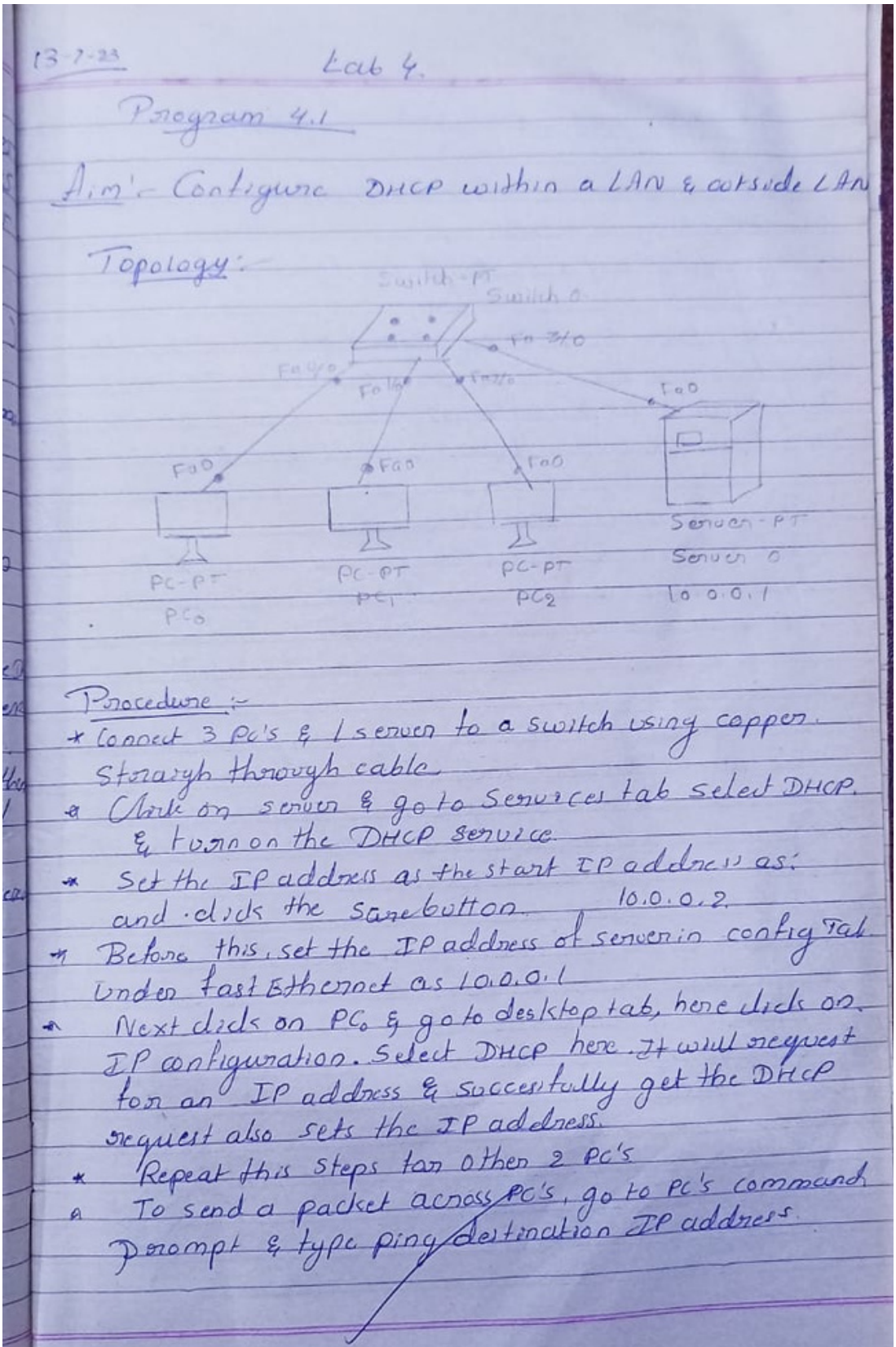
WEEK 4

Configure DHCP within a LAN and outside

LAN. OBSERVATION:



13-7-23 Lab 4.

Program 4.1

Aim:- Configure DHCP within a LAN & outside LAN

Topology:

Procedure:-

* Connect 3 PC's & 1 server to a switch using copper straight through cable.
* Click on server & go to Services tab select DHCP & turn on the DHCP service.
* Set the IP address as the start IP address as: 10.0.0.2 and click the save button.
* Before this, set the IP address of server in config Tab under fast Ethernet as 10.0.0.1
* Next click on PC0 & go to desktop tab, here click on IP configuration. Select DHCP here. It will request for an IP address & successfully get the DHCP request also sets the IP address.
* Repeat this steps for other 2 PC's
* To send a packet across PC's, go to PC's command prompt & type ping destination IP address.

PING output:

Packet tracer PC command Line 1.0.

PC> Ping 10.0.0.3

Pinging 10.0.0.3 with 32 bytes of data:

Reply from 10.0.0.3: bytes=32 time=0ms TTL=128
Reply from 10.0.0.3: bytes=32 time=0ms TTL=128
Reply from 10.0.0.3: bytes=32 time=1ms TTL=128
Reply from 10.0.0.3: bytes=32 time=0ms TTL=128

Ping statistics from 10.0.0.3:
Packets: Sent=4, received=4, lost=0, (0% loss)
Approximate round trip times in milliseconds:
Minimum=0ms, Maximum=1ms, Average=0ms

Observation

* DHCP is used to dynamically assign an IP address to any device or node.
* It is a client-server protocol in which servers manage a pool of unique IP addresses & also about client configuration parameters.
* DHCP-enabled clients sends a request to DHCP server when they want to connect to a network.
* The DHCP server responds to the client request by providing IP configuration information from address pools, previously specified by a network administrator.

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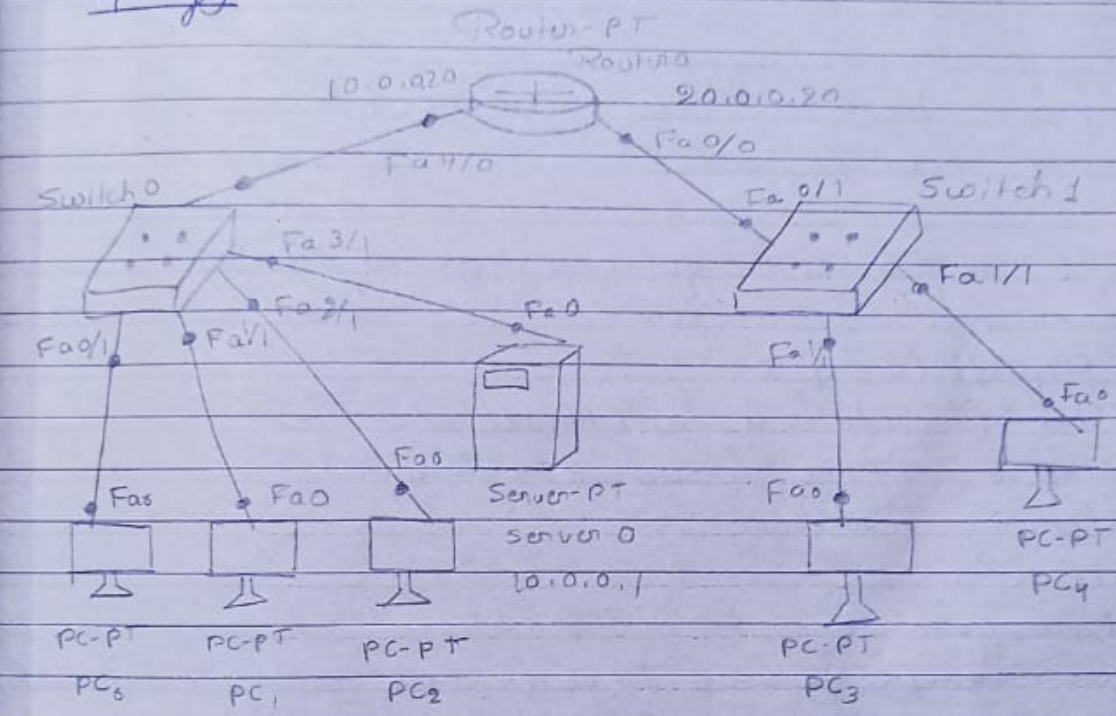
Program 4.2

Aim :- Configure DHCP within a LAN & outside LAN

Topology



Procedure :- * Add a router a switch & 2 PC's to 4.2 program network & connect the router to both switches

* Set the Server IP address of Server and with the help of Server set the first 3 PC's IP address through DHCP.
* Now set the router IP address with the following commands statically.

Step 1 : NO
Step 2 : Enable
Step 3 : Config T
Step 4 : Interface FastEthernet 4/0.
Step 5 : IP address 10.0.0.20 255.0.0.0.

- Step 6: No shut
Step 7: Exit
Step 8: interface fastEthernet 0/0
Step 9: IP address 20.0.0.20 255.0.0.0.
Step 10: No shut
step 11: Exit
Step 12: Exit
Step 13: Show IP route.

- Go to server & set the gateway as 10.0.0.20
* Again go to router CLI & follow these command
Step 14: Config T
Step 15: interface fastEthernet 0/0
step 16: IP helper-address 10.0.0.1
Step 17: No shut
Step 18: Exit
- Now, go to server services & add one more pool name as server pool 1, start IP address as 20.0.0.2 & defa gateway as 20.0.0.20. Then click add & save.
* Now set the other 2 pc's IP address by going to Desktop -> IP configuration & selecting DHCP wh will automatically generate it IP address.
* Now the network is complete & can send packets from any Pc to other by typing ping destination I address in their respective command prompts.

PING output

Packet tracer PC command line 1.0
PC > Ping 20.0.0.2
Pinging 20.0.0.2 with 32 bytes of data.
Request timed out.

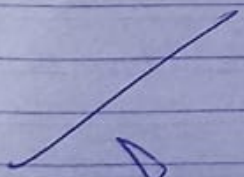
Reply from 20.0.0.2 : bytes=32 time=0ms TTL=127
Reply from 20.0.0.2 : bytes=32 time=0ms TTL=127.
Reply from 20.0.0.2 : bytes=32 time=0ms TTL=127.

Ping statistics for 20.0.0.2
Packets Sent=4, Received=3, lost=1 (25% Loss)
Approximate round trip times in miliseconds
minimum=0ms, maximum=0ms Average=0ms.

Observation:

* DHCP is used to assign IP addresses dynamically to different devices
* To assign continuous IP address we create a Server pool where we assign the starting IP address & a default gateway number. For PCs under different switches we create a different server pool again & start.

This tasks care of delivering the packets to correct destination IP address & also send back the Ack into the original device.



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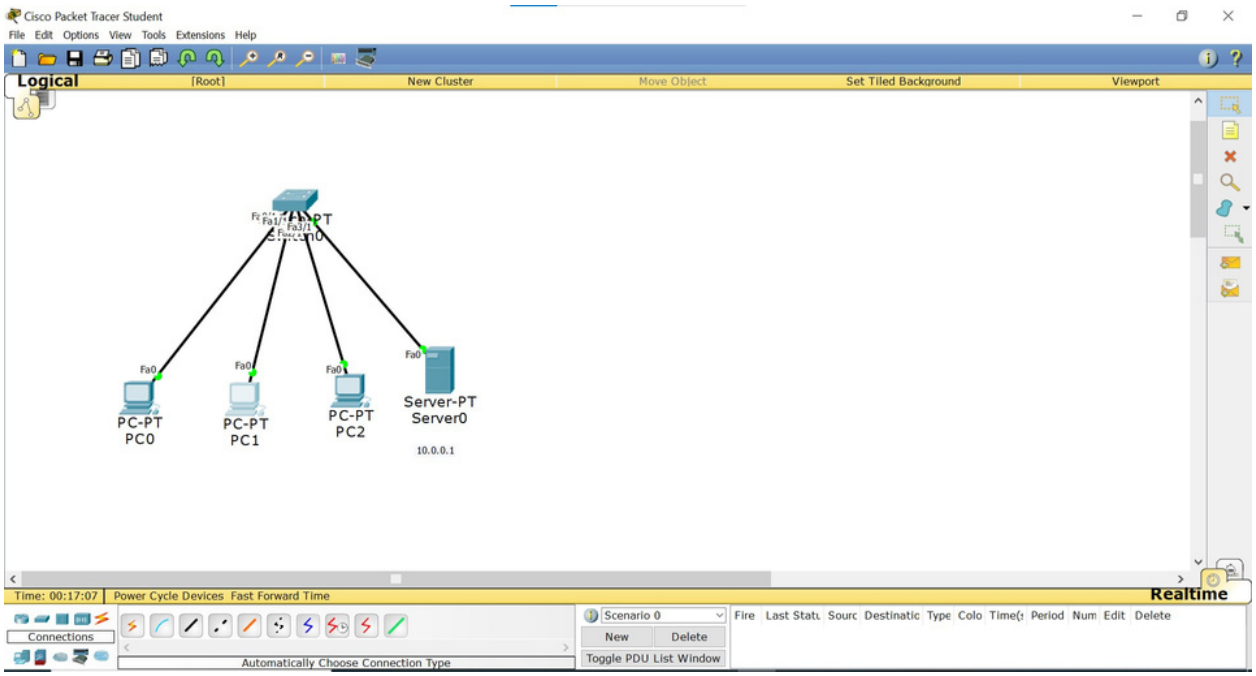
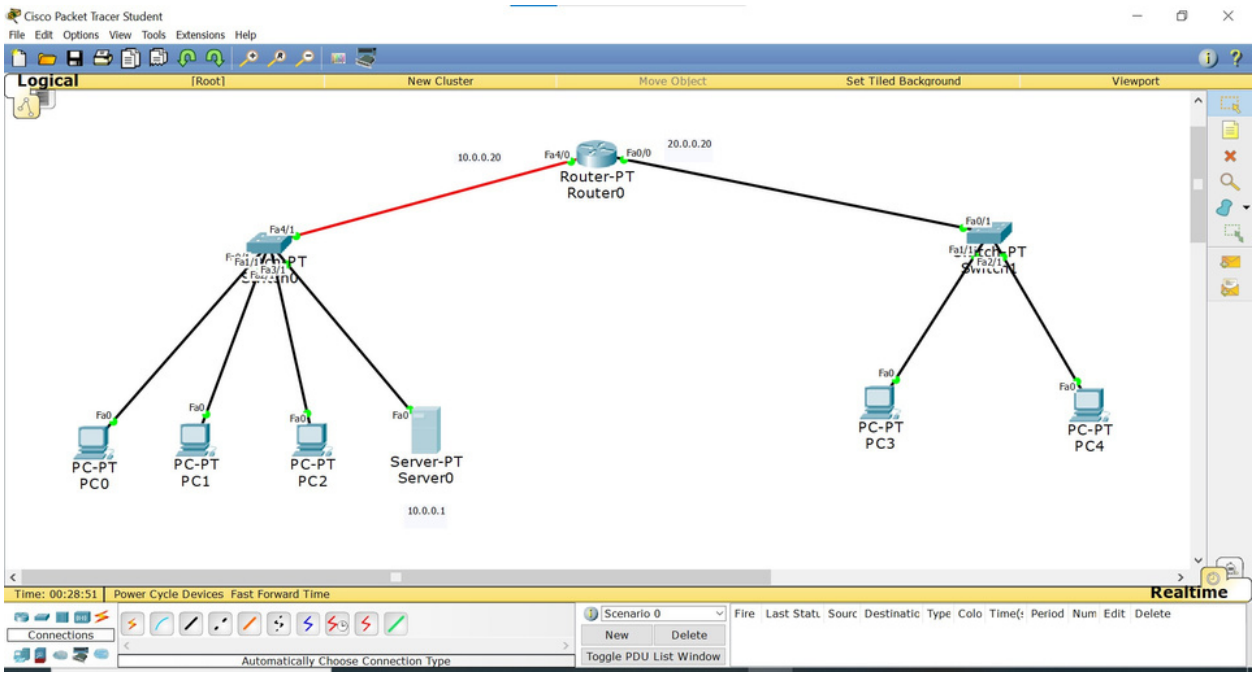
TOPOLOGY:

PROGRAM 4.1:

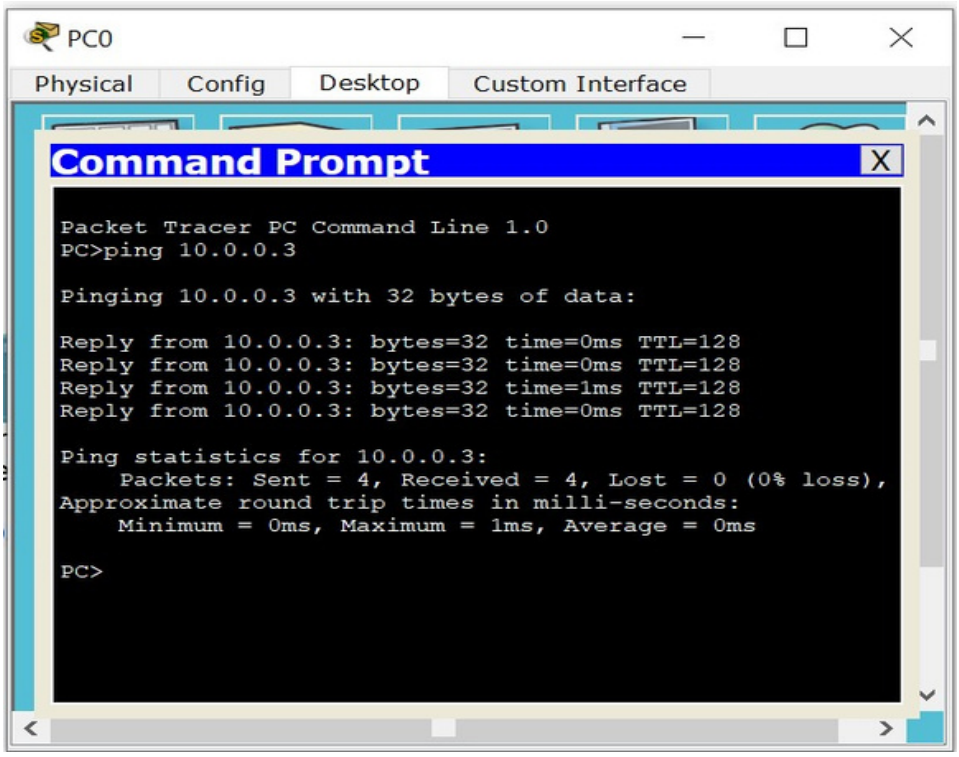


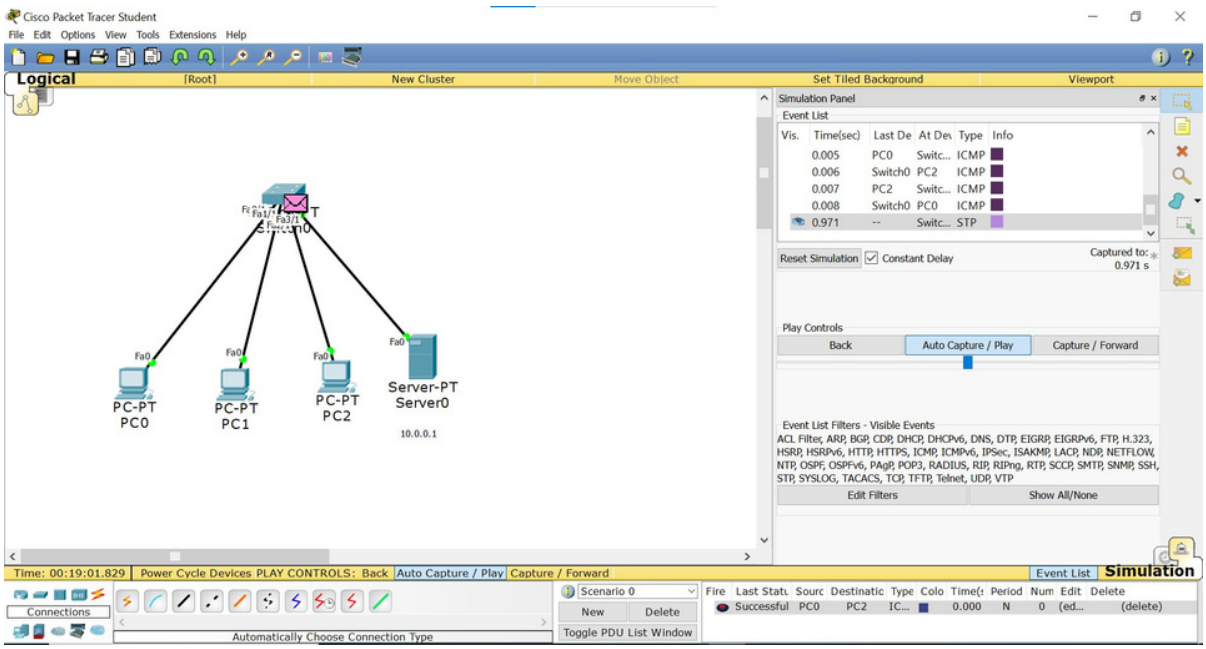
PROGRAM 4.2:



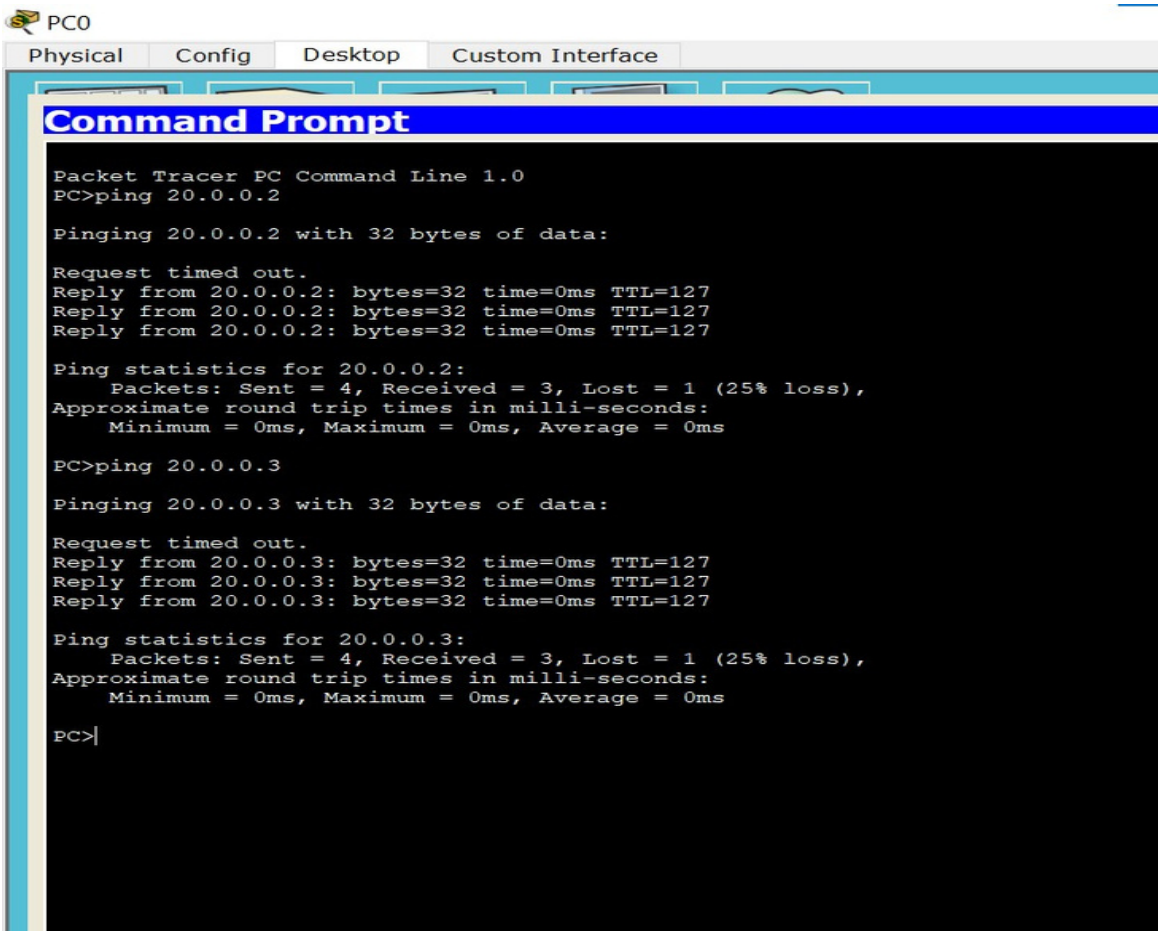
OUTPUT:

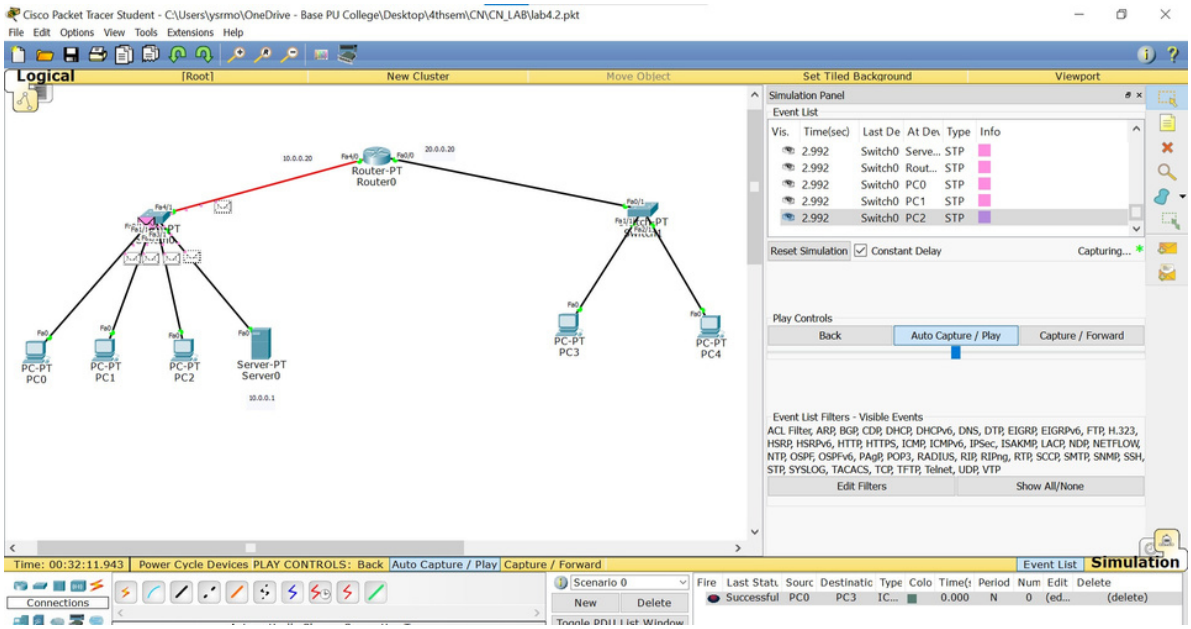
PROGRAM 4.1:





PROGRAM 4.2:


PC0
Physical
Config
Desktop
Custom Interface
Command Prompt
Packet Tracer PC Command Line 1.0
PC>ping 20.0.0.2
Pinging 20.0.0.2 with 32 bytes of data:
Request timed out.
Reply from 20.0.0.2: bytes=32 time=0ms TTL=127
Reply from 20.0.0.2: bytes=32 time=0ms TTL=127
Reply from 20.0.0.2: bytes=32 time=0ms TTL=127
Ping statistics for 20.0.0.2:
Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 0ms, Average = 0ms
PC>ping 20.0.0.3
Pinging 20.0.0.3 with 32 bytes of data:
Request timed out.
Reply from 20.0.0.3: bytes=32 time=0ms TTL=127
Reply from 20.0.0.3: bytes=32 time=0ms TTL=127
Reply from 20.0.0.3: bytes=32 time=0ms TTL=127
Ping statistics for 20.0.0.3:
Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 0ms, Average = 0ms
PC>


Logical
Router-PT
Router0
PC-PT
PC0
PC-PT
PC1
PC-PT
PC2
Server-PT
Server0
PC-PT
PC3
PC-PT
PC4
Simulation Panel
Event List
Reset Simulation
Constant Delay
Play Controls
Back
Auto Capture / Play
Capture / Forward
Edit Filters
Show All/None
Simulation