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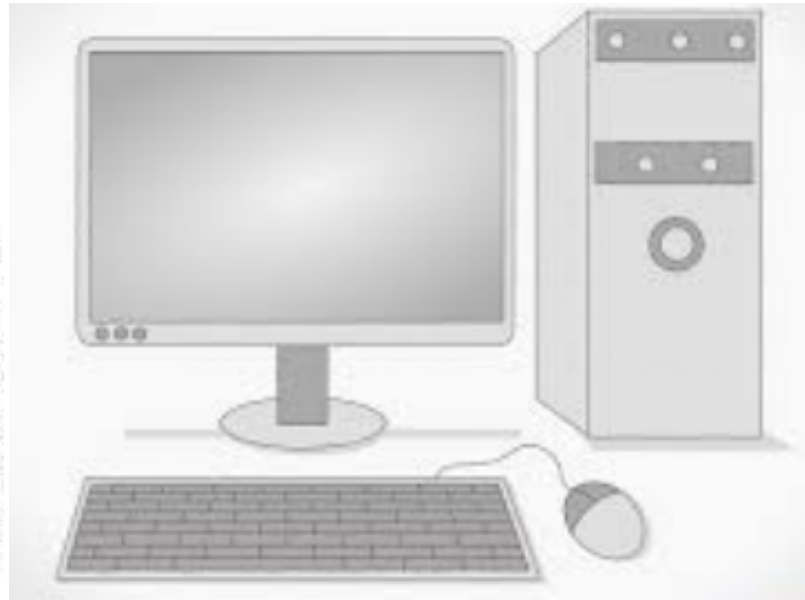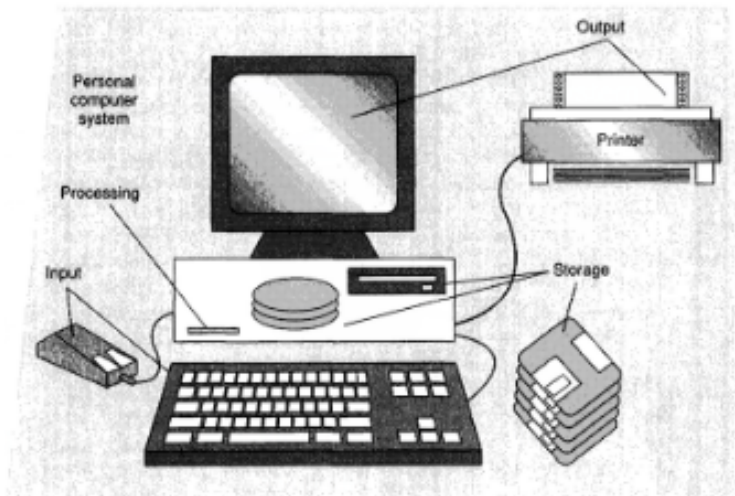- Negative Impacts and Challenges

INTRODUCTION

- Computer
- Network
- Internetwork

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Computer

- Examples

NETWORK AND TYPES

PAN : Personal Area Network

Scope: Very small, within a few meters, centered around an individual.
Technology: Bluetooth, USB, Infrared, NFC.
Example: Connecting your phone to a smart-watch or wireless earbuds
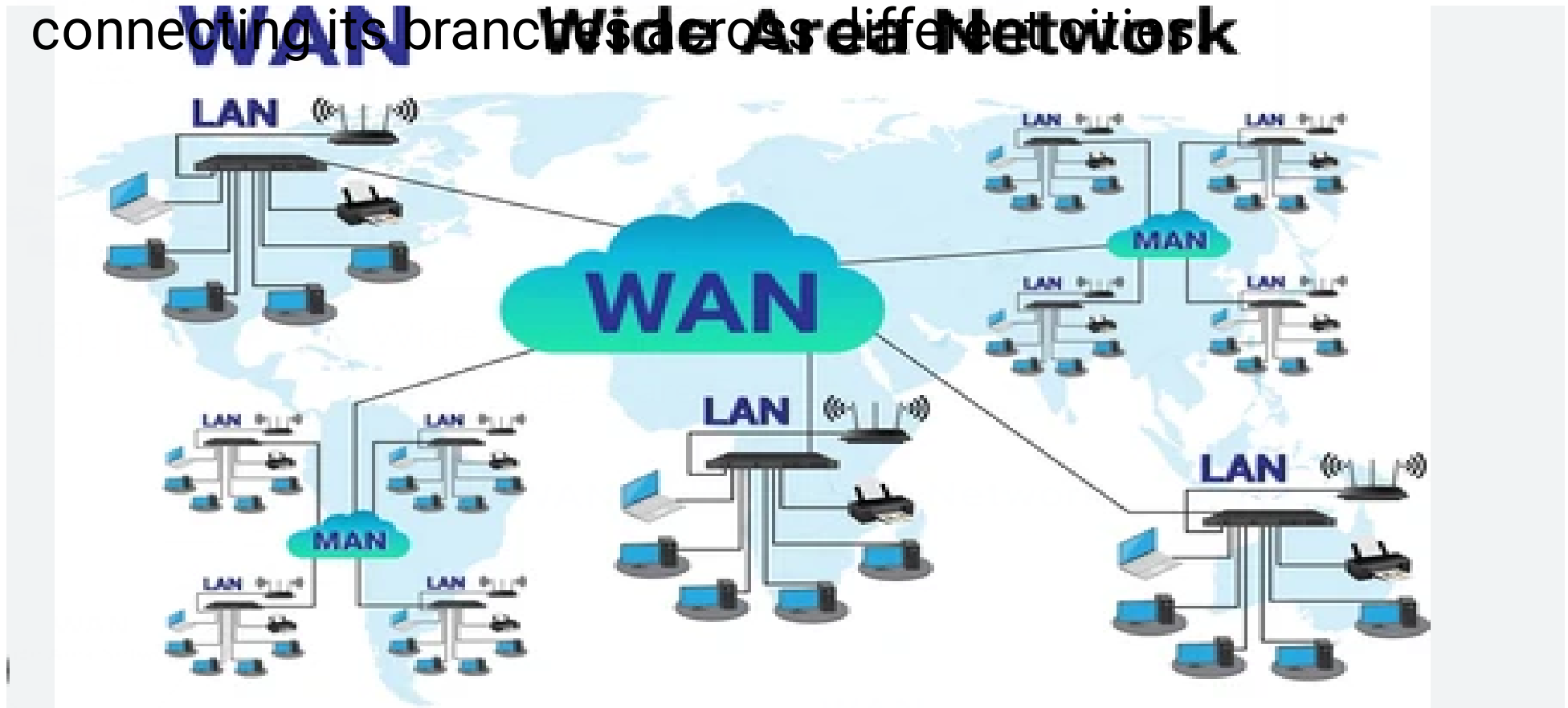
LAN: Local Area Network

- **Scope:** Limited area like a single building, office, or home.
- **Technology:** Ethernet cables, Wi-Fi.
- **Example:** A home Wi-Fi network or an office connecting to a shared printer

WAN

- **Scope:** Large geographical area, connecting cities, countries, world.
- **Technology:** Leased lines, VPNs, MPLS, Internet Service Providers
- **Example:** The Internet itself, or a company's network connecting its branches across different cities

WAN AND INTERNET

The Internet is the world's largest Wide Area Network **(WAN)**, acting as a massive, interconnected network of networks.

WAN spans across large geographical areas, connecting multiple smaller networks (like LANs) but may be private

The Internet is a public, global WAN built from interconnected private and public WANs and LANs providing universal access

INTRANET AND EXTRANET

- An intranet is a private network used by employees to communicate and collaborate.
- The key differences between the two are;

An intranet is a closed network that can only be accessed by internal users, such as employees within a company while an extranet allows authorized external users to access certain parts of the network.

KEY CONCEPTS OF THE INTERNET

- **Global Network:** Connects devices (computers, phones, servers) across the planet using various technologies like fiber optics, satellites, and wireless signals.
- **TCP/IP**: Fundamental set of rules that govern how data is broken down, addressed, sent, and reassembled across these networks.
- **Network of Networks:** Composed of millions of smaller private, public, academic, and government networks.
- **IP Address**: A unique numerical label that identifies each device on the internet, managed by systems.
- **World Wide Web (WWW):** A popular service on the Internet (not the Internet itself) made of linked web pages accessed via browsers.

WORLD WIDE WEB (WWW)

What is the Web

The World Wide Web; usually called the Web; is a collection of different websites accessible through the Internet. A website is made up of related text, images, and other resources.

The purpose of a website can be almost anything: a news platform, an advertisement, an online library, a forum for sharing images, or an educational site

HOW DOES THE INTERNET WORK

- **Connection:** A device connects to a network (like your home Wi-Fi or mobile data).
- **Data Packets:** Information (like a webpage request) is broken into small "packets".
- **Routing:** These packets travel across various interconnected networks (routers, cables, satellites) using IP addresses to find their destination.
- **Assembly:** The destination server receives the packets and the data is reassembled.
- **Delivery:** The server sends the requested information (like a webpage) back to your device in the same packet-switched way

APPLICATIONS OF THE NET

- Communication: Email, instant messaging, video calls.
- Information Access: Search engines, online libraries, news
- Commerce: Online shopping, banking.
- Entertainment: Streaming music/video, gaming, social media.
- Education: Online learning, research.

POSITIVE IMPACTS:

- Communication & Connection: Instant global communication (email, social media) connects people, fosters communities, and supports remote work.
- Information & Education: Democratized access to vast knowledge making learning more accessible and personalized.
- Economy & Business: Transformed commerce, created new industries, enhanced productivity, and allowed businesses to reach global markets.
- Democracy & Politics: Empowers citizens with information, facilitates political discourse, and supports activism
- Healthcare: Empowers patients with information, facilitates remote consultations, and allows access to global health knowledge.

NEGATIVE IMPACTS AND CHALLENGES

- Social Issues: Rise of cyber-bullying, online addiction, grooming, and social isolation.

- Privacy and Security: Risks of data breaches, surveillance, and the misuse of personal information.

- Misinformation: Rapid spread of fake news and propaganda, influencing public opinion.

- Digital Divide: Inequality in access leaves some populations (women, elderly, poor) behind.