

Basics of Computer Networks

A computer network is a collection of interconnected devices that communicate and share resources. Networks are used to transfer data, share files, access the internet, and connect systems together.

Types of Networks:

1. **PAN (Personal Area Network)** – Smallest network for personal devices like mobile, laptop, Bluetooth.
2. **LAN (Local Area Network)** – Covers small area like office, home, school.
3. **MAN (Metropolitan Area Network)** – Covers a city or large campus.
4. **WAN (Wide Area Network)** – Largest network connecting countries, e.g., the Internet.

Network Topologies:

1. **Bus** – All devices share a single cable.
2. **Star** – All devices connect to a central hub/switch.
3. **Ring** – Each device connects to two others forming a ring.
4. **Mesh** – Every device is connected to every other device.

Network Devices:

1. **Router** – Connects different networks and directs data.
2. **Switch** – Connects devices within a LAN efficiently.
3. **Hub** – Connects devices but broadcasts data to all.
4. **Modem** – Connects to the internet using ISP.

Conclusion:

Computer networks play a vital role in modern communication, enabling data sharing, collaboration, and global connectivity.