WORKSHEET 2.2

Student Name: UID:

Branch: CSE   Section/Group:

Semester: 4th   Date of Performance: 20/03/2023

Subject Name: Computer Networks   Subject Code: 21CSH-256

Aim: Implement different network topologies like Ring, Mesh with the help of packet tracer.

Objective: - To simulate Ring, Mesh Topology.

S/W Requirement:- Packet Tracer

H/W Requirement :- hub , switch, Router

Theory and implementation-

Ring topology is a type of network topology in which each device is connected to two other devices on either side via an RJ-45 cable or coaxial cable. This forms a circular ring of connected devices which gives it its name.

Data is commonly transferred in one direction along the ring, known as a unidirectional ring. The data is forwarded from one device to the next, until it reaches the intended destination. In a bidirectional ring, data can travel in either direction.

Advantages of Ring Topology-

- Since data flows in one direction, the chance of a packet collision is reduced
- A network server is not needed to control network connectivity
- Devices can be added without impacting network performance
- Easy to identify and isolate single points of failure
- Better suited for high traffic environments than a bus topology

disadvantages of Ring Topology-

- All data travelling over the network must pass through each device on its way to its destination, which can reduce performance
- If one device fails, the entire network is impacted
- Can be difficult to architect the necessary cabling
- More expensive to implement than a bus topology

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Fig.3
Ring Topology
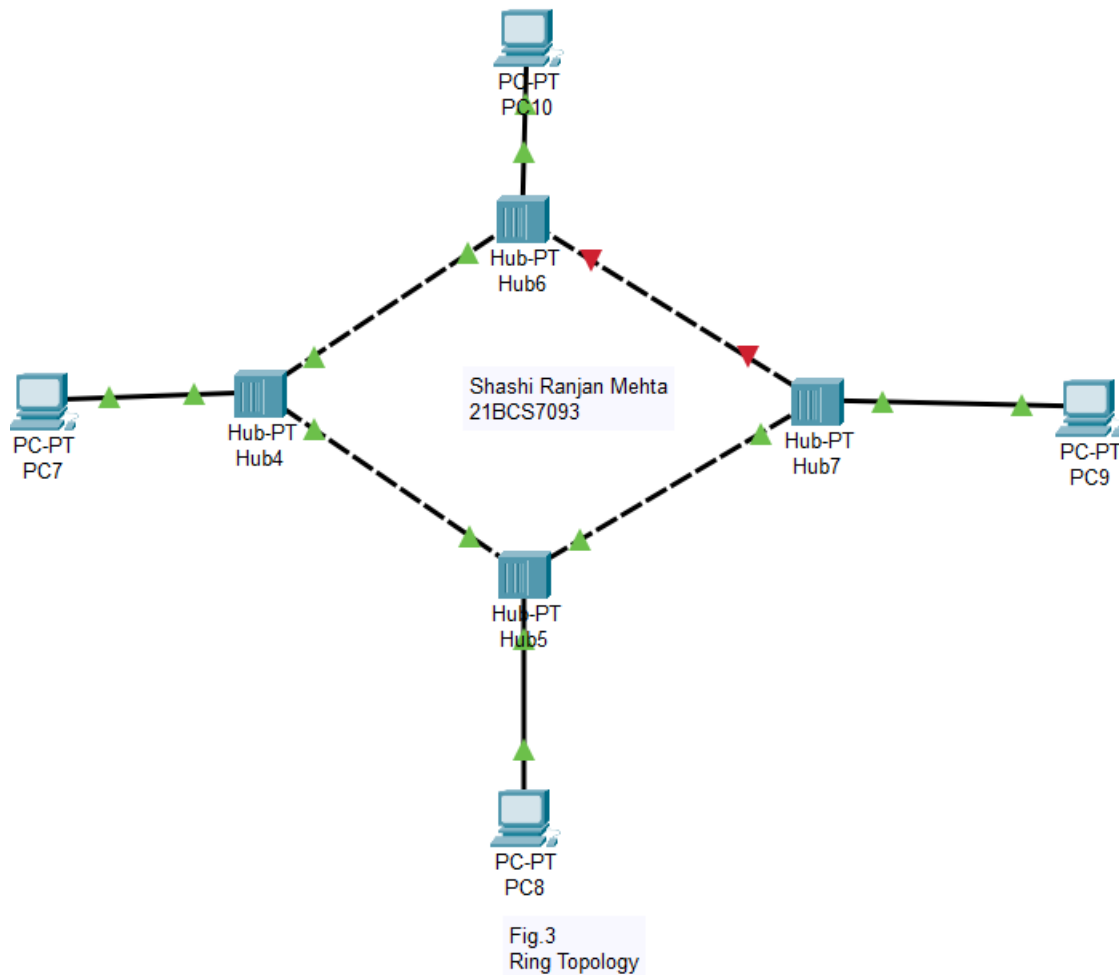
Mesh topology is a type of network topology in which all devices in the network are interconnected. In a mesh topology, data can be transmitted by routing and flooding

Advantages of Mesh Topology-

- Multiple devices can transmit data at the same time, allowing for high amounts of traffic
- If one device fails, data transmission is not impacted in the rest of the network
- Adding devices to the network does not disrupt data transmission
- Troubleshooting is easier than with alternative topologies

Disadvantages of Mesh topology-

- Network installation and maintenance is time and resource intensive
- High power requirement due to all the devices needing to remain active all the time
- Requires a large amount of cables and ports
- The potential for a large amount of redundant connections increases costs and reduces efficiency

Fig.4
Mesh Topology