TOPIC: Output Devices

Lesson Objectives

At the end of this lesson, students should be able to:

- Clearly **define output devices**
- Identify and describe **examples of output devices**
- Classify **printers into impact and non-impact types**
- Differentiate between **monitors and printers**

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1. Meaning of Output Devices

Definition:

An **Output Device** is a **hardware component** that takes **processed data from a computer** and presents it to the user in a **readable or usable form**.

In simpler terms, **output devices display or produce the result of a computer's work**.

Functions of Output Devices:

- Show the **results of data processing**
- Convert the computer's digital signals into **human-understandable forms** such as **text, graphics, sound, or printed documents**
- Allow users to see, hear, or receive information from the computer

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2. Examples of Output Devices

Output Device	Type of Output	Usage
Monitor (VDU)	Visual (soft copy)	Viewing text, images, videos
Printer	Physical printout (hard copy)	Printing documents and images
Speakers	Sound	Listening to audio, music

Output Device	Type of Output	Usage
Headphones	Private sound	Listening to sound without disturbing others
Projector	Large visual display	Projecting presentations, videos
Plotter	Large-scale graphics	Printing architectural plans, banners

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3. Detailed Explanation of Output Devices

a) Monitor (Visual Display Unit – VDU)

- **Purpose:**
  A **monitor** displays the **text, graphics, animations, and videos** processed by the computer.
- **Output Type:**
  Soft copy output (temporary display on screen)

Types of Monitors

Type of Monitor	Description
CRT (Cathode Ray Tube)	Old-fashioned, bulky monitors
LCD (Liquid Crystal Display)	Flat, lightweight, uses liquid crystals
LED (Light Emitting Diode)	A modern, brighter, more energy-saving version of LCD
Touchscreen Monitor	Acts as both input and output (responds to touch)

Uses of Monitors

- Watching videos and movies
- Reading and editing documents
- Playing computer games
- Designing graphics and presentations

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b) Printer

- **Purpose:**
  A **printer** produces **hard copies** (printed paper output) from digital documents or images stored on the computer.

Classification of Printers

1. Impact Printers

- Work by **physically striking** the paper to print characters.
- **Contact-based** printing method.

Examples	Description
Dot Matrix Printer	Uses pins to strike ink onto paper
Daisy Wheel Printer	Prints letters like a typewriter using a wheel
Line Printer	Prints entire lines of text at once, used in industries

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Advantages of Impact Printers

- Can print **multiple copies at once** using carbon paper
- Durable and used for **continuous printing in industries**

Disadvantages of Impact Printers

- **Noisy** operation
- Lower print quality
- Slower compared to modern printers

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2. Non-Impact Printers

- Use **no physical contact** with the paper while printing
- Use **ink spray, laser beams, or thermal heat**

Examples	Description
Inkjet Printer	Sprays liquid ink onto paper
Laser Printer	Uses laser beams and toner powder for printing
Thermal Printer	Uses heat on special paper (e.g., receipts)

Advantages of Non-Impact Printers

- **Quiet** operation
- **High-quality printing**
- Faster printing speeds (especially with laser printers)

Disadvantages of Non-Impact Printers

- More **expensive to maintain**
- Cannot produce carbon copies

Uses of Printers

- Printing homework, reports, and assignments
- Printing pictures or posters
- Producing receipts (thermal printers in supermarkets)

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c) Speakers

- **Purpose:**
  Output **sound** from the computer such as music, notifications, and video sounds.
- **Usage:**
  - Listening to audio in videos
  - Playing music
  - Giving sound alerts

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d) Headphones

- **Purpose:**
  Produce **private sound output** directly to the user's ears.
- **Usage:**
  - Listening to sound without disturbing others
  - Used during online meetings or gaming

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e) Projector

- **Purpose:**
  Displays **computer output on large surfaces** (like walls or projector screens).
- **Usage:**
  - Presentations in meetings and classrooms
  - Watching movies on a big screen
  - Teaching large audiences

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f) Plotter

- **Purpose:**
  Used to **print large-size drawings or graphics**.
- **Usage:**
  - Printing architectural plans
  - Producing banners or posters

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4. Differences Between Output Devices

Output Device	Function	Output Type
Monitor	Displays visuals	Soft copy
Printer	Prints text/images	Hard copy

Output Device	Function	Output Type
Speakers	Plays sounds	Audio output
Headphones	Plays private sound	Audio output
Projector	Shows visuals on large surfaces	Visual display
Plotter	Prints large graphics	Hard copy

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5. Difference Between Monitor and Printer

Feature	Monitor	Printer
Function	Shows data visually on screen	Produces physical copies on paper
Output Type	**Soft copy**	**Hard copy**
Usage	Viewing and editing documents	Printing documents and images
Permanence	Temporary output	Permanent output
Medium	Display screen	Paper

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6. Importance of Output Devices

- Help users **see the results of their work**
- Provide information in a **usable form** (visual, printed, or sound)
- Make it possible to **share data physically or electronically**

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7. Real-Life Applications of Output Devices

Activity	Output Device Used
Watching movies	**Monitor/Projector**
Printing reports	**Printer**
Listening to music	**Speakers** or **Headphones**

Activity	Output Device Used
Presenting slides in class	**Projector**
Printing engineering drawings	**Plotter**

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8. Summary of Key Points

- **Output devices** present **processed data** to the user.
- They produce either **soft copy (monitor)** or **hard copy (printer, plotter)** outputs.
- **Printers** are classified into **Impact** (e.g., Dot Matrix) and **Non-Impact** (e.g., Laser, Inkjet).
- **Monitors** display data on the screen, while **printers** produce paper copies.