VISVESVARAYA TECHNOLOGICAL UNIVERSITY

"JnanaSangama", Belgaum -590014, Karnataka.

LAB REPORT
on

COMPUTER NETWORKS

Submitted by

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1BM20CS066

in partial fulfillment for the award of the degree of
BACHELOR OF ENGINEERING
in
COMPUTER SCIENCE AND ENGINEERING

B.M.S. COLLEGE OF ENGINEERING
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B. M. S. College of Engineering,
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Department of Computer Science and Engineering

CERTIFICATE

This is to certify that the Lab work entitled "Lab course" carried out by **K.Yasaswini (1BM20CS066),** who is bonafide student of **B. M. S. College of Engineering.** It is in partial fulfillment for the award of **Bachelor of Engineering in Computer Science and Engineering** of the Visvesvaraya Technological University, Belgaum during the year 2022. The Lab report has been approved as it satisfies the academic requirements in respect of a **Computer Networks** work prescribed for the said degree.

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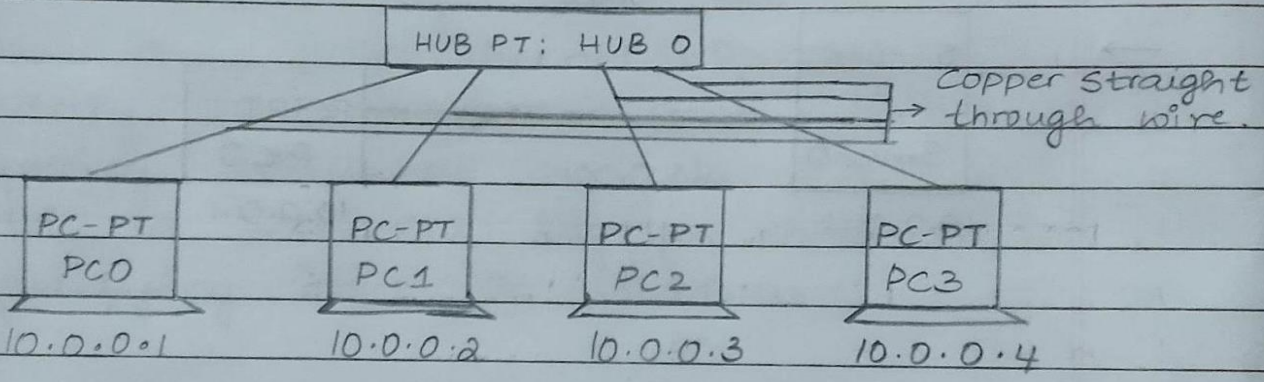
LAB-1

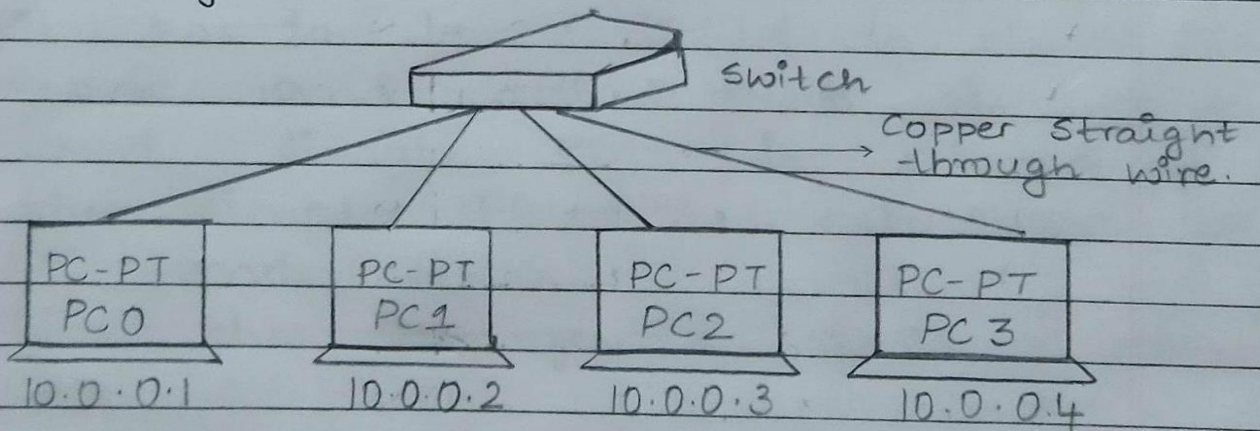
Aim :- Creating a topology and simulate sending a simple PDU from source to destination using hub and switch as connecting devices

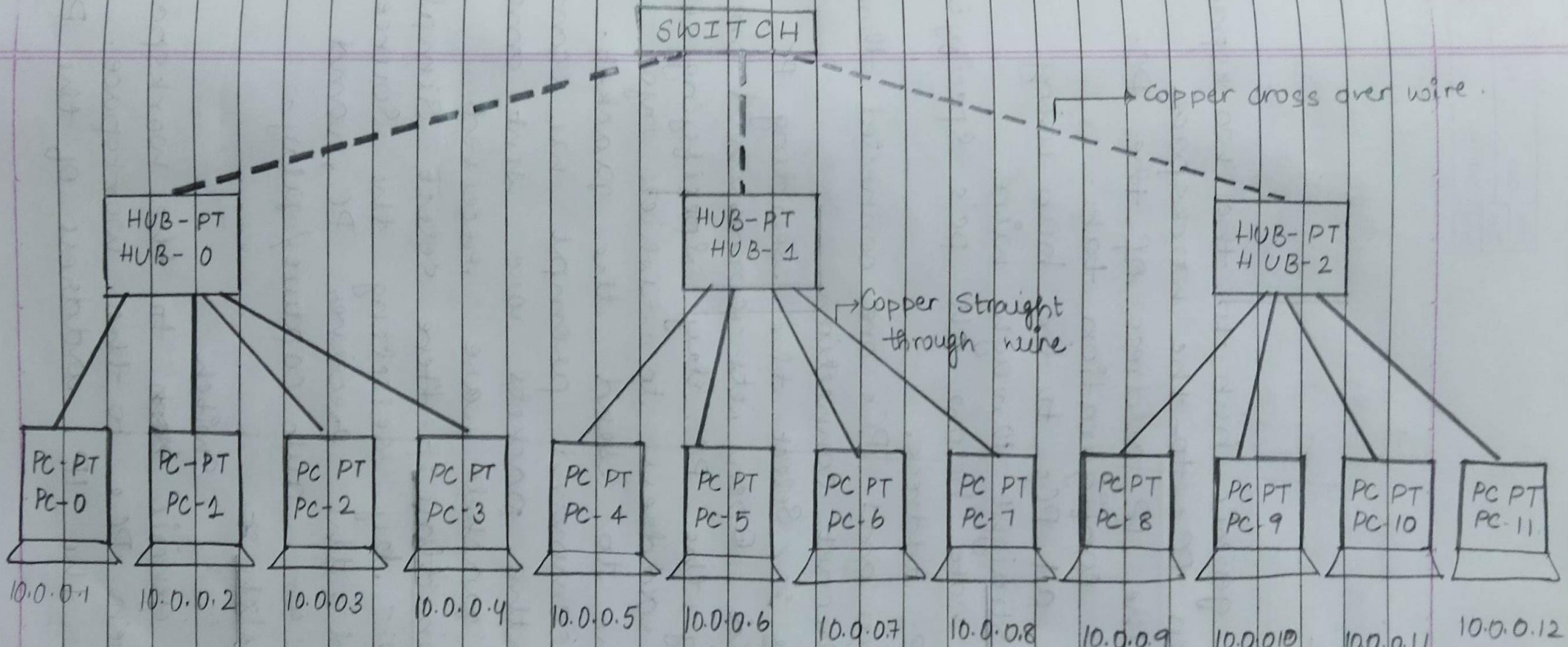
TOPOLOGY :-

*) **Using hub :-**



*) **using Switch :-**




SWITCH
Copper cross over wire.
HUB-PT HUB-0
HUB-PT HUB-1
HUB-PT HUB-2
Copper Straight through wire
PC-PT PC-0
PC-PT PC-1
PC PT PC-2
PC PT PC-3
PC PT PC-4
PC PT PC-5
PC PT PC-6
PC PT PC-7
PC PT PC-8
PC PT PC-9
PC PT PC-10
PC PT PC-11
10.0.0.1
10.0.0.2
10.0.0.3
10.0.0.4
10.0.0.5
10.0.0.6
10.0.0.7
10.0.0.8
10.0.0.9
10.0.0.10
10.0.0.11
10.0.0.12

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PROCEDURE:-

→ Using hub:-

*) Add a generic hub to the workspace.
*) Add seven PCs to the workspace.
*) Change the IP address of the PCs in their configuration tab.
*) Connect all PCs to the hub using copper Straight through wire
*) Add a note below all pc's specifying their IP address.
*) The hub and PCs are connected through fast ethernet connection
*) Real time :- Select the sending PC and Open its command prompt ping the PC by specifying its IP address to which you wish to send the packet.

In the command prompt we can see that the packets are sent and all the packets are received.

*) Simulation time :- Here select Simple PDU by selecting the Source and the receiver PC, and click on auto capture/play.

→ Using Switch :-

Switch

*) Add a generic ~~hub~~ to the workspace
*) Add seven PCs to the workspace.
*) Change the IP address of the PCs

in their configuration tab
*) Connect all PCs to the hub using copper Straight through wire.
*) Add a note below all PC Specifying their IP address.
*) Real time :- Select the PC from which you desire to send the packet, Open its command prompt and Ping the destination PC by Specify -ing its IP address.
*) Simulation time :- Here select Simple PDU and the pair of PC between which you desire and click on auto capture / play from the right panel.

→ Hybrid mode :-

*) Add a switch, 3 hubs and 12 PCs to the work space.
*) Connect all 3 hubs to the switch using cross over wire
*) Connect 4 PCs to each hub using Cross Straight through wire.
*) Update the IP address of the PCs from their configuration tab.
*) Add the note below the PCs Specifying their IP addresess.
*) Real time mode :- Select the PC you want to send the packet from, and open its

command prompt, Specify the destination PC by specifying the IP address, few packets are sent all of which are recived by the recieving PC.

*) Simulation mode:- Add a Simple PDU by seleding the pair of PC and click on autocapture from right most pannel.

OBSERVATION:-

HUB:-

Learning Outcome:-

→ When a source node sends a packet in the network, the hub receives the packet and sends broadcast over the network, i.e, it sends data to all the end devices in the network and the node whose IP matches with the Specified address accepts the packet and acknowledges it, rest node just Ignores the message.

→ The connection between the hub and the end devices is Established using ~~cross over wire~~ Copper straight through wire as they belong to different layers of networking

Result:-

PC > ping 10.0.0.5

Pinging 10.0.0.5 with 32 bytes of data:

Reply from 10.0.0.5: byte=32. time=2ms

Reply from 10.0.0.5: byte=32 time=0ms

Reply from 10.0.0.5: byte=32 time=0ms

Reply from 10.0.0.5: byte=32 time=0ms.

Ping Statistics for 10.0.0.5:

Packets: Sent = 4, received = 4, loss = 0.

SWITCH:- Learning Outcome:-

→ When a Source device sends the message to the Switch once the connection is established, which takes some time known as learning time. After the Switch gets the packet, it initially broadcasts the packet to all end devices to locate the destination. Once the destination is located then the message is sent only to it further.

→ The connection between the Switch and end devices is established using copper straight wire as they belong to different network layers.

Result:-

PC> ping 10.0.0.1

Pinging 10.0.0.1 with 32 bytes of data:

Reply from 10.0.0.1: bytes=32 time=1ms

Reply from 10.0.0.1: bytes=32 time=3ms

Reply from 10.0.0.1: bytes=32 time=0ms

Reply from 10.0.0.1: bytes=32 time=0.ms

Ping statistics for 10.0.0.1
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss).

HYBRID NETWORK:-

Learning Outcomes:-

→ The switch and hub are connected through copper cross over as they belong to the same layer but hub and PCs are connected through copper straight through as they belong to different network layer.

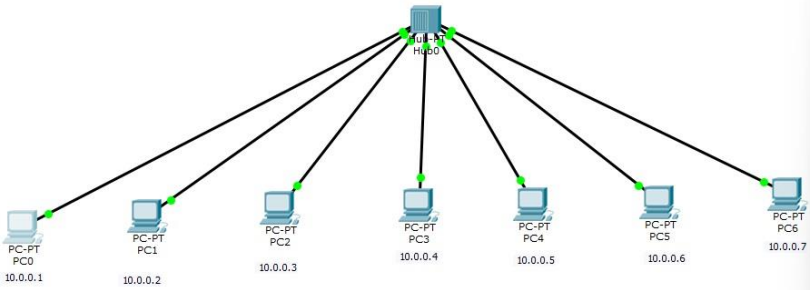
→ the message from the source PC is sent to the switch that sends the message to the hub having destination PC, but the hub broadcasts the message to all its end devices and only the refered/ destination PC sends back the acknowledgement.

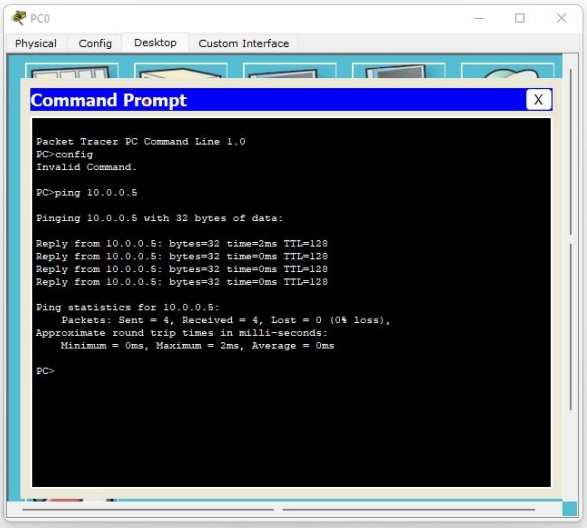
Results:-

Ping 10.0.0.7
Ponging 10.0.0.7 with 32 bytes of data:
Reply from 10.0.0.7 : bytes=32 time=1ms TTL=128
Reply from 10.0.0.7: bytes = 32 time = 0ms TTL=128
Reply from 10.0.0.7: bytes = 32 time = 0 ms TTL=128
Reply from 10.0.0.7: bytes=32 time = 0 ms TTL=128

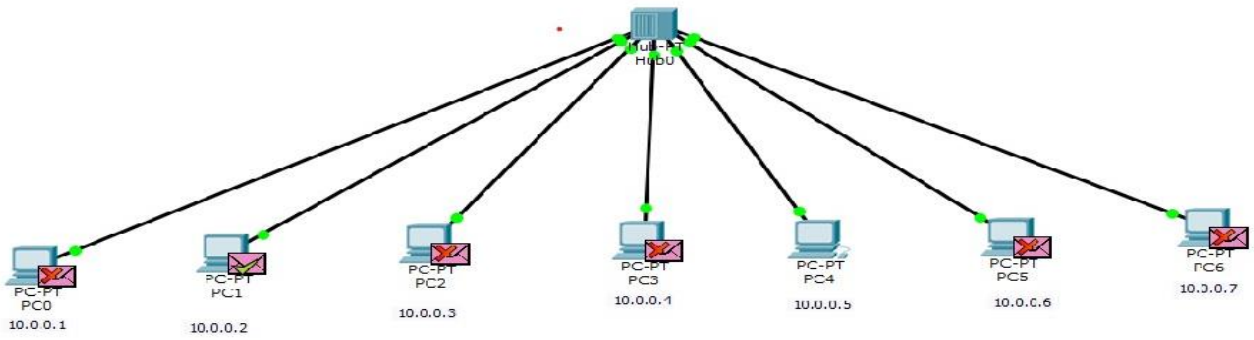
Ping Statistics for 10.0.0.7:
Packet: sent = 4, Received = 4, lost = 0 (0% loss)
Minimum = 0ms, Maximum = 1ms, Average = 0ms.

HUBS-----REAL TIME

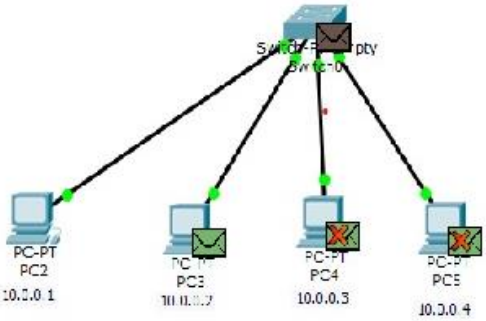


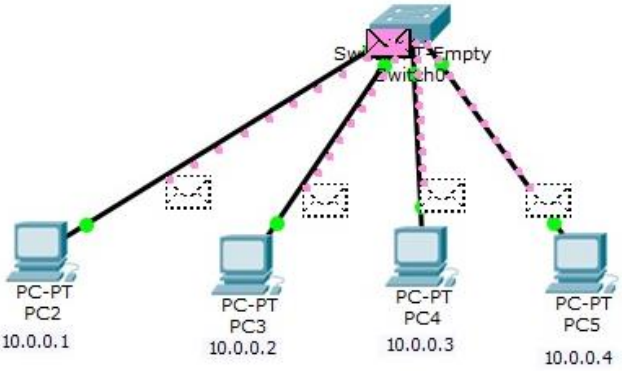


HUBS----- STIMULATION

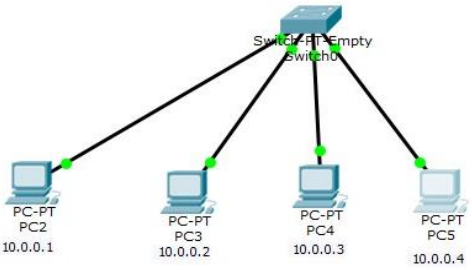


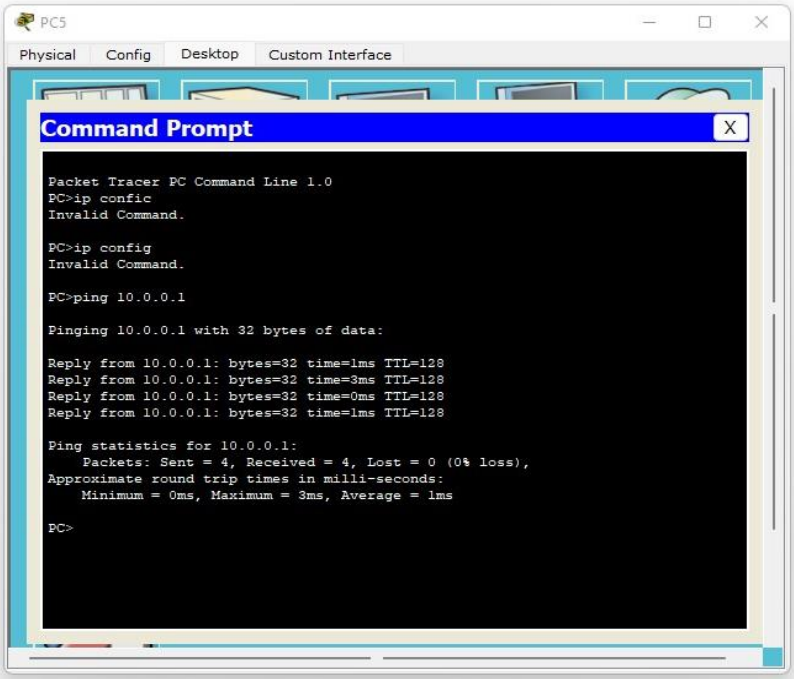
SWITCHES----------REAL TIME



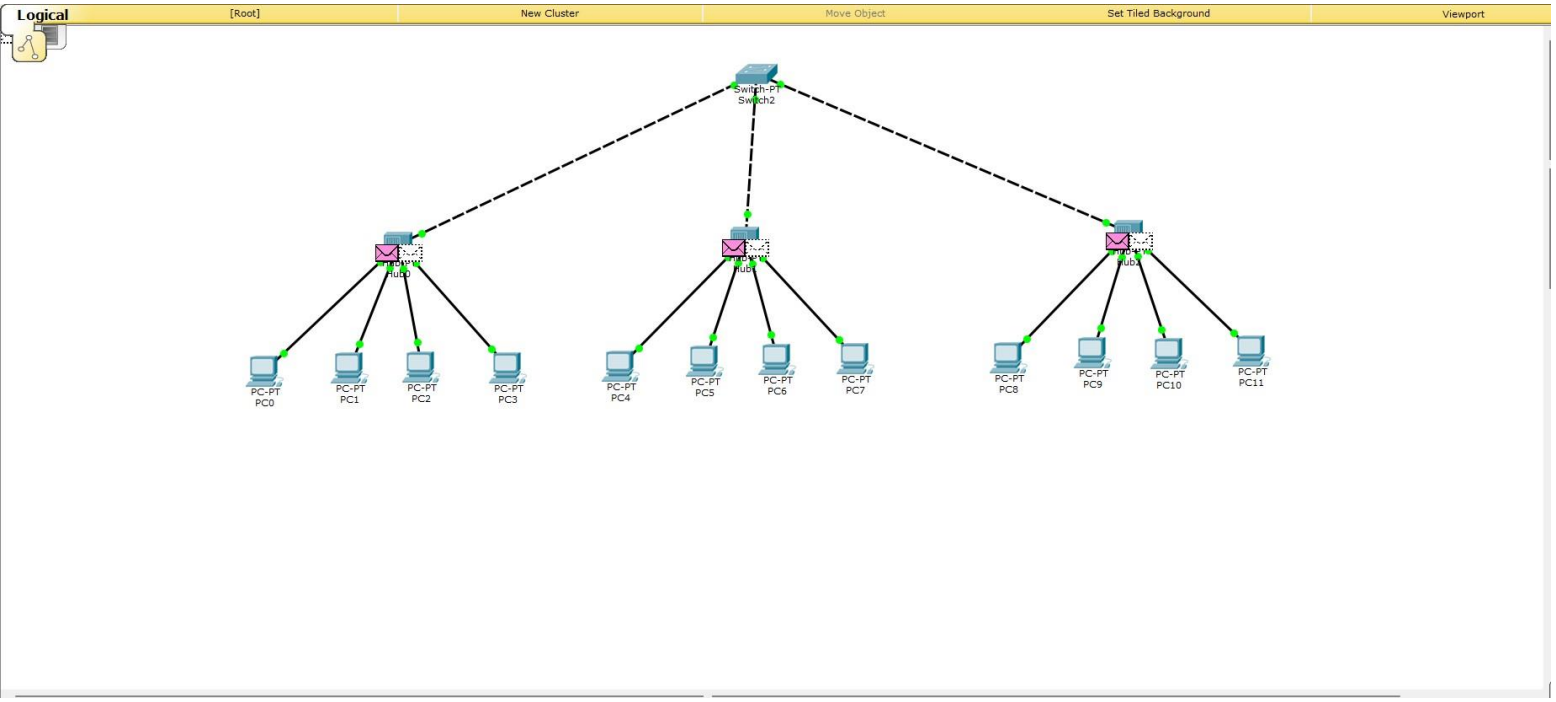


SWITCHES----------STIMULATION

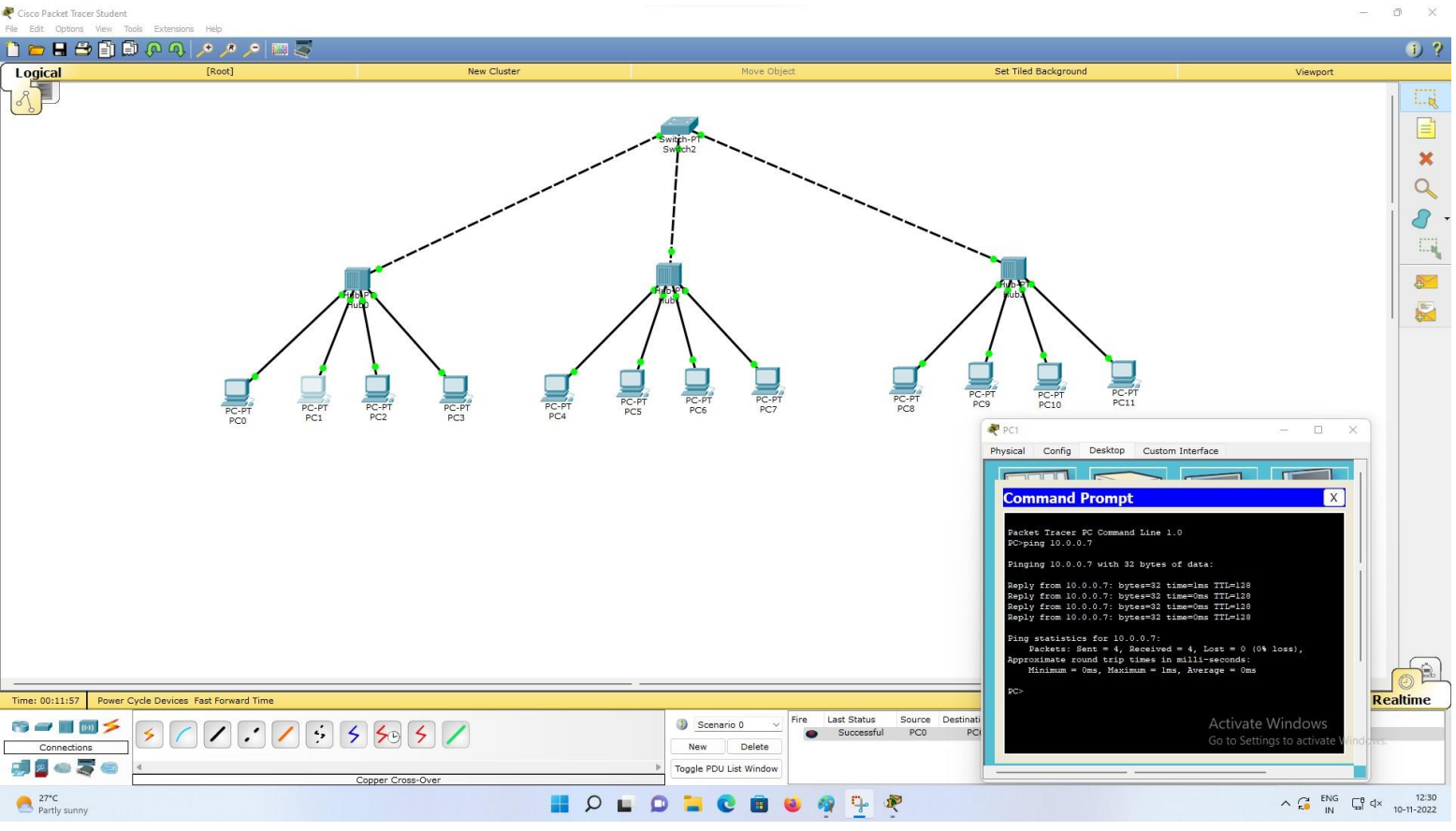




HYBRID NETWORK----------REAL TIME



HYBRID NETWORK----------STIMULATION



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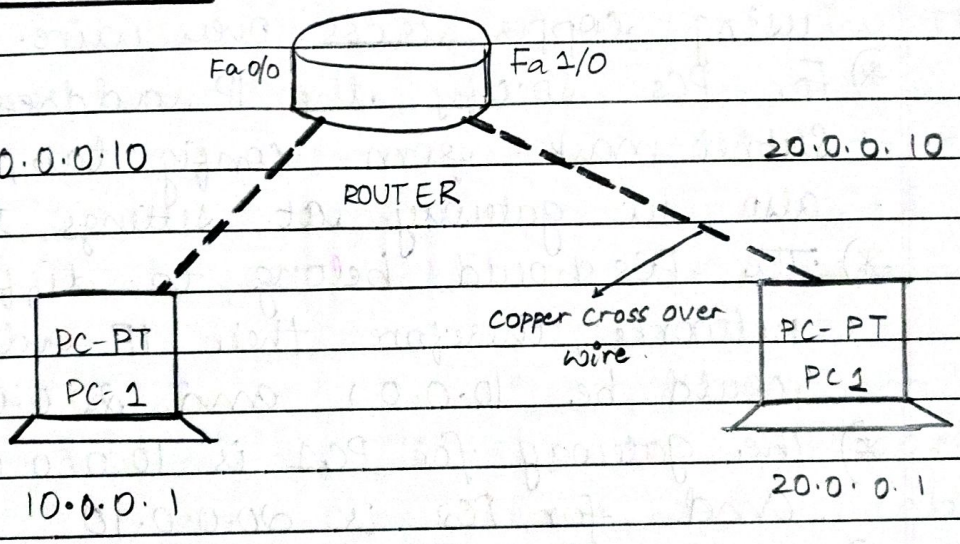
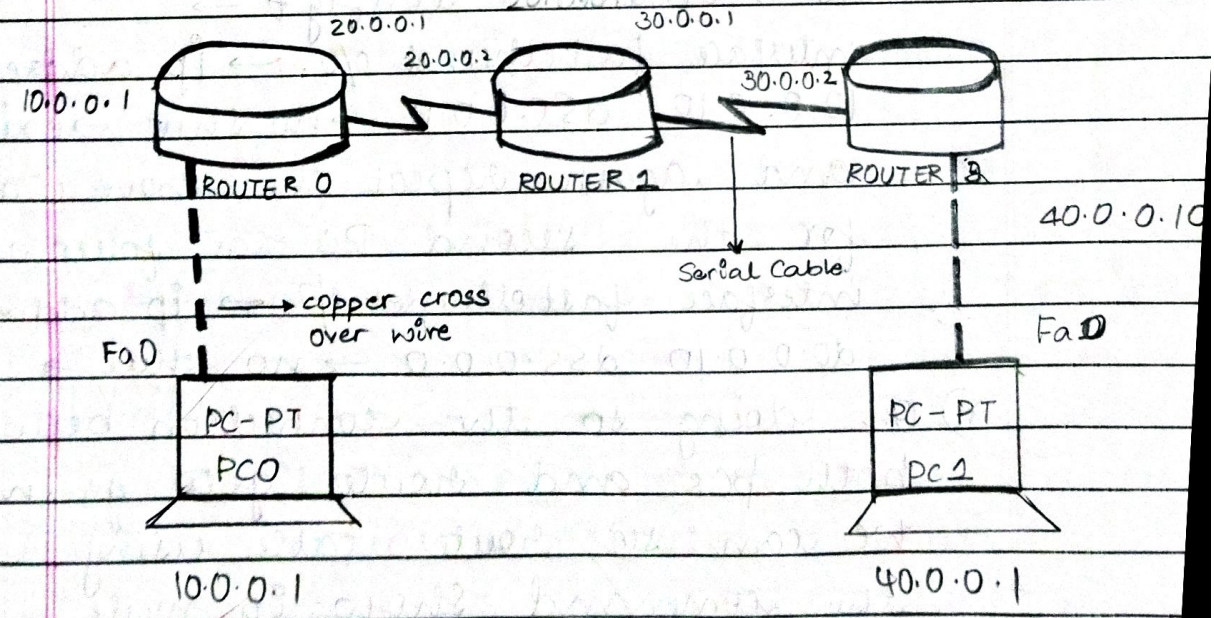
LAB-3

AIM – Configuring IP address to routers in Packet Tracer. Explore the following messages: Ping responses, Destination unreachable, Request time out reply.

TOPOLOGY :-



1 ROUTER 2 PCS.



3 ROUTERS 2 PCs

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PROCEDURE:-

→ using Single router and 2 PC's.

*) Add one generic router and 2 PCs into the workstation
*) Connect both the PCs to the router using copper cross over wire.
*) For PCs specify the IP address and Subnet mask from config tab, and also set gateway at settings tab.
*) The PCs should belong to different networks, therefore their IP address could be. 10.0.0.1 and 20.0.0.1
*) The gateway for PC1 is 10.0.0.10, and for PC2 is 20.0.0.10
*) Click on the router and select CLI no → enable → config t → interface fastethernet 0/0. → ip address 10.0.0.10 255.0.0.0 → no shut → exit and again repeat the above comman for the second PC as follows:- interface fastethernet 1/0 → ip address 20.0.0.10 255.0.0.0 → no shut → exit
*) On doing so the connection between both PCs and router gets green we can see router table using the command show ip route.
*) Now we can ping PC2 from PC1 by specifying all the IP address of PC in the command prompt of PC1.

→ Using 2 PC and 3 routers.

*) Place three generic routers and 3 PCs into the workstation. connect PC1 to router R1 using copper cross over wire. Routers R1, R2 and R3 are connected to each other using Serial DCE cable. All connections in this network are initially shown red.

*) Routers ~~are~~ are connected to each other through Serial ports and Routers and PCs are connected through fast ethernet.

*) The IP address, subnet mask and gateway is ~~attached~~ set for each PC in their config and settings tab.

*) The CLI of router R1 is oppened → no → enable → config t → interface fast ethernet 0/0 → ip address 10.0.0.10 255.0.0.0 → no Shut → exit.
By doing this we establish the connection b/w the PC1 and Router R1

*) For connection b/w Router R2 and R1.
Open CLI of R1 → config t → interface Serial 0/0 → ip address 10.0.0.10 255.0.0.0 no Shut → exit ⇒ connection established

*) For connection b/w Router R2 and R3
Open CLI of R2 → config t → interface Serial 2/0 → ip address 20.0.0.2 255.0.0.0 → no Shut → exit
config t → interface serial 3/0 → ip address 30.0.0.1 255.0.0.0 → no Shut → exit

*) For connection b/w R3 and PC2:-
Open CLI → no → enable → config t → interface serial 2/0 → ip address 30.0.0.2 255.0.0.0 → no shut.
Config t → interface fastethernet 0/0 → ip address 40.0.0.10 255.0.0.0 → no shut → exit.

*) Now all connections are established.

*) Ping PC1 from PC0 ⇒ we get a reply as Destination unreachable.

*) When the router 20.0.0.2 is pinged by PC0 the reply is given as request timed out

TRAINING:-

→ Router R1.
ip route 30.0.0.0 255.0.0.0 20.0.0.2
ip route 40.0.0.0 255.0.0.0 20.0.0.2

→ Router R2
ip route 10.0.0.0 255.0.0.0 20.0.0.1
ip route 40.0.0.0 255.0.0.0 30.0.0.2

→ Router R3
ip route 10.0.0.0 255.0.0.0 30.0.0.1
ip route 20.0.0.0 255.0.0.0 30.0.0.1

*) Now we can ping PC1 from PC0 and all replies are seen.

*) We can check the routing table using the 'show ip route' command in the CLI of a particular router.

OBSERVATION

→ **1 Router:-**

When PC0 pings PC1 for first time we get:- the first packet as request timed out.

result:-

```
ping 20.0.0.1
pinging 20.0.0.1 with 32 bytes of data
request timed out
reply from 20.0.0.1 : bytes=32 time=0ms TTL=127
reply from 20.0.0.1 : bytes=32 time=0ms TTL=127
reply from 20.0.0.1 : bytes=32 time 0ms TTL:127
ping statastics :-
packet sent 4 , received 3 lost = 1 (25%).
```

Now if we ping PC1 again from PC0 we get all 4 packets without any loss.
Now reverse pinging of PC0 from PC1 will also not lead to any loss, all packets are acknowledged.

→ **3 Routers:-**

Before traening Routers, if we ping PC1 from PC0 we get as follows:-

```
ping 40.0.0.1
pinging 40.0.0.1 with 32 bytes of data:
reply from 40.0.0.1 : Destination host unreachabl
reply from 40.0.0.1 : Destination host unreachabl
reply from 40.0.0.1 : Destination host unreachabl
```

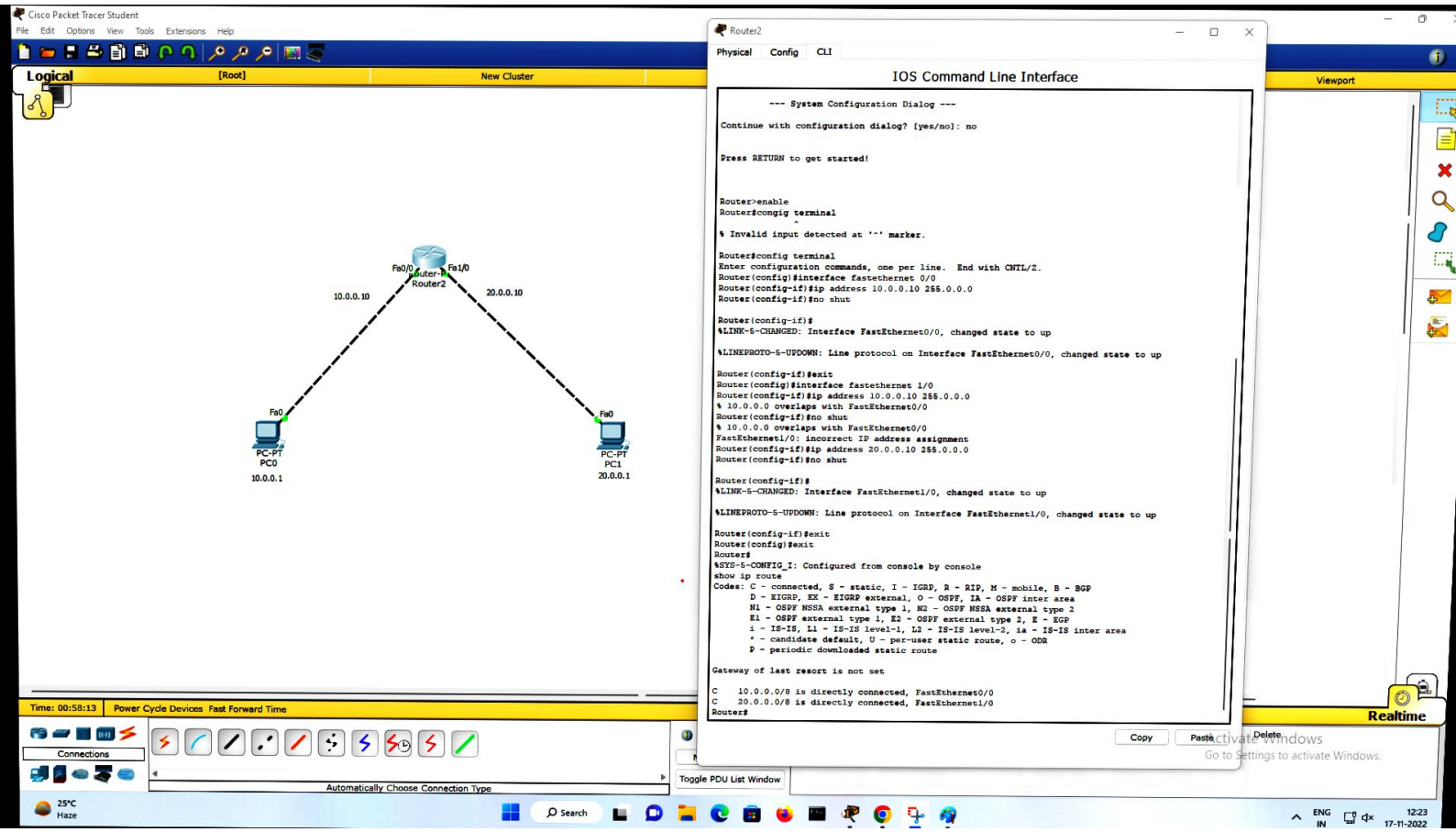
If we ping PC0 to any router we get the reply as request timed out. and all the 4 packets sent are not received with (100% loss).

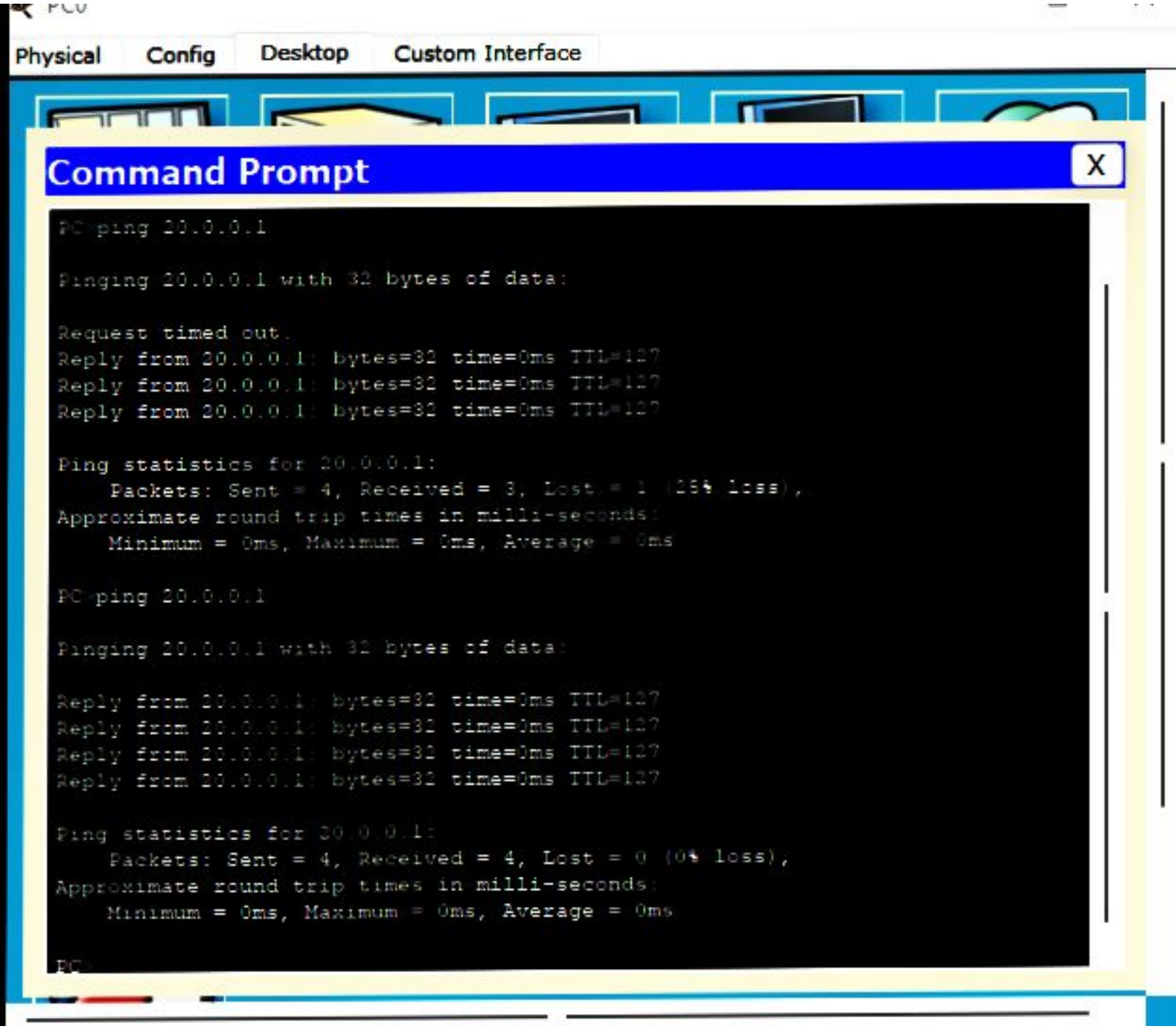
After training:-

ping 40.0.0.1
Pinging 40.0.0.1 with 32 bytes of data.
request timed out
reply from 40.0.0.1 : bytes=32 Time=2ms TTL=125
reply from 40.0.0.1 : bytes=32 Time=2ms TTL=125
reply from 40.0.0.1 : bytes=32 Time=2ms TTL=125
reply from 40.0.0.1 : bytes=32 Time=2ms TTL=125

Pinging statics:-
packets sent= 4 , received = 3 loss 1 (25% loss).

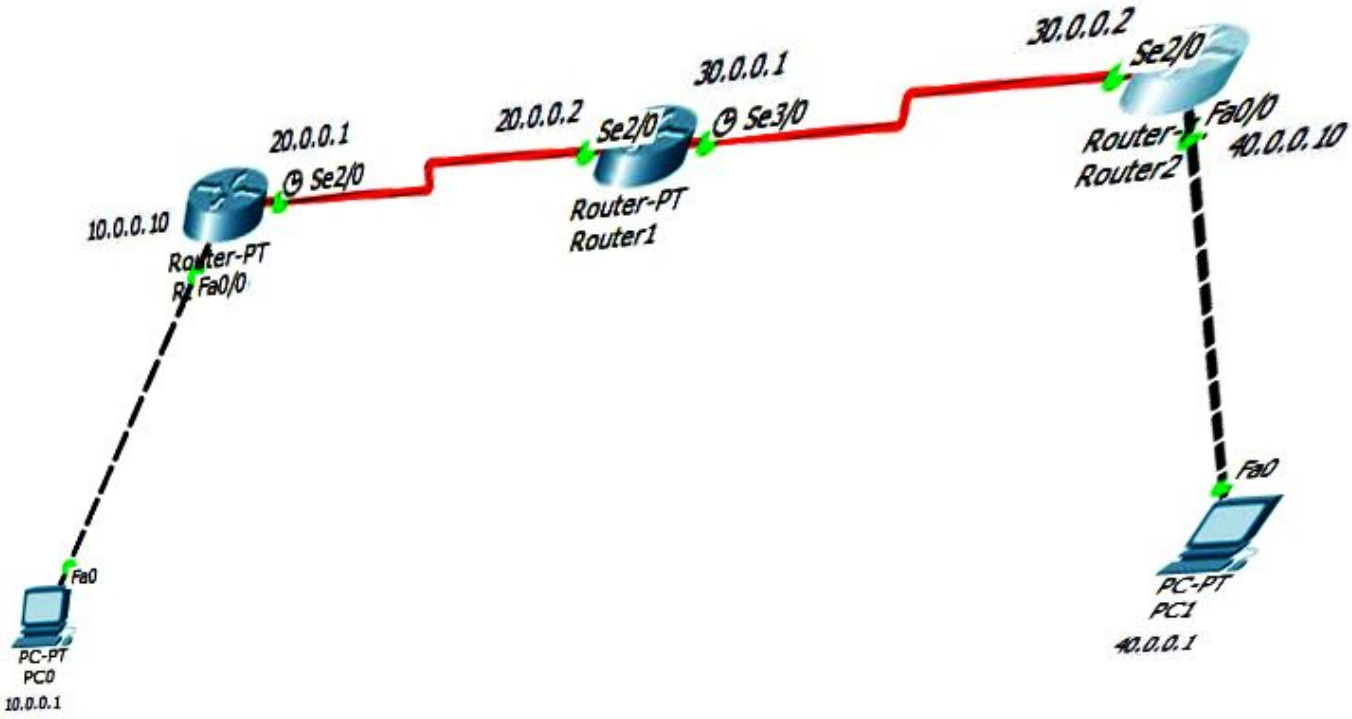
24/11/22


Cisco Packet Tracer Student
File Edit Options View Tools Extensions Help
Logical
[Root]
New Cluster
Viewport
Router2
Physical
Config
CLI
IOS Command Line Interface
--- System Configuration Dialog ---
Continue with configuration dialog? [yes/no]: no
Press RETURN to get started!
Router>enable
Router#congig terminal
% Invalid input detected at '^' marker.
Router#config terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface fastethernet 0/0
Router(config-if)#ip address 10.0.0.10 255.0.0.0
Router(config-if)#no shut
Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
Router(config-if)#exit
Router(config)#interface fastethernet 1/0
Router(config-if)#ip address 10.0.0.10 255.0.0.0
% 10.0.0.0 overlaps with FastEthernet0/0
Router(config-if)#no shut
% 10.0.0.0 overlaps with FastEthernet0/0
FastEthernet1/0: incorrect IP address assignment
Router(config-if)#ip address 20.0.0.10 255.0.0.0
Router(config-if)#no shut
Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet1/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/0, changed state to up
Router(config-if)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console
show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
* - candidate default, U - per-user static route, o - ODR
P - periodic downloaded static route
Gateway of last resort is not set
C 10.0.0.0/8 is directly connected, FastEthernet0/0
C 20.0.0.0/8 is directly connected, FastEthernet1/0
Router#
Copy
Paste
Fa0/0
Router-P
Router2
Fa1/0
10.0.0.10
20.0.0.10
Fa0
PC-PT
PC0
10.0.0.1
Fa0
PC-PT
PC1
20.0.0.1
Time: 00:58:13
Power Cycle Devices Fast Forward Time
Realtime
Connections
Automatically Choose Connection Type
Toggle PDU List Window
Delete
Activate Windows
Go to Settings to activate Windows.
25°C
Haze
Search
ENG
IN
12:23
17-11-2022


PC0
Physical
Config
Desktop
Custom Interface
Command Prompt
X
PC ping 20.0.0.1
Pinging 20.0.0.1 with 32 bytes of data:
Request timed out.
Reply from 20.0.0.1: bytes=32 time=0ms TTL=127
Reply from 20.0.0.1: bytes=32 time=0ms TTL=127
Reply from 20.0.0.1: bytes=32 time=0ms TTL=127
Ping statistics for 20.0.0.1:
Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 0ms, Average = 0ms
PC ping 20.0.0.1
Pinging 20.0.0.1 with 32 bytes of data:
Reply from 20.0.0.1: bytes=32 time=0ms TTL=127
Reply from 20.0.0.1: bytes=32 time=0ms TTL=127
Reply from 20.0.0.1: bytes=32 time=0ms TTL=127
Reply from 20.0.0.1: bytes=32 time=0ms TTL=127
Ping statistics for 20.0.0.1:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 0ms, Average = 0ms
PC

```
Packet Tracer PC Command Line 1.0
PC>ping 40.0.0.1

Pinging 40.0.0.1 with 32 bytes of data:

Reply from 10.0.0.10: Destination host unreachable.
Reply from 10.0.0.10: Destination host unreachable.
Request timed out.
Reply from 10.0.0.10: Destination host unreachable.

Ping statistics for 40.0.0.1:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

PC>ping 20.0.0.2

Pinging 20.0.0.2 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 20.0.0.2:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

PC>ping 40.0.0.1

Pinging 40.0.0.1 with 32 bytes of data:

Request timed out.
Reply from 40.0.0.1: bytes=32 time=7ms TTL=125
Reply from 40.0.0.1: bytes=32 time=9ms TTL=125
Reply from 40.0.0.1: bytes=32 time=8ms TTL=125

Ping statistics for 40.0.0.1:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
    Minimum = 7ms, Maximum = 9ms, Average = 8ms

PC>
```

```
Continue with configuration dialog? [yes/no]: no


Press RETURN to get started!



Router>enable
Router#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#interface serial2/0
Router(config-if)#ip address 30.0.0.2 255.0.0.0
Router(config-if)#no shut

Router(config-if)#
%LINK-5-CHANGED: Interface Serial2/0, changed state to up

Router(config-if)#interface serial2/0
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, cinterface serial2/0
Router(config-if)#exit
Router(config)#interface fastethernet0/0
Router(config-if)#ip address 40.0.0.10 255.0.0.0
Router(config-if)#no shut

Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

Router(config-if)#exit
Router(config)#ip route 10.0.0.0 255.0.0.0 30.0.0.1
Router(config)#ip route 20.0.0.0 255.0.0.0 30.0.0.1
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

S    10.0.0.0/8 [1/0] via 30.0.0.1
S    20.0.0.0/8 [1/0] via 30.0.0.1
C    30.0.0.0/8 is directly connected, Serial2/0
C    40.0.0.0/8 is directly connected, FastEthernet0/0
Router#
```


30.0.0.2
Se2/0
30.0.0.1
20.0.0.2
Se2/0
Se3/0
Fa0/0
20.0.0.1
Se2/0
40.0.0.10
Router-
Router2
10.0.0.10
Router-PT
Router1
Router-PT
Fa0/0
Fa0
Fa0
PC-PT
PC1
40.0.0.1
PC-PT
PC0
10.0.0.1

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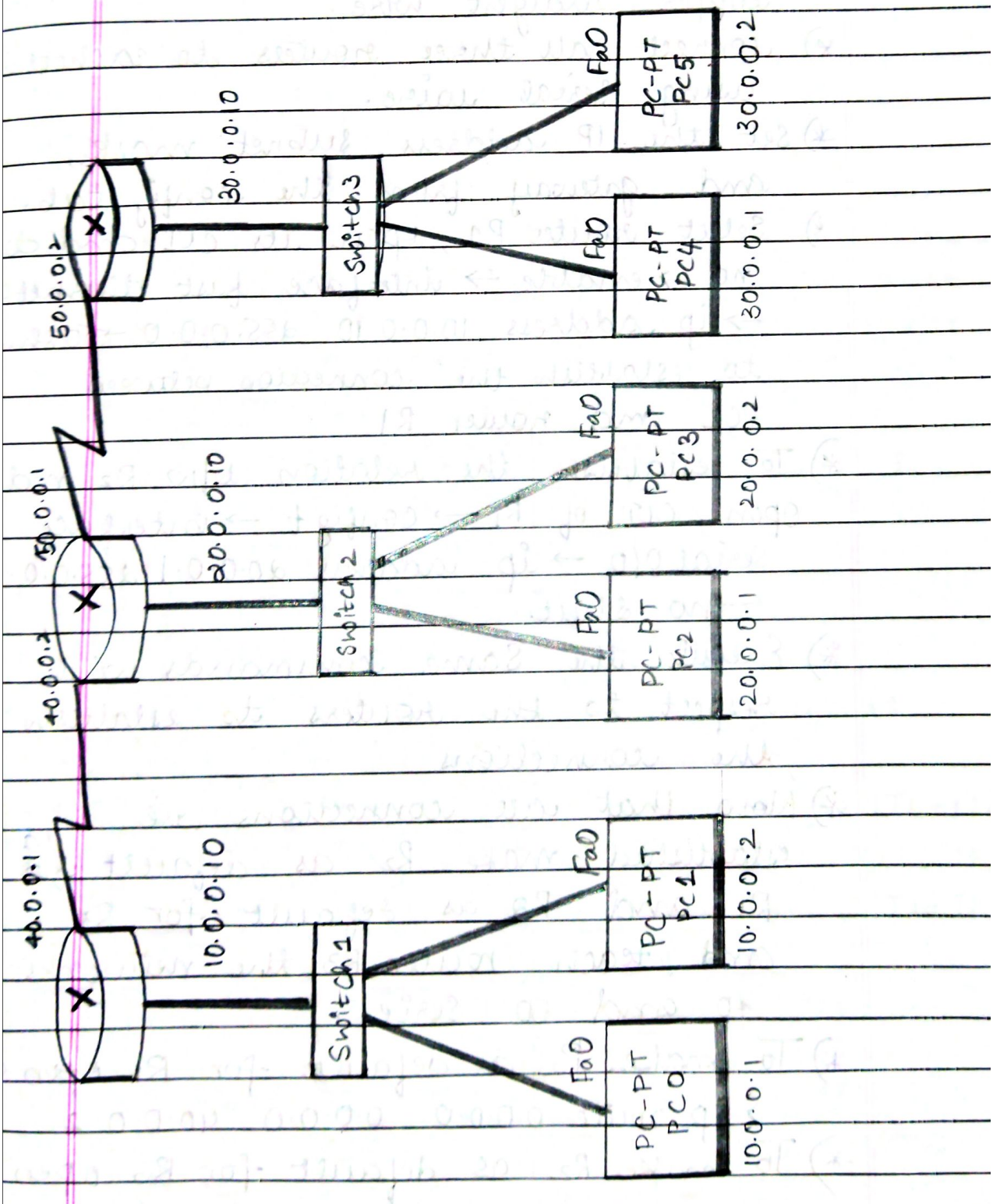
LAB-1

AIM:- Configuring default route to the routers.

TOPOLOGY:-



PROCEDURE:-

*) Place 3 routers, 3 switches and 6 PCs into the workstation.
*) Connect 2 PCs to each switch and each switch to each router using copper straight wire.
*) connect all three routers to eachother using Serial wire.
*) Set the IP address, subnet mask, and gateway from the config tab.
*) Select router R1, open its CLI and do⇒ no → enable → interface fast ethernet 0/0 → ip address 10.0.0.10 255.0.0.0 → no shut to establish the connection between PC1 and router R1
*) To establish the relation b/w R2 and R1 open CLI of R_1 → config t → interface Serial 0/0 → ip address 20.0.0.1 255.0.0.0 → no shut.
*) Execute the same commands with respect to the routers to establish the connections
*) Now that all connections are established make R2 as default for R1 and R3 as default for R3 and teach router R3 the networks 10 and 50 series.
*) To make R2 as default for R1 ~~open~~ CLI → ip route 0.0.0.0 0.0.0.0 40.0.0.2
*) To make R2 as default for R3 open

CLI of R3 → ip route 0.0.0.0 0.0.0.0 50.0.0.1

*) To teach about 10 and 30 network to R2
→ open CLI of router R2 → config t →
ip route 10.0.0.0 255.0.0.0 40.0.0.1
ip route 30.0.0.0 255.0.0.0 50.0.0.2.

*) Ping one PC of a network from another PC of different network.

OBSERVATION:-

Learning:- In this network router R2 doesnot have a default router, because R1 and R3 cannot become a default router simultaneously and if any one of R1 and R2 is default then the packets that are supposed to enter router R2 ~~one~~ com go to R3 | R1 as they are default.

RESULT:- Command prompt of PC0

>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=5ms TTL=126

reply from 20.0.0.2 : bytes=32 time=5ms TTL=126

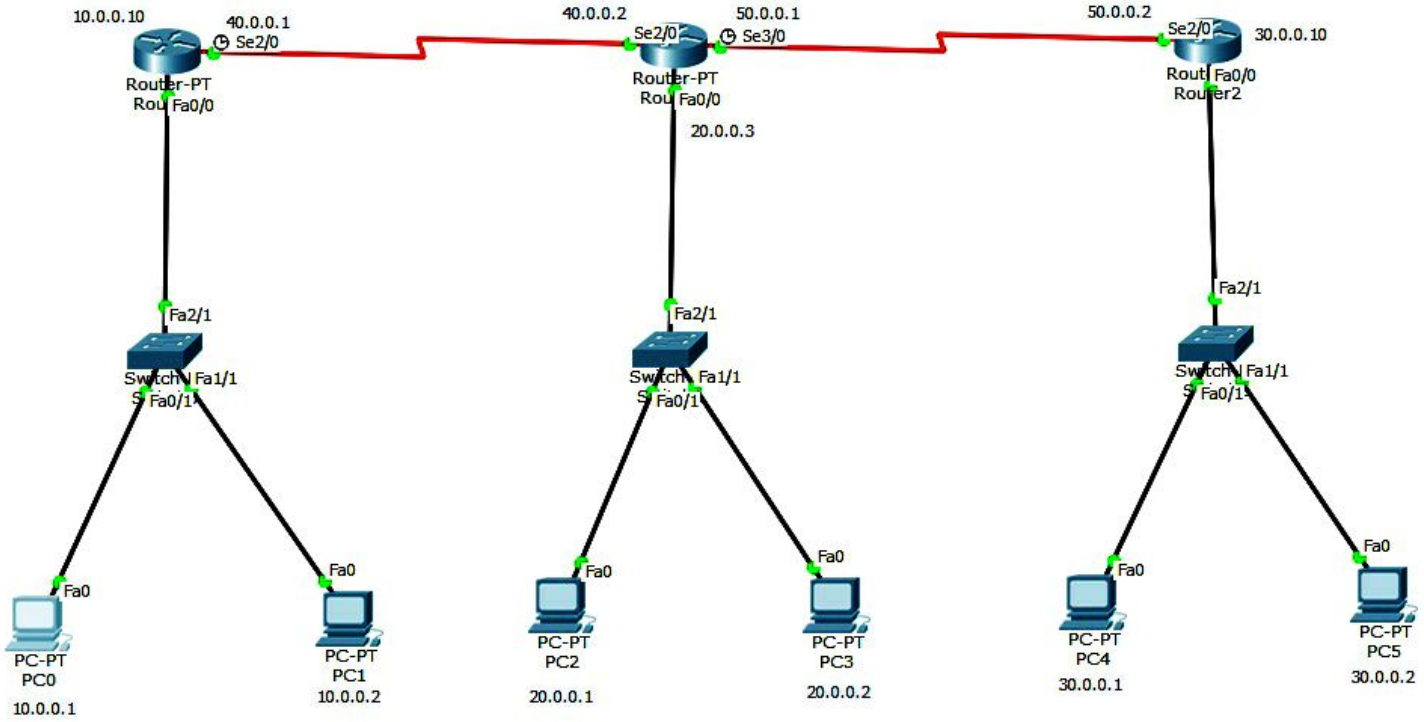
reply from 20.0.0.2 : bytes=32 time=5ms TTL=126

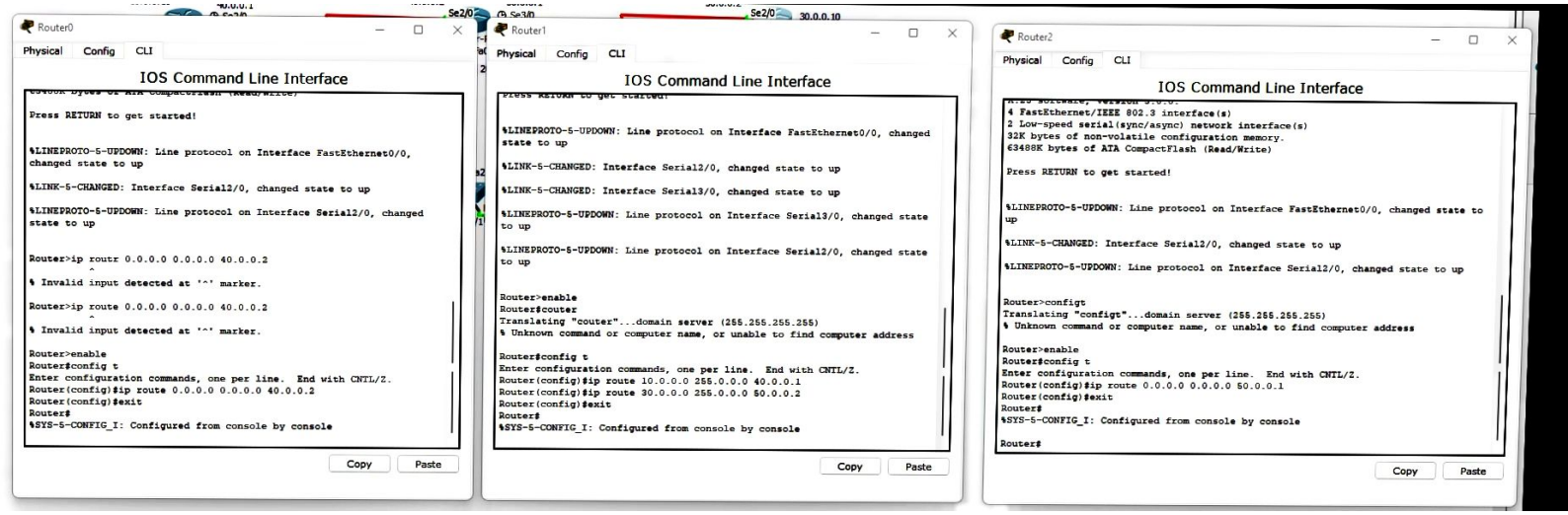
ping Statistics for 20.0.0.2:

packets: sent = 4, Received = 3, lost (25% loss),

Aprox round trip time in milli second

minimum = 0ms, maximum = 11ms Average = 7ms.


10.0.0.10
40.0.0.1
Se2/0
Router-PT
Fa0/0
40.0.0.2
Se2/0
50.0.0.1
Se3/0
Router-PT
Fa0/0
20.0.0.3
50.0.0.2
Se2/0
30.0.0.10
Fa0/0
Router2
Fa2/1
Fa1/1
Fa0/1
Fa2/1
Fa1/1
Fa0/1
Fa2/1
Fa1/1
Fa0/1
Fa0
PC-PT
PC0
10.0.0.1
Fa0
PC-PT
PC1
10.0.0.2
Fa0
PC-PT
PC2
20.0.0.1
Fa0
PC-PT
PC3
20.0.0.2
Fa0
PC-PT
PC4
30.0.0.1
Fa0
PC-PT
PC5
30.0.0.2


Router0
Physical
Config
CLI
IOS Command Line Interface
Press RETURN to get started!
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
%LINK-5-CHANGED: Interface Serial2/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up
Router>ip routr 0.0.0.0 0.0.0.0 40.0.0.2
% Invalid input detected at '^' marker.
Router>ip route 0.0.0.0 0.0.0.0 40.0.0.2
% Invalid input detected at '^' marker.
Router>enable
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#ip route 0.0.0.0 0.0.0.0 40.0.0.2
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console
Copy
Paste
Router1
Physical
Config
CLI
IOS Command Line Interface
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
%LINK-5-CHANGED: Interface Serial2/0, changed state to up
%LINK-5-CHANGED: Interface Serial3/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial3/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up
Router>enable
Router#couter
Translating "couter"...domain server (255.255.255.255)
% Unknown command or computer name, or unable to find computer address
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#ip route 10.0.0.0 255.0.0.0 40.0.0.1
Router(config)#ip route 30.0.0.0 255.0.0.0 50.0.0.2
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console
Copy
Paste
Router2
Physical
Config
CLI
IOS Command Line Interface
4 FastEthernet/IEEE 802.3 interface(s)
2 Low-speed serial(sync/async) network interface(s)
32K bytes of non-volatile configuration memory.
63488K bytes of ATA CompactFlash (Read/Write)
Press RETURN to get started!
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
%LINK-5-CHANGED: Interface Serial2/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up
Router>configt
Translating "configt"...domain server (255.255.255.255)
% Unknown command or computer name, or unable to find computer address
Router>enable
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#ip route 0.0.0.0 0.0.0.0 50.0.0.1
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console
Router#
Copy
Paste

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=6ms TTL=126
Reply from 20.0.0.2: bytes=32 time=3ms TTL=126
Reply from 20.0.0.2: bytes=32 time=6ms TTL=126

Ping statistics for 20.0.0.2:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
    Minimum = 3ms, Maximum = 6ms, Average = 4ms

PC>ping 30.0.0.1

Pinging 30.0.0.1 with 32 bytes of data:

Request timed out.
Reply from 30.0.0.1: bytes=32 time=2ms TTL=125
Reply from 30.0.0.1: bytes=32 time=10ms TTL=125
Reply from 30.0.0.1: bytes=32 time=11ms TTL=125

Ping statistics for 30.0.0.1:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
    Minimum = 2ms, Maximum = 11ms, Average = 7ms
```

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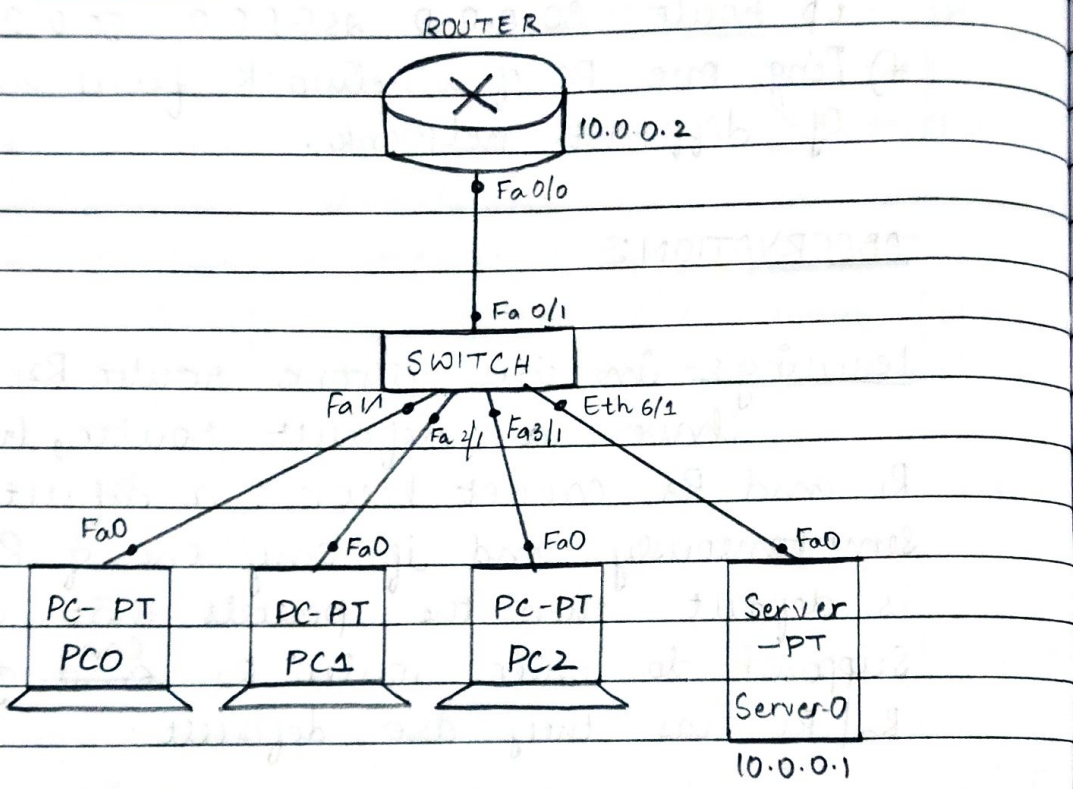
LAB-4

AIM: Configuring DHCP within a LAN in a packet tracer.

TOPOLOGY:-



PROCEDURE:-

*) Place a generic router, generic switch, 1 server and 3 PCs into the workstation and connect them as:- Router to switch and switch to all 3 PCs and Server.

*) Open Server Config tab, set its IP address and Subnet mask, from Settings tab set its gateway.

*) For Server IP address is 10.0.0.1, Gateway is 10.0.0.2.

*) Open the CLI of router → no → enable → config t → interface fastethernet 0/0 → ip address 10.0.0.2 255.0.0.0 → no shut

*) Go to the Services tab of server, and select DHCP from the left panel. On the Services, Set default gateway as 10.0.0.2 and change DNS and TFTP to 10.0.0.1 In start IP address change it to the value from where you want to start the IP pool. Save the changes.

*) Select the PC, go to the Desktop tab and select ~~config IP address~~ IP configuration. There change from Static to DHCP. We can notice that all the details like ip address, Subnet mask, Default Gateway and DNS Server is set by Default.

*) Do the above step for all the PCs.

OBSERVATIONS:-

LEARNING:-

The server automatically sets the IP addres Subnet mask, and gateway to all the PCs and IP address is allocated serially in DHCP protocol.

RESULT :-

>ping 10.0.0.4
pinging 10.0.0.4 with 32 bytes of data
Reply from 10.0.0.4 : Bytes = 32 time = 0ms TTL = 128
Reply from 10.0.0.4 : Bytes = 32 time = 0ms TTL = 128
Reply from 10.0.0.4 : Bytes = 32 time = 0ms TTL = 128
Reply from 10.0.0.4 : Bytes = 32 time = 0ms TTL = 128
Ping Statistics for 10.0.0.4 :
Packets : Sent = 4, Received = 4, Lost = 0
Approximate round trip times in milli-second :
Minimum = 0ms, Maximum = 0ms, Average = 0ms.

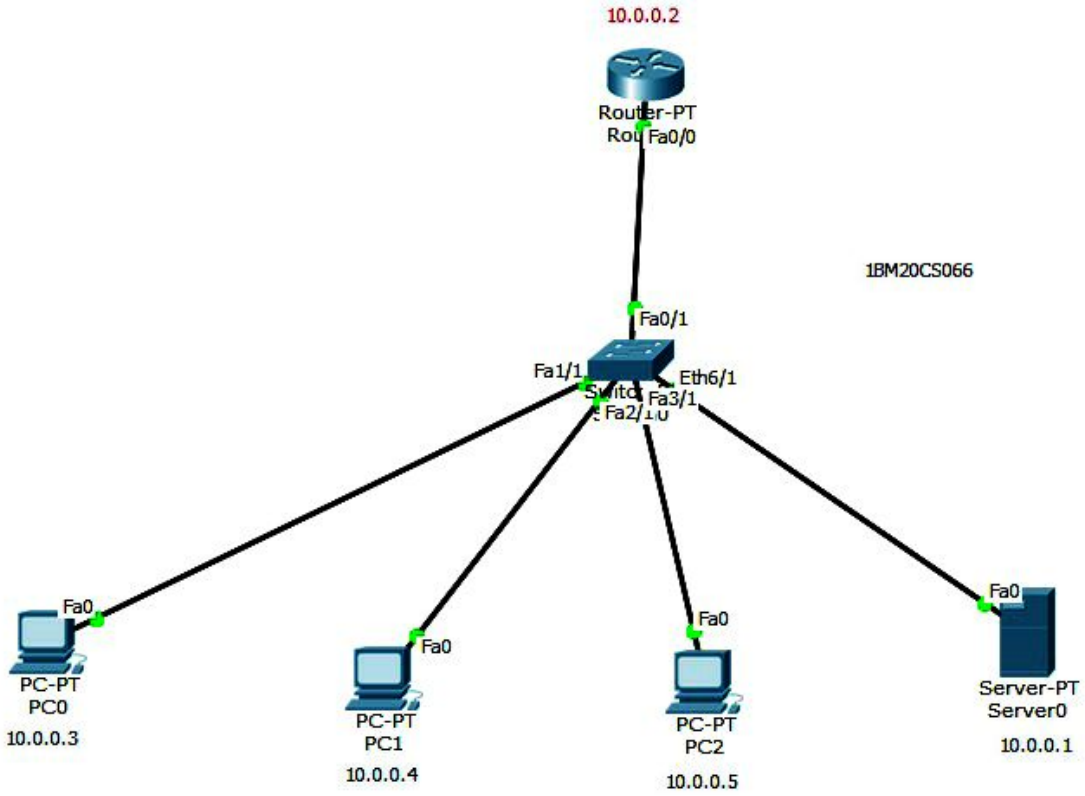
Router0

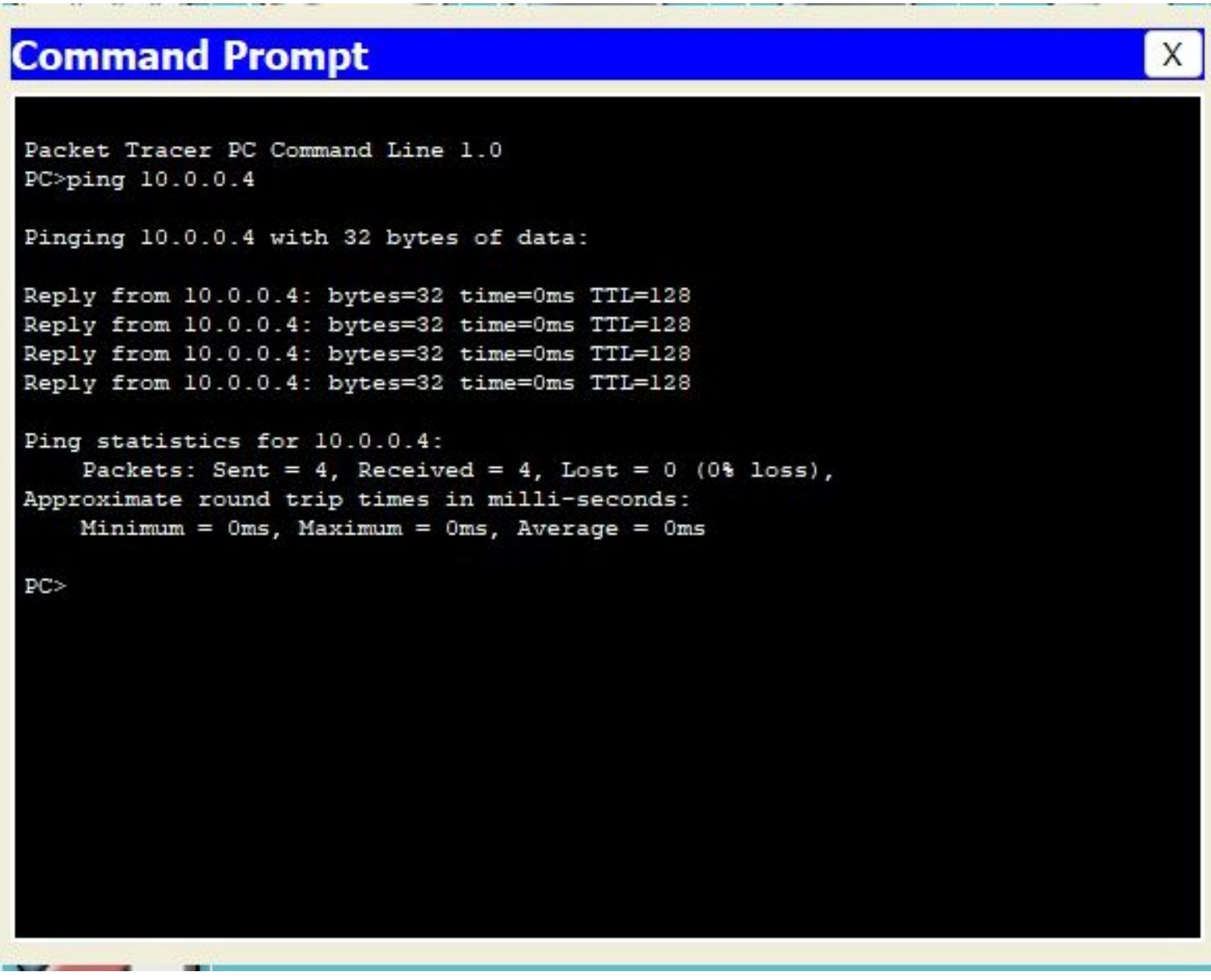
Physical | Config | CLI

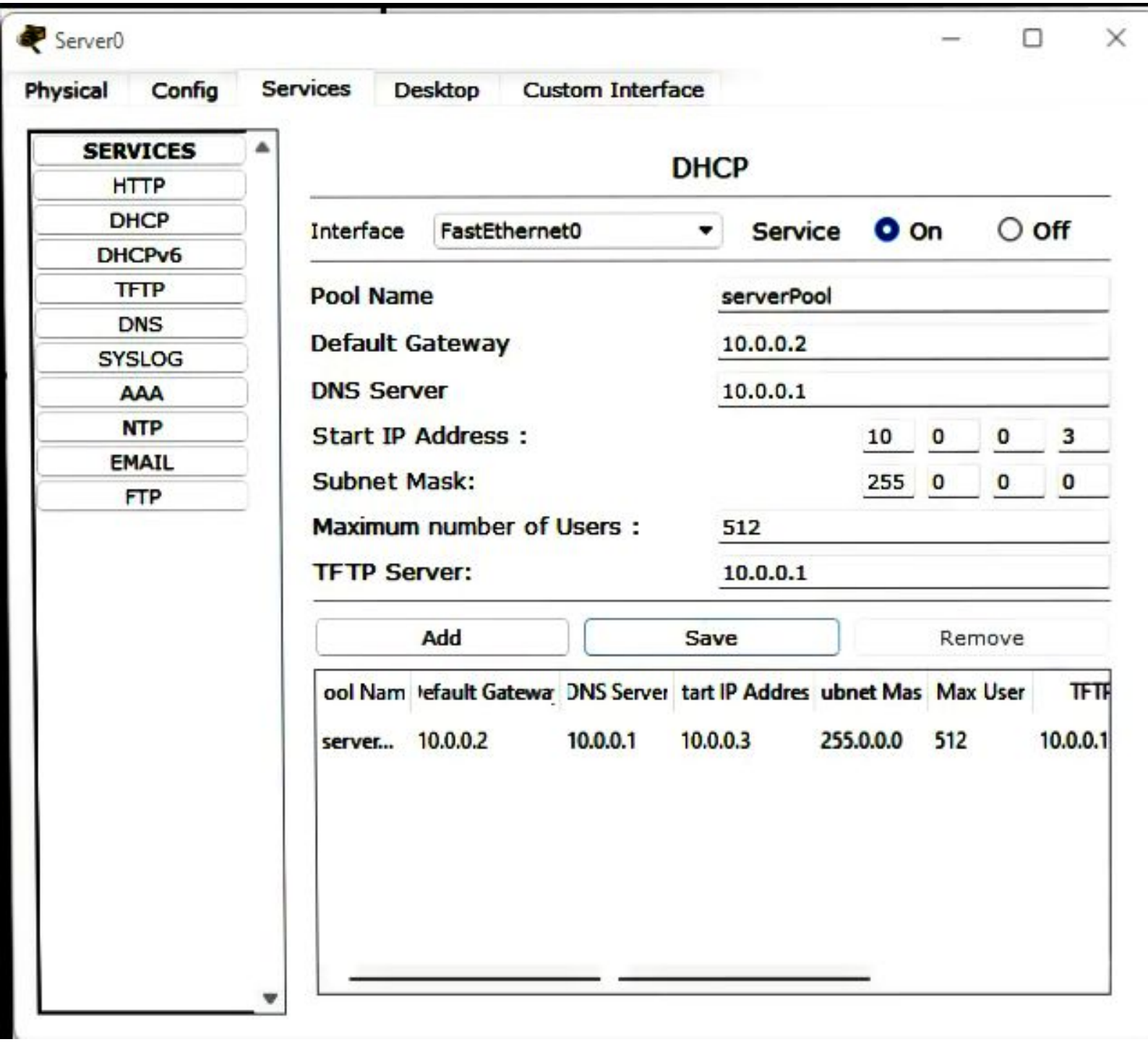
IOS Command Line Interface

```
        --- System Configuration Dialog ---

Continue with configuration dialog? [yes/no]: no


Press RETURN to get started!



Router>enable
Router#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#interface fastethernet 0/0
Router(config-if)#ip maddress 10.0.0.2 255.0.0.0
                  ^
% Invalid input detected at '^' marker.

Router(config-if)#ip address 10.0.0.2 255.0.0.0
Router(config-if)#no shut

Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to
up
```

Copy | Paste


10.0.0.2
Router-PT
Fa0/0
1BM20CS066
Fa0/1
Fa1/1
Eth6/1
Fa3/1
Fa0
PC-PT
PC0
10.0.0.3
Fa0
PC-PT
PC1
10.0.0.4
Fa0
PC-PT
PC2
10.0.0.5
Fa0
Server-PT
Server0
10.0.0.1


Command Prompt
X
Packet Tracer PC Command Line 1.0
PC>ping 10.0.0.4
Pinging 10.0.0.4 with 32 bytes of data:
Reply from 10.0.0.4: bytes=32 time=0ms TTL=128
Reply from 10.0.0.4: bytes=32 time=0ms TTL=128
Reply from 10.0.0.4: bytes=32 time=0ms TTL=128
Reply from 10.0.0.4: bytes=32 time=0ms TTL=128
Ping statistics for 10.0.0.4:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 0ms, Average = 0ms
PC>


Server0
Physical
Config
Services
Desktop
Custom Interface
SERVICES
HTTP
DHCP
DHCPv6
TFTP
DNS
SYSLOG
AAA
NTP
EMAIL
FTP
DHCP
Interface
FastEthernet0
Service
On
Off
Pool Name
serverPool
Default Gateway
10.0.0.2
DNS Server
10.0.0.1
Start IP Address :
10 0 0 3
Subnet Mask:
255 0 0 0
Maximum number of Users :
512
TFTP Server:
10.0.0.1
Add
Save
Remove
ool Nam
efault Gatewa
DNS Server
tart IP Addres
ubnet Mas
Max User
TFTF
server...
10.0.0.2
10.0.0.1
10.0.0.3
255.0.0.0
512
10.0.0.1

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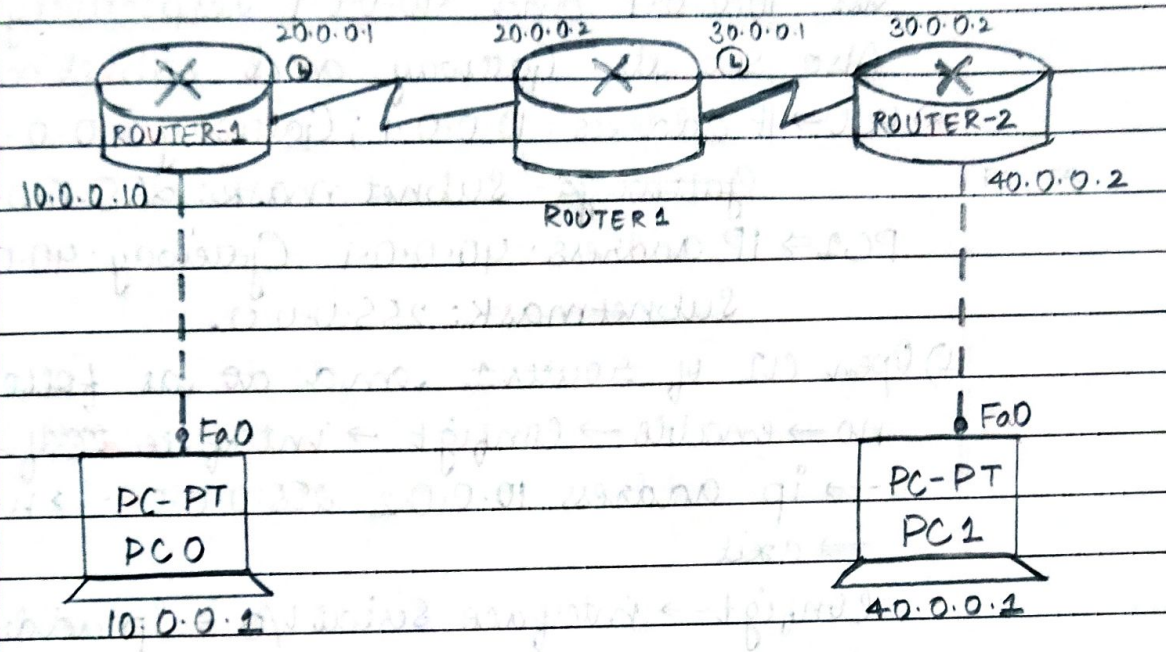
LAB-5

AIM:- Configuring RIP routing protocol in Route

TOPOLOGY:-



SERIAL DCE.

We can enable clocking on the DCE side to bring up the line protocol. You can tell which end of the connection is the DCE Size by the small "clock" icon next to the port.

RIP:- It is a protocol that routers can use to exchange network topology information. RIP uses a distance vector algorithm to decide which path to put a packet on to get to its destination.

PROCEDURE :-

*) Place two PCs and 3 routers in the workspace.

*) For both the PCs sets its IP address as 10.0.0.1 and 40.0.0.1 respectively. Also set its Gateway and subnet mask.

*) PC0 ⇒ IP address : 10.0.0.1 ; Gateway : 10.0.0.2
~~Gateway~~ - Subnet mask: 255.0.0.0

PC1 ⇒ IP address : 40.0.0.1 Gateway : 40.0.0.2
Subnetmask: 255.0.0.0.

*) Open CLI of router1 and do as follows:-
no → enable → Configt → interface ~~test~~ fastethernet → ip address 10.0.0.2 255.0.0.0 → no Shut → exit
Configt → interface Serial 0/0 → ip address 20.0.0.1 255.0.0.0 → encapsulation PPP → clock rate 64000 → no Shut.

*) Open CLI of router2 and do as follow.
no → enable → configt → interface Serial 2/0 → ip address 20.0.0.2 → encapsulation PPP → noshut exit → exit
Configt → interface serial 3/0 → ip address 30.0.0.1 255.0.0.0 → encapsulation PPP clockrate 64000 → no Shut.

Now the connection between Router 1 and Router2.

*) Open CLI of router3 and do as follows:-
enable → configt → interface fastethernet 0/0 ip address 40.0.0.2 255.0.0.0 → no Shut. exit → exit → configt
Interface Serial 2/0 → ip address 30.0.0.2 255.0.0.0 → encapsulation ppp → no Shut.

Now the connections are all established.
*) Now specify the RIP protocol.
*) Now open the CLI of router 1:-
router rip → network 10.0.0.0 → network 20.0.0.0 → exit → exit.
*) Open the CLI of router 2:-
router rip → network 20.0.0.0 → network 30.0.0.0 → exit.
*) Ping PC_1 to PC_2.

OBSERVATION:-

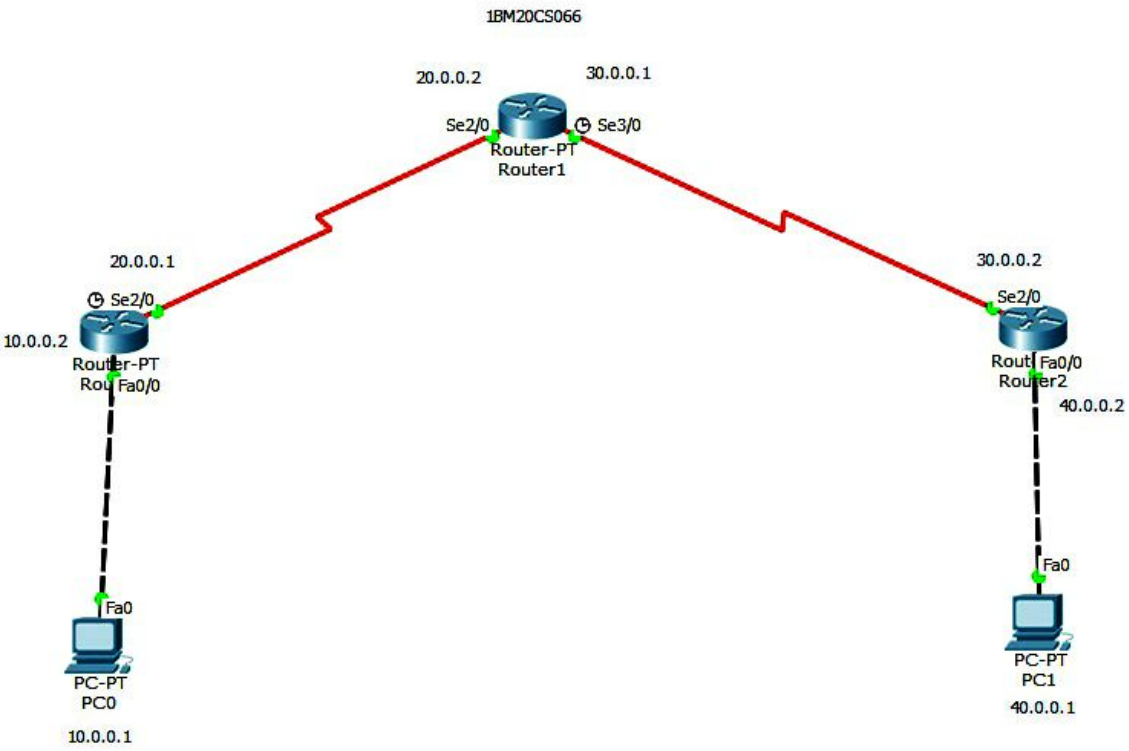
RESULT:-
PC> ping 40.0.0.1
Pinging 40.0.0.1 with 32 bytes of data:
Request timed out
Reply for 40.0.0.1: byte = 32 time = 6ms TTL=125
Reply for 40.0.0.1: byte = 32 time = 9ms TTL = 125
Reply for 40.0.0.1: byte = 32 time = 7ms TTL = 125
ping statics for 40.0.0.0
Packets: sent = 4, received = 3, lost = 1 (25% loss).

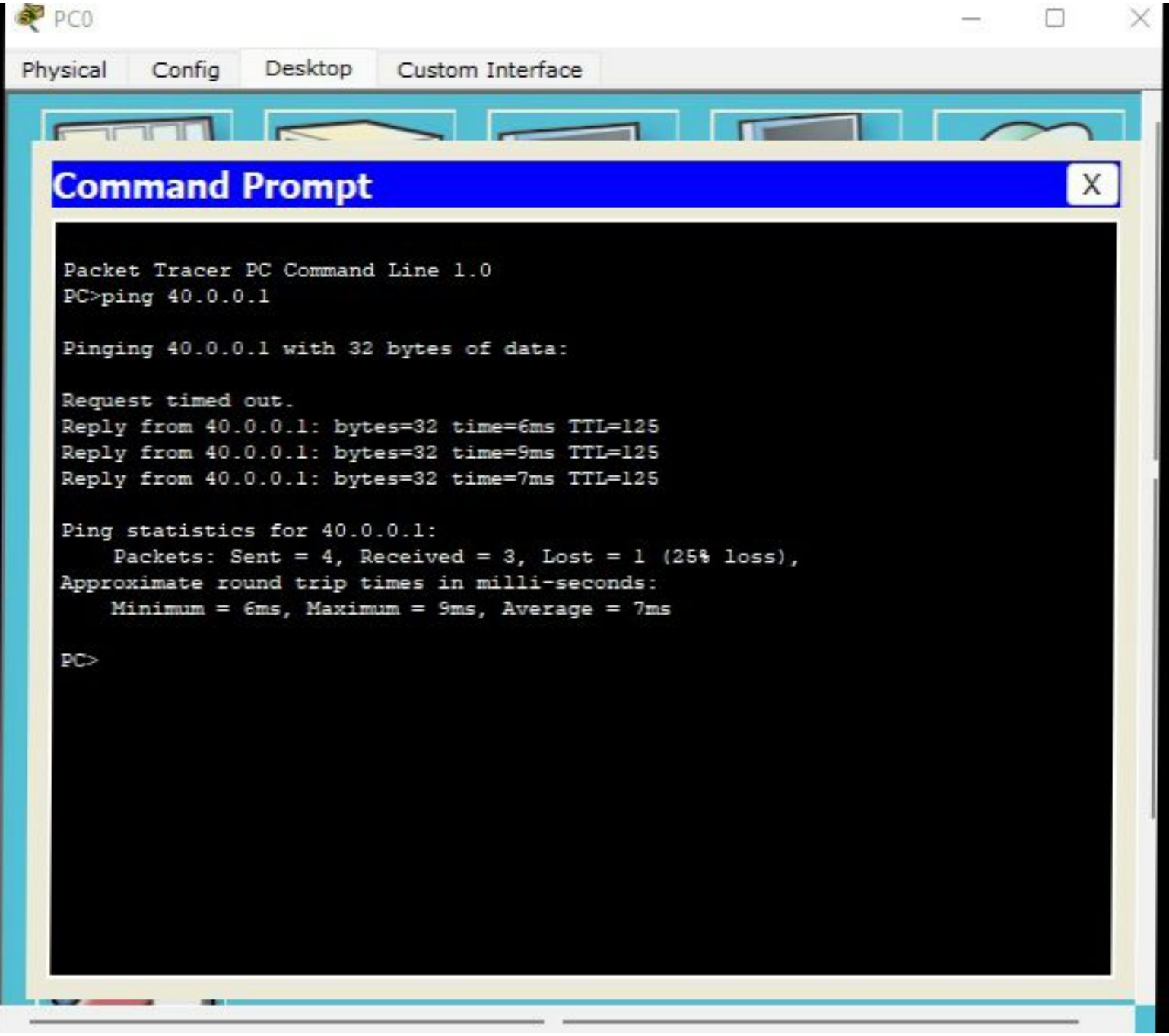
LEARNING:-
When RIP protocol is used we donot have to do static routing for all the routers i.e, we have to teach all the routers by providing with the next hop
In dynamic routing (RIP protocol) we just have to specify the networks known by the router.

```
Continue with configuration dialog? [yes/no]: no


Press RETURN to get started!



Router>enable
Router#interface fastethernet0/0
                 ^
% Invalid input detected at '^' marker.

Router#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#interface fastethernet0/0
Router(config-if)#ip address 10.0.0.2 255.0.00.0
Router(config-if)#no shut

Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

Router(config-if)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#configt
Translating "configt"...domain server (255.255.255.255)
% Unknown command or computer name, or unable to find computer address

Router#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#interface serial2/0
Router(config-if)#ip address 20.0.0.1 255.0.0.0
Router(config-if)#encapsulation ppp
Router(config-if)#clock rate 64000
Router(config-if)#no shut

%LINK-5-CHANGED: Interface Serial2/0, changed state to down
Router(config-if)#
%LINK-5-CHANGED: Interface Serial2/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up

Router(config-if)#router rip
Router(config-router)#network 10.0.0.0
Router(config-router)#network 20.0.0.0
Router(config-router)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console
```

```
Continue with configuration dialog? [yes/no]: no


Press RETURN to get started!



Router>enable
Router#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#interface serial2/0
Router(config-if)#ip address 20.0.0.2
% Incomplete command.
Router(config-if)#ip address 20.0.0.2 255.0.0.0
Router(config-if)#encapsulation ppp
Router(config-if)#no shut

Router(config-if)#
%LINK-5-CHANGED: Interface Serial2/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up

Router(config-if)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#interface serial3/0
Router(config-if)#ip address 30.0.0.1 255.0.0.0
Router(config-if)#encapsulation ppp
Router(config-if)#clock rate 64000
Router(config-if)#no shut

%LINK-5-CHANGED: Interface Serial3/0, changed state to down
Router(config-if)#
%LINK-5-CHANGED: Interface Serial3/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial3/0, changed state to up

Router(config-if)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#router rip
Router(config-router)#network 20.0.0.0
Router(config-router)#network 30.0.0.0
Router(config-router)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console
```

```
Continue with configuration dialog? [yes/no]: no


Press RETURN to get started!



Router>enable
Router#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#interface fastethernet0/0
Router(config-if)#ip address 40.0.0.2 255.0.0.0
Router(config-if)#no shut

Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

Router(config-if)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#interface serial2/0
Router(config-if)#ip address 30.0.0.2 255.0.0.0
Router(config-if)#encapsulation ppp
Router(config-if)#no shut'
                         ^
% Invalid input detected at '^' marker.

Router(config-if)#no shut

Router(config-if)#
%LINK-5-CHANGED: Interface Serial2/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up

Router(config-if)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console
config t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#router rip
Router(config-router)#network 30.0.0.0
Router(config-router)#network 40.0.0.0
Router(config-router)#exit
Router(config)#
```

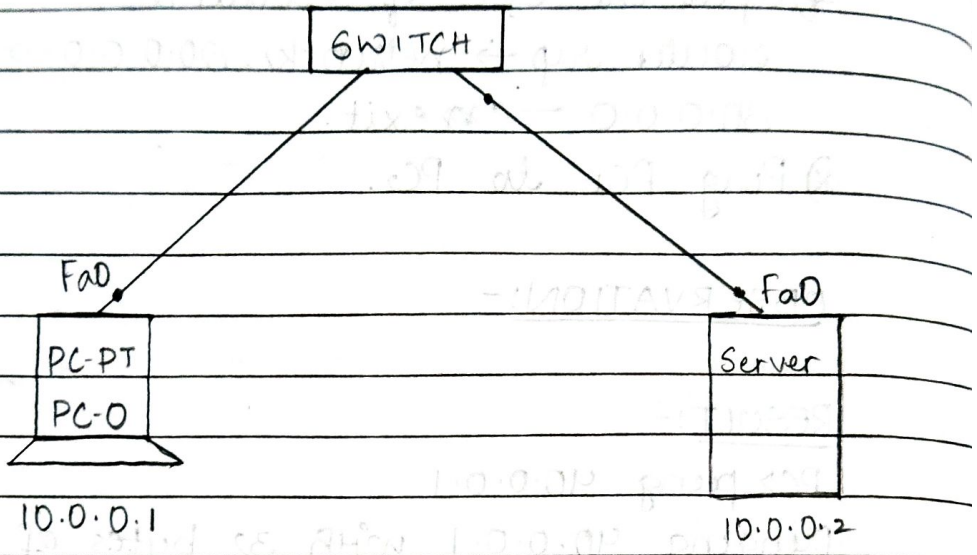

1BM20CS066
20.0.0.2
30.0.0.1
Se2/0
Se3/0
Router-PT
Router1
20.0.0.1
30.0.0.2
Se2/0
Se2/0
10.0.0.2
Router-PT
Fa0/0
Router2
Fa0/0
40.0.0.2
Fa0
Fa0
PC-PT
PC0
PC-PT
PC1
10.0.0.1
40.0.0.1


PC0
Physical
Config
Desktop
Custom Interface
Command Prompt
X
Packet Tracer PC Command Line 1.0
PC>ping 40.0.0.1
Pinging 40.0.0.1 with 32 bytes of data:
Request timed out.
Reply from 40.0.0.1: bytes=32 time=6ms TTL=125
Reply from 40.0.0.1: bytes=32 time=9ms TTL=125
Reply from 40.0.0.1: bytes=32 time=7ms TTL=125
Ping statistics for 40.0.0.1:
Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
Minimum = 6ms, Maximum = 9ms, Average = 7ms
PC>

LAB-6

AIM:- Demonstration of WEB3 server and DNS using packet tracer.

TOPOLOGY:-



PROCEDURE :-

*) Place a PC, switch and Server on the workspace and connect them.
*) Set the IPAddress and Subnet mask of the PC as 10.0.0.1 and 255.0.0.0 respe
*) Set the IP address and Subnet mask of Server as 10.0.0.2 and 255.0.0.0.
*) Open PC0 → Desktop → web browser → give IP address of Server (10.0.0.2).
*) Open Server → Services → HTTP → the HTTP windows open. Click on the edit option of index.html and change the contents → Save.
*) Now the web browser page of PC is also modified.

DOMAIN NAMING SYSTEM:-

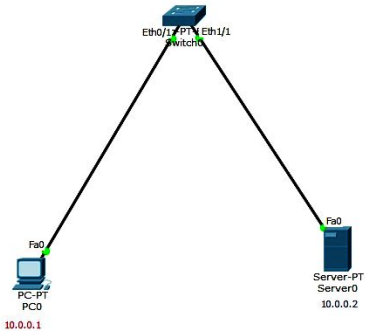
*) To activate DNS, Open Server → Services → DNS → on → Enter the name of the resource record and IP address of the server and click on Add.
*) Now the name and IP address is ~~change~~ fixed.
*) Now create your own html file :-
*) ~~File name:~~ Now open PC0 → web browser → and specify the URL → C:\0.
*) The contents of the HTML file created is shown.

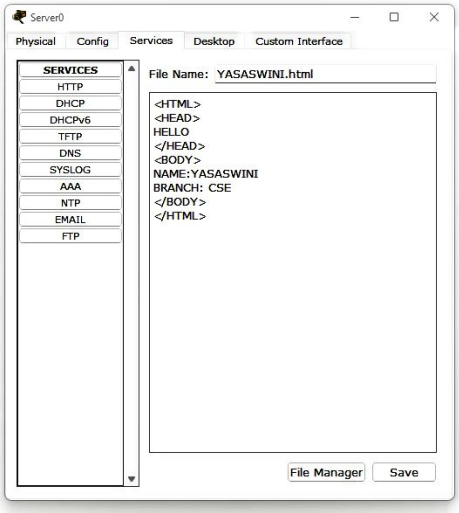
RESULT:-

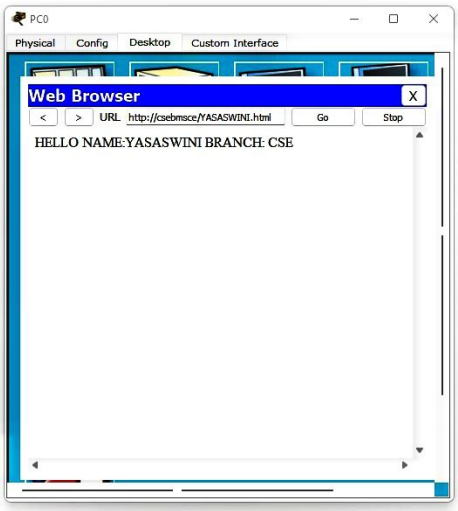
HTML file created :-
```
<html>
<head> Hello </head>
<body>
Name : yasaswini <BR>
branch : CSE
</body>
</html>
```

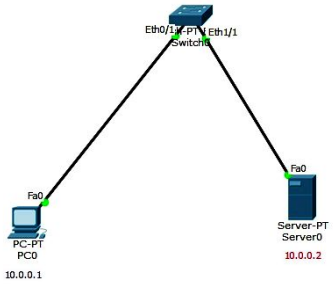
output :-
Hello.
Name : yasaswini
branch : CSE.

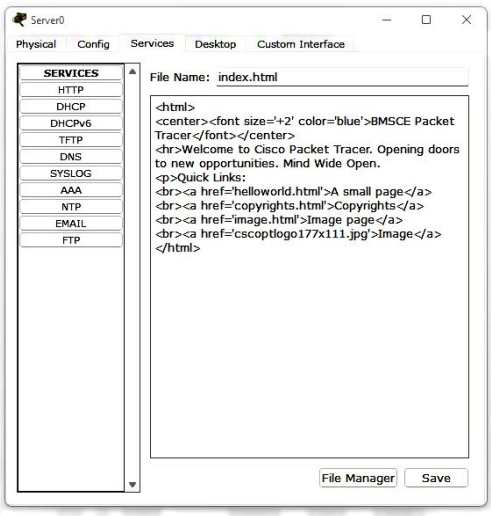
LEARNING :- DNS helps us map name with an IP address. We are comfortable with naming conventions such as bmsce.ac.in whereas computer is comfortable with IP address. Hence DNS helps in the mapping of the name and the IP.


Eth0/1
Eth1/1
Switch0
Fa0
Fa0
PC-PT
PC0
10.0.0.1
Server-PT
Server0
10.0.0.2


Server0
Physical
Config
Services
Desktop
Custom Interface
SERVICES
HTTP
DHCP
DHCPv6
TFTP
DNS
SYSLOG
AAA
NTP
EMAIL
FTP
File Name: YASASWINI.html
<HTML>
<HEAD>
HELLO
</HEAD>
<BODY>
NAME:YASASWINI
BRANCH: CSE
</BODY>
</HTML>
File Manager
Save


PC0
Physical
Config
Desktop
Custom Interface
Web Browser
X
URL
http://csebmsce/YASASWINI.html
Go
Stop
HELLO NAME:YASASWINI BRANCH: CSE


Eth0/1
2960-24TT
Eth1/1
Switch0
Fa0
Fa0
PC-PT
PC0
10.0.0.1
Server-PT
Server0
10.0.0.2

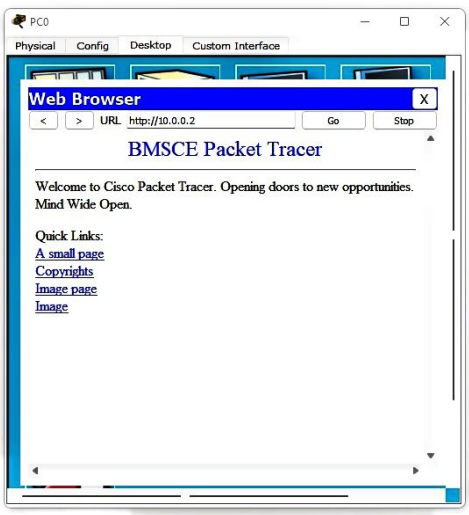

Server0
Physical
Config
Services
Desktop
Custom Interface
SERVICES
HTTP
DHCP
DHCPv6
TFTP
DNS
SYSLOG
AAA
NTP
EMAIL
FTP
File Name: index.html
<html>
BMSCE Packet Tracer
<hr>Welcome to Cisco Packet Tracer. Opening doors to new opportunities. Mind Wide Open.
<p>Quick Links:

A small page

Copyrights

Image page

Image
</html>
File Manager
Save


PC0
Physical
Config
Desktop
Custom Interface
Web Browser
X
URL http://10.0.0.2
Go
Stop
BMSCE Packet Tracer
Welcome to Cisco Packet Tracer. Opening doors to new opportunities. Mind Wide Open.
Quick Links:
A small page
Copyrights
Image page
Image

DIJKSTRAS ALGORITHM

```
#include <bits/stdc++.h>
#include <limits.h>
#include <stdio.h>
using namespace std;
#define V 4
int mindist(int dist[], bool sptset[])
{
int min = INT_MAX, min_index;
for (int v=0; v<V; v++)
if (SptSet[v] == false && dist[v] <= min)
min = dist[v], min_index = v;
return min_index;
void printSolutions (int dist[])
{
printf("Vertex");
for (int i=0; i<V; i++)
printf("%d \t %d \n", i, dist[i]);
}
void dijkstra (int graph[V][V], int src)
{
int dist[V];
bool sptset[V];
for (int i = 0; i<V; i++)
  dist[i] = INT_MAX, sptSet[i] = false;
  dist[src]=0;
for (int count=0; count<V-1; count++) {
  int u= mindist(dist, sptset);
  sptSet[u] = true;
  for (int v=0; v<V; v++)
```

```
if (!sptSet[v] && graph[u][v] && dist[v] !=
  INT_MAX && dist[u]+ graph[u][v]< dist[v])
  dist[v] dist[u]+graph[u][v];
}
printSol(dist);
}
int main()
{
int graph[V][V];
cout<<"Enter the graph"<<endl;
for(int i=0;i<V;i++)
{  for(j=0;j<V;j++)
     cin>>graph[i][j];
}
dijkstra(graph,0);
}
```

Output:- Enter the graph.

```
0 9 2 5
9 0 6 8
2 6 0 0
5 8 0 0
```

vertex	Distance from Source
0	0
1	8
2	2
3	5

```
Enter no. of vertices:4

Enter the adjacency matrix:
0 5 9999 9999
2 0 4 9999
9999 9999 0 6
4 7 5 0

Enter the starting node:0

Distance of node1=5
Path=1<-0
Distance of node2=9
Path=2<-1<-0
Distance of node3=15
Path=3<-2<-1<-0
```

DISTANCE VECTOR:-

```
#include <bits/stdc++.h>
using namespace std;
#define MAX 10
int n;
class routes {
char adj_new [MAX], adj_old [MAX];
int table_new [MAX], table_old [MAX];
public() {
for(int i=0; i<MAX; i++)
table_old [i] = table [new] = 99;
}
void copy() {
for (int i=0; i<n; i++) {
adj_new = adj_old [i],
table_old [i] = table_new[i];
}
}
int equal() {
for (int i=0; i<n; i++)
for (table_old[i] != table_new [i] || adj_new [i]
   != adj_old [i]) return 0;
return 1;
}
void input(int j) {
cout << Enter 1 << char ('A'+ j) <<"else enter 99:"
for (int i=0; i<n; i++)
if (i!=j) cout << (char)('A'+i) << " ";
cout << " Enter Matrix ",
for(i=0; i<n; i++)
{
```

```
if (i == j)
table_new[i] = 0;
else
cin >> table_new[i];
adj_new[i] = (char)('A'+i);
}
cout << endl;
}
void display() {
cout << "Destination routes";
for (int i = 0; i<n; i++)
cout << "Outgoing line:";
for(int i=0; i<n; i++)
cout << "Hop Count:";
for(int i=0; i<n; i++)
}
void build(int j) {
for(int i=0; i<n; i++)
for(int k=0; (i!=j) && (k<n); k++)
if(table_old[i]!=99)
if((table_new[i]+table_new[k]<table[k])
{
table_new[k] = table_new[i] + table_new[k];
adj_new[k] = (char)('A'+i);
}
}
r[MAX];
void build_table() {
int i=0, j=0;
while(i!=n) {
r[i] = copy();
r[i] = build(i);
```

```
    }
    for (i=0; i<n; i++)
    if (!r[i].equal()) {
     j=1;
    break;
     }
    }
    int main() {
     cout<<"Enter no. of routers"
     cin>>n;
     for (int i=0; i<n; i++)
     r[i].input(i);
     build_table();
     for (int i=0; i<n; i++) {
     cout<<"Entries are:"<<(char)('A'+i);
     r[i].display();
     cout<<endl;
     }
    }
```

Output: No. of routers: 5
Enter if router is next to A: B C D E
matrix 1 = 1 1 99 99
Enter router B : A C D E A B C E
Enter matrix : 99 99 1 99
Enter router C : A B C D
matrix :- 99 99 1 99.
routing table for A :-
Destination : A B C D E
Outgoing : A B C D E
Hop count : 0 1 1 99 99.

```
Enter no. of vertices:4

Enter the adjacency matrix:
0 5 9999 9999
2 0 4 9999
9999 9999 0 6
4 7 5 0

Enter the starting node:0

Distance of node1=5
Path=1<-0
Distance of node2=9
Path=2<-1<-0
Distance of node3=15
Path=3<-2<-1<-0
```

UDP

Client :-

```
from Socket import *
ServerName = "127.0.0.1"
ServerPort = 12000
clientSocket = Socket (AF_INET, SOCK_DGRAM)
Sentence = input ("Enter file name: ")
clientSocket.sendto (bytes (Sentence, "utf-8")
fileContents, ServerAddress = clientSocket.
                              recvfrom (10048)
print (Reply from Server)
print (file Contents.decode ("utf-8"))
clientSocket.close()
clientSocket.close()
```

Server :-

```
from Socket import *
ServerPort = 12000
ServerSocket = socket (AF_INET, SOCK_DGRM)
serverSocket.bind (("127.0.0.1", ServerPort))
print ("Ready to Receive")
while 1:
Sentence, = ServerSocket.recvfrom (2048)
Sentence = Sentence.decode ("utf-8")
file = open (sentence, "r")
d = file.read (2048)
ServerSocket.Sendto (d, "utf-8"), clientAdd)
print (Contents Sent) print (Sentence)
file.close().
```

Output :-

Server :-
The Server is ready to receive.
Sent Contents of Server.py.
The Server is ready to receive.

```
Enter file name: ServerTCP.py

From Server:

from socket import *
serverName="127.0.0.1"
serverPort = 12000
serverSocket = socket(AF_INET,SOCK_STREAM)
serverSocket.bind((serverName,serverPort))
serverSocket.listen(1)
while 1:
    print ("The server is ready to receive")
    connectionSocket, addr = serverSocket.accept()
    sentence = connectionSocket.recv(1024).decode()

    file=open(sentence,"r")
    l=file.read(1024)

    connectionSocket.send(l.encode())
    print ('\nSent contents of ' + sentence)
    file.close()
    connectionSocket.close()

>>>
```

UDP

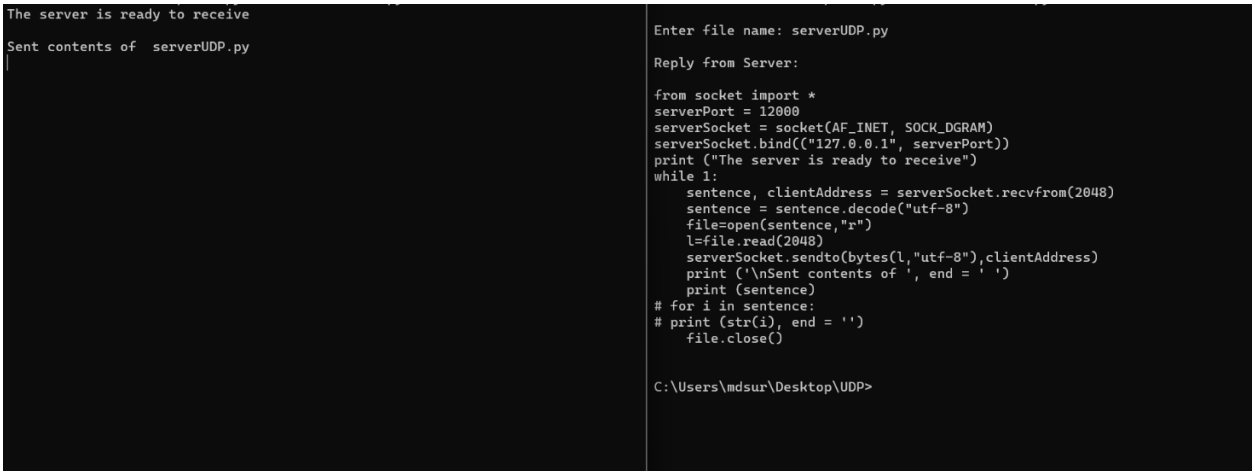
Client :-

```
from Socket import *
ServerName = "127.0.0.1"
ServerPort = 12000
clientSocket = Socket (AF_INET, SOCK_DGRAM)
Sentence = input ("Enter file name: ")
clientSocket.sendto (bytes (Sentence, "utf-8")
fileContents, ServerAddress = clientSocket.
                              recvfrom (10048)
print (Reply from Server)
print (file Contents.decode ("utf-8"))
clientSocket.close()
clientSocket.close()
```

Server :-

```
from Socket import *
ServerPort = 12000
ServerSocket = socket (AF_INET, SOCK_DGRM)
serverSocket.bind (("127.0.0.1", ServerPort))
print ("Ready to Receive")
while 1:
Sentence, = ServerSocket.recvfrom (2048)
Sentence = Sentence.decode ("utf-8")
file = open (sentence, "r")
d = file.read (2048)
ServerSocket.Sendto (d, "utf-8"), clientAdd)
print (Contents Sent) print (Sentence)
file.close().
```

UDP SCREEN SHOT

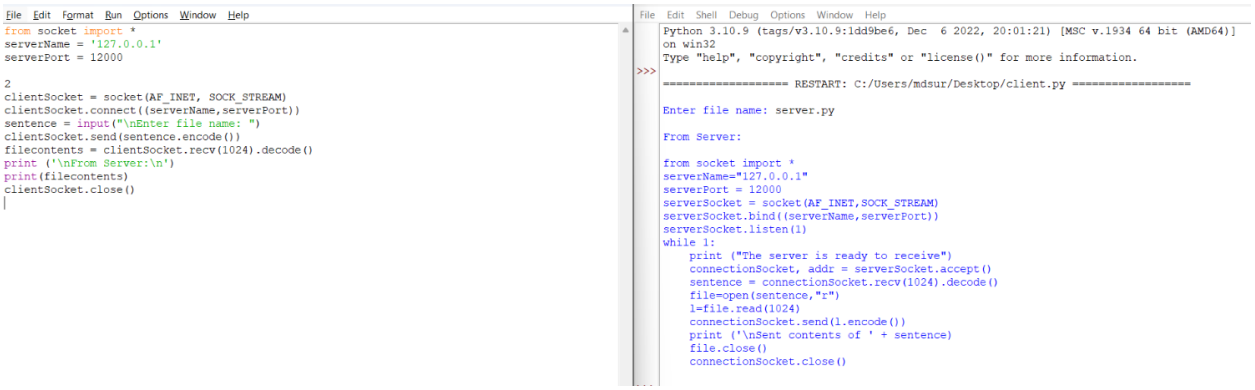


```
The server is ready to receive

Sent contents of  serverUDP.py
```

```
Enter file name: serverUDP.py

Reply from Server:

from socket import *
serverPort = 12000
serverSocket = socket(AF_INET, SOCK_DGRAM)
serverSocket.bind(("127.0.0.1", serverPort))
print ("The server is ready to receive")
while 1:
    sentence, clientAddress = serverSocket.recvfrom(2048)
    sentence = sentence.decode("utf-8")
    file=open(sentence,"r")
    l=file.read(2048)
    serverSocket.sendto(bytes(l,"utf-8"),clientAddress)
    print ('\nSent contents of ', end = ' ')
    print (sentence)
# for i in sentence:
# print (str(i), end = '')
    file.close()


C:\Users\mdsur\Desktop\UDP>
```

TCP IP SCREEN SHOT

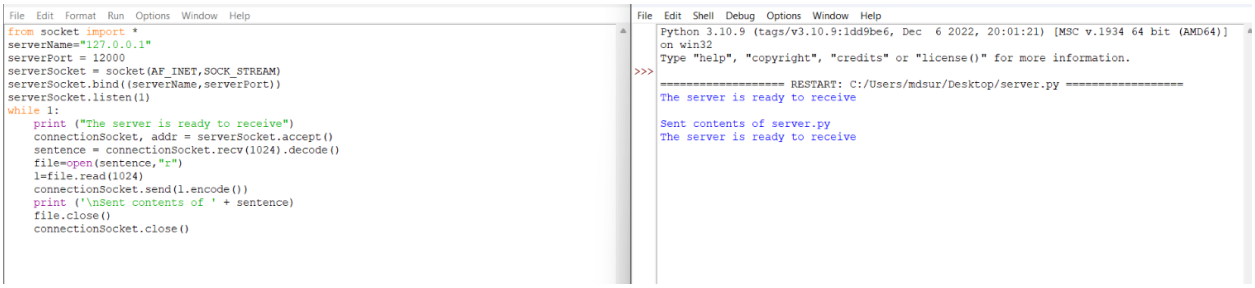
CLIENT SCREENSHOT



```
File  Edit  Format  Run  Options  Window  Help
from socket import *
serverName = '127.0.0.1'
serverPort = 12000

2
clientSocket = socket(AF_INET, SOCK_STREAM)
clientSocket.connect((serverName,serverPort))
sentence = input("\nEnter file name: ")
clientSocket.send(sentence.encode())
filecontents = clientSocket.recv(1024).decode()
print ('\nFrom Server:\n')
print(filecontents)
clientSocket.close()
```

```
File  Edit  Shell  Debug  Options  Window  Help
Python 3.10.9 (tags/v3.10.9:1dd9be6, Dec  6 2022, 20:01:21) [MSC v.1934 64 bit (AMD64)]
on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
========== RESTART: C:/Users/mdsur/Desktop/client.py ==========

Enter file name: server.py

From Server:

from socket import *
serverName="127.0.0.1"
serverPort = 12000
serverSocket = socket(AF_INET,SOCK_STREAM)
serverSocket.bind((serverName,serverPort))
serverSocket.listen(1)
while 1:
    print ("The server is ready to receive")
    connectionSocket, addr = serverSocket.accept()
    sentence = connectionSocket.recv(1024).decode()
    file=open(sentence,"r")
    l=file.read(1024)
    connectionSocket.send(l.encode())
    print ('\nSent contents of ' + sentence)
    file.close()
    connectionSocket.close()
```

SERVER SCREENSHOT



```
File  Edit  Format  Run  Options  Window  Help
from socket import *
serverName="127.0.0.1"
serverPort = 12000
serverSocket = socket(AF_INET,SOCK_STREAM)
serverSocket.bind((serverName,serverPort))
serverSocket.listen(1)
while 1:
    print ("The server is ready to receive")
    connectionSocket, addr = serverSocket.accept()
    sentence = connectionSocket.recv(1024).decode()
    file=open(sentence,"r")
    l=file.read(1024)
    connectionSocket.send(l.encode())
    print ('\nSent contents of ' + sentence)
    file.close()
    connectionSocket.close()
```

```
File  Edit  Shell  Debug  Options  Window  Help
Python 3.10.9 (tags/v3.10.9:1dd9be6, Dec  6 2022, 20:01:21) [MSC v.1934 64 bit (AMD64)]
on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
========== RESTART: C:/Users/mdsur/Desktop/server.py ==========
The server is ready to receive

Sent contents of server.py
The server is ready to receive
```