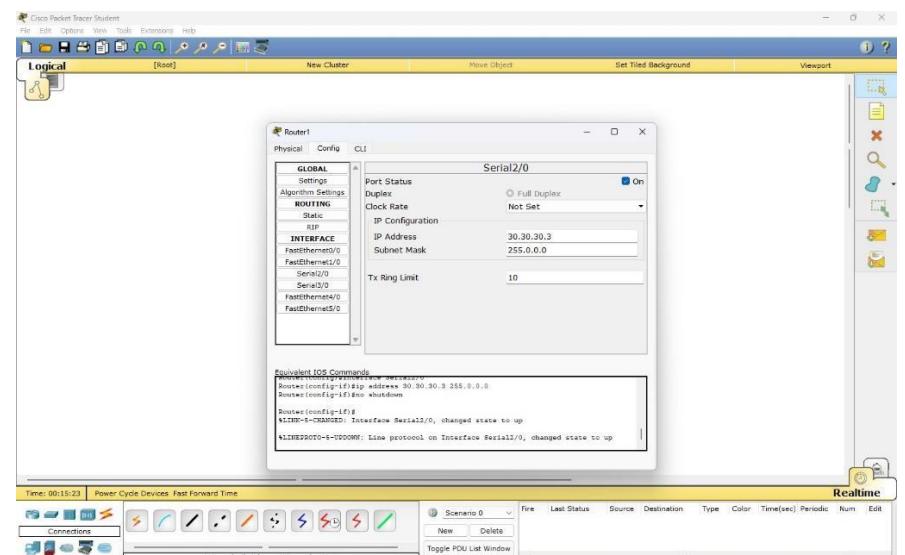
**Step 7:** Click on Router1 → config → FastEthernet0/0 → Assign IP address & Subnet Mask → On.



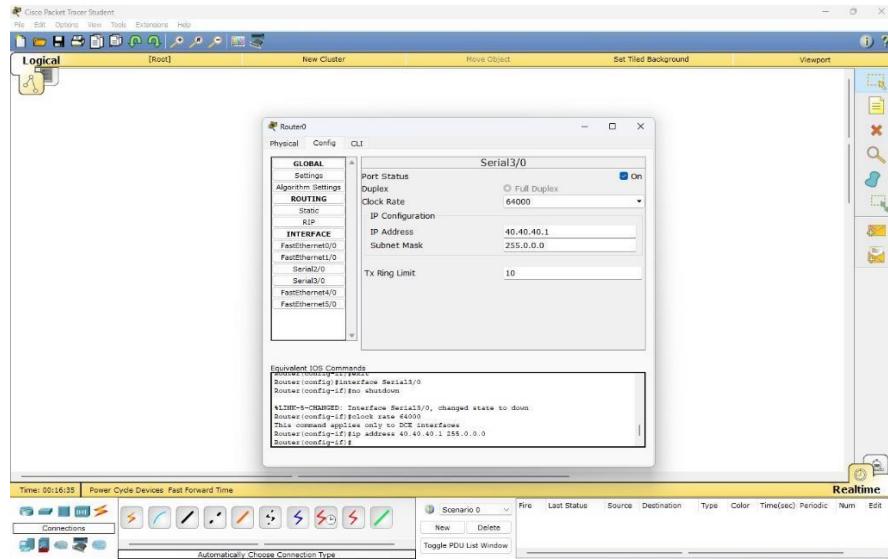
**Step 8:** Click on Router0 → config → Serial2/0 → select clock rate=64000 → Assign IP address & Subnet Mask → On.



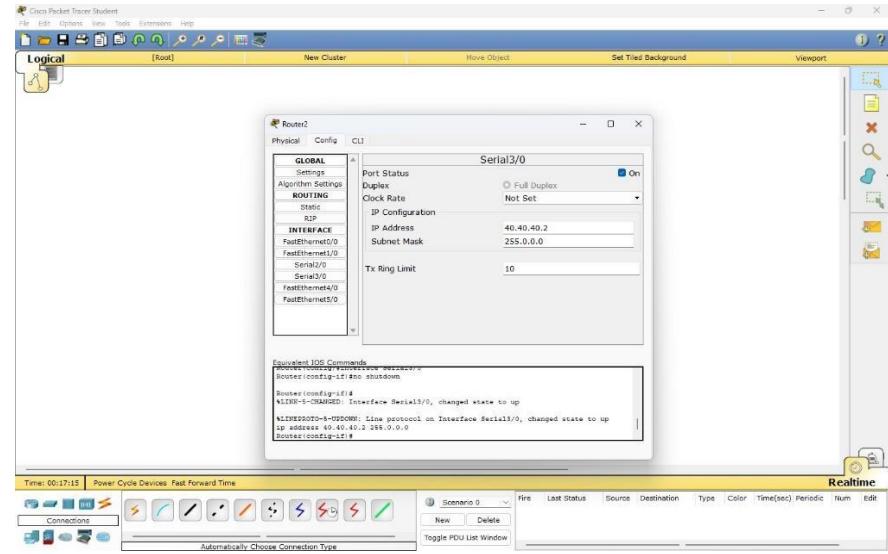
**Step 9:** Click on Router1 → config → Serial2/0 → select clock rate=Not set → Assign IP address & Subnet Mask → On.



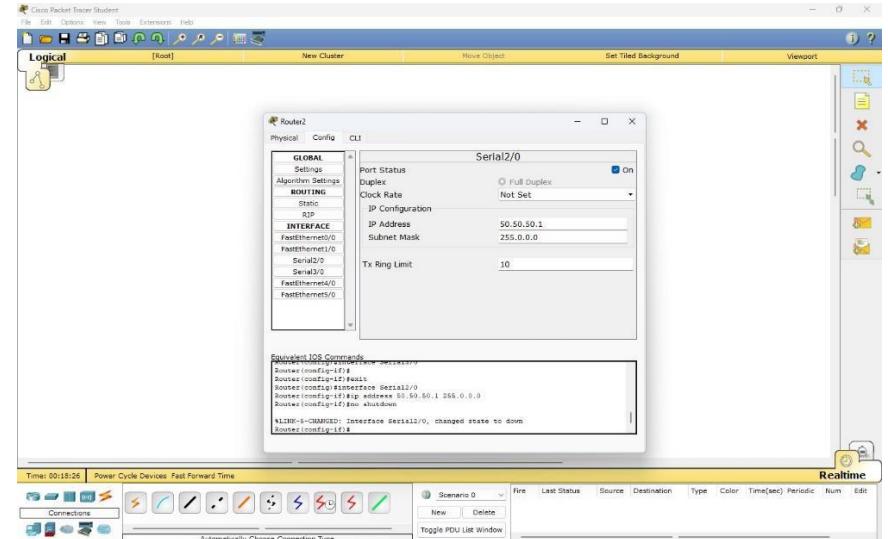
**Step 10:** Click on Router0 → config → Serial3/0 → select clock rate=64000 → Assign IP address & Subnet Mask → On.



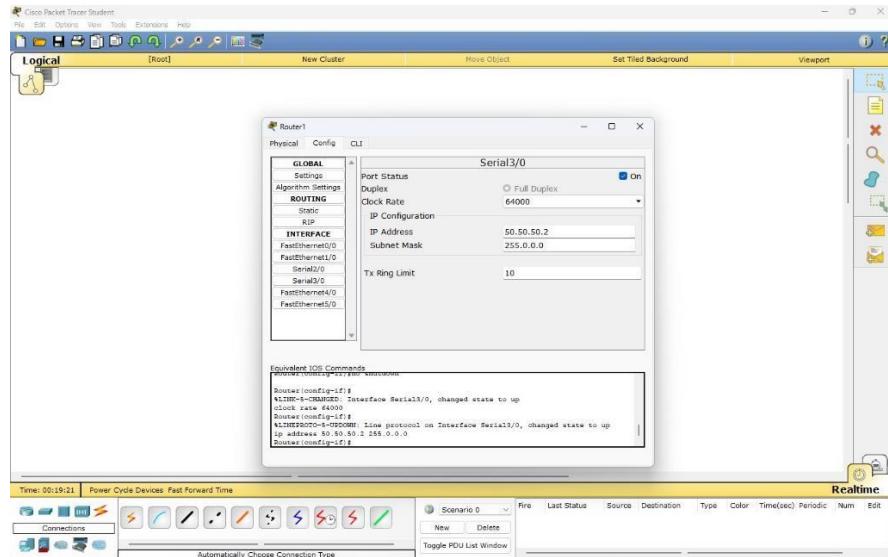
**Step 11:** Click on Router2 → config → Serial3/0 → select clock rate=Not Set → Assign IP address & Subnet Mask → On.



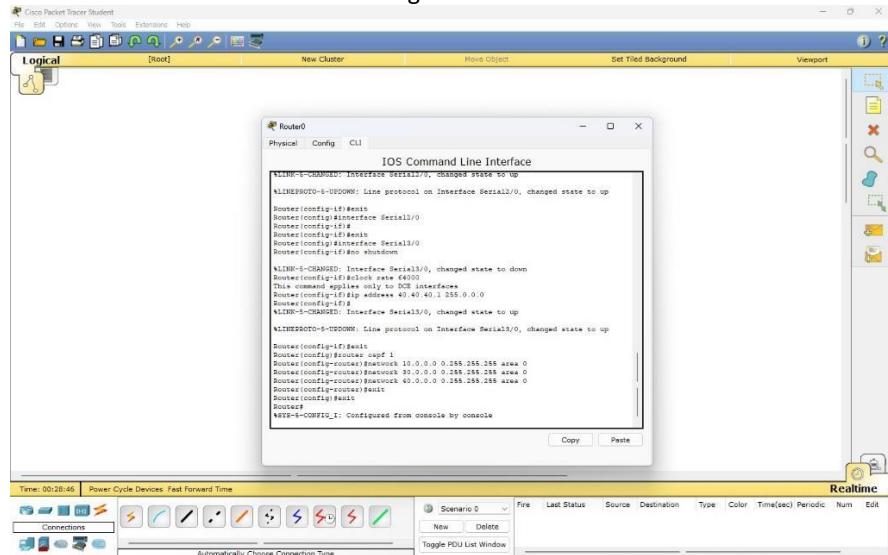
**Step 12:** Click on Router2 → config → Serial2/0 → select clock rate=Not Set → Assign IP address & Subnet Mask → On.



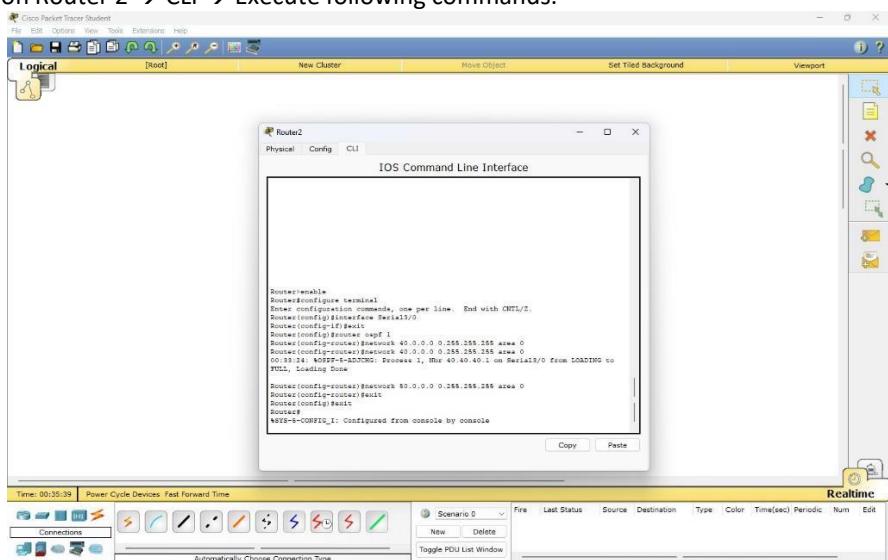
**Step 13:** Click on Router1 → config → Serial3/0 → select clock rate=64000 → Assign IP address & Subnet Mask → On.



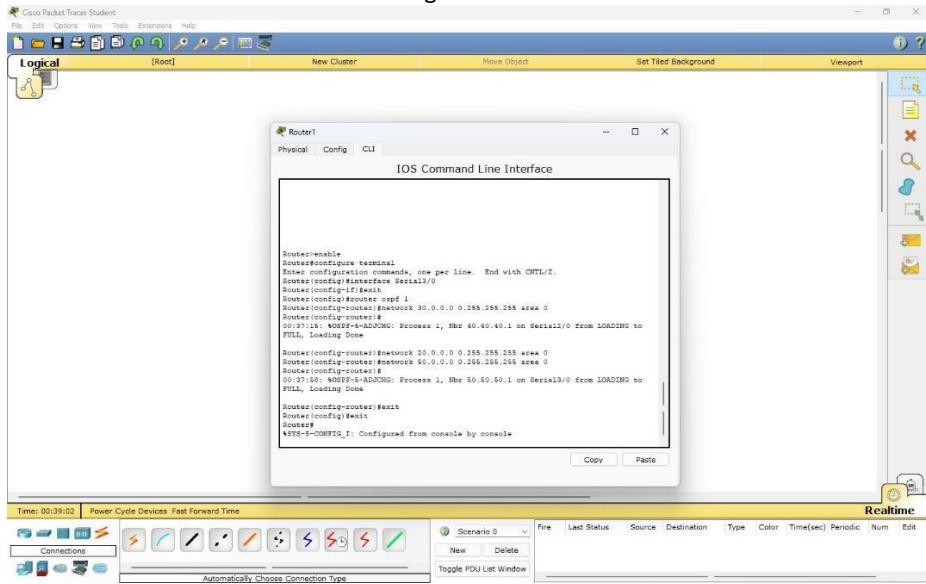
**Step 14:** Click on Router0 → CLI → Execute following commands.



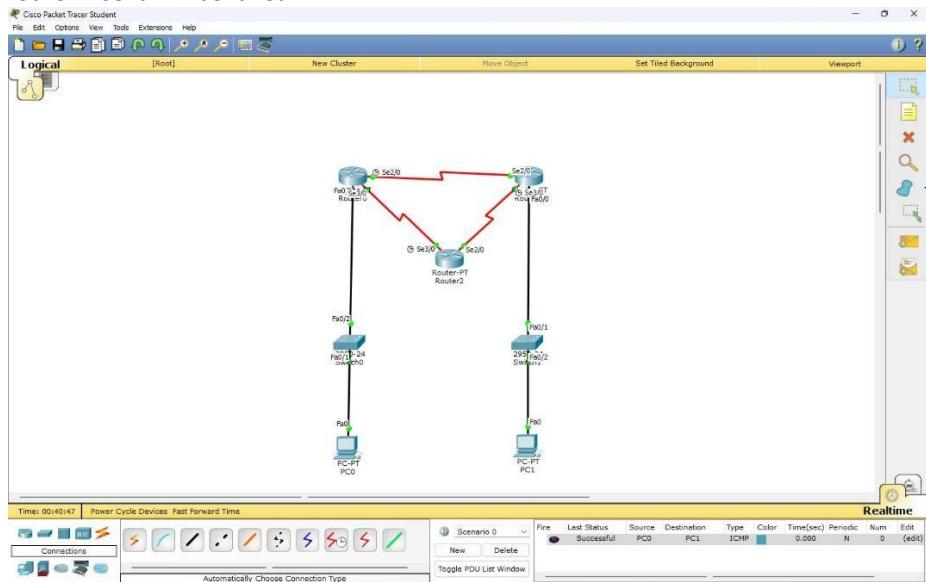
**Step 15:** Click on Router 2 → CLI → Execute following commands.



**Step 16:** Click on Router1 → CLI → Execute following commands.



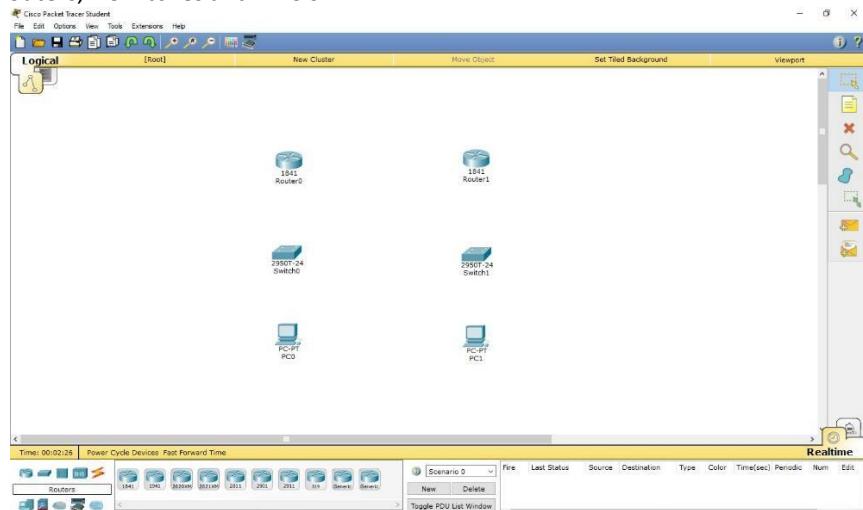
**Step 17:** Take the message from right side and drop it from PC0 to PC1. If our configuration is right then it will be successful otherwise it will be failed.



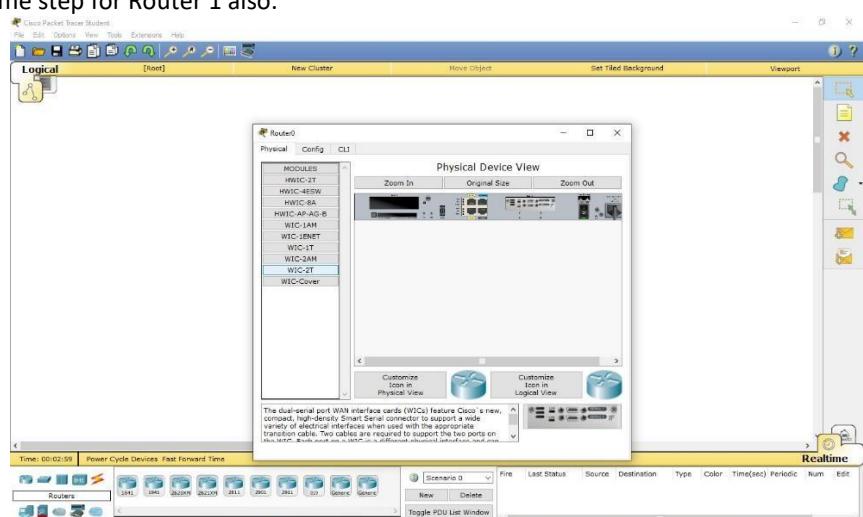
### Practical No. 3

**Aim:** Simulating BGP.

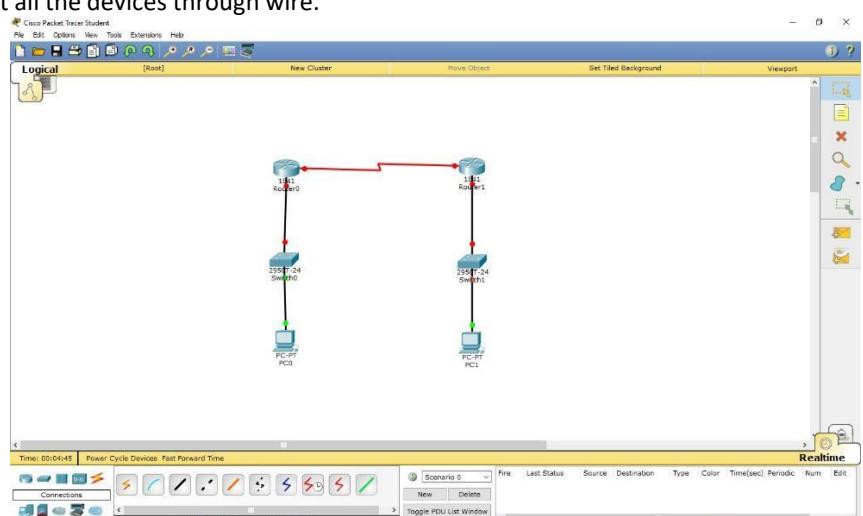
**Step 1:** Take 2 Routers, 2 Switches and 2 PC's.



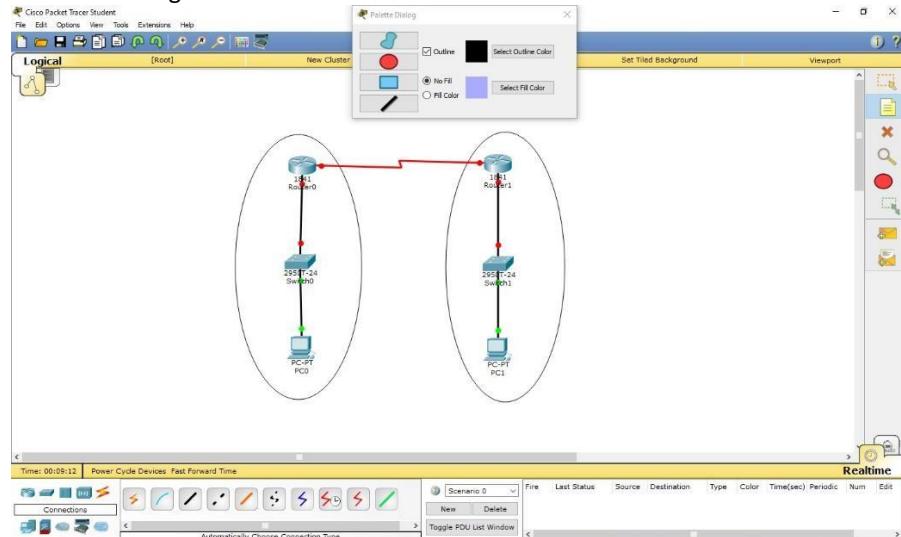
**Step 2:** Click on Router 0 off it, Drag and drop WIC-2T from the left corner to the Blank right side and on it. Perform the same step for Router 1 also.



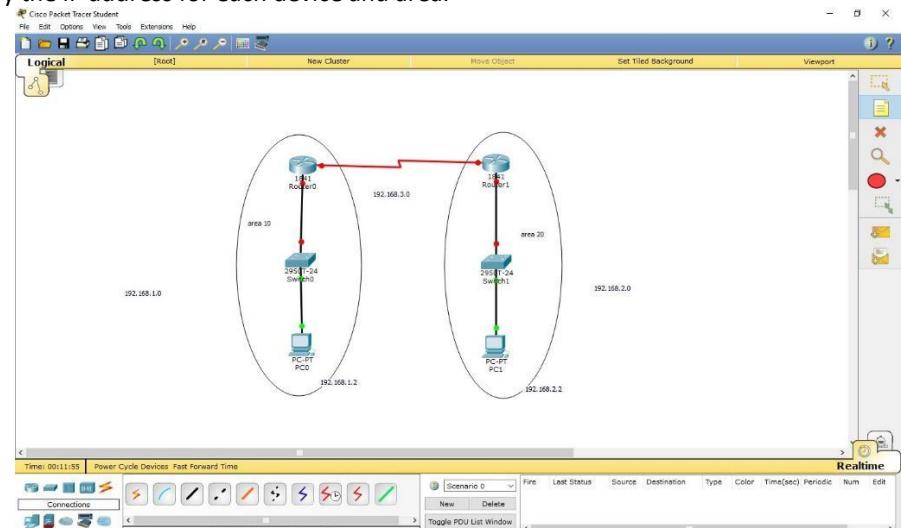
**Step 3:** Connect all the devices through wire.



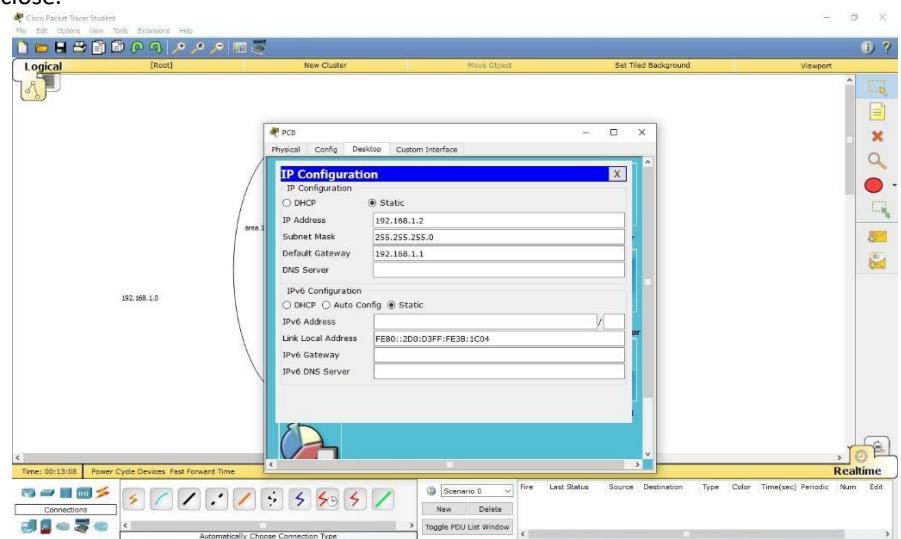
**Step 4:** Click on Palette dialogue and draw a circle to both the networks.



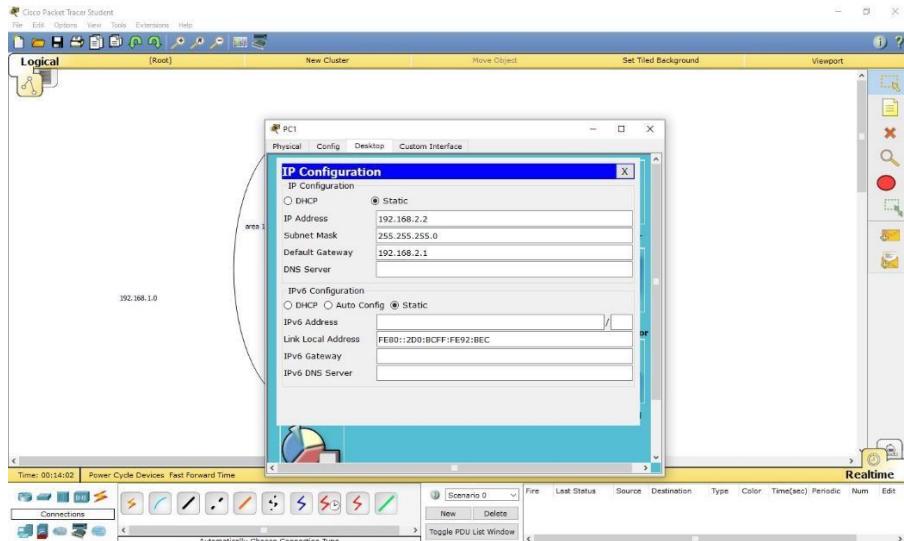
**Step 5:** Specify the IP address for each device and area.



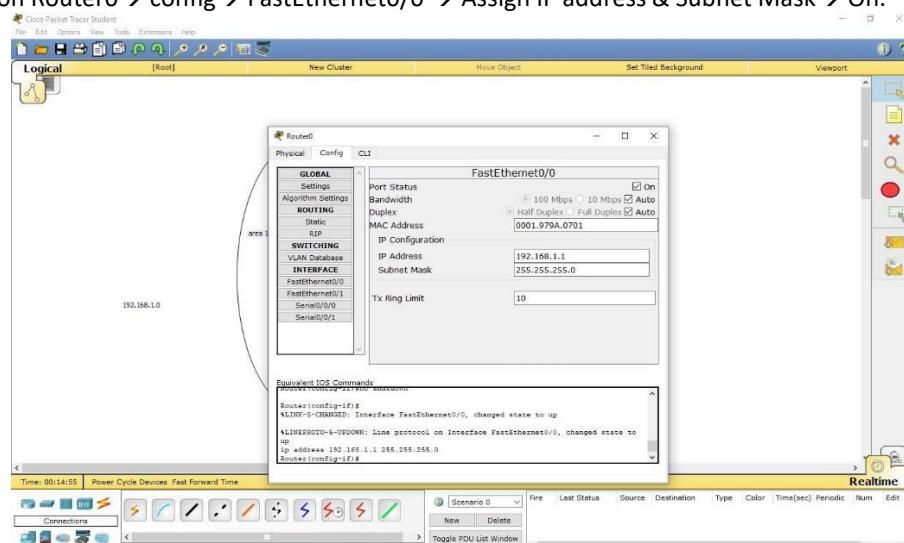
**Step 6:** Click on PC0 → Desktop → IP Configuration → Select Static → Assign IP address, Subnet mask & Default gateway and close.



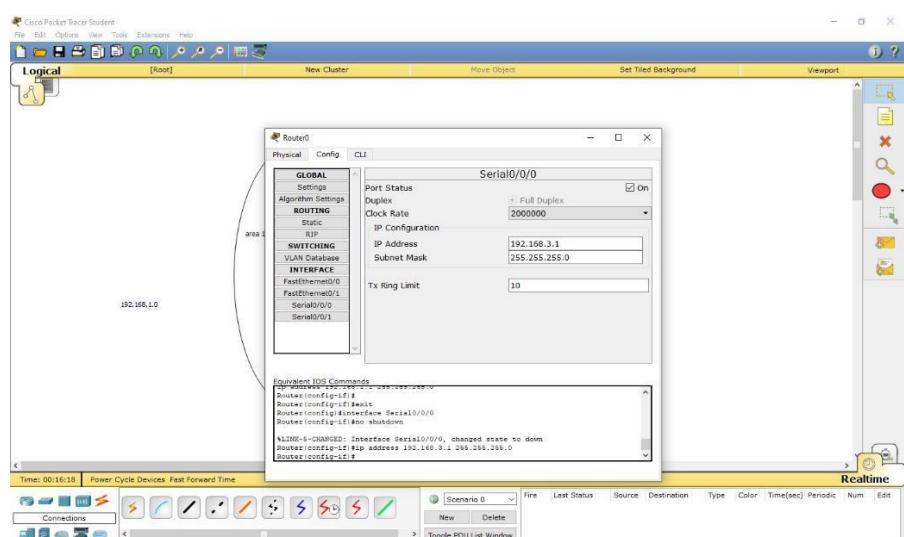
**Step 7:** Click on PC0 → Desktop → IP Configuration → Select Static → Assign IP address, Subnet mask & Default gateway and close.



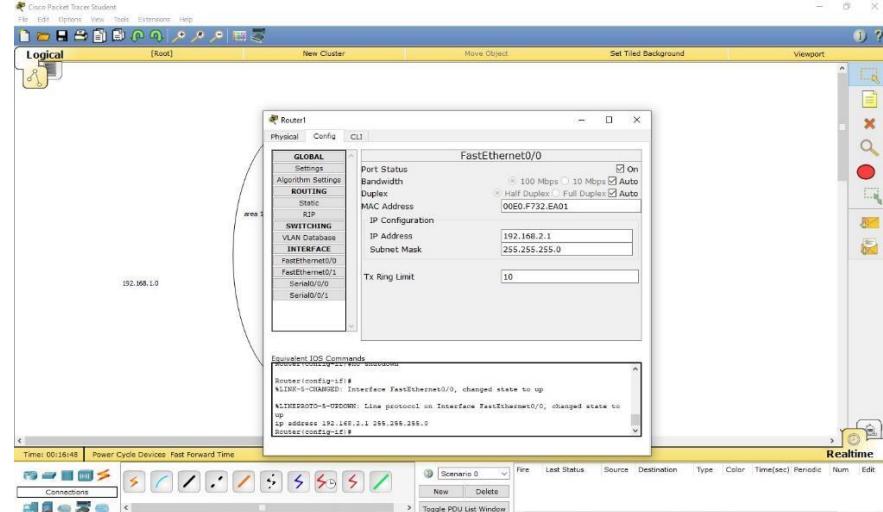
**Step 8:** Click on Router0 → config → FastEthernet0/0 → Assign IP address & Subnet Mask → On.



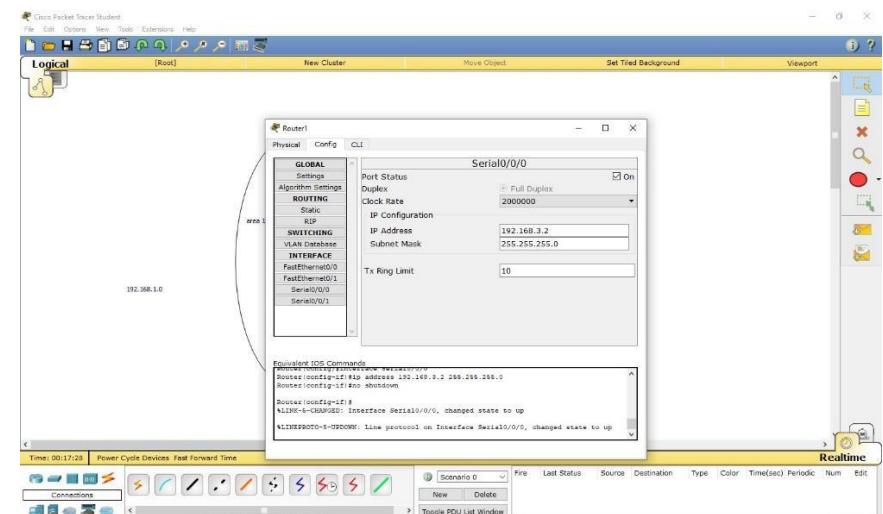
**Step 9:** Click on Router1 → config → Serial0/0/0 → Keep clock rate as default → Assign IP address & Subnet Mask → On.



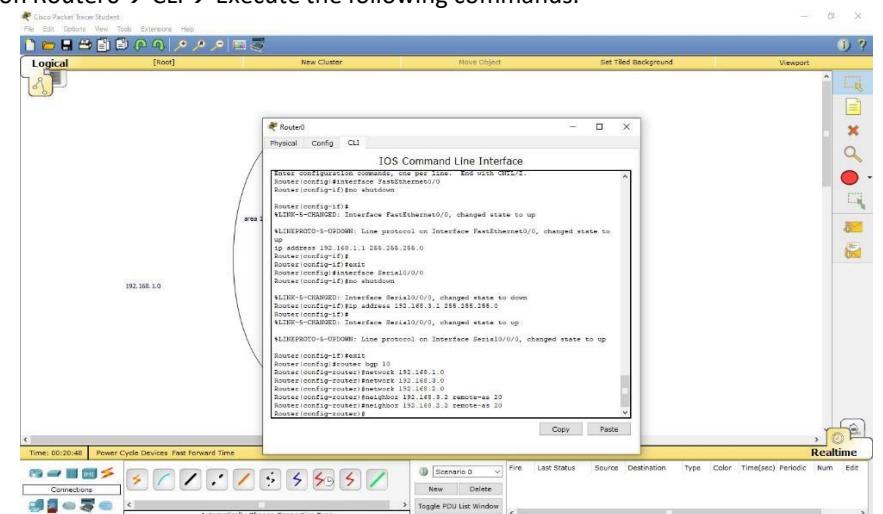
**Step 10:** Click on Router1 → config → FastEthernet0/0 → Assign IP address & Subnet Mask → On.



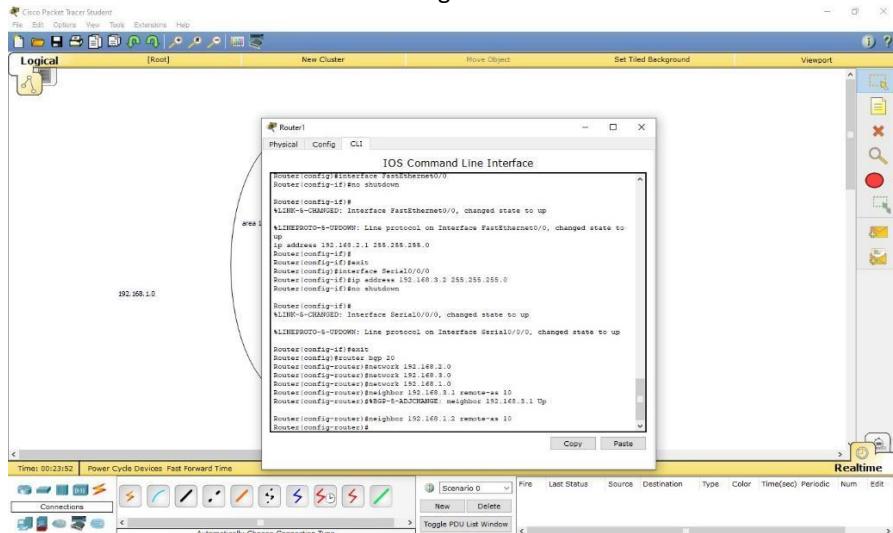
**Step 11:** Click on Router1 → config → Serial0/0/0 → Keep clock rate as default → Assign IP address & Subnet Mask → On.



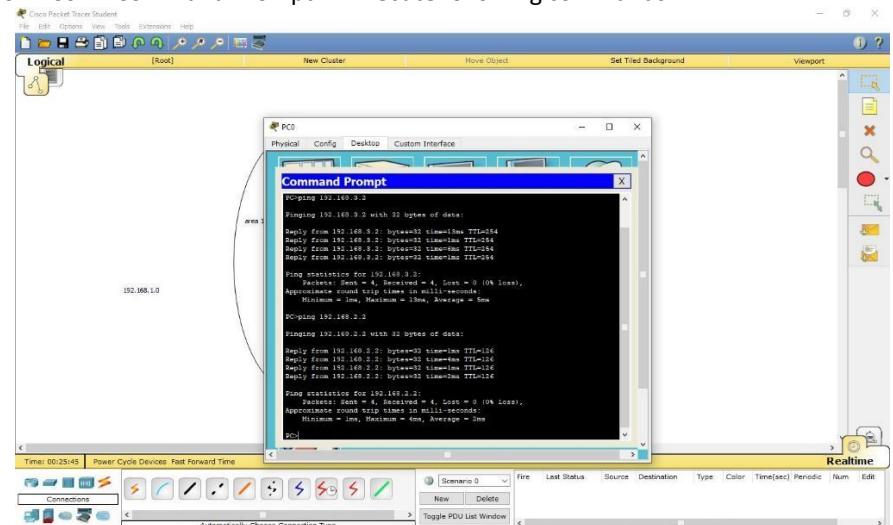
**Step 12:** Click on Router0 → CLI → Execute the following commands.



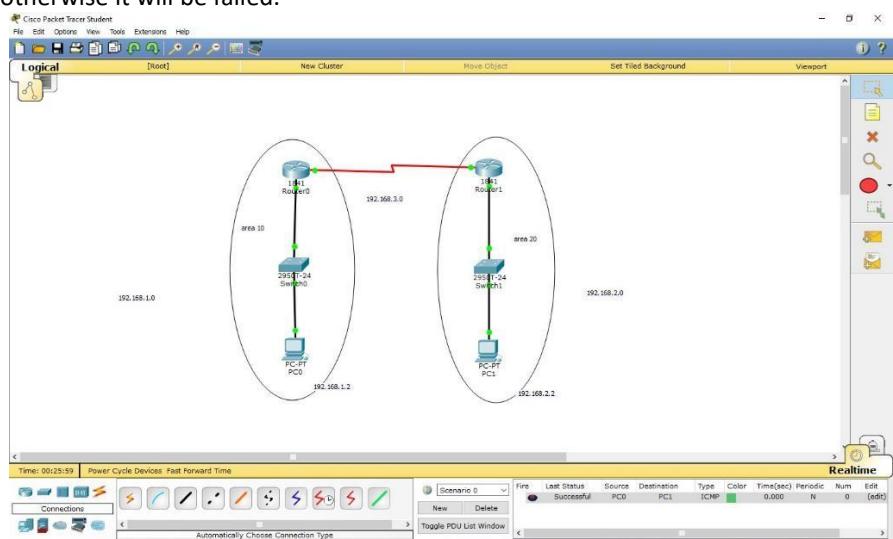
**Step 13:** Click on Router1 → CLI → Execute the following commands.



**Step 14:** Click on PC0 → Command Prompt → Execute following commands.



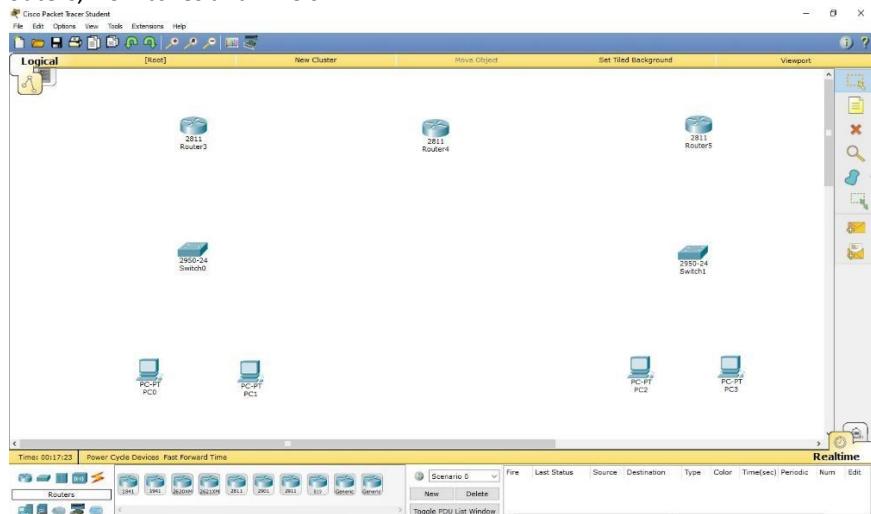
**Step 15:** Take the message from right side and drop it from PC0 to PC1. If our configuration is right then it will be successful otherwise it will be failed.



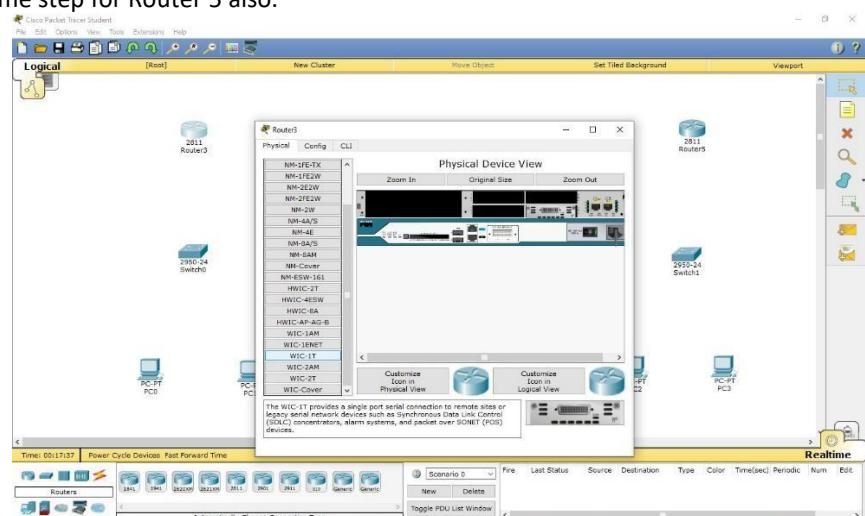
## Practical No. 4

**Aim:** Routing Redistributions.

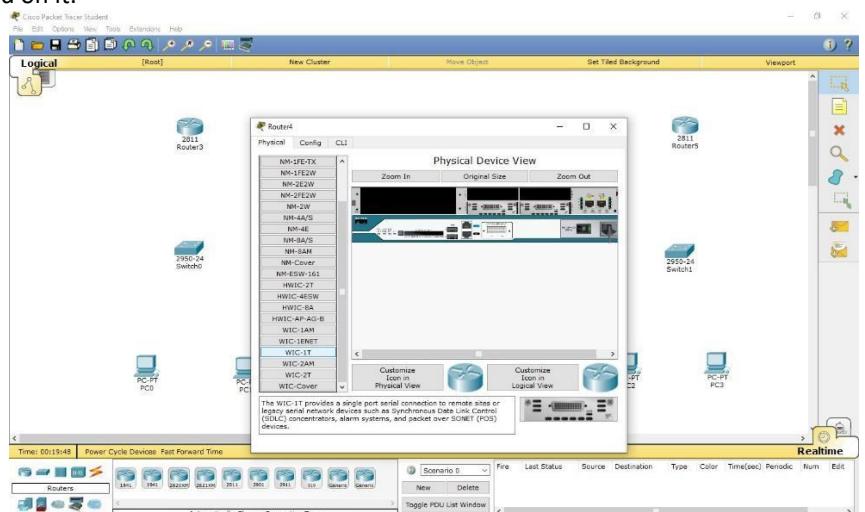
**Step 1:** Take 3 Routers, 2 Switches and 4 PC's.



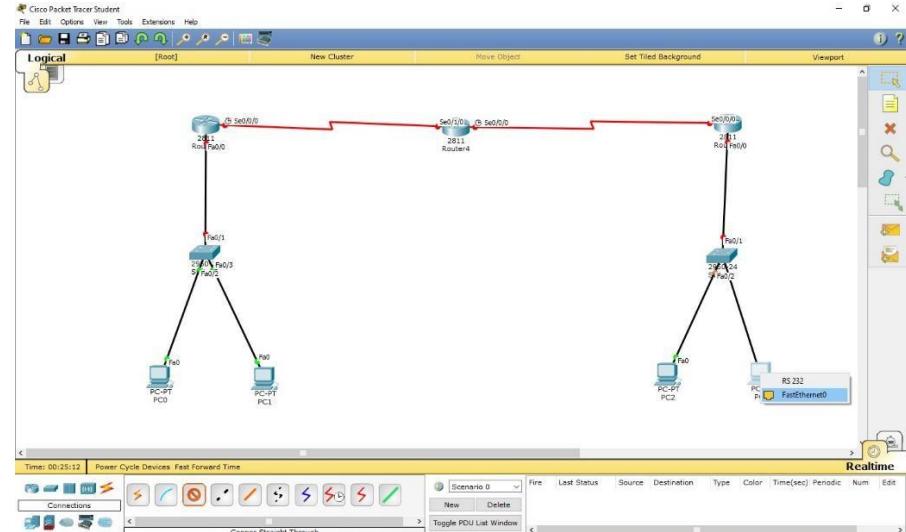
**Step 2:** Click on Router 3 and off it, Drag and drop WIC-1T from the left corner to the Blank right side and on it. Perform the same step for Router 5 also.



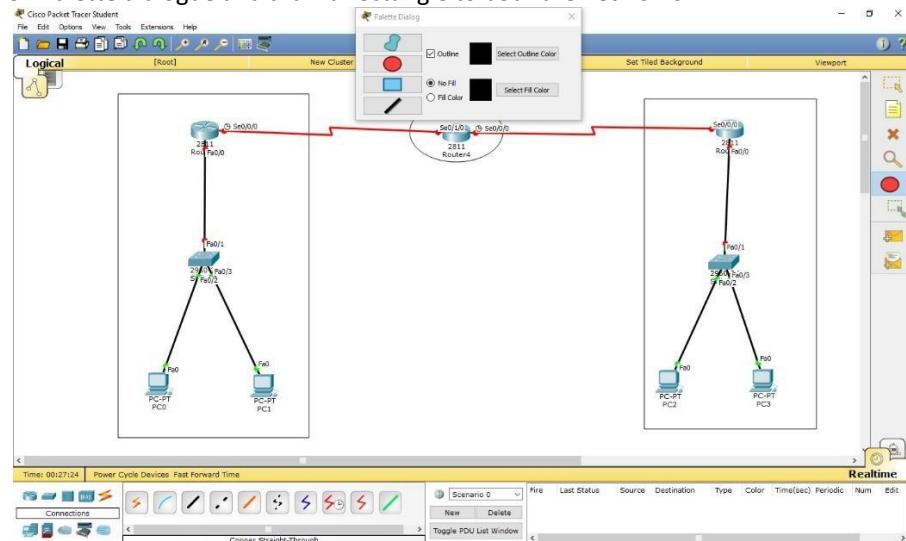
**Step 3:** Click on Router 4 and off it, Drag and drop WIC-1T from the left corner to the Blank right and left bottom side and on it.



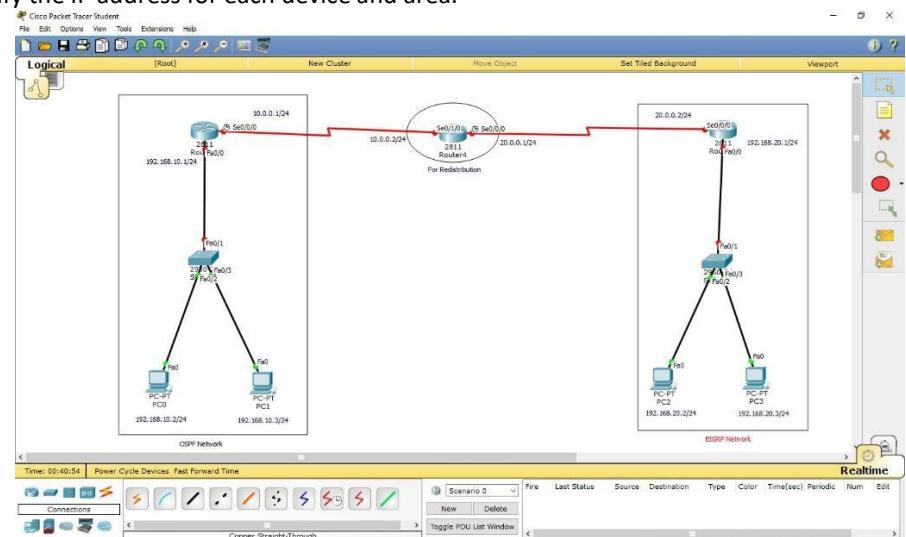
**Step 4:** Connect all the devices through wire. While connecting here, we need to choose ports, so select the ports appropriately.



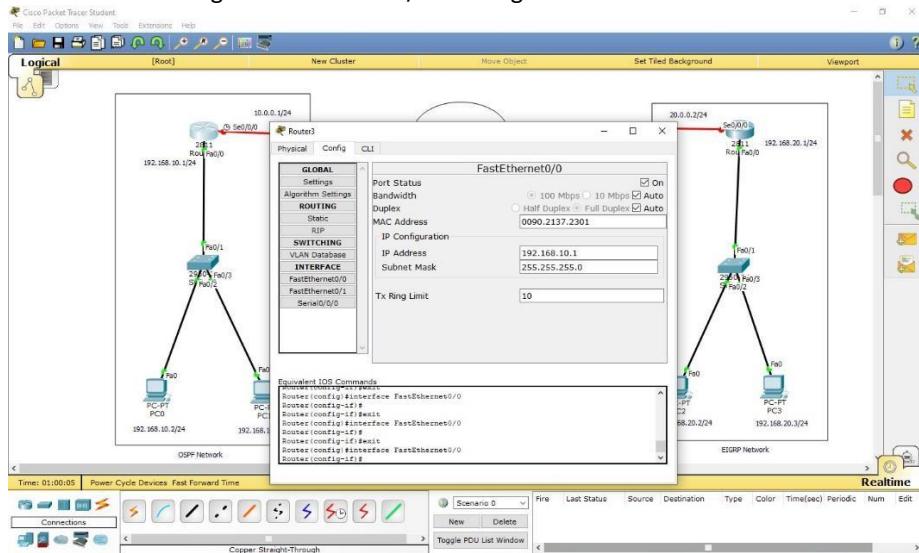
**Step 5:** Click on Palette dialogue and draw a rectangle to both the networks.



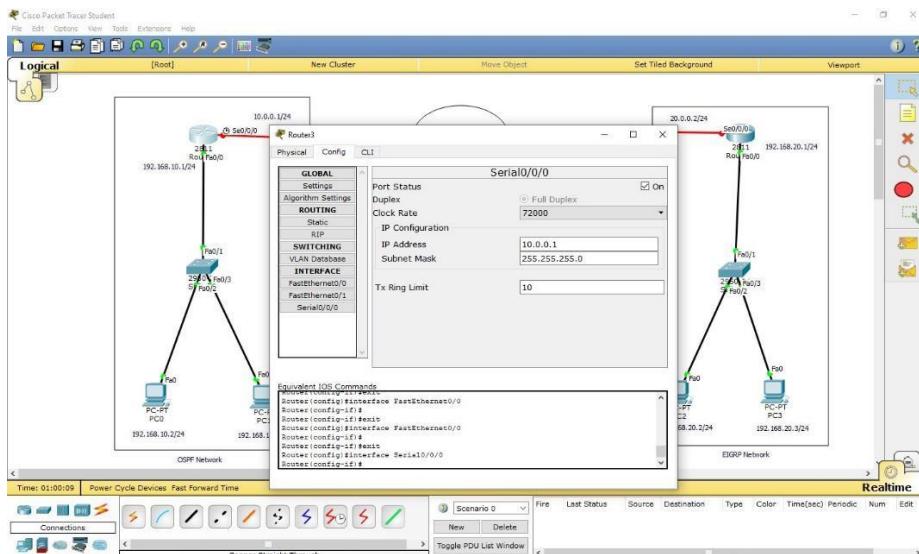
**Step 6:** Specify the IP address for each device and area.



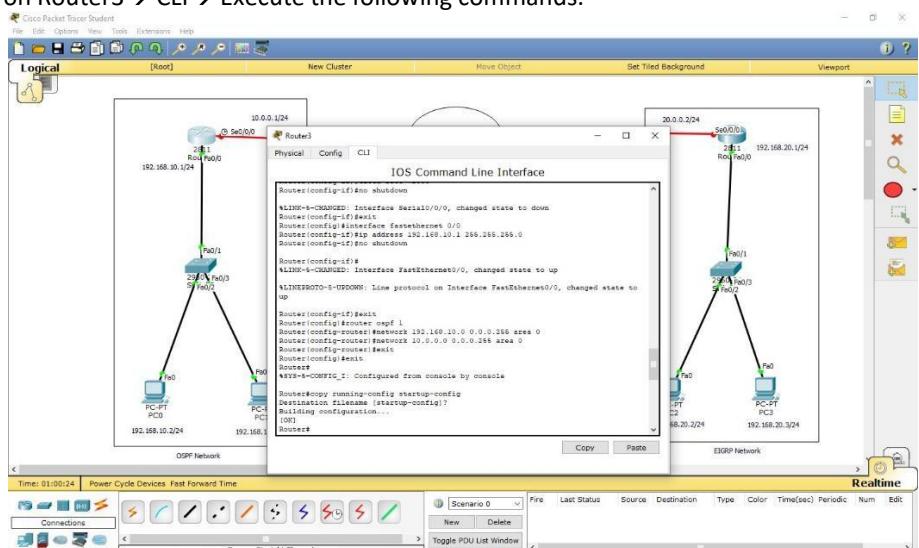
**Step 7:** Click on Router3 → config → FastEthernet0/0 → Assign IP address & Subnet Mask → On.



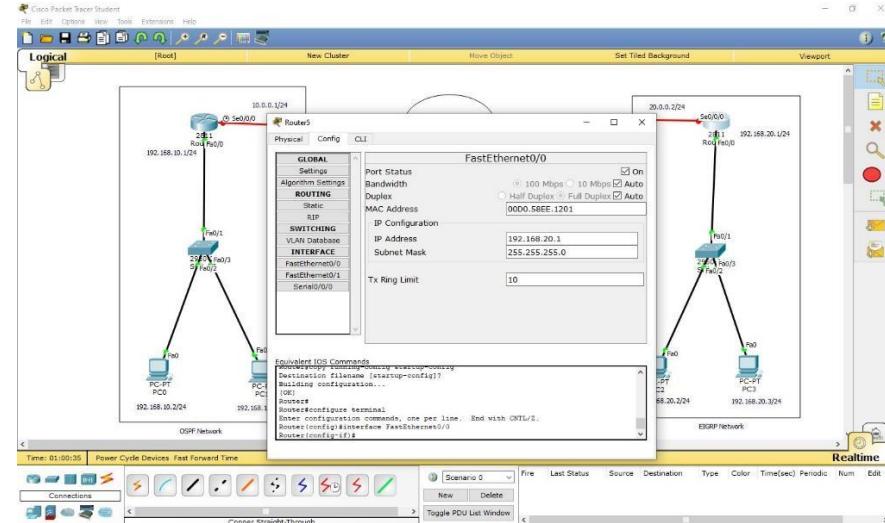
**Step 8:** Click on Router3 → config → Serial0/0/0 → Keep clock rate = 72000 → Assign IP address & Subnet Mask → On.



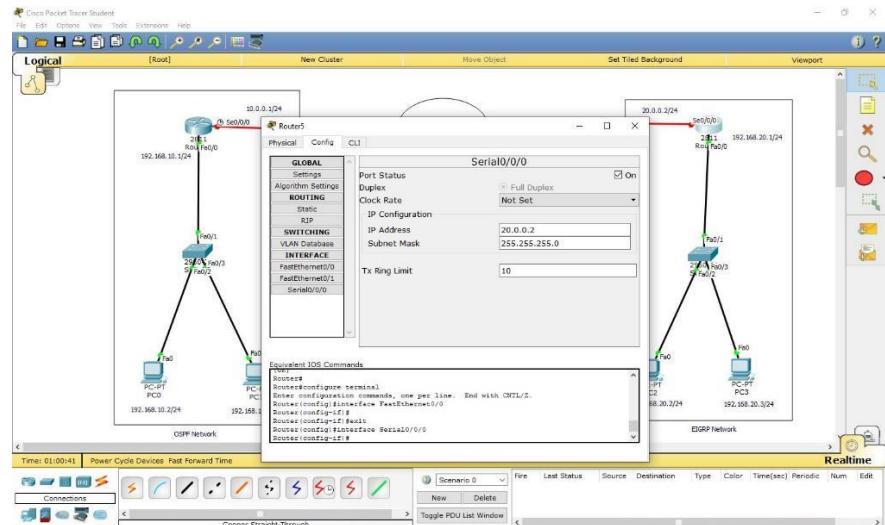
**Step 9:** Click on Router3 → CLI → Execute the following commands.



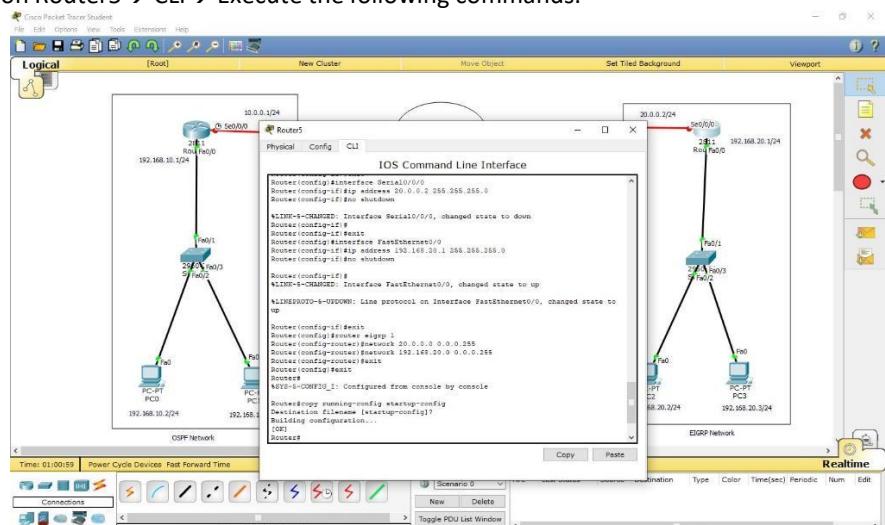
**Step 10:** Click on Router5 → config → FastEthernet0/0 → Assign IP address & Subnet Mask → On.



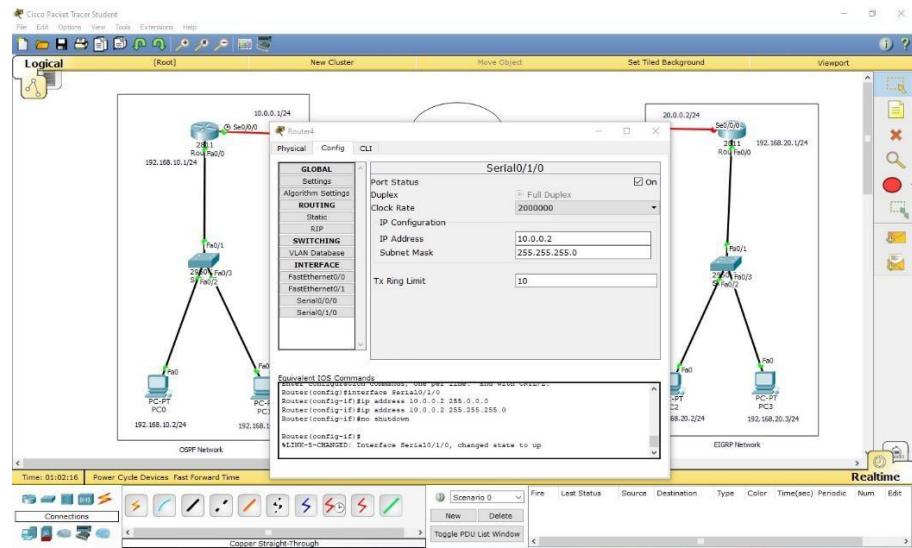
**Step 11:** Click on Router5 → config → Serial0/0/0 → Keep clock rate= Not set → Assign IP address & Subnet Mask → On.



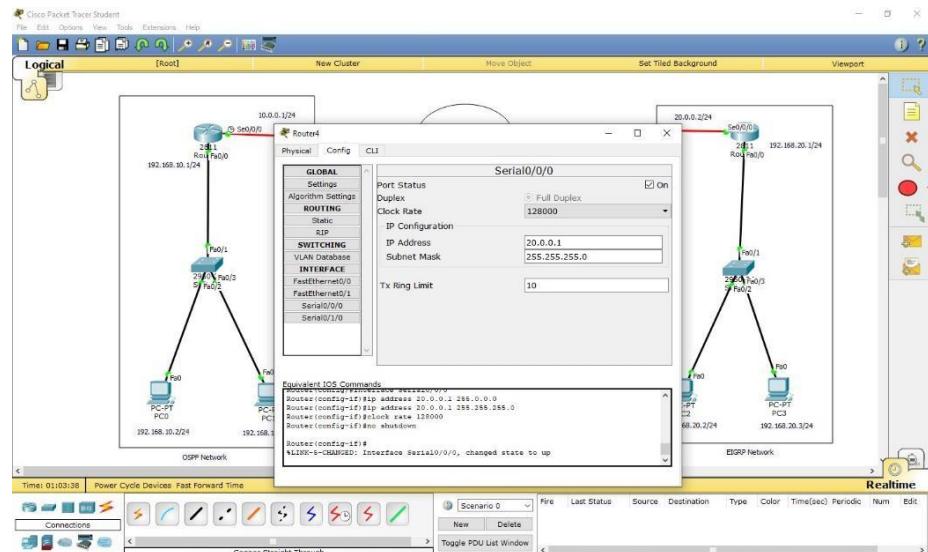
**Step 12:** Click on Router5 → CLI → Execute the following commands.



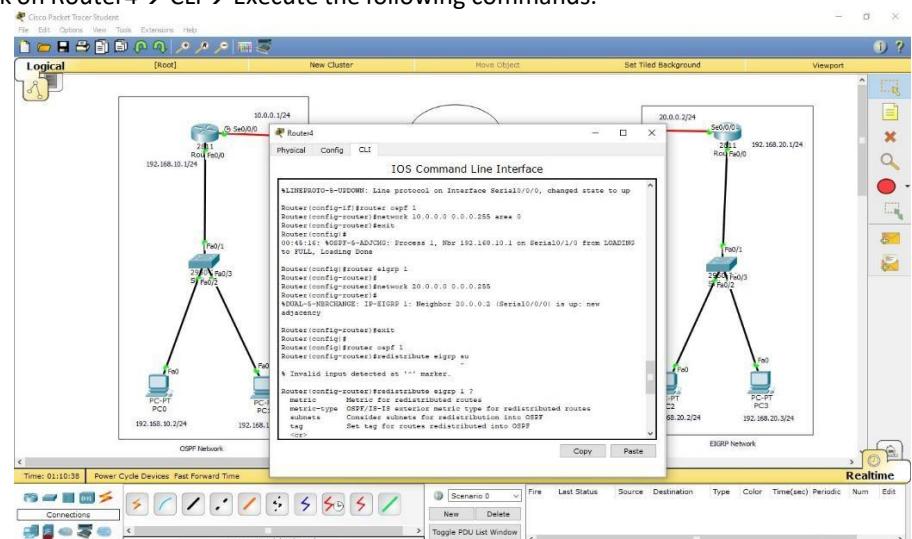
**Step 13:** Click on Router4 → config → Serial0/1/0 → Keep clock rate=2000000 → Assign IP address & Subnet Mask → On.

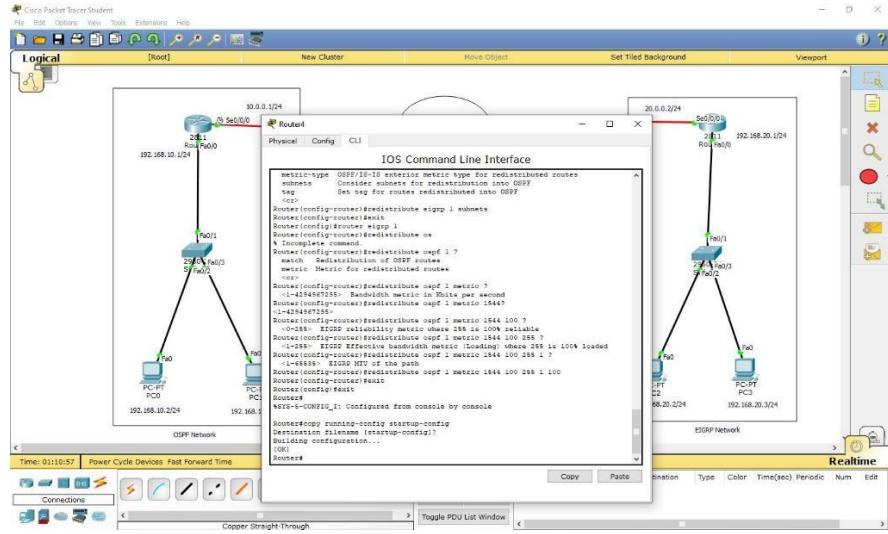


**Step 14:** Click on Router4 → config → Serial0/0/0 → Keep clock rate=128000 → Assign IP address & Subnet Mask → On.

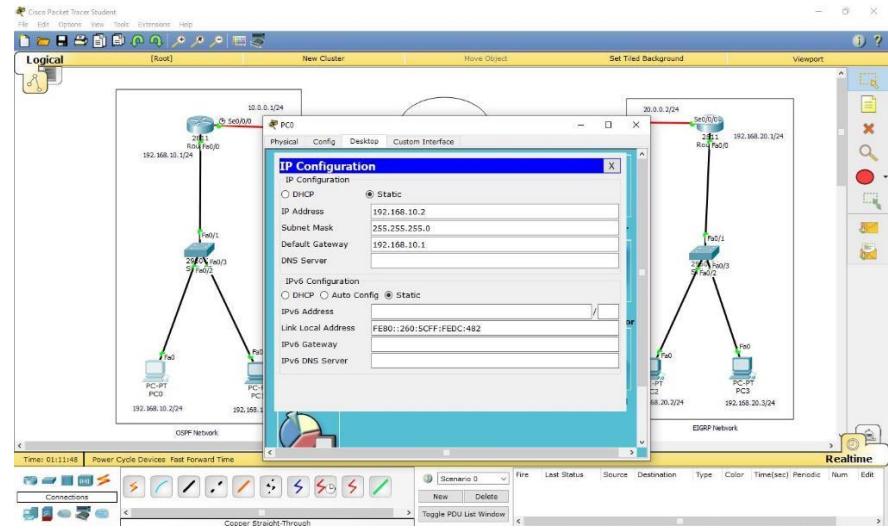


**Step 15:** Click on Router4 → CLI → Execute the following commands.

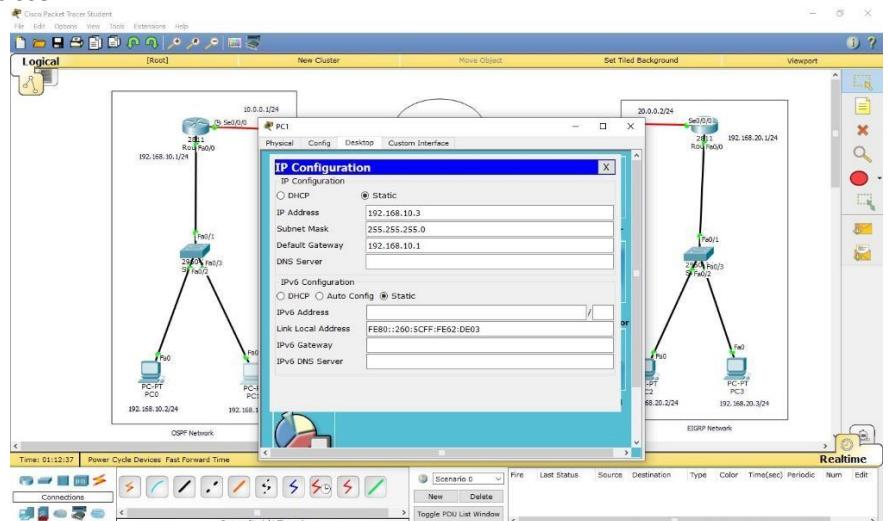




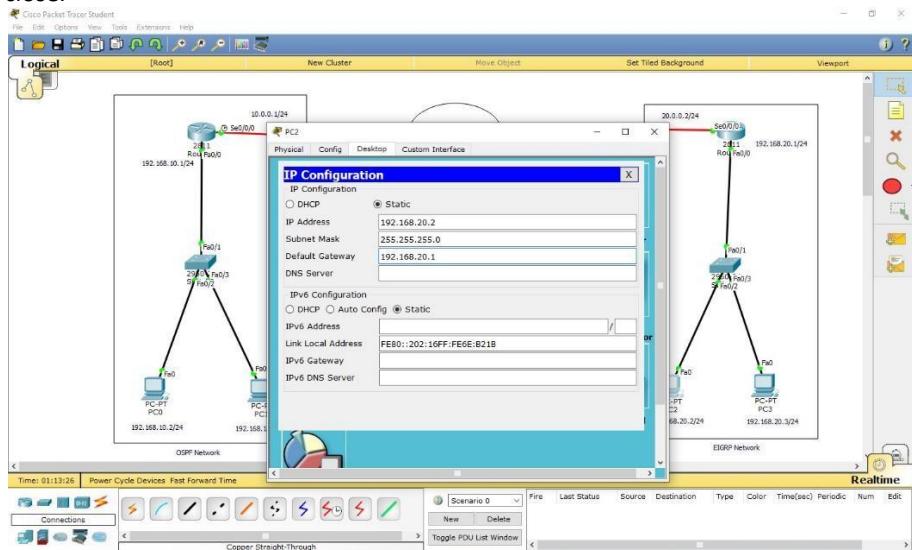
**Step 16:** Click on PC0→Desktop→ IP Configuration →Select Static →Assign IP address, Subnet mask & Default gateway and close.



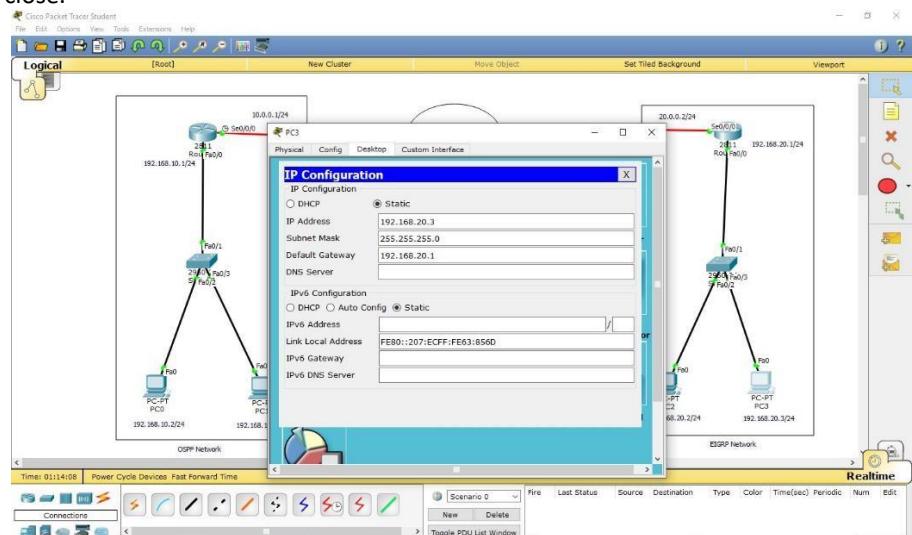
**Step 17:** Click on PC0 → Desktop → IP Configuration → Select Static → Assign IP address, Subnet mask & Default gateway and close.



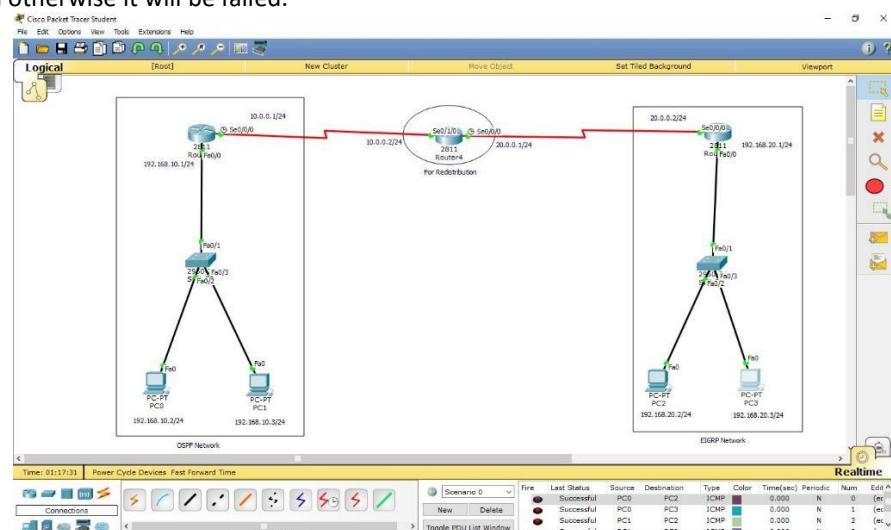
**Step 18:** Click on PC0 → Desktop → IP Configuration → Select Static → Assign IP address, Subnet mask & Default gateway and close.



**Step 19:** Click on PC0 → Desktop → IP Configuration → Select Static → Assign IP address, Subnet mask & Default gateway and close.



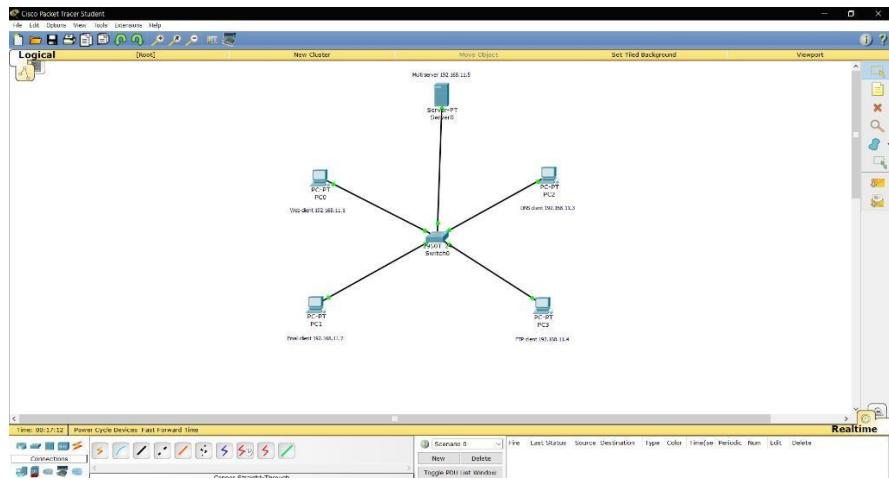
**Step 20:** Take the message from right side and drop it from PC0 to PC2. If our configuration is right then it will be successful otherwise it will be failed.



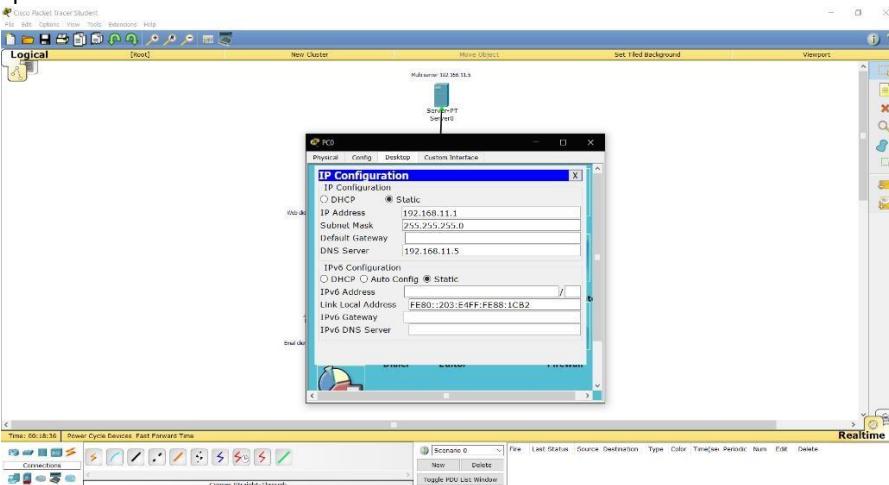
## Practical No. 5

**Aim:** Configure TCP.

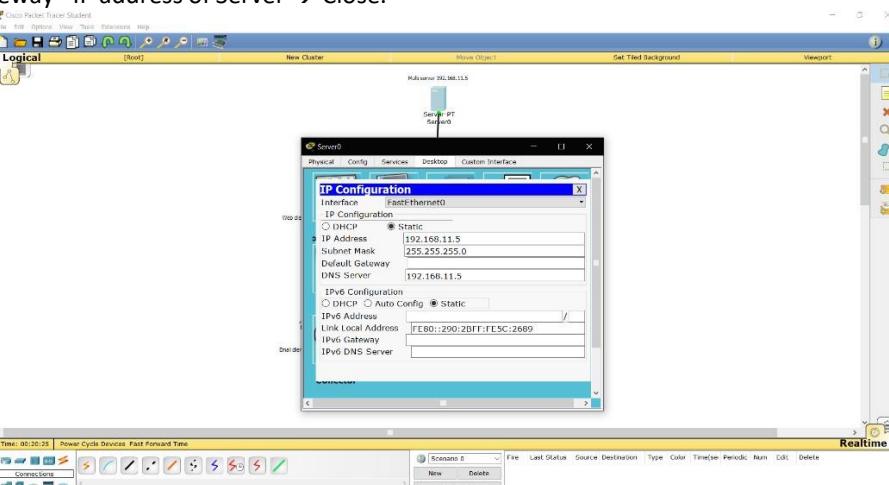
**Step 1:** Take 4 PC's, 1 Switch and 1 Server and specify Ip address and names to each device.



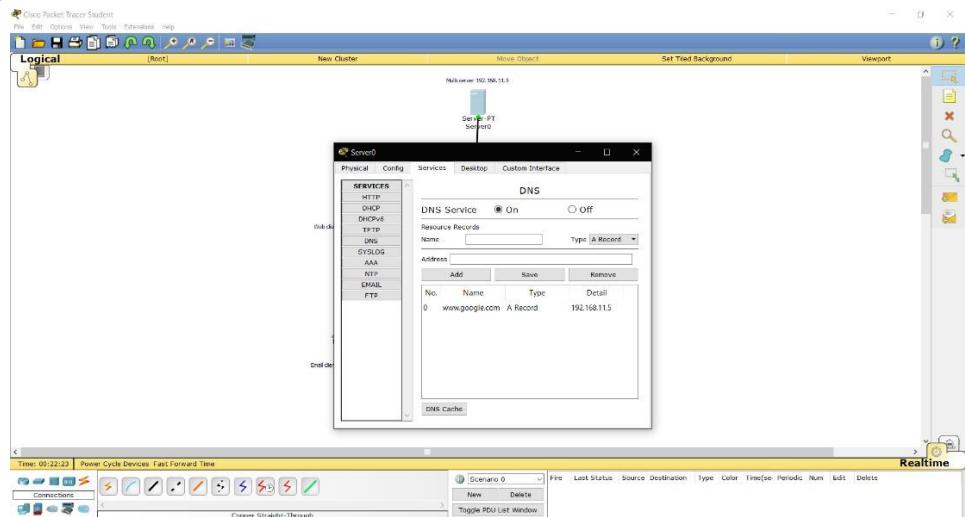
**Step 2:** Click on PC0 → Desktop → IP Configuration → Select Static → Assign IP address, Subnet mask → Default gateway= IP address of Server → Close. Follow same step for all the PC's. Assign the Ip address Which is specified in step 1.



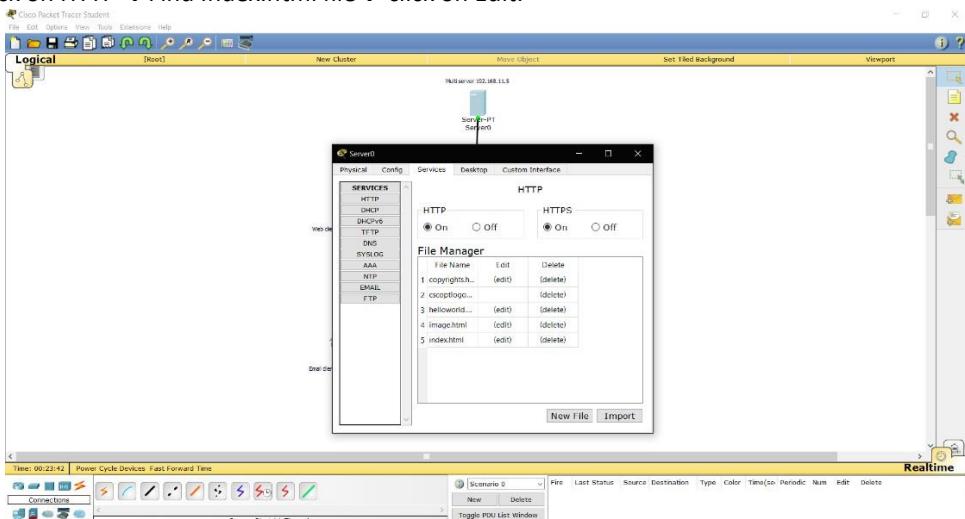
**Step 3:** Click on Server → Desktop → IP Configuration → Select Static → Assign IP address, Subnet mask → Default gateway= IP address of Server → Close.



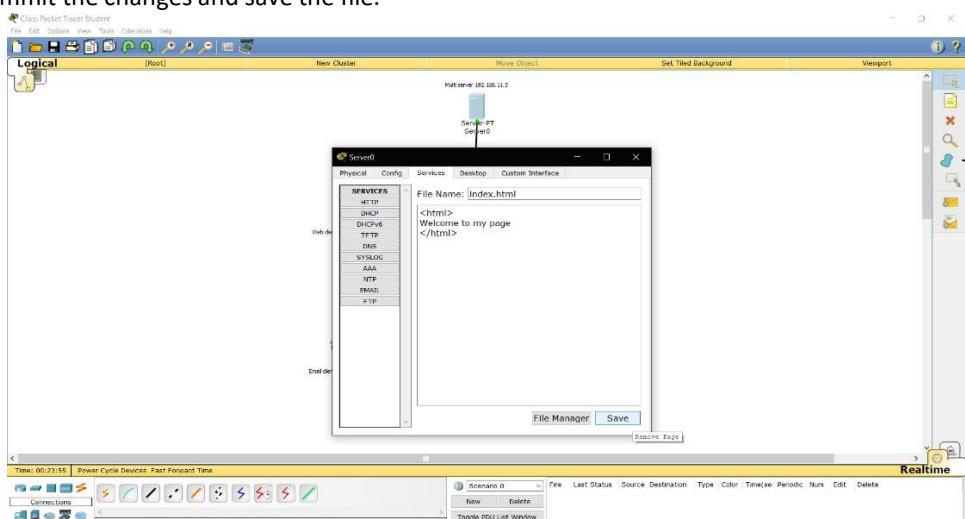
**Step 4:** Click on Server → Services → DNS → Assign Name= [www.google.com](http://www.google.com) & address= IP address of server → Add → ON.



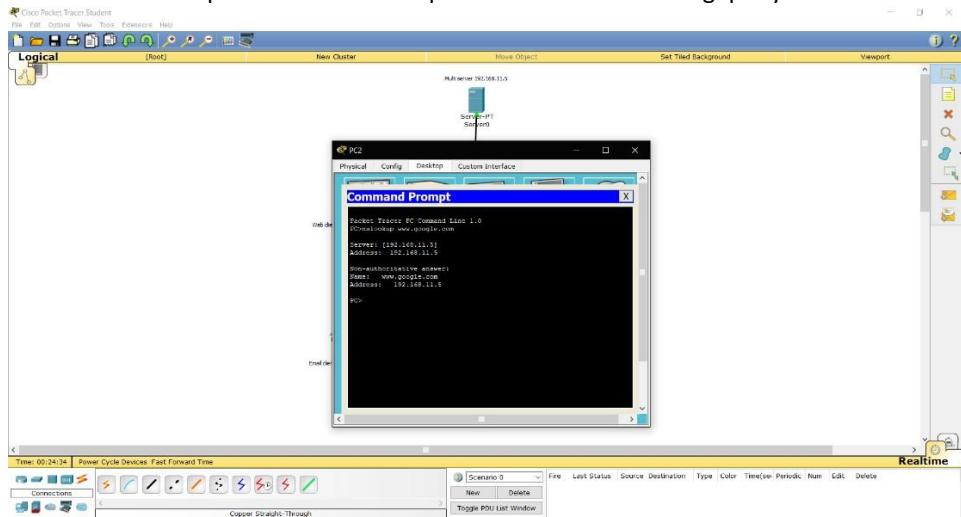
**Step 5:** Click on HTTP → Find Index.html file → click on Edit.



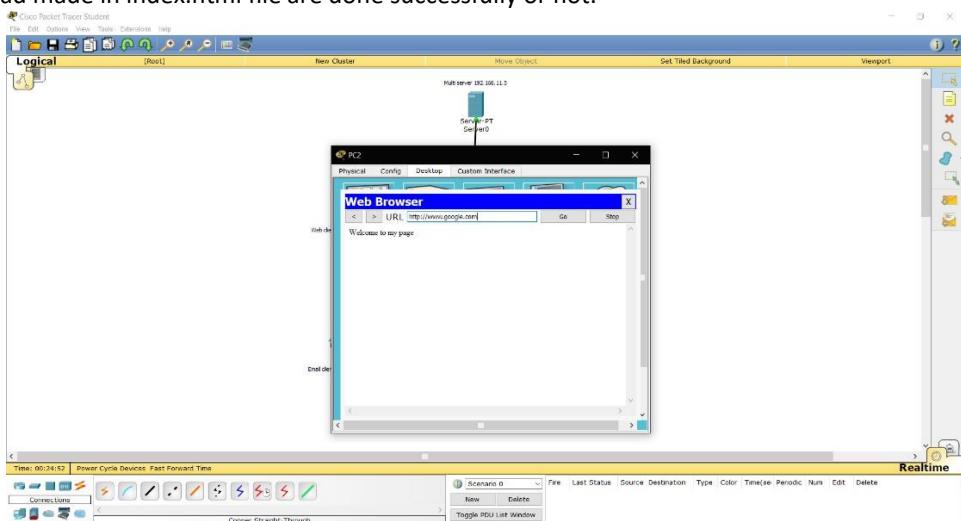
**Step 6:** Commit the changes and save the file.



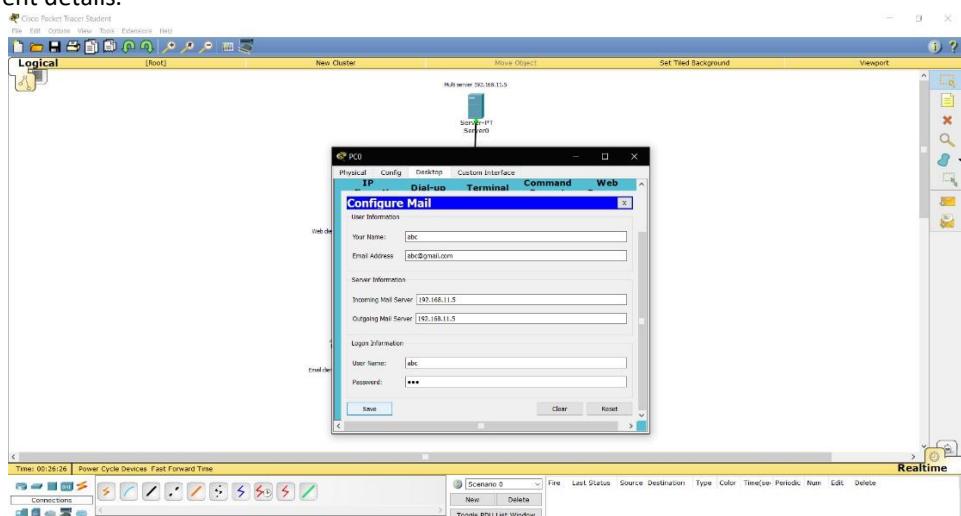
**Step 7:** Click on PC2 → Desktop → Command Prompt → Execute the following query.



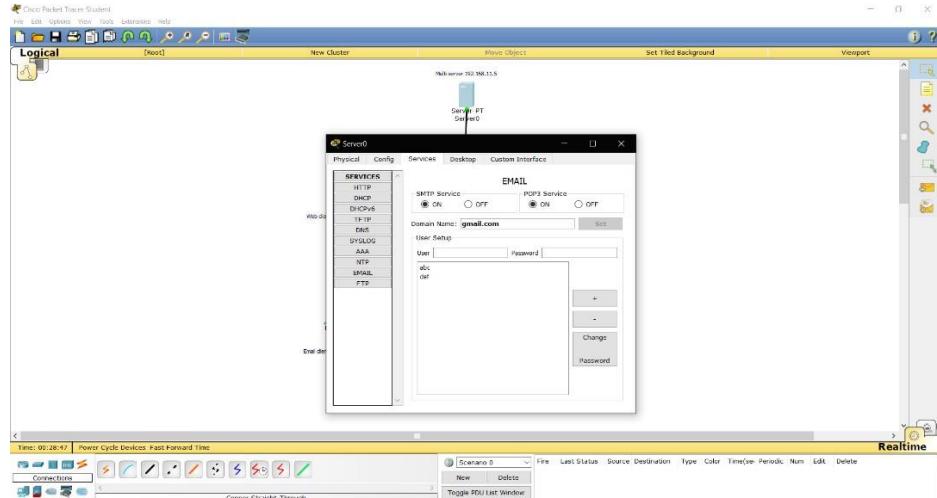
**Step 8:** Click on PC2 → Desktop → Web browser → Search for [www.google.com](http://www.google.com) and check whether the changes that you had made in index.html file are done successfully or not.



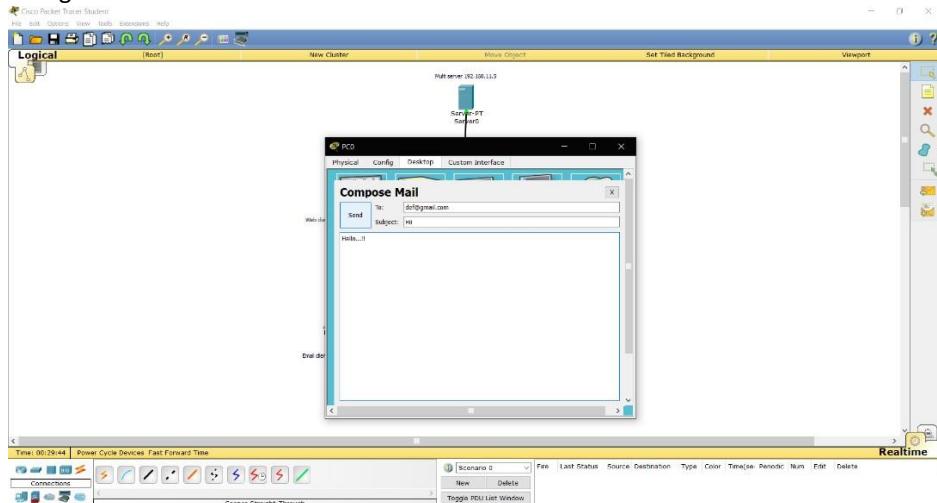
**Step 9:** Click on PC0 → Desktop → Email → Assign all the details and save it. Do the same step for PC1 also But with different details.



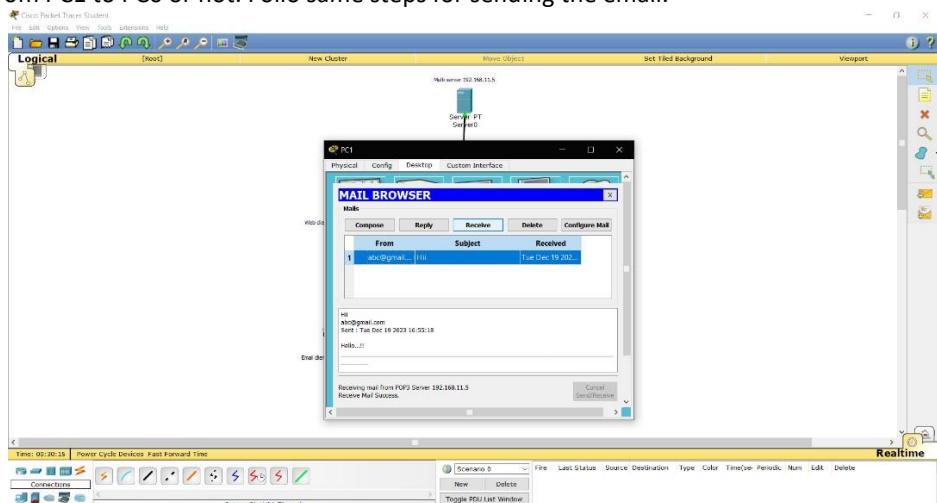
**Step 10:** Click on Server 0 → Email → Specify the User and Password that we had saved in above steps and click on + sign.



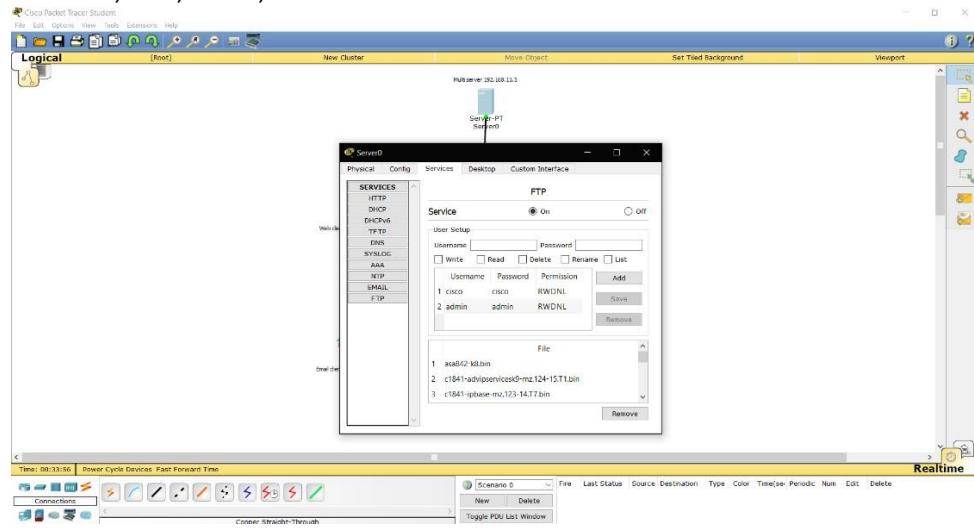
**Step 11:** Click on PC0 → Email → Compose → Specify To = email address we had specified in PC1 → Specify Subject & Message → Send.



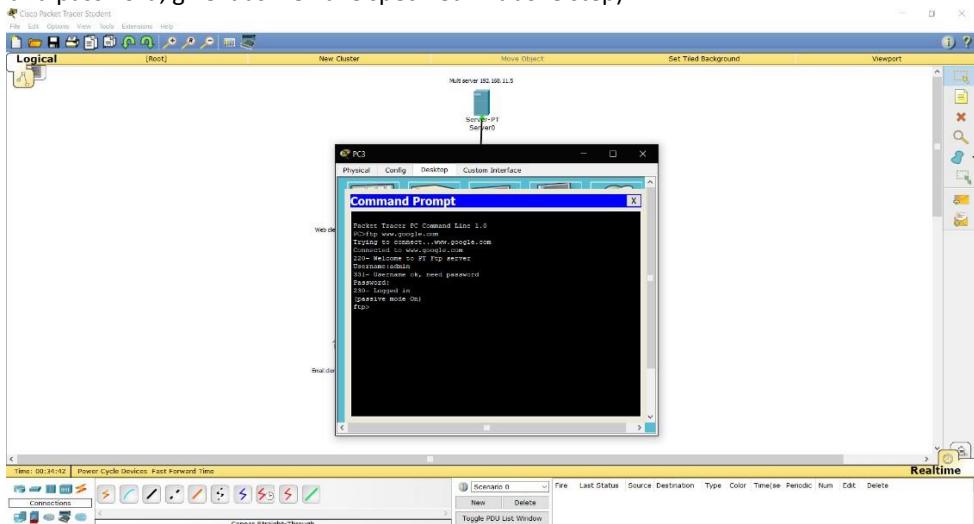
**Step 12:** Click on PC1 → Email → Received → Click on mail to see the details. Also, Check whether we can send the email from PC1 to PC0 or not. Follow same steps for sending the email.



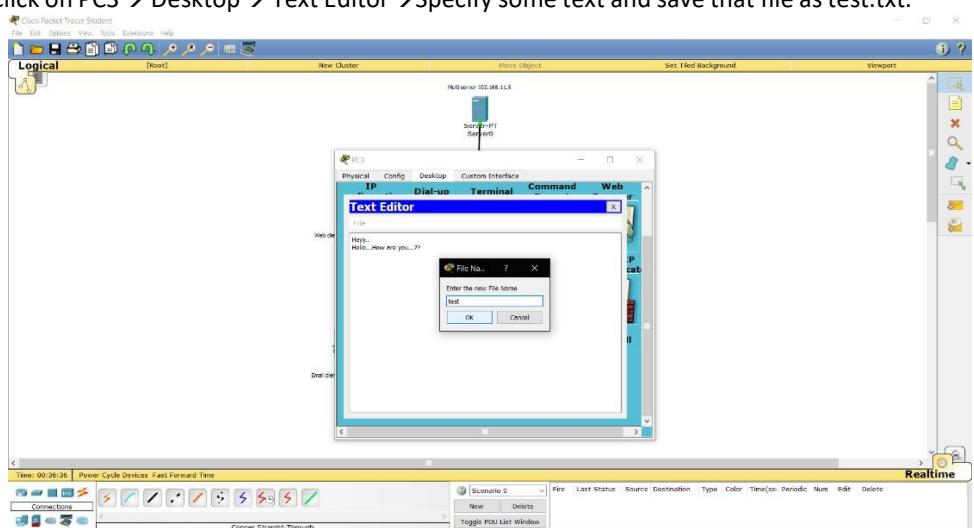
**Step 13:** Click on Server → Services → FTP → Specify username= admin and password = admin → Check the checkboxes of Write, read, delete, rename and list → Add → Close.



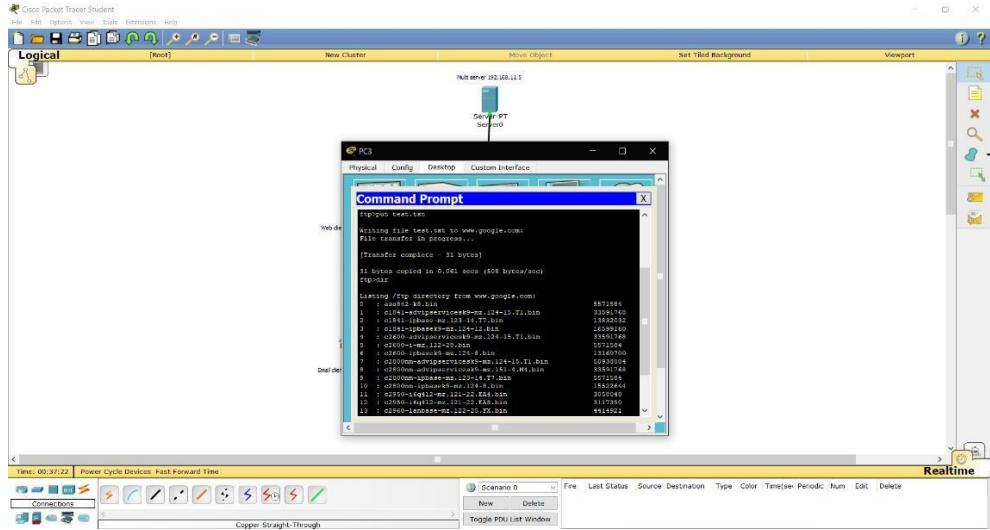
**Step 14:** Click on PC3 → Desktop → Command Prompt → Execute the following command (It will ask for username and password, give it as we have specified in above step).



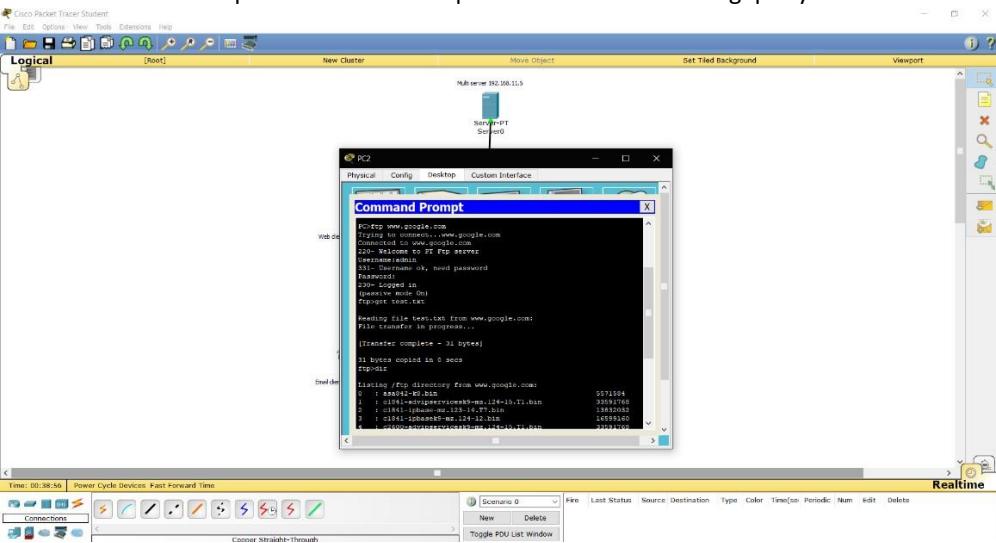
**Step 15:** Click on PC3 → Desktop → Text Editor → Specify some text and save that file as test.txt.



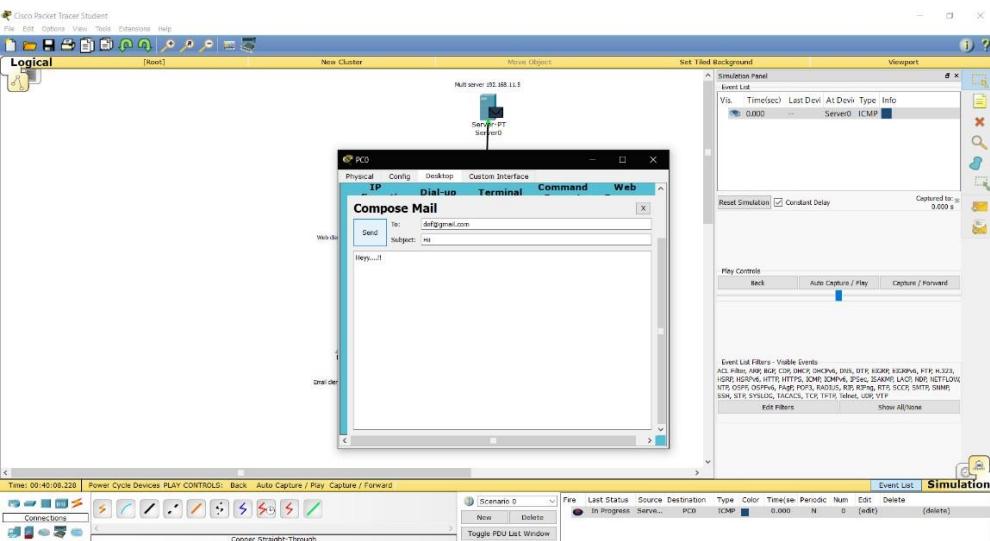
**Step 16:** Click on PC3 → Desktop → Command Prompt → Execute the following query.



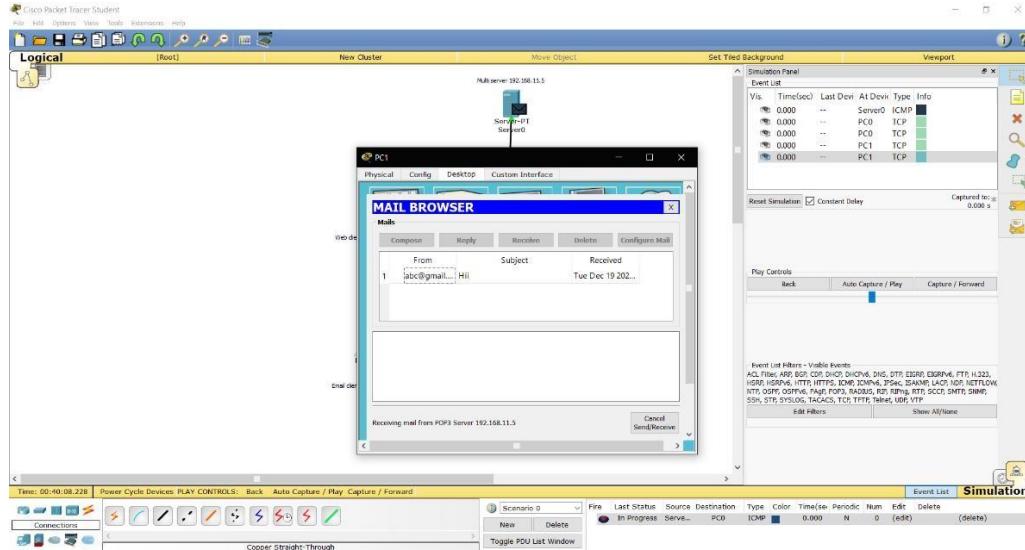
**Step 17:** Click on PC2 → Desktop → Command Prompt → Execute the following query.



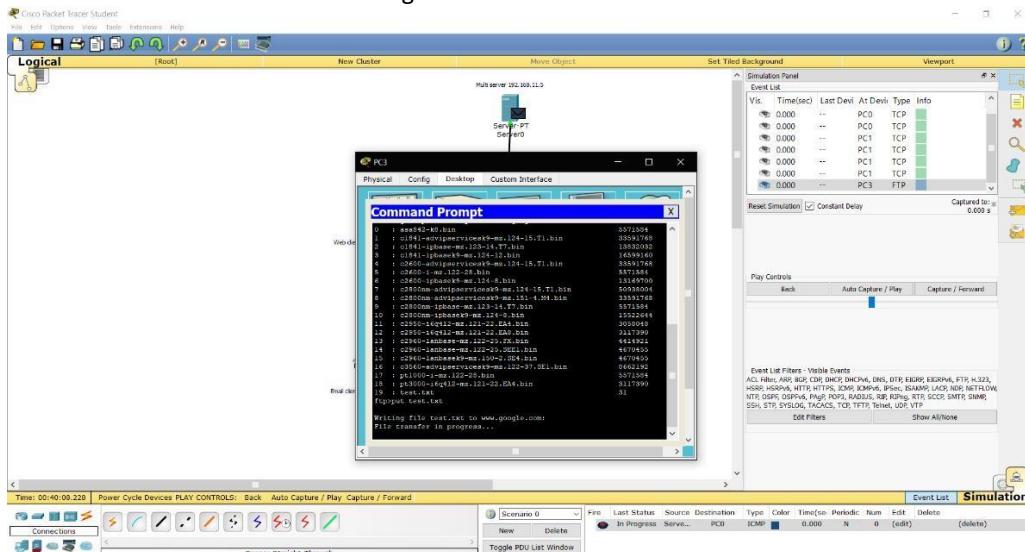
**Step 18:** On the Simulation and Drop the message from Server to PC0. After that Compose a mail from PC0 to PC1.



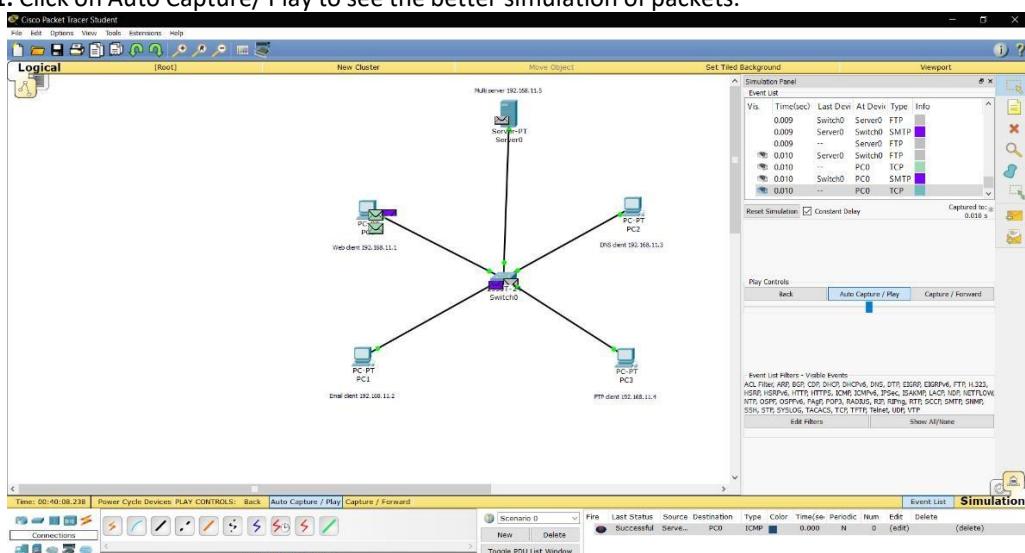
**Step 19:** Click on PC1 → Desktop → Email → Receive.



**Step 20:** Click on PC3 → Execute the following command.



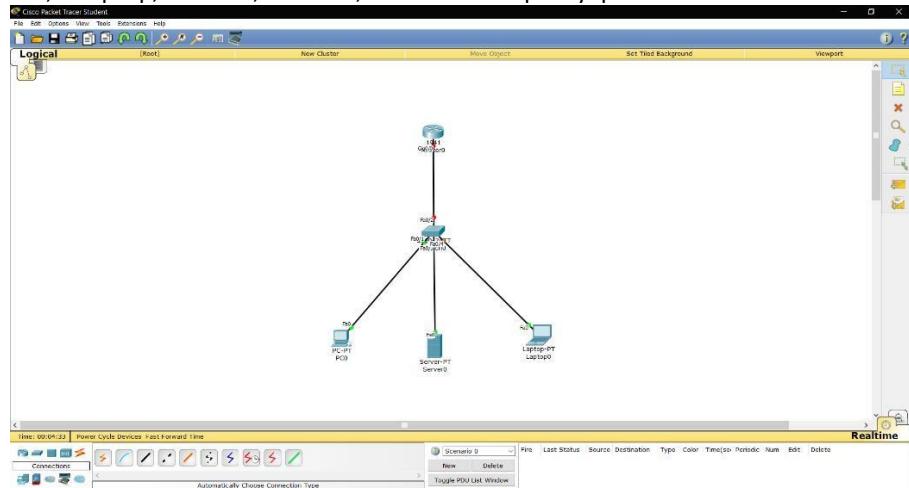
**Step 21:** Click on Auto Capture/ Play to see the better simulation of packets.



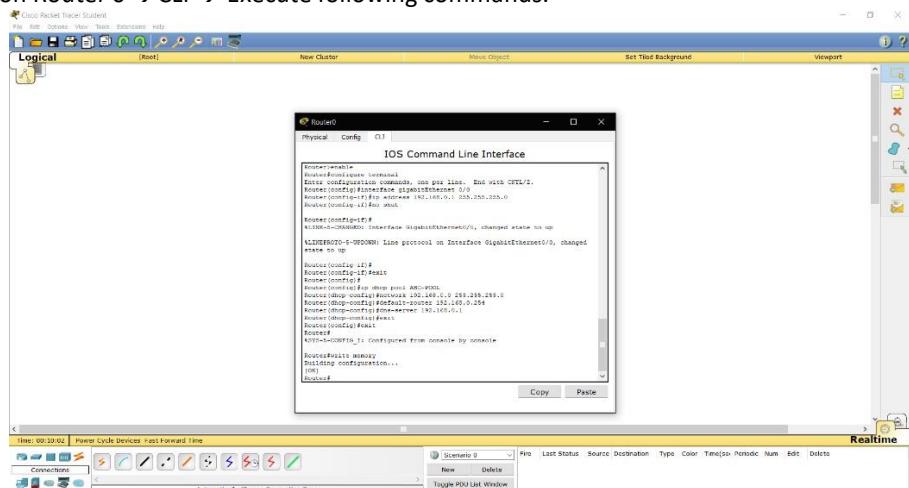
Practical No. 6

## Aim: Configuring DHCP Server.

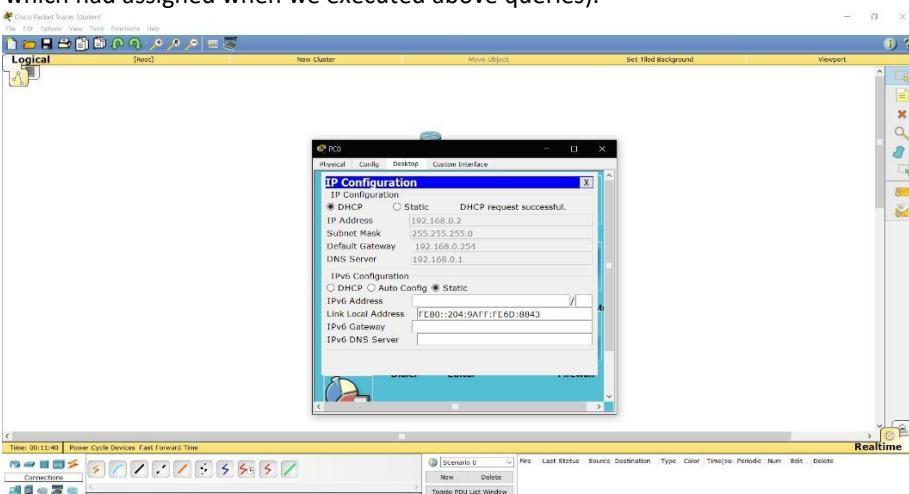
**Step 1:** Take 1 PC, 1 Laptop, 1 Server, 1 Switch, 1 Router and specify Ip address and names to each device.



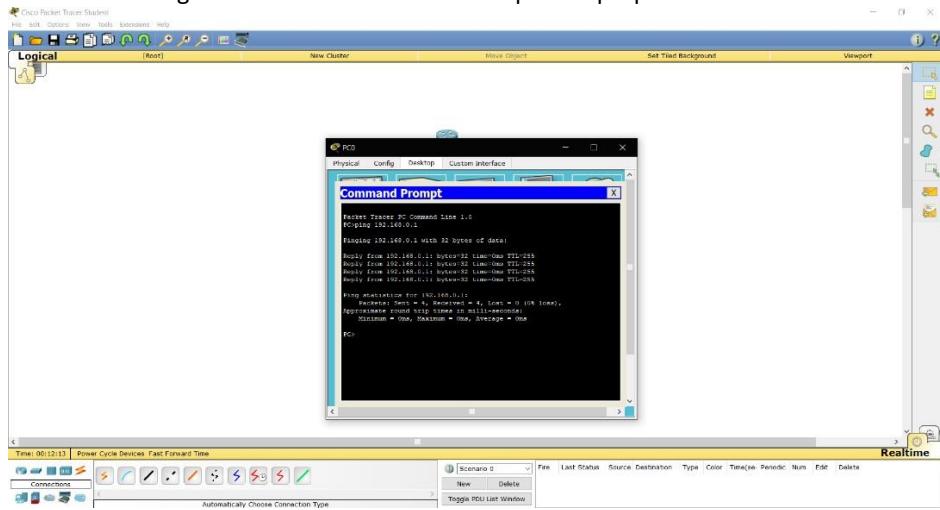
**Step 2:** Click on Router 0 → CLI → Execute following commands.



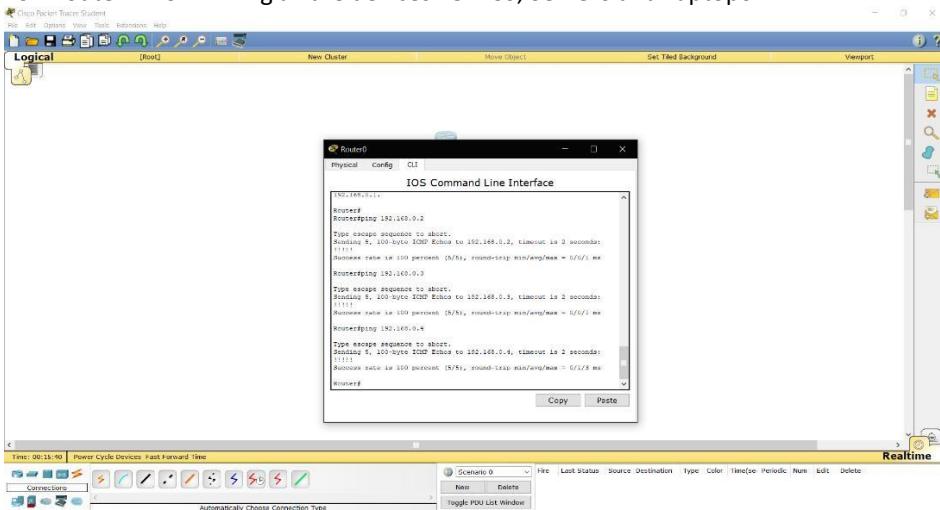
**Step 3:** Click on PC0 → Desktop → IP Configuration → Select DHCP (It will show the assigned ip address and other details which had assigned when we executed above queries).



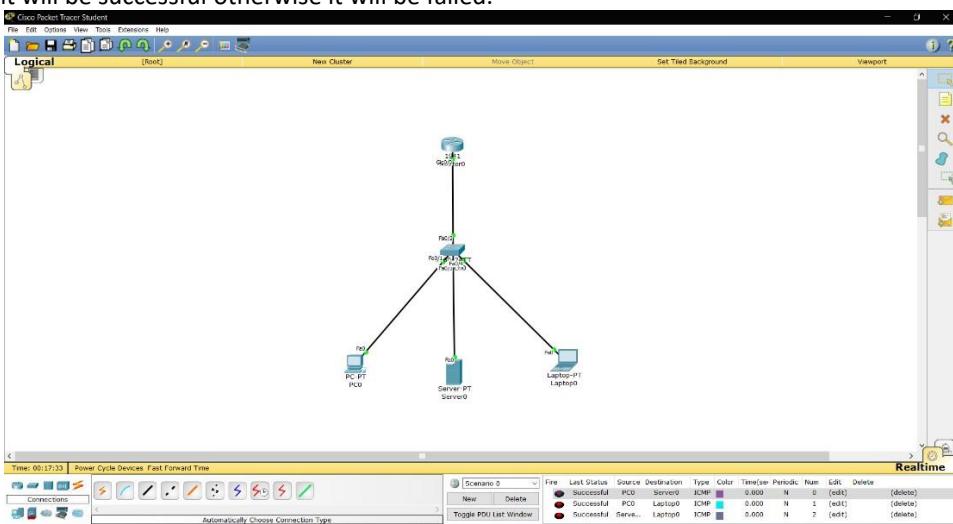
**Step 4:** Click on PC0 → Desktop → Command Prompt → execute the ping command followed by the IP address of router. Check whether it gets executed. Do the same step for Laptop and Server.



**Step 5:** Click on Router → CLI → Ping all the devices i.e. PC0, Server0 and Laptop0.



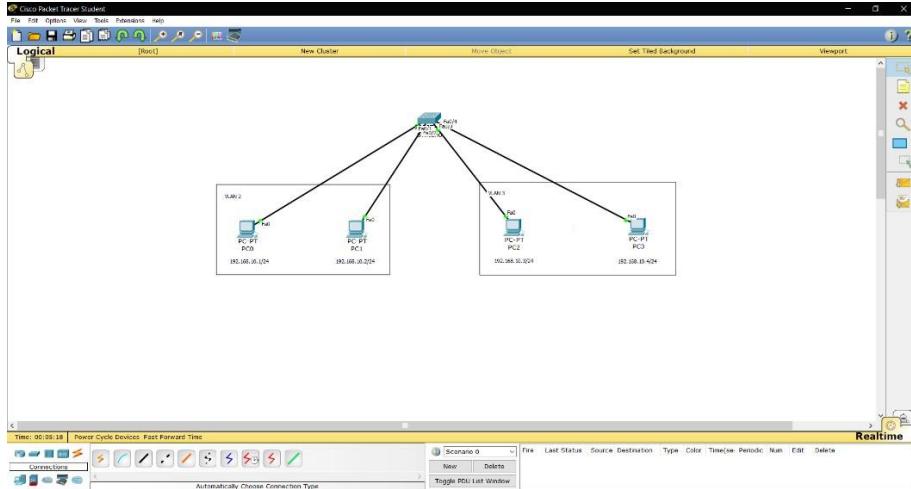
**Step 6:** Take the message from right side and drop it from PC0 to Server0 or Laptop0. If our configuration is right then it will be successful otherwise it will be failed.



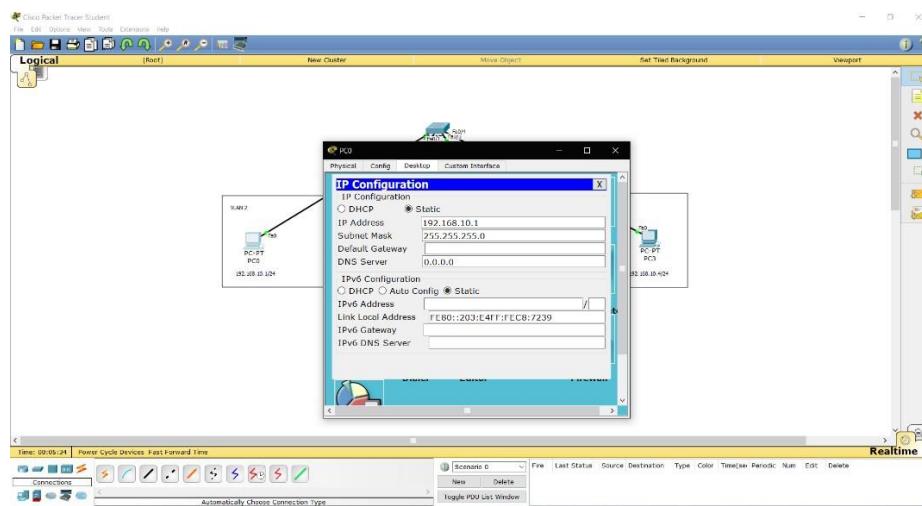
## Practical No. 7

Aim: Configuring VLAN

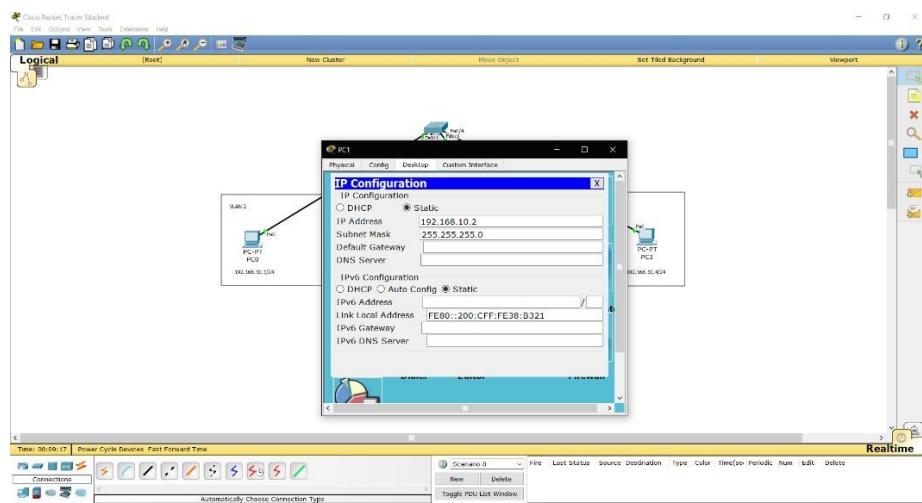
Step 1: Take 4 PC's, 1 Switch and specify Ip address and names to both the LAN's.



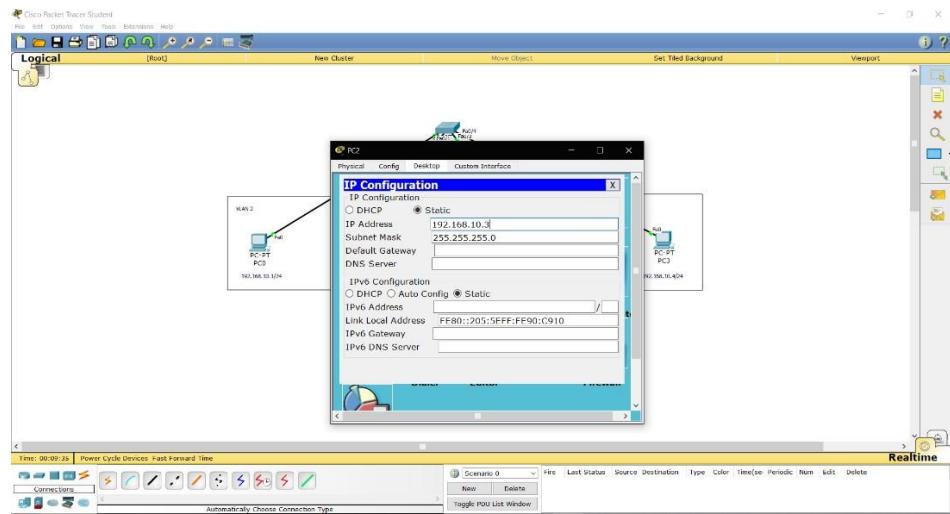
Step 2: Click on PC0 → Desktop → IP Configuration → Select Static → Assign IP address & Subnet mask and close.



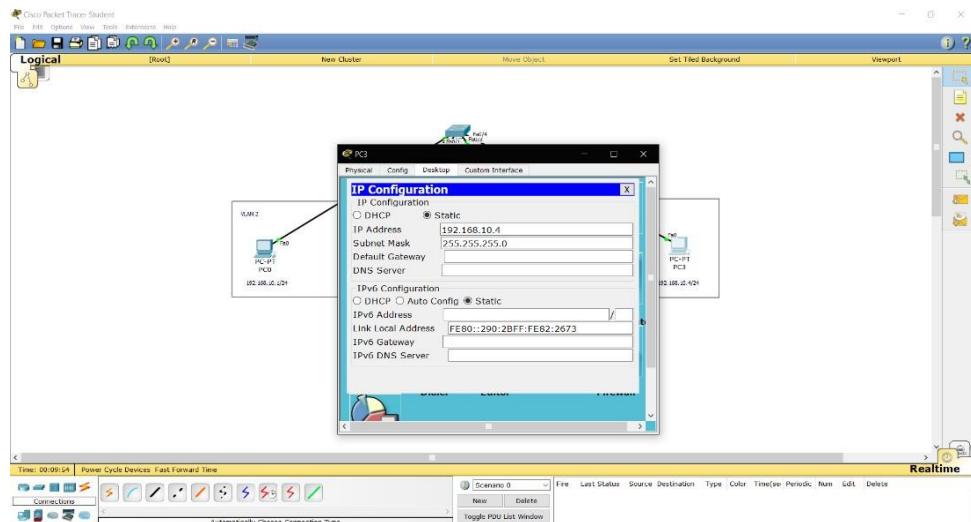
Step 3: Click on PC1 → Desktop → IP Configuration → Select Static → Assign IP address & Subnet mask and close.



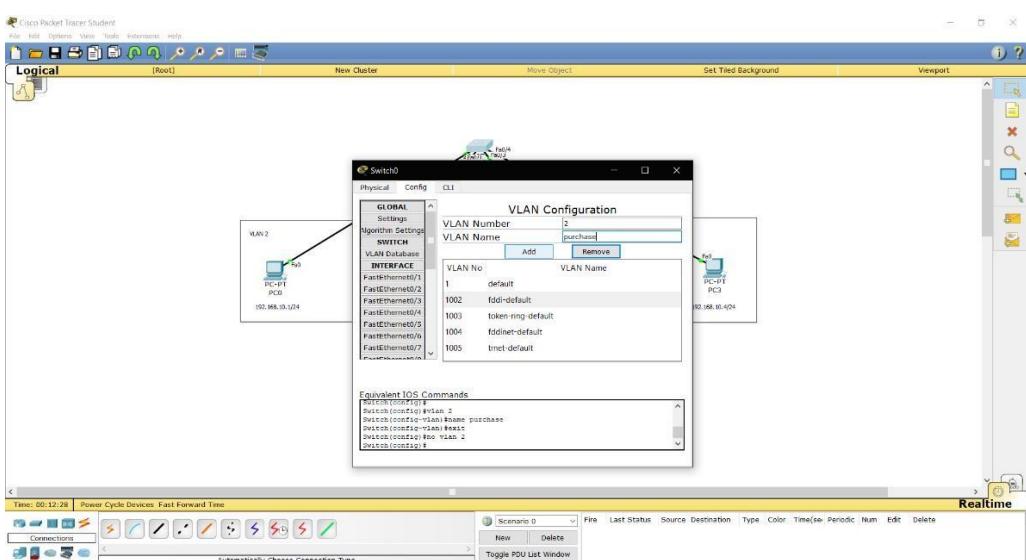
**Step 4:** Click on PC2 → Desktop → IP Configuration → Select Static → Assign IP address & Subnet mask and close.



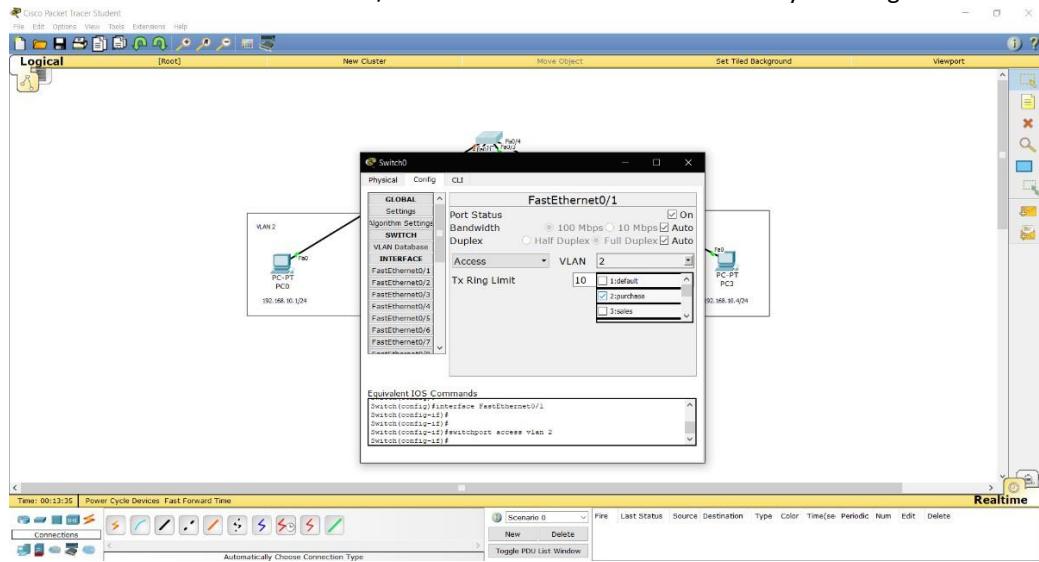
**Step 5:** Click on PC3 → Desktop → IP Configuration → Select Static → Assign IP address & Subnet mask and close.



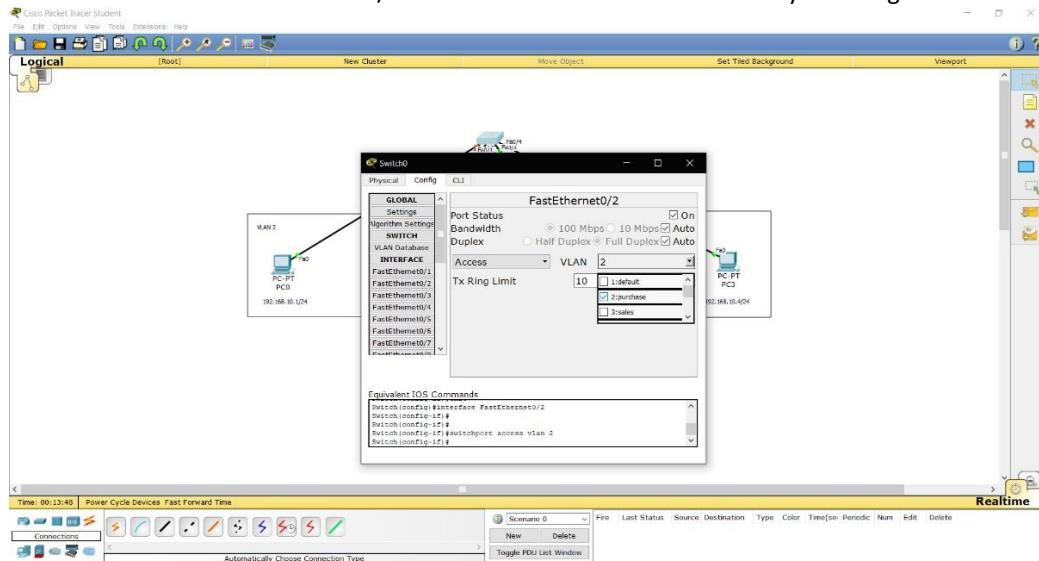
**Step 6:** Click on Switch0 → VLAN Databases → Specify a number and name for both the LAN's one by one → Add.



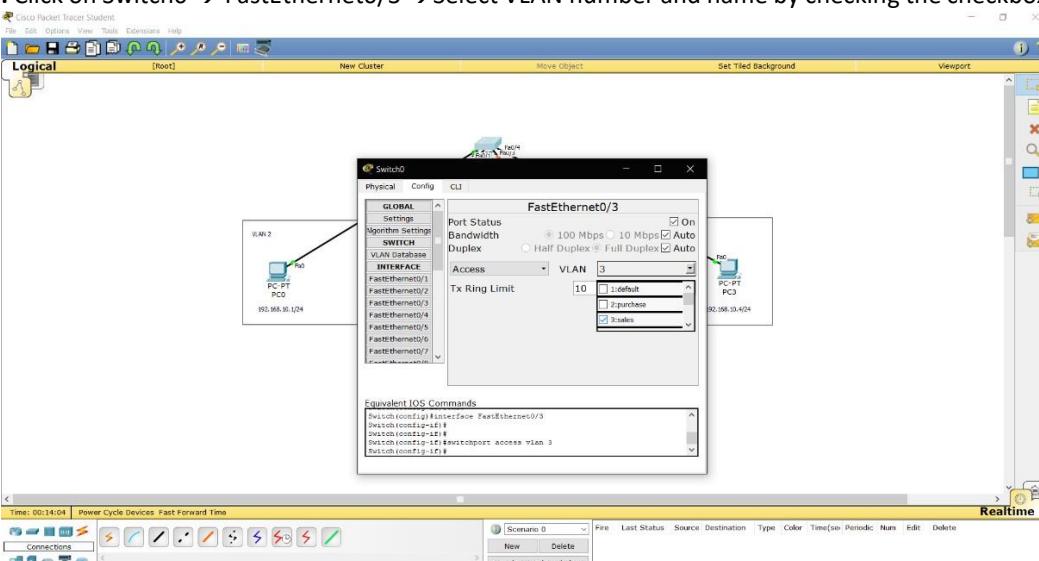
**Step 7:** Click on Switch0 → FastEthernet0/1 → Select VLAN number and name by checking the checkbox.



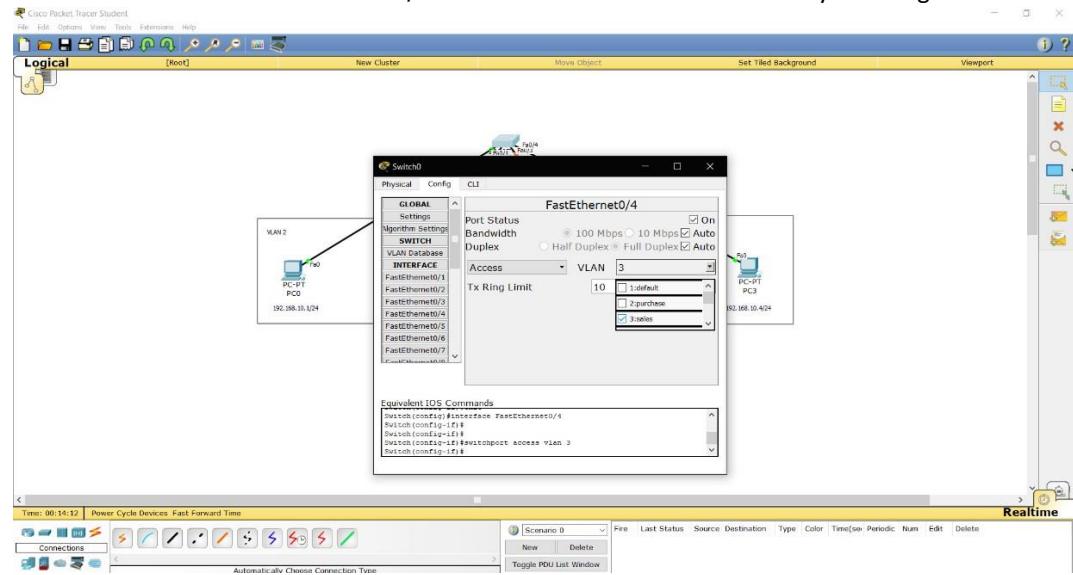
**Step 8:** Click on Switch0 → FastEthernet0/2 → Select VLAN number and name by checking the checkbox.



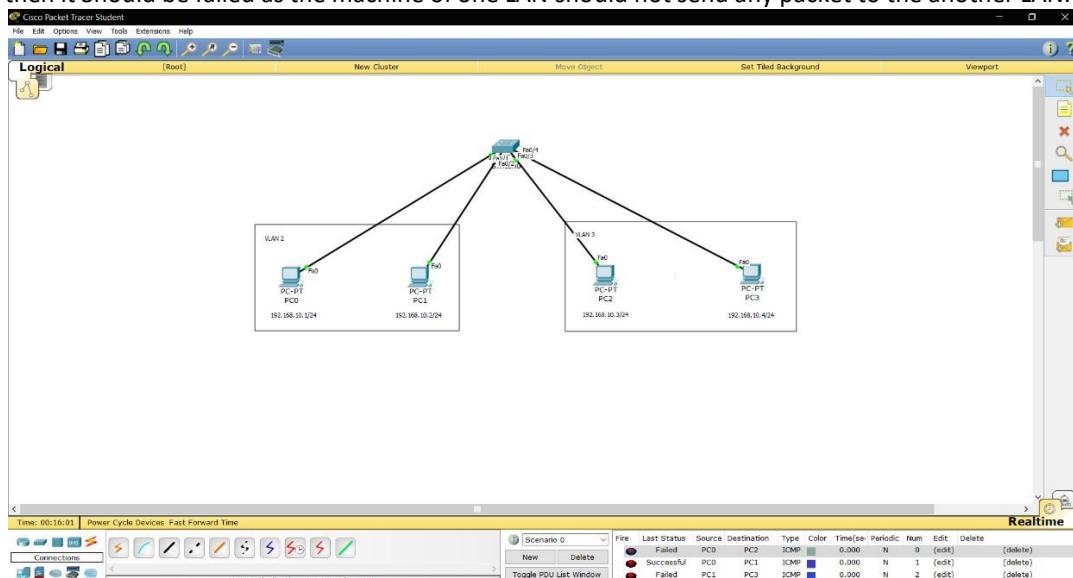
**Step 9:** Click on Switch0 → FastEthernet0/3 → Select VLAN number and name by checking the checkbox.



**Step 10:** Click on Switch0 → FastEthernet0/4 → Select VLAN number and name by checking the checkbox.



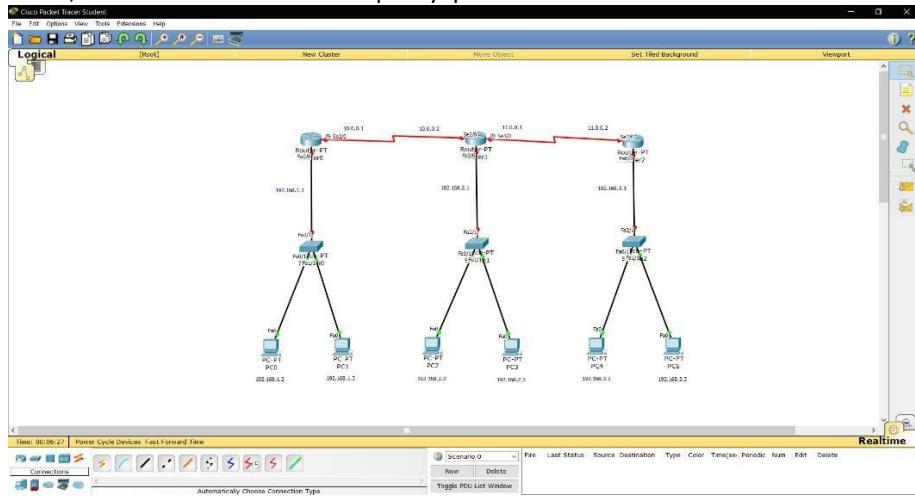
**Step 11:** Take the message from right side and drop it from PC of LAN1 to PC of LAN2. If our configuration is right then it Should be failed as the machine of one LAN should not send any packet to the another LAN.



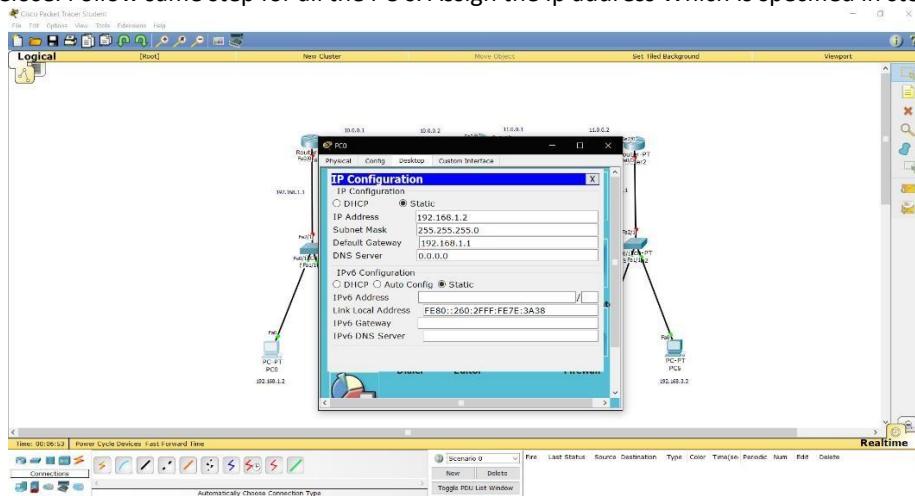
## Practical No. 8

**Aim:** Configure IP static routing using 3 routers, 3 switches, 6 PC's

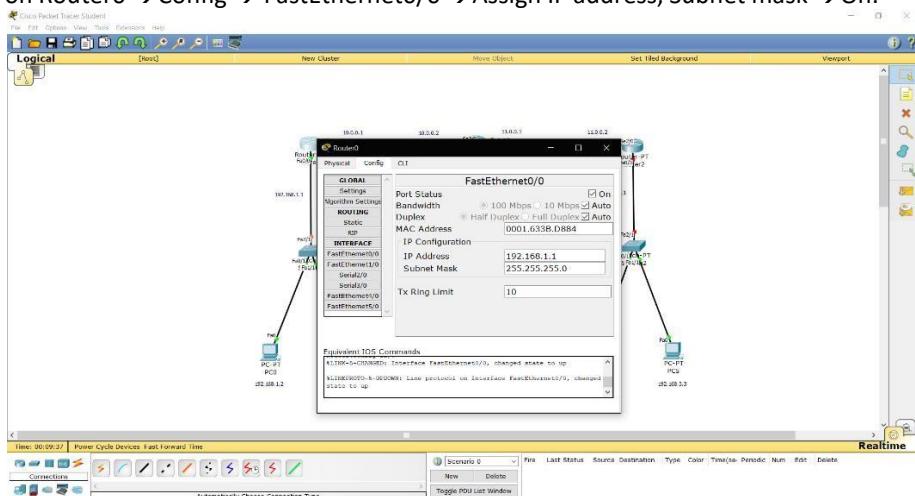
**Step 1:** Take 4 PC's, 1 Switch and 1 Server and specify Ip address to each device.



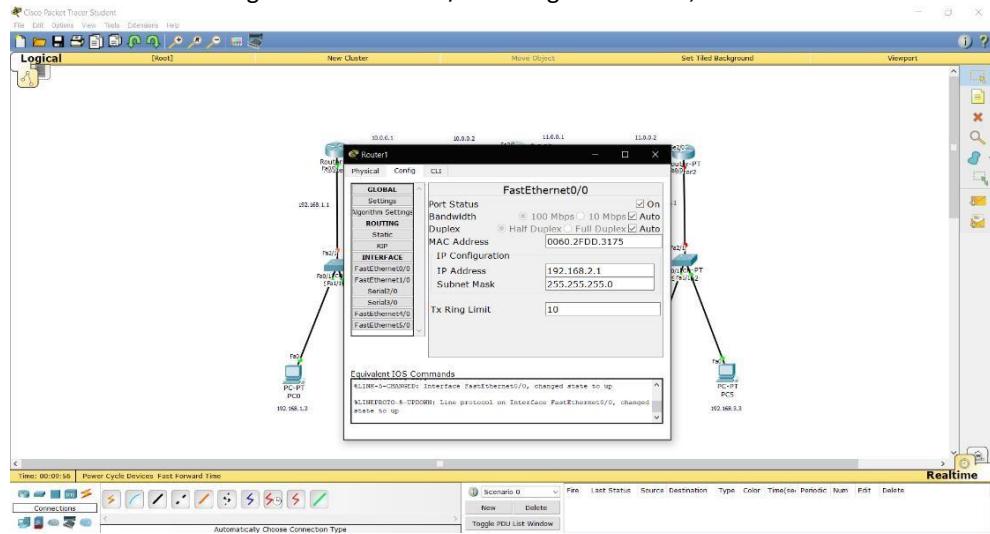
**Step 2:** Click on PC0 → Desktop → IP Configuration → Select Static → Assign IP address, Subnet mask & Default gateway → Close. Follow same step for all the PC's. Assign the Ip address Which is specified in step 1.



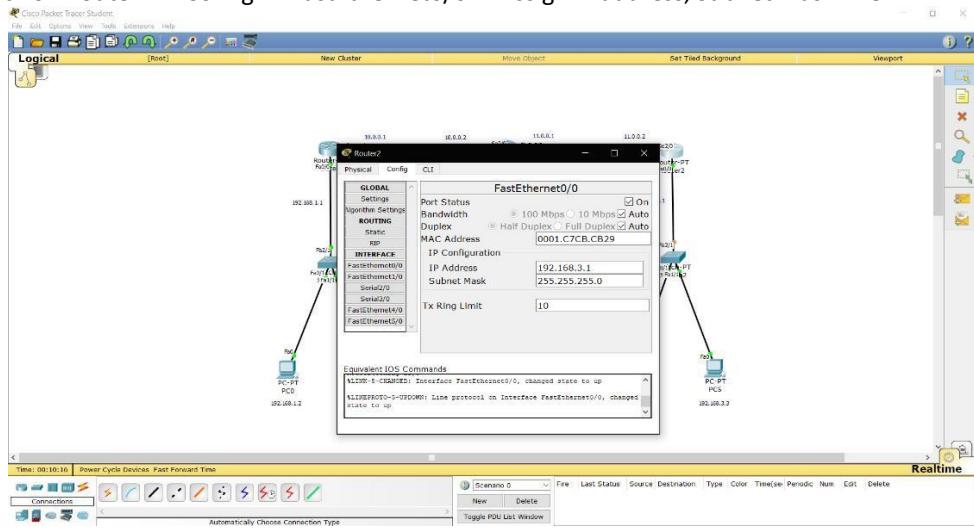
**Step 3:** Click on Router0 → Config → FastEthernet0/0 → Assign IP address, Subnet mask → On.



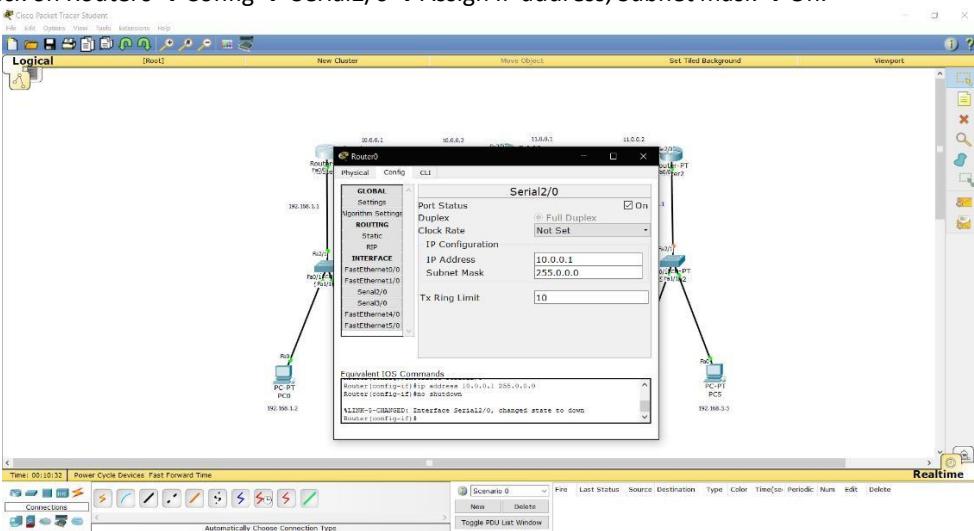
**Step 4:** Click on Router1 → Config → FastEthernet0/0 → Assign IP address, Subnet mask → On.



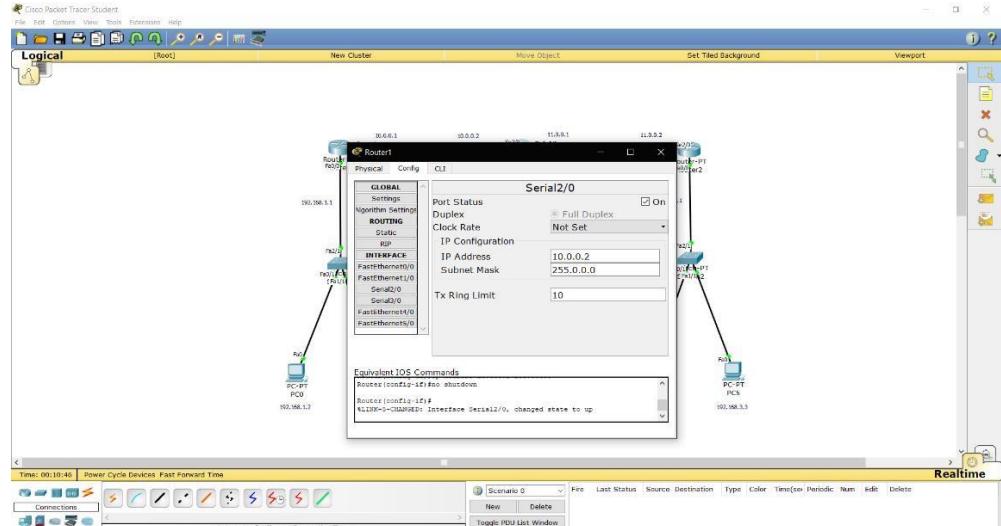
**Step 5:** Click on Router2 → Config → FastEthernet0/0 → Assign IP address, Subnet mask → On.



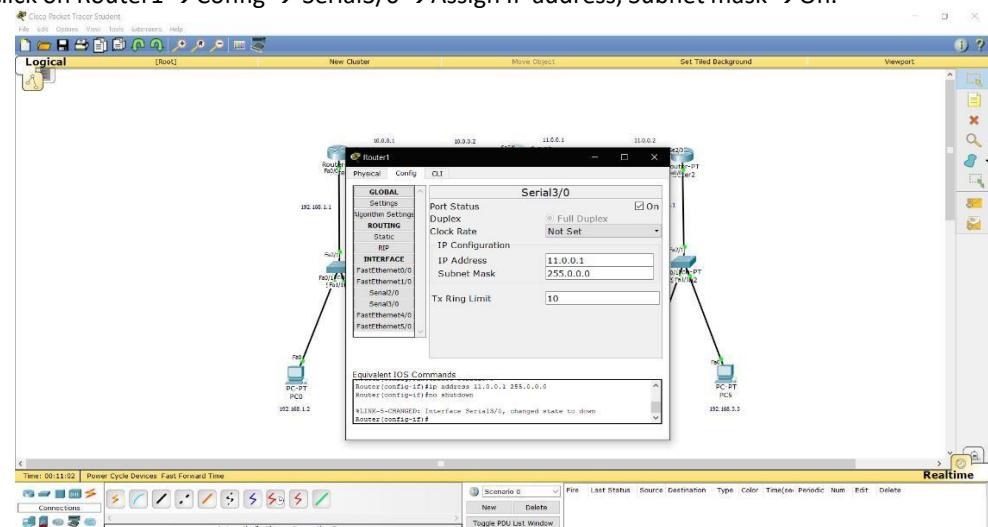
**Step 6:** Click on Router0 → Config → Serial2/0 → Assign IP address, Subnet mask → On.



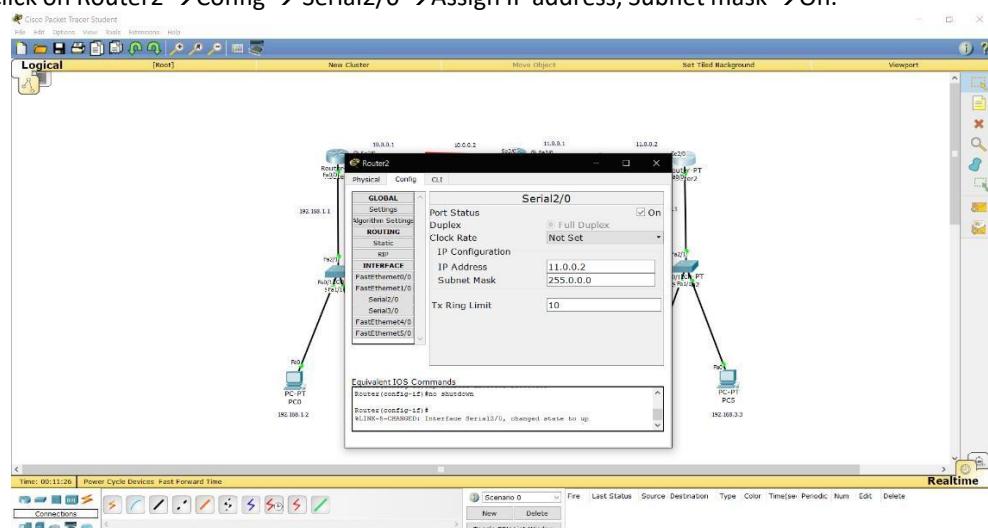
**Step 7:** Click on Router1 → Config → Serial2/0 → Assign IP address, Subnet mask → On.



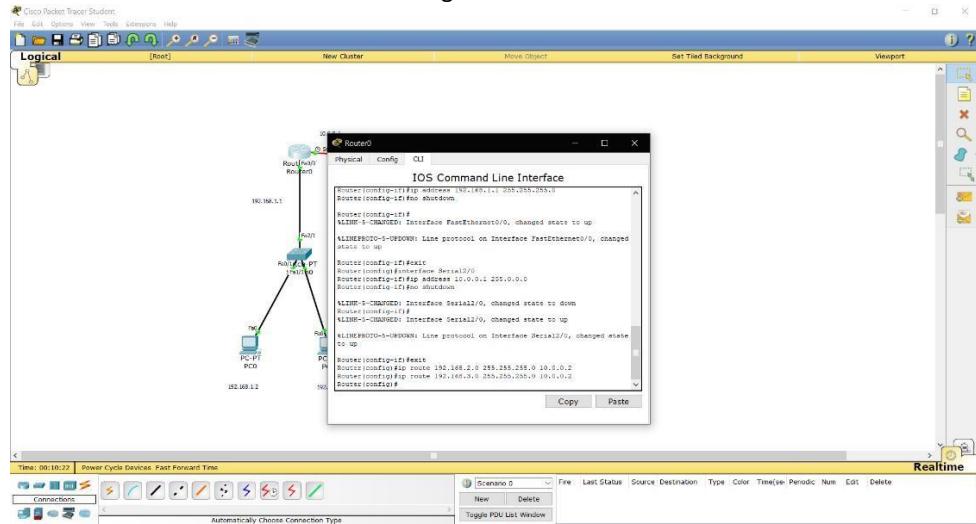
**Step 8:** Click on Router1 → Config → Serial3/0 → Assign IP address, Subnet mask → On.



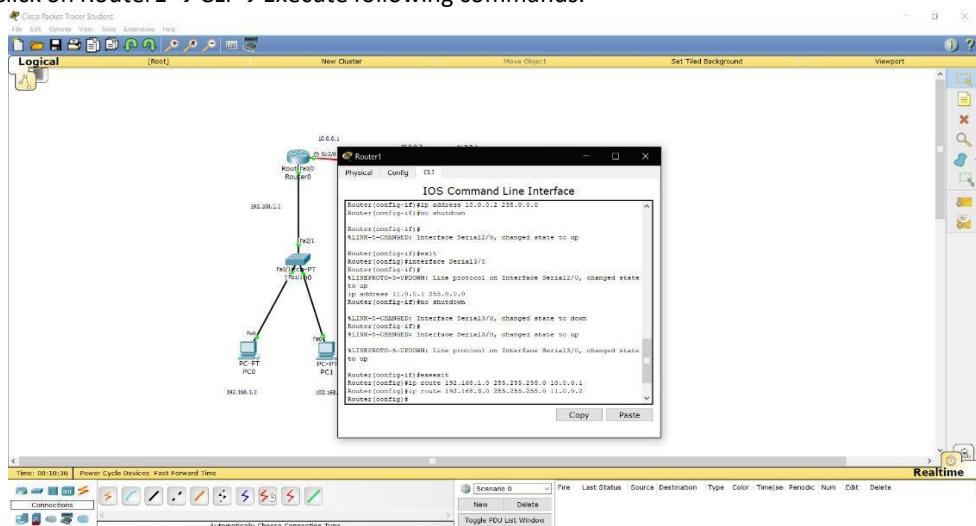
**Step 9:** Click on Router2 → Config → Serial2/0 → Assign IP address, Subnet mask → On.



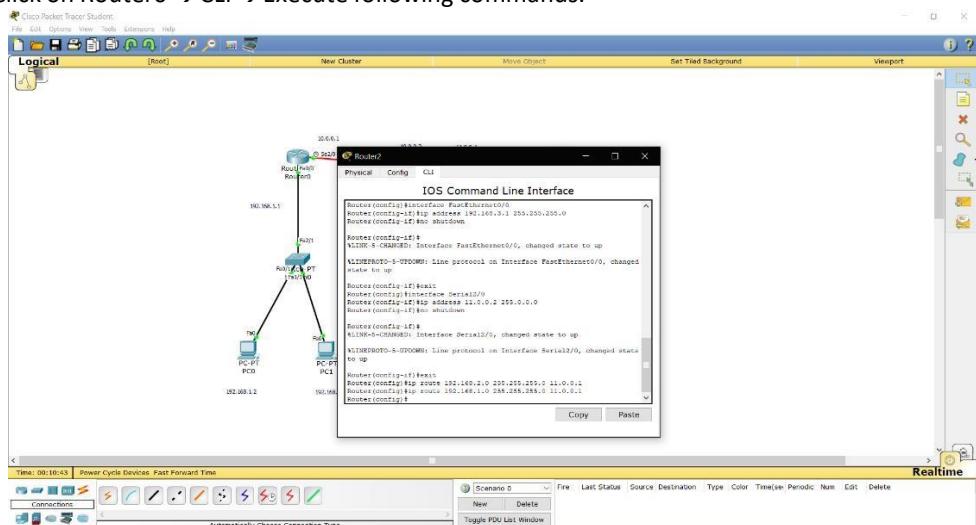
**Step 10:** Click on Router0 → CLI → Execute following commands.



**Step 11:** Click on Router1 → CLI → Execute following commands.



**Step 12:** Click on Router0 → CLI → Execute following commands.



**Step 13:** Click on a message option present at the right side and drop the message from PC0 to PC2 also from PC3 to PC4 and PC1 to PC5. If our configuration is right, it will be successful otherwise it will be failed.

