Register No:	99220040772
Name:	V Vishwaradhya
Class/Section:	S24/slot2
Ex.No:	**8a**
Date of Submission	
Name of the Experiment	**Link State Routing**
Google Drive link of the packet tracer file (give view permission):	https://drive.google.com/drive/folders/195Z7VOAnTcvONPConcUQAwxpJUrSM6LK?usp=drive_link

Objective(s): To design and implement Link state routing using packet tracer

Introduction:

Link State Routing Protocols used to select the path for data packet in an internetwork. Link state routing protocols uses link state routers to share information of connected network devices. This is a learning process. By learning process each router maintain the routing table to select the shortest path for data packet transmission. Each router update the network topology to nearby router only. Link state routing protocols are also known as **shortest path first protocol.**

Link state protocols allow routers to share the information about network connected to it. This information passed to neighbour router only. An accurate information of network topology around the router updated in routing table. By help of the routing table better routing path selected by the router.

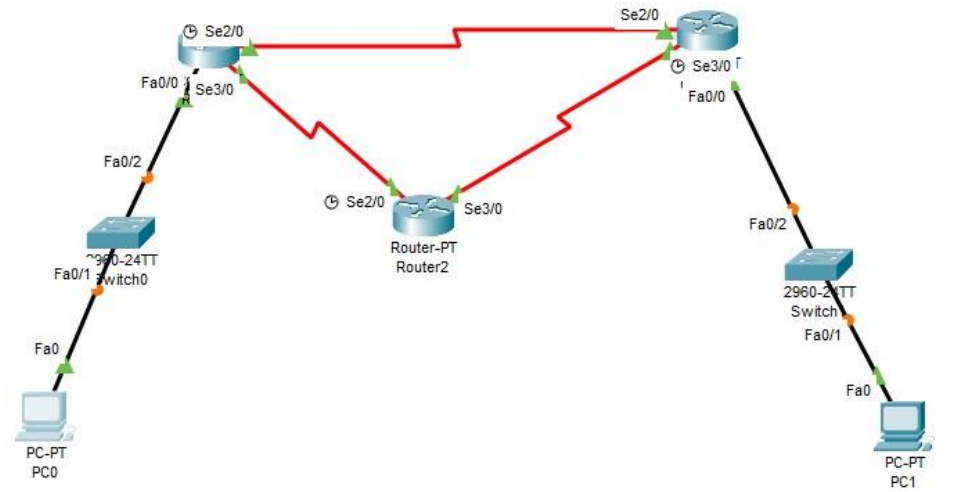
The information passes by router is known as link state advertisements(LSAs). In distance vector the information message passes in a fix time interval. Link state advertisements shared only when any changes done in the network topology. The bandwidth less consumed by link state routing protocol. The time of convergence is less than in distance vector protocol.

Function of link state routing protocol

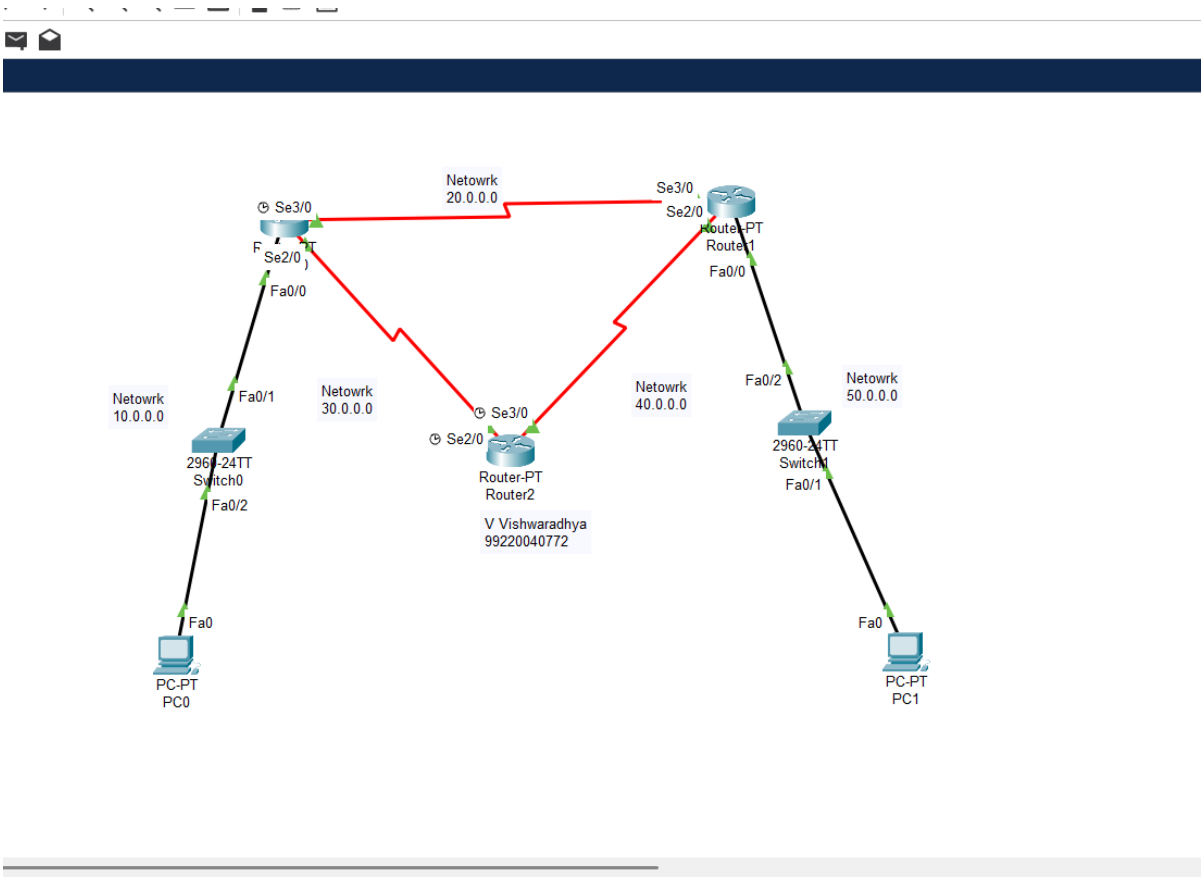
Important terms of link state routing protocol are link state packet, database, algorithm, routing table etc. Link state packets contains the routing information and sent to neighbour only when any changes occurs in connected network. Link state packets update the routing table in nearby routers. The information collected by link state packets stored in link state database.

1. **Device Requirements:**
   1. PC's
   2. Switches
   3. Routers
   4. Cables

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	Default Gateway
PC0	Interface Fa0/1	10.0.0.2	255.0.0.0	0.0.0.0
PC1	Interface Fa0/2	50.0.0.2	255.0.0.0	0.0.0.0

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

Router0 Configuration:-

```
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
```

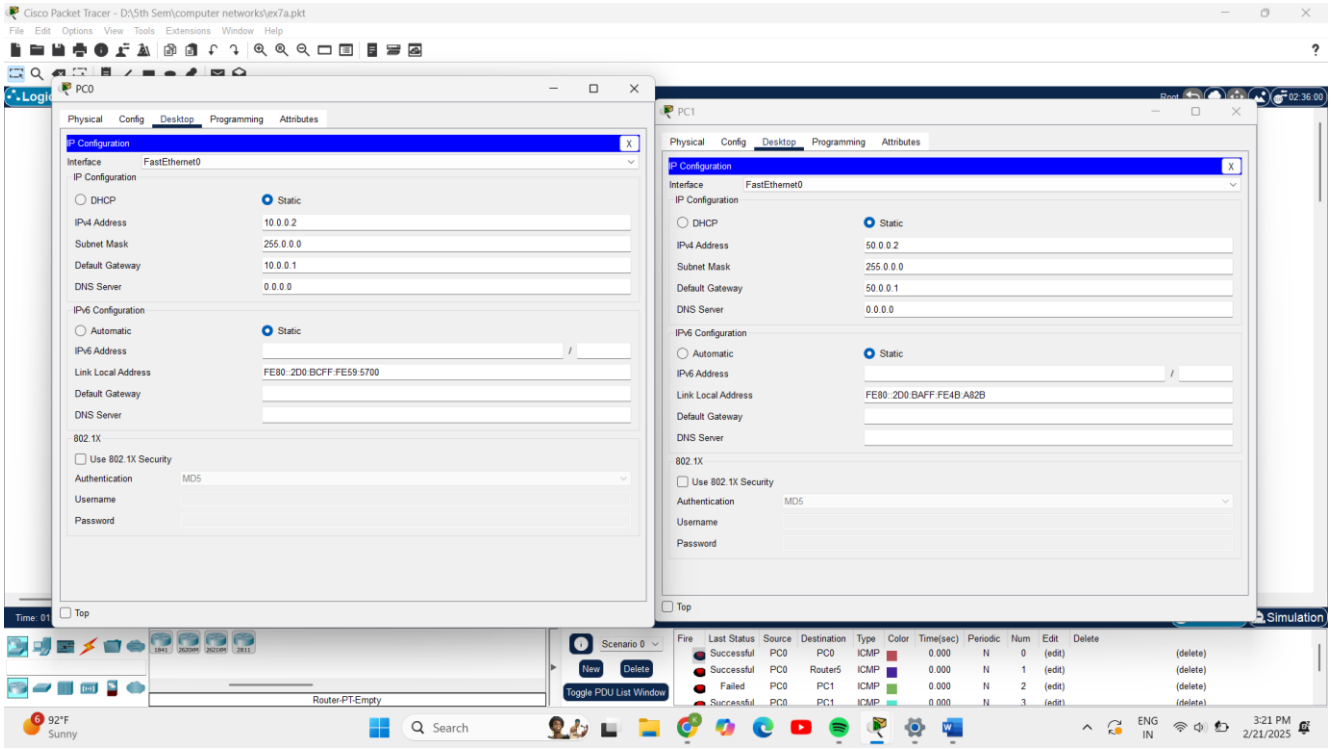
Router1 Configuration:-

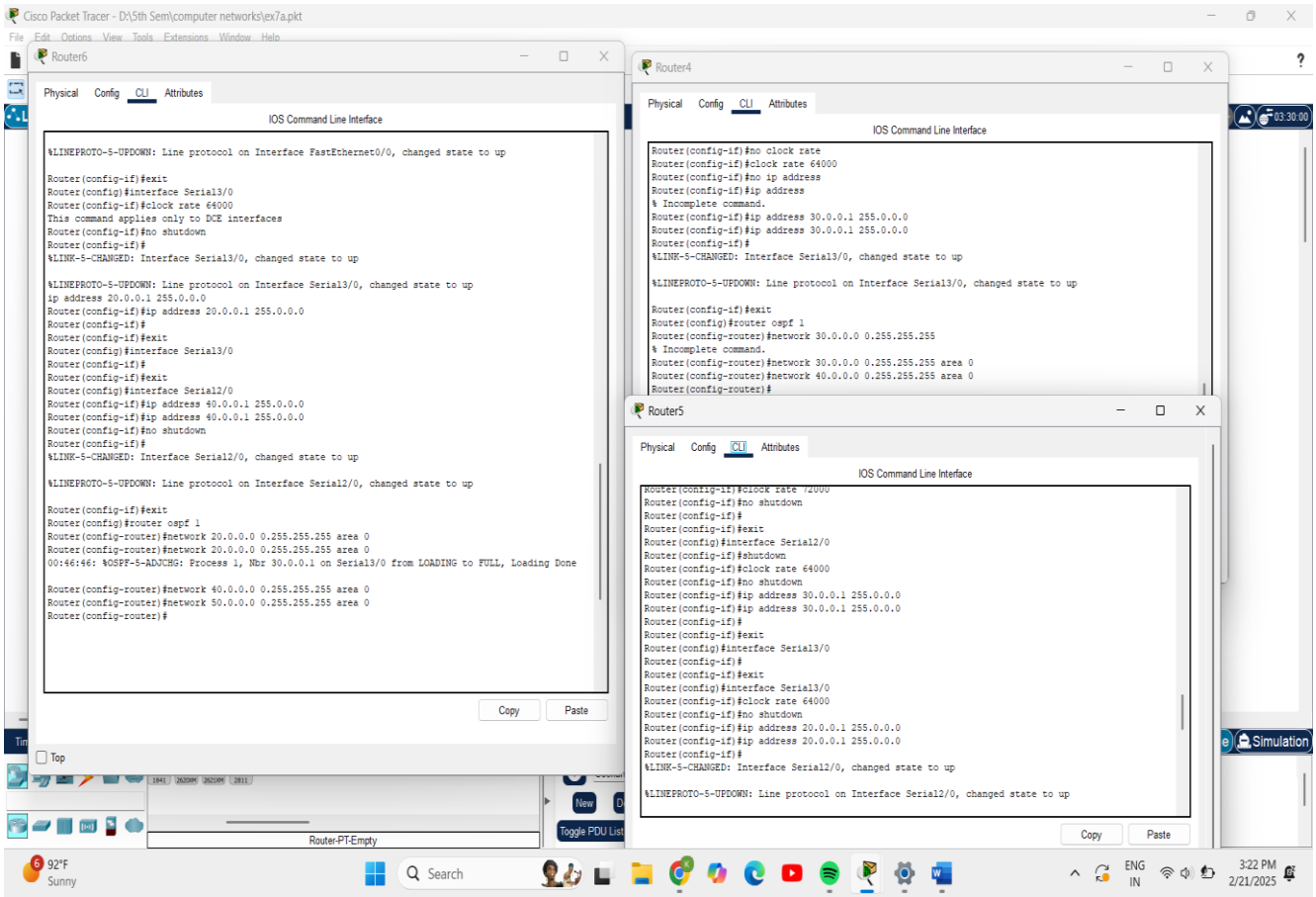
```
Router(config-if)#exit
Router(config)#router ospf 1
Router(config-router)#network 30.0.0.0   0.255.255.255  area 0
Router(config-router)#network 20.0.0.0   0.255.255.255  area 0
Router(config-router)#network 50.0.0.0   0.255.255.255  area 0
Router(config-router)#exit
Router(config)#exit
```

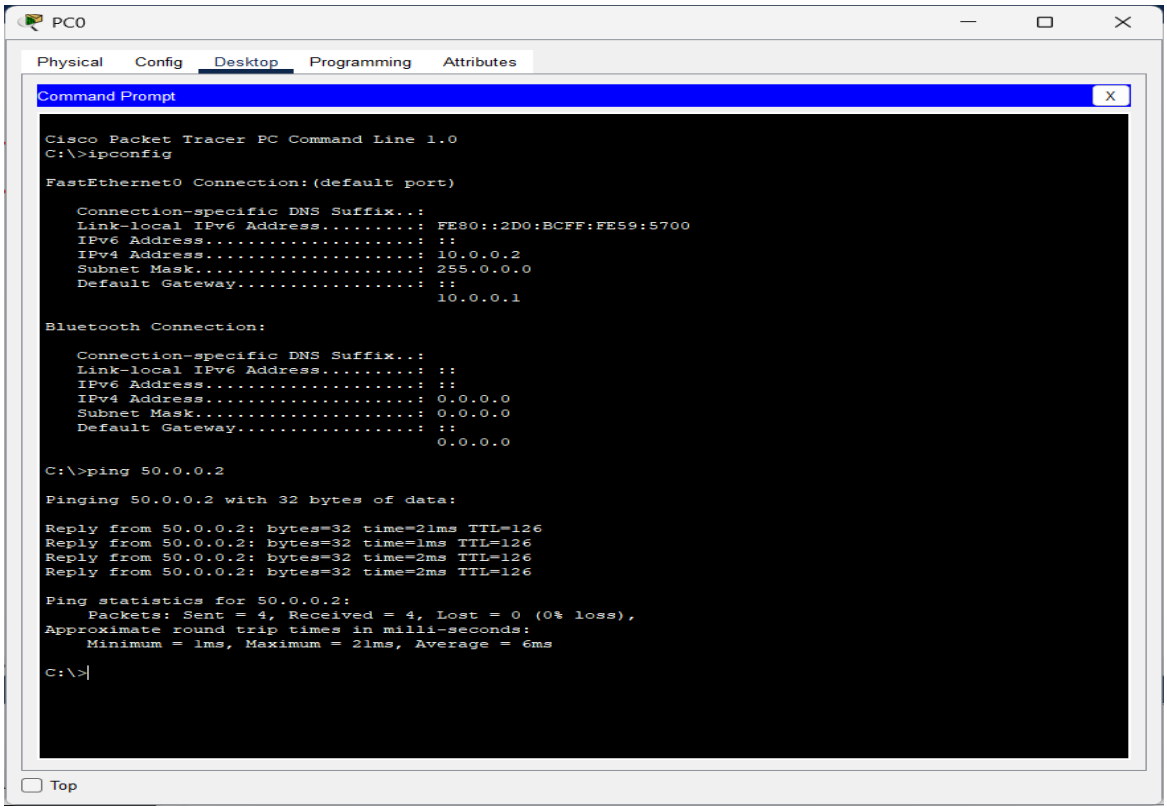
Router2 Configuration:-

```
Router(config-if)#exit
Router(config)#router ospf 1
Router(config-router)#network 40.0.0.0 0.255.255.255  area 0
Router(config-router)#network 40.0.0.0 0.255.255.255 area 0
Router(config-router)#network 50.0.0.0 0.255.255.255 area 0
Router(config-router)#exit
Router(config)#exit
```

6. Output Diagram (Minimum 3 screenshot):







Rubrics for Experiment Assessment:

Rubrics	Good	Normal	Poor	Marks
Creation of Topology (4)	Created the topology, identified the proper devices and made the connections **(4)**	Created the topology, Identify the proper devices, making the connections But missing some features **(2)**	Created wrong topology, Failed to Identify the proper devices and made 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 submit before grading **(0)**	
			Total	

CONCLUSION (provide conclusion about this experiment): Thus the process of designing and implementing Link state routing using packet tracer has done Successfully