Principles of computers

First stage

Lecture

NETWORK

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WHAT IS NETWORK?

• A network is a system that connects multiple devices (computers, servers, printers, etc.) to share data and resources.

• Devices communicate over various media (wired or wireless) using established protocols.

• Networks can range in size from small home networks to vast enterprise networks

IMPORTANCE OF NETWORKS

Why are Networks Important?

- Resource Sharing: Allows users to share printers, files, and internet connections.
- Data Management: Facilitates centralized data storage and access (e.g., cloud services).
- Improved Communication: Supports communication tools like email, instant messaging, and video conferencing.
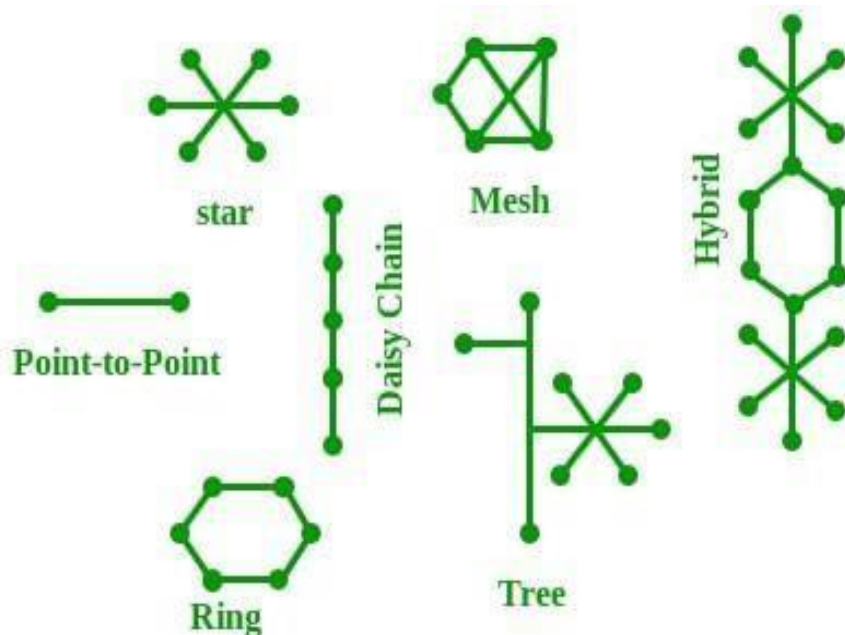
Types of network

- LAN (Local Area Network): Small geographical area, typically a single building or office.
- WAN (Wide Area Network): Spans large distances, interconnecting cities or countries.
- MAN (Metropolitan Area Network): Larger than a LAN but smaller than a WAN, typically covering a city.

- PAN (Personal Area Network): Very limited range, typically used for personal devices like smartphones, laptops, and Bluetooth connections.
- WLAN (Wireless LAN): A local network that uses wireless communication.
- SAN (Storage Area Network): Dedicated to storage devices and allows block-level access to data.

NETWORK TOPOLOGIES

Common Topologies:

- Star: All devices are connected to a central hub/switch. Most common in LANs.
- Bus: All devices share a single communication line. Simple but can be slow.
- Ring: Devices are connected in a circular format. Data travels in one direction.
- Mesh: Devices are interconnected. Highly reliable but complex and expensive.

Thank You!