### **Assignment 4: Introduction on Types of Wired and Wireless Networks**

In the world of computer networking, communication between devices can happen through **wired** or **wireless** connections. These types of networks form the backbone of how information is shared in homes, schools, offices, and across the world.

#### **Wired Networks:**

**Wired networks** use physical cables, such as Ethernet, coaxial, or fiber optic cables, to connect computers and devices. These networks are known for their **high speed, security, and reliable connection** because they are less affected by interference.

**Types of Wired Networks:**

* **LAN (Local Area Network):** Covers a small area like a home, school, or office. Example: Computers in a computer lab connected via Ethernet cables.
* **MAN (Metropolitan Area Network):** Spans a city or large campus. Example: A network connecting multiple branches of a university across a city.
* **WAN (Wide Area Network):** Covers a large geographical area, connecting multiple LANs. The best example is the **Internet**.

**Advantages:**

* High data transfer speeds
* Secure and stable connection
* Less signal interference

#### **Wireless Networks:**

**Wireless networks** use radio waves, infrared signals, or satellite communication to connect devices without physical cables. These networks offer **flexibility, mobility, and convenience**, especially for users who need to move freely.

**Types of Wireless Networks:**

* **Wi-Fi (Wireless Fidelity):** Common in homes and offices to connect phones, laptops, and smart devices to the internet.
* **Bluetooth:** Used for short-range communication between devices like phones, speakers, or smartwatches.
* **Cellular Networks (3G, 4G, 5G):** Enable mobile phone communication and internet access across vast distances.
* **Satellite Networks:** Used in remote areas where wired or cellular networks are not available.

**Advantages:**

* No physical cables required
* Easy to install and expand
* Supports mobility and remote access