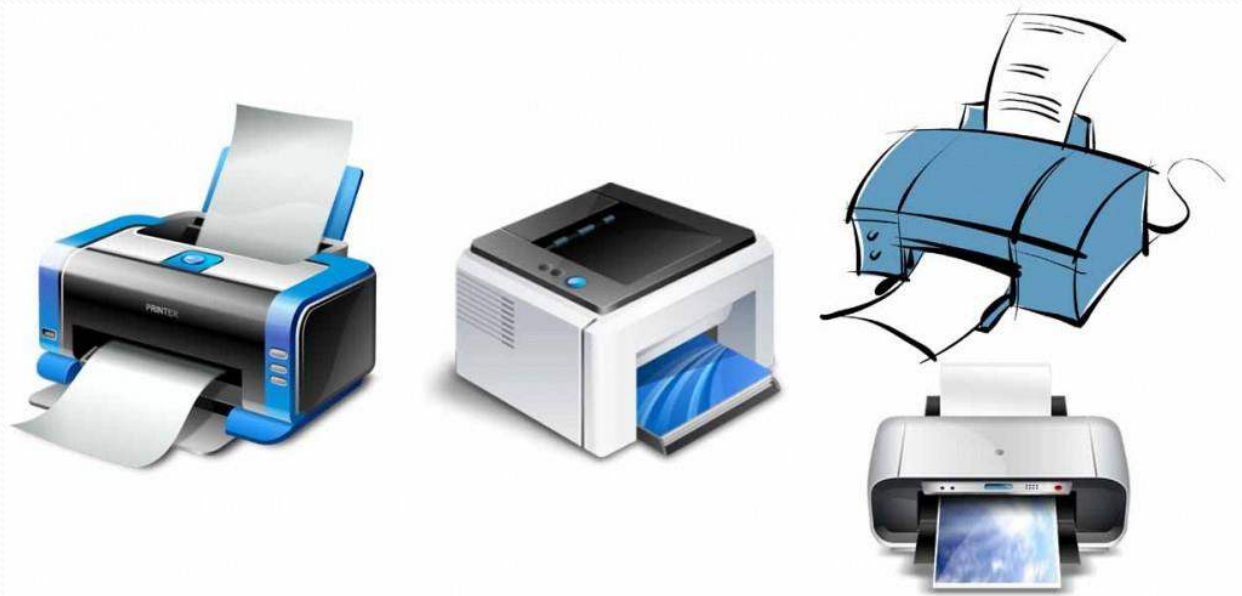


Printer

Agenda

- Definition
- Types
- Impact and Non-Impact



Watch - <https://www.youtube.com/watch?v=phe-nTHR4Qg>

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<http://www.doorsteptutor.com/>

Printer

<https://www.youtube.com/watch?v=phe-nTHR4Qg>

A **printer** is an electromechanical device which converts the text and graphical documents from electronic form to the physical form.

External peripheral device

Connected through a cable or wireless

Quality of printers is identified by its features like color quality, speed of printing, resolution etc.

Modern printers come with multipurpose functions i.e. they are combination of printer, scanner, photocopier, fax, etc.



Types of Printers

<https://www.youtube.com/watch?v=phe-nTHR4Qg>

- Daisy Wheel Printers
- Dot Matrix Printers
- Line Printers
- Drum Printers
- Chain and Band Printers
- Inkjet printers
- Laser Printers
- Plotters
- Photo Printer
- Dye Sublimation Printers
- Portable Printers
- Thermal Printers
- Multifunction Printers

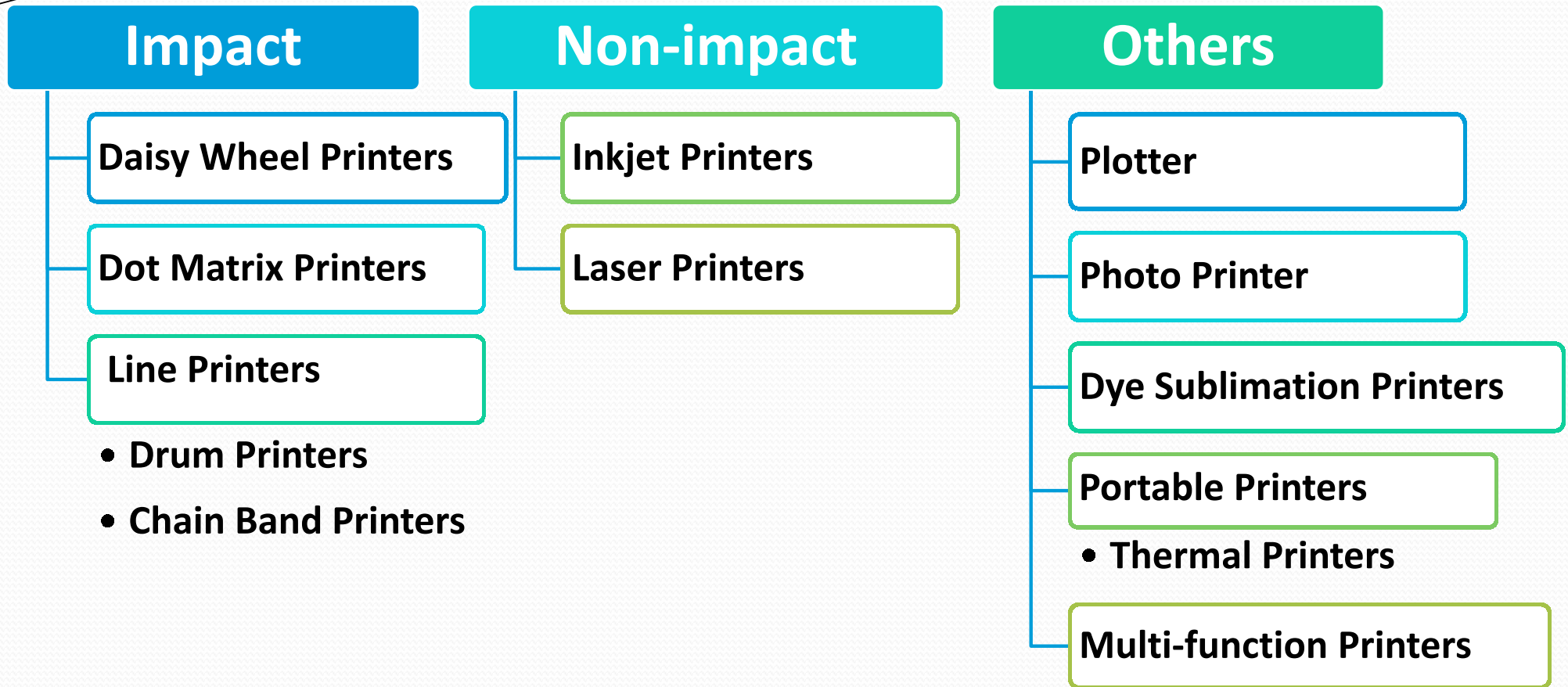
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Impact and Non-Impact

Broadly printers are categorized as impact and non-impact printers.

Impact printers are the type of printers in which a key strikes the paper to make a letter. The examples of Impact printers are Daisy wheel and Dot matrix printers.

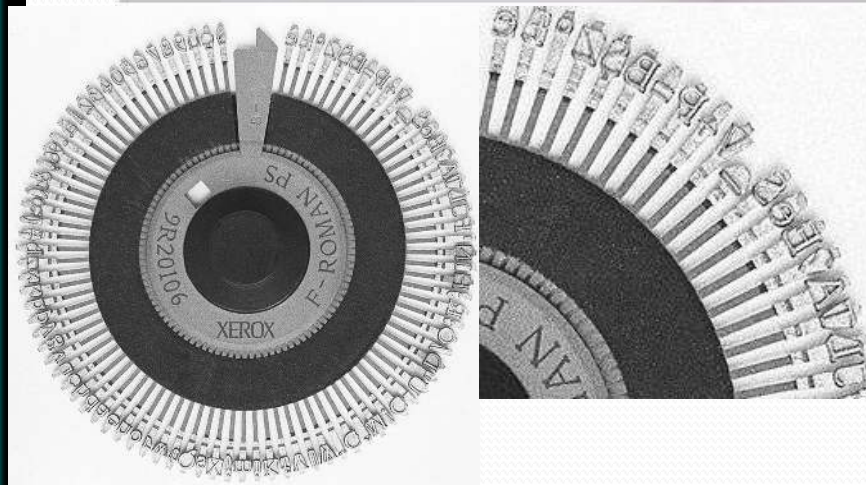
While non-impact printers do not operate by striking a head against a ribbon. Inkjet printers and laser printers are the non-impact printers. The most popular printers are described.



<https://www.youtube.com/watch?v=phe-nTHR4Qg>

Daisy Wheel Printers

- Similar to a ball-head typewriter
- It is called daisy-wheel printer because the print mechanism looks like a daisy; at the end of each “Petal” is a fully formed character which produces solid-line print. A hammer strikes a “petal” containing a character against the ribbon, and the character prints on the paper.
- Speed is slow typically 10-75 characters per second.
- Daisy-wheel printers produce better-quality print but cannot print graphics.



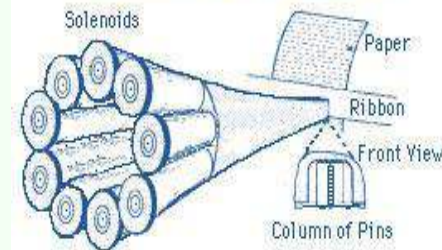
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Dot Matrix Printers

- A character printer - Prints one character at a time
- Low cost.
- Used to print the shipping invoices.
- Uses "printhead" containing from 9 to 24 pins
- Creates characters by striking "printhead" pins against an ink ribbon. Each pin makes a dot, and combinations of dots form characters and illustrations.
- Since dot matrix printer produce printed output as pattern of dots, they can print any shape of character that a program can describe. They therefore, can print many special characters, different sizes of print, and also have the ability to print graphics such as charts and graphs.
- Slow printing speeds ranging from 30-600 characters per second



Printhead of Nine Pin Printer



<https://www.youtube.com/watch?v=phe-nTHR4Qg>

Line Printers

- The **character-at-a-time** printers are too slow; therefore, we need **line-at-a-time** printers.
- Use special mechanism that can print a whole line at once
- Contains a chain of characters or pins that print an entire line at one time.
- Very fast, but produce low-quality print.
- Print the range of 1,200 to 6,000 lines per minute.
- Drum, chain, and band printers are line-at-a-time printers.



<https://www.youtube.com/watch?v=phe-nTHR4Qg>

Drum Printers

- Drum printer is a line printers that print one line at a time.
- It is the impact printer, too, as it has a set of hammers mounted in front of the drum in a manner that an inked ribbon and paper can be placed between the hammers and the drum. Then the drum rotates at a high speed. A character is printed at a desired print position.
- Speed of 300- 2000 lines per minute.
- Produces lots of noise that's why cover is used to reduce the noise.



Chain Band Printers

- Chain/Band printer are line printers that prints one line at a time. It consist of a metallic chain/band on which all characters of the character set supported by the printer are embossed.
- A standard character set may have 48,64 and 96 characters. The characters in the character set are embossed several times on the chain/band.
- Unlike drum printer the chain/band printer can be changed easily.
- Allows the printing to be done in different fonts and styles in the same printer.
- Due to the impact printing chain/band printers are noisy in operation and often use a cover to reduce the noise level.
- Printing speeds of the chain/band printers range from 400 – 3000 lines per minute.



Inkjet printers

- It prints characters by spraying patterns of ink on the paper from a nozzle or jet that can be heated up selectively. The ink comes out of the nozzle in a form of vapors. After passing through a reflecting plate, it forms the desired letter/shape at the desired place.
- It is also a Character printer but it produces high quality output than dot matrix printers because these printers form characters with very tiny ink dots.
- Slower than dot matrix printer
- Printing speed is 40- 300 characters per second.
- More expensive than dot matrix because it produces the high quality prints with more transformed technology.
- Very popular because they are less expensive than laser printers and can print faster and accurate than dot matrix and other impact printers.



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Laser Printers

- Electro-photographic printer - same technology as copy machines
- Laser printers are the page printers that prints one page at a time.
- Laser printers employ a xerographic printing process but differ from analog photocopiers in that the image is produced by the direct scanning of a laser beam across the printer's photoreceptor.
- Produces high quality output because they form characters by very tiny ink particles.
- The high end laser printer can have a resolution of 1200 dpi. Due to the high resolution , these printers give excellent graphics art quality.
- faster than other printers
- Low speed laser printers can print 4 to 12 pages per minute
- Laser printers are more expensive than the other types of the printers. These printers are very popular in the market because of its fast printing.



Plotters

<https://www.youtube.com/watch?v=phe-nTHR4Qg>

- Commonly used in engineering and architectural firms.
- Large-scale printers that are very accurate at reproducing line drawings.
- used for technical drawings such as engineering drawings or architectural blueprints.
- The two basic types - flatbed plotters and drum plotters.
- **Flatbed plotters (Pen-based plotters)** are horizontally aligned with a flat surface to which a piece of paper is attached. Special purpose pens that are mechanically run over the paper to create text and images. Since the pens output continuous lines, they were able to produce technical drawings of higher resolution than was achievable with dot-matrix technology. The paper remains stationary and the printer moves pens across the paper to draw the image. These plotters were capable of producing quite sizable drawings.
- **Drum plotters**, also called **upright plotters**, are vertically positioned. They have a drum that the paper rolls on. Drum plotters usually make more noise and are more compact than flatbed plotters.

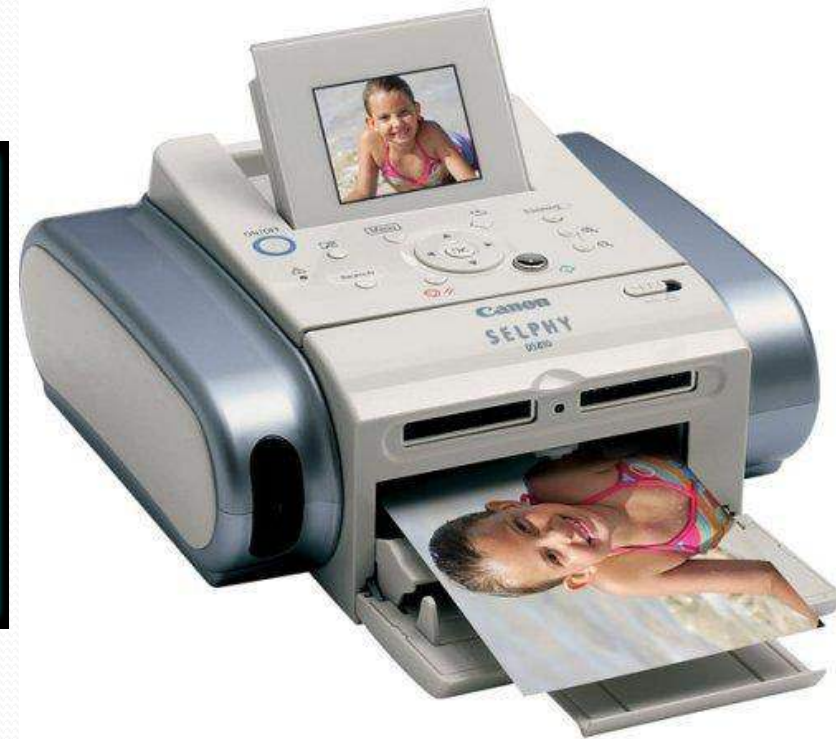
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Photo Printer

- These inkjet printers are color printers that produce photo lab quality pictures on photo papers.
- Can also be used to print documents
- Specially designed for printing the photo.



Dye Sublimation Printers

- Color is applied as a continuous tone, rather than in dots, like an inkjet. One color is laid over the whole of one sheet at a time, starting with yellow and ending with black.
- Used in demanding graphic arts and photographic applications.
- Work by heating the ink so that it turns from a solid into a gas.
- Requires particularly expensive special paper, as the dyes are designed to diffuse into the paper surface, mixing to create precise color shades.
- Dye-sub printers are intended primarily for high-quality colour applications, including colour photography; and are less well-suited for text.



Portable Printers

- Small light weight inkjet or thermal printers specially designed for the users to carry out with the laptops while travelling.
- Produce basic print resolutions suitable for plain text printing.
- Battery operated
- A lower quality for image printing and higher cost because of its compact design
- Types of the portable printers: Thermal printer, Thermal transfer printer and Ink-Jet printer.
- The main advantage of thermal and thermal transfer printers is that they can be very small. The smallest thermal and thermal transfer printers weigh approximately one pound. Usually the ink-jet portable printer weighs more than 2 pounds. Thermal printers require a special type of paper.

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Thermal Printers

- An inexpensive-inkless printer that works by pushing heated pins against heat-sensitive paper. Thermal printers are widely used in calculators and fax machines.
- Work by selectively heating regions of special heat-sensitive paper.
- Used in cash registers, ATMs, gasoline dispensers, calculators and fax machines.
- Colours can be achieved with special papers and different temperatures and heating rates for different colours; these coloured sheets are not required in black-and-white output.
- ZINK technology - Zero INK Technology.



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Multifunction Printers

- Combine top-quality color ink-jet or laser printing with plain-paper and PC faxing, color copying and color scanning , telephoning- all in one convenient, space-saving machine.



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Thank You !!!!!

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