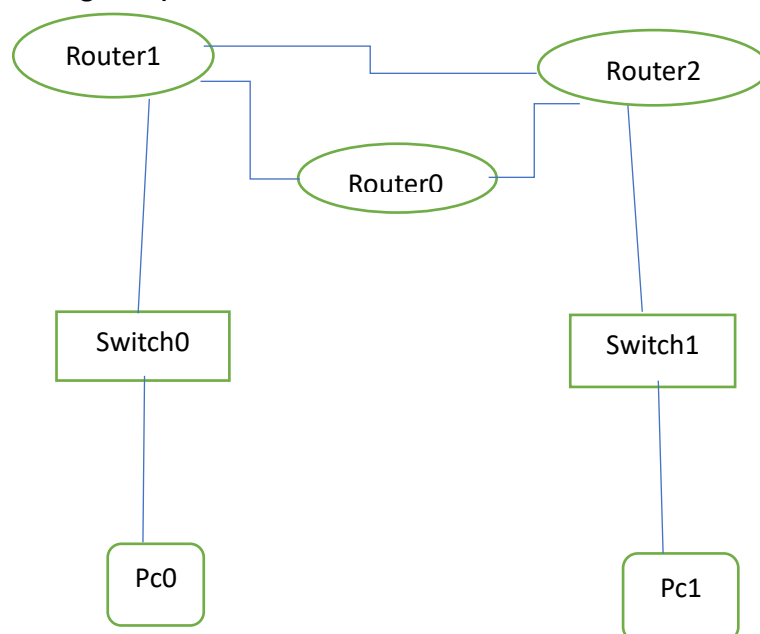


Register No:	99220040530
Name	G. MADHU
Class/Section	8601 A/S06
Ex. No:	7a
Name of the Experiment	Link State Routing
Google Drive link of the packet tracer file (give view permission):	https://drive.google.com/drive/u/0/folders/1wpq6ecQct7Ayr7d1IFH1XTfp_N7n5q_A

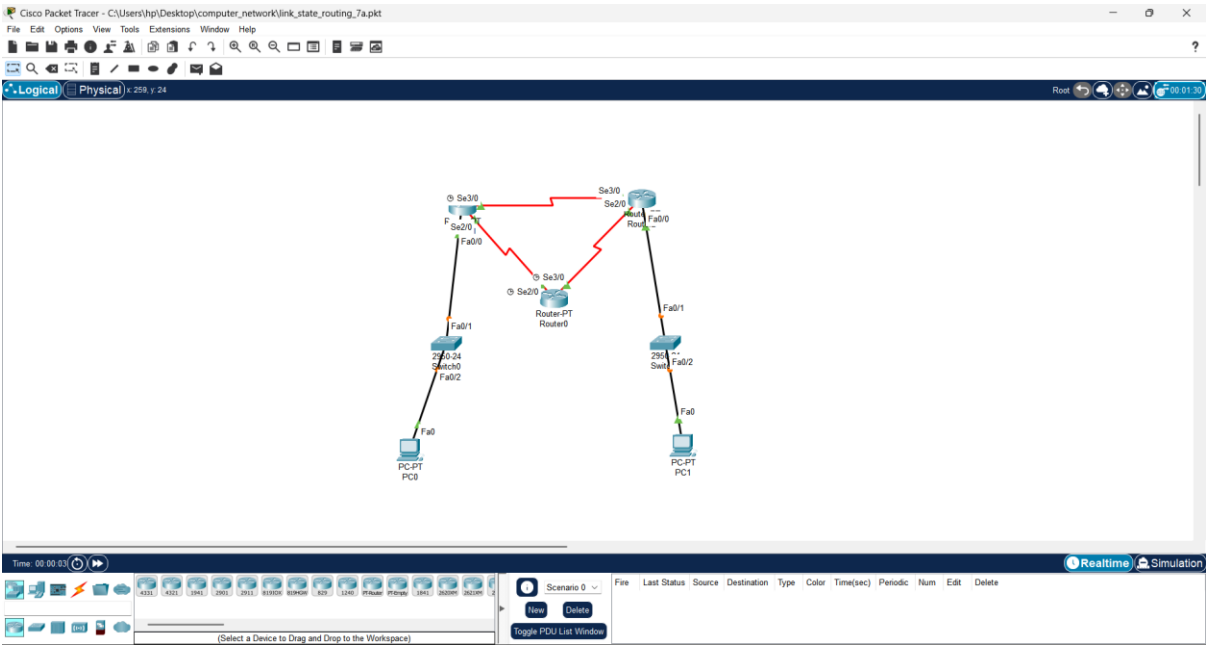
1. Device Requirements:

1. Router0
2. Router1
3. Router2
4. Switch0
5. Switch1
6. PC0
7. PC1
8. Wire

2. Network Diagram for your experiment (draw the diagram either hand drawing/ms paint or any other drawing tools)



3. Network Diagram (packet tracer diagram before configuration):



4. Configuration details:

Device Name	Interface Name	IP Address	Subnet mask
Router 0	Fa0/0	192.85.9.6	255.255.255.0
Router 1	Fa0/0	189.96.85.6	255.255.0.0
Router 2	Fa0/1	178.96.85.5	255.255.0.0
Switch 0	Fa0/1		
Switch 1	Fa0/1		
Pc0	Fa0	192.18.96.6	255.255.255.0
Pc1	Fa0	192.83.9.5	255.255.255.0

5. Describe step by step configuration steps properly (you may copy the commands used in the configuration tab and paste it.)

1. Ping
2. Configure Terminal
3. Router ospf 1

ROUTER0**Router>enable**

Router#

Router#configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

Router(config)#interface FastEthernet0/0**Router(config-if)#no shutdown**

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

no ip address

Router(config-if)#ip address 10.10.10.1 255.0.0.0**Router(config-if)#exit****Router(config)#interface Serial2/0****Router(config-if)#no shutdown****Router(config-if)#clock rate 64000****Router(config-if)#ip address 30.30.30.1 255.0.0.0****Router(config-if)#ip address 30.30.30.1 255.0.0.0**

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)#interface Serial3/0****Router(config-if)#no shutdown****Router(config-if)#clock rate 64000****Router(config-if)#ip address 40.40.40.1 255.0.0.0****Router(config-if)#ip address 40.40.40.1 255.0.0.0**

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)#router ospf 1

Router(config-router)#network 10.0.0.0 0.255.255.255 area 0

Router(config-router)#network 30.0.0.0 0.255.255.255 area 0

Router(config-router)#network 40.0.0.0 0.255.255.255 area 0

Router(config-router)#exit

Router(config)#exit

Router#

ROUTER1

Router>enable

Router#

Router#configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

Router(config)#interface FastEthernet0/0

Router(config-if)#no shutdown

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

ip address 20.20.20.1 255.0.0.0

Router(config-if)#ip address 20.20.20.1 255.0.0.0

Router(config-if)#

Router(config-if)#exit

Router(config)#interface Serial2/0

Router(config-if)#no shutdown

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

ip address 30.30.30.3 255.0.0.0

Router(config-if)#ip address 30.30.30.3 255.0.0.0

Router(config-if)#exit

Router(config)#interface Serial3/0

Router(config-if)#no shutdown

Router(config-if)#

%LINK-5-CHANGED: Interface Serial3/0, changed state to up

clock rate 64000

This command applies only to DCE interfaces

Router(config-if)#ip address 50.50.50.2 255.0.0.0

Router(config-if)#ip address 50.50.50.2 255.0.0.0

Router(config-if)#exit

Router(config)#router ospf 1

Router(config-router)#network 30.0.0.0 0.255.255.255 area 0

Router(config-router)#

00:18:05: %OSPF-5-ADJCHG: Process 1, Nbr 40.40.40.1 on Serial2/0 from LOADING to FULL, Loading Done

Router(config-router)#network 0.0.0.0 0.255.255.255 area 0

Router(config-router)#network 20.0.0.0 0.255.255.255 area 0

Router(config-router)#network 50.0.0.0 0.255.255.255 area 0

Router(config-router)#exit

Router(config)#exit

Router#

%SYS-5-CONFIG_I: Configured from console by console

ROUTER2**Router>enable**

Router#

Router#configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

Router(config)#interface FastEthernet0/0**Router(config-if)#no shutdown**

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

ip address 20.20.20.1 255.0.0.0

Router(config-if)#ip address 20.20.20.1 255.0.0.0**Router(config-if)#exit****Router(config)#interface Serial2/0****Router(config-if)#no shutdown**

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

ip address 30.30.30.3 255.0.0.0

Router(config-if)#ip address 30.30.30.3 255.0.0.0**Router(config-if)#exit****Router(config)#interface Serial3/0****Router(config-if)#no shutdown**

Router(config-if)#

%LINK-5-CHANGED: Interface Serial3/0, changed state to up

clock rate 64000

This command applies only to DCE interfaces

Router(config-if)#ip address 50.50.50.2 255.0.0.0**Router(config-if)#ip address 50.50.50.2 255.0.0.0**

Router(config-if)#exit

Router(config)#router ospf 1

Router(config-router)#network 30.0.0.0 0.255.255.255 area 0

Router(config-router)#

00:18:05: %OSPF-5-ADJCHG: Process 1, Nbr 40.40.40.1 on Serial2/0 from LOADING to FULL, Loading Done

Router(config-router)#network 20.0.0.0 0.255.255.255 area 0

Router(config-router)#network 50.0.0.0 0.255.255.255 area 0

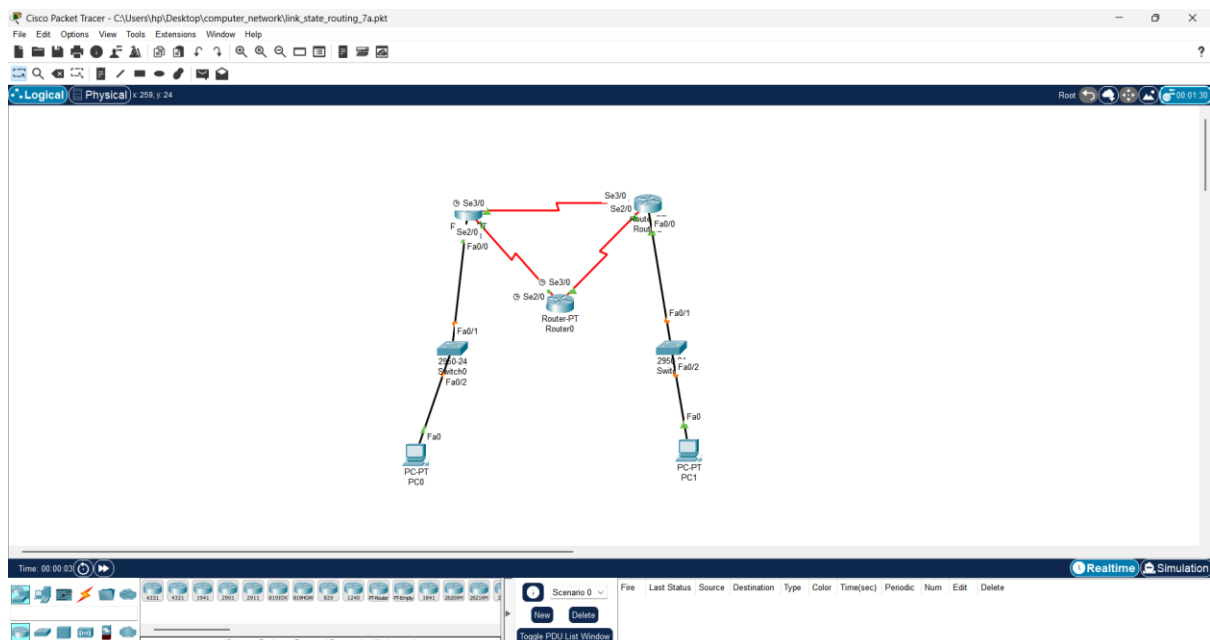
Router(config-router)#exit

Router(config)#exit

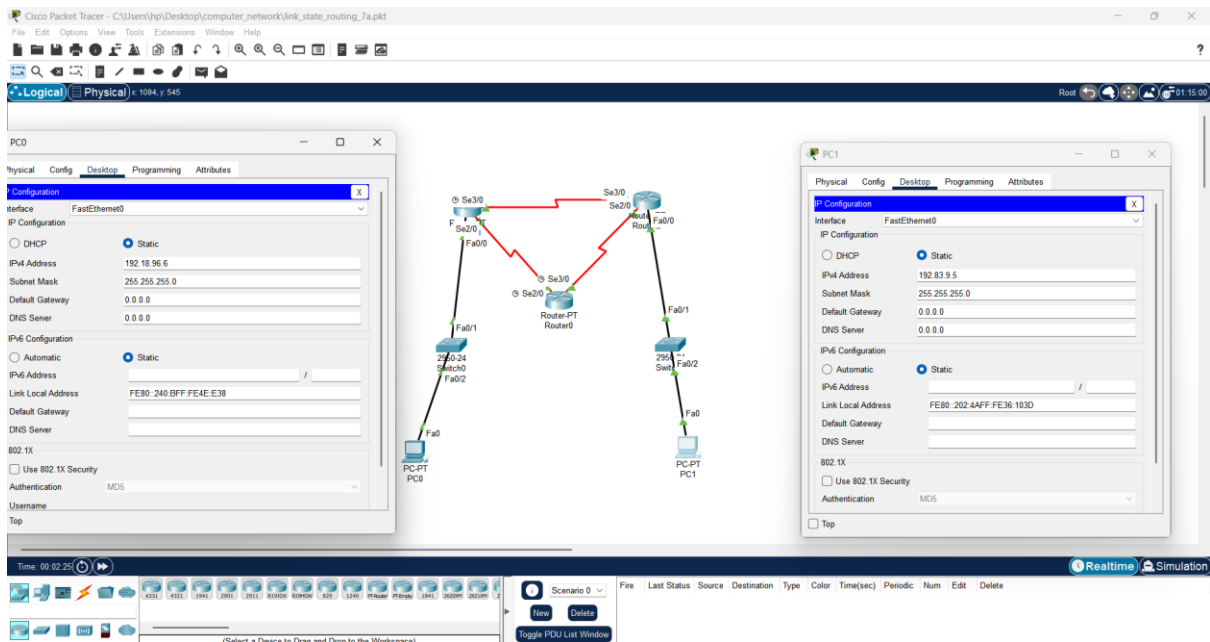
Router#

%SYS-5-CONFIG_I: Configured from console by console

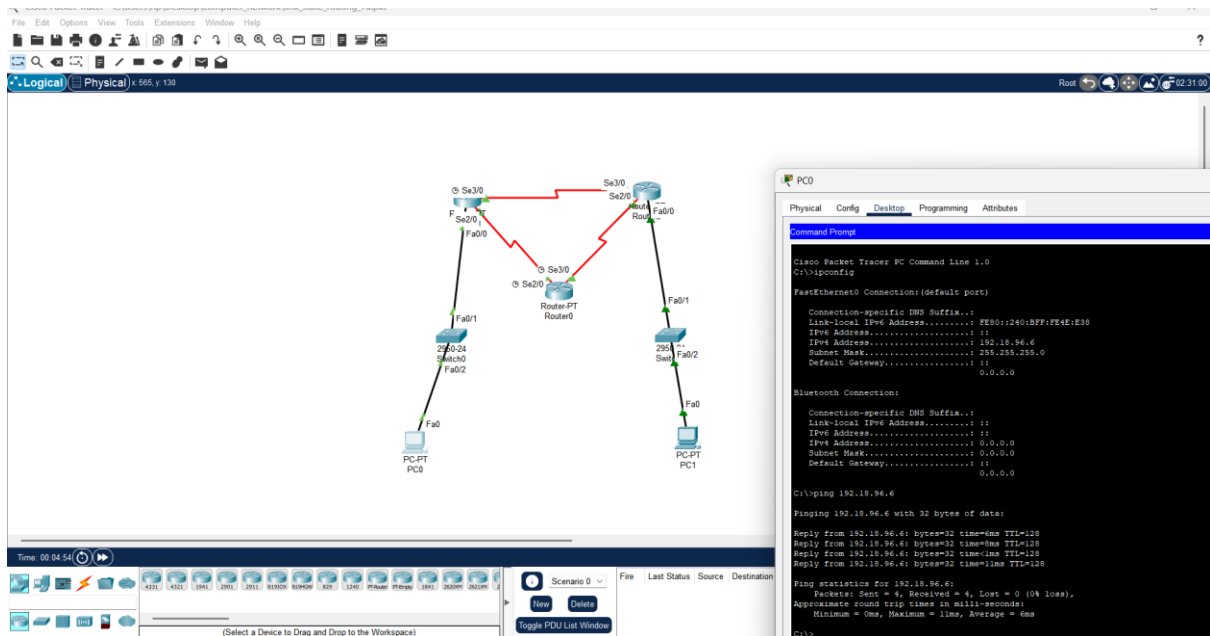
6. Output Diagram (Minimum 3 screenshot):

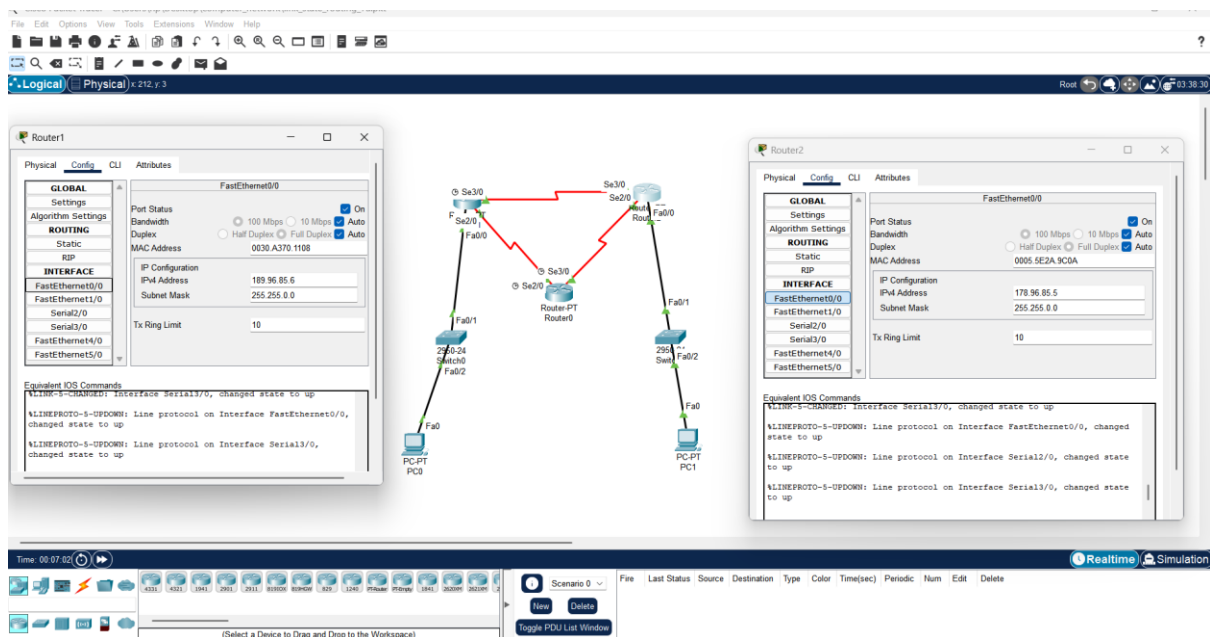
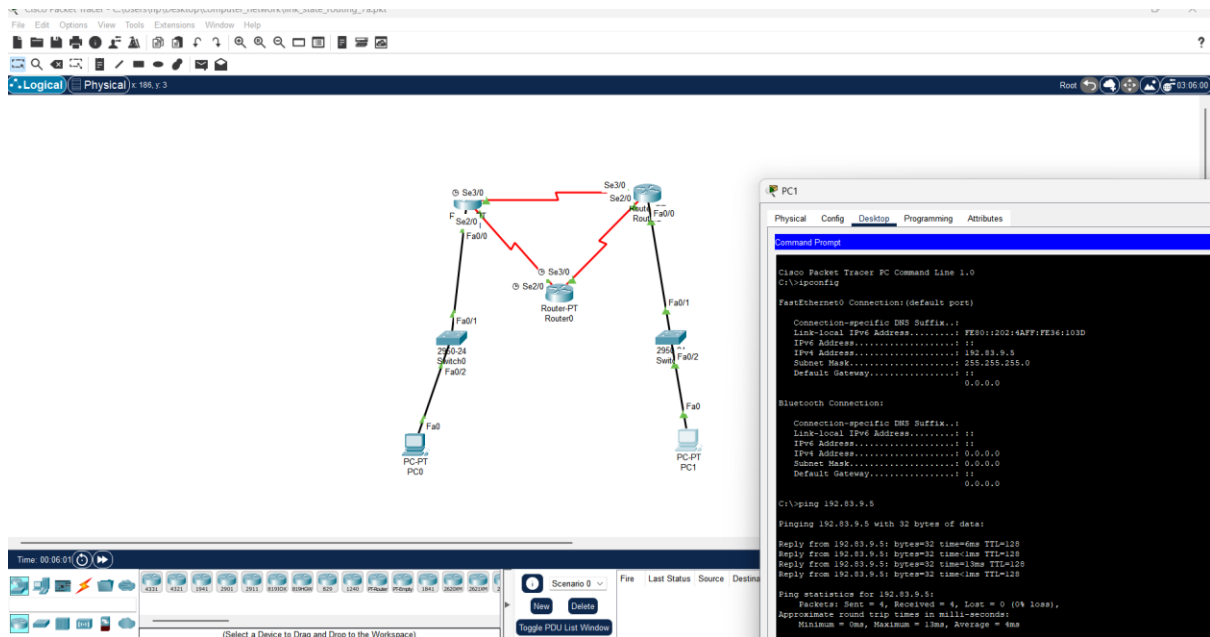


Network Diagram



Assigning IP Address





Google Drive link of the packet tracer file (give view permission):

Link: https://drive.google.com/drive/u/0/folders/1wpq6ecQct7Ayr7d1FH1XTfp_N7n5q_A

CONCLUSION:

In this experiment, we configured **Link-State Routing**, which uses a dynamic routing protocol like **OSPF (Open Shortest Path First)** to determine the best paths in a network. This method ensures faster convergence, scalability, and efficient use of network resources.

Rubrics for Experiment Assessment:

Rubrics	Good	Normal	Poor	Marks
Creation of Topology (4)	Created the topology, Identify the proper devices and making the connections (4)	Created the topology, Identify the proper devices, making the connections But missing some features (3)	Created wrong topology, Failed to Identify the proper devices and making connections (1)	
Verify the connectivity (4)	Verified the connectivity in all the levels (4)	Verified the connectivity at some levels (only some nodes) (2)	Verified the connectivity is not done. (1)	
Timely Completion (2)	Completed the lab before the allotted time (2)	Completed the lab after the deadline (1)	Did not submitted before grading (0)	
Total				

Result: Thus Link State Routing configuration using packet tracer has been done successfully.