Typography is the process of setting and arranging text for a combination of **aesthetic** and **functional** goals.

The process involves selecting appropriate typefaces and composing text. Good typography does not necessarily mean the use of beautiful letters. The larger goal of typography to help the author communicate effectively with the audience.

In the early days, letters were printed using blocks of wood or metal. The blocks were known as **movable type**; since they could be moved around and joined to create words, lines and paragraphs.







Photocomposition or phototypesetting of text was composed using photographic process on photosensitive paper. This method of typesetting was also referred to as cold-type technology.

The main advantage of photocomposition was that it provided greater economy and efficiency of space over hot metal. The output of photo composing machines were clearer and sharper than hot metal.

The four generations of phototypesetting technologies are:

- 1. Photo-Mechanical Machines (Photo-Imaging)
- 2. Electro-Mechanical Machines (Photo-Optics)
- 3. Cathode RayTube Machines (Photo Scan)
- 4. Laser Setters (Digital Scan)

Earlier letter press fonts contained only the visual data (the shape) of the letters and some spacing information. Computer fonts on the other hand, these days contain much more information than their predecessors.

A computer font is a digital data file that can typically contain **five kinds of information**.

- Information regarding the name, creator, publisher, copyright information and other identifying features of the font.
- 2. The actual drawings of the letters and signs that make up the font.
- 3. Spacing (kerning) information that is to be used while using the font.
- 4. Glyph positioning and substitution information that tells the software how the glyphs of the font are positioned or substituted in specific contexts.
- 5. Hinting information, that specifies how the letters are rendered on low resolutions

Text is stored as numbers. This storage requires the text to be encoded. **Encoding** is the process in which a number is assigned to a particular character or visual mark. The assigned number is hence called a character code. The scheme which is used to assign codes to a set of characters is called an encoding scheme.

While rendering (displaying a piece of text in a particular document) the character codes are read and shown with a particular font.



Letters within a text can be displayed

in a variety of shapes. The shape of a letters forms the most important part of a font. In computer fonts, two representations (storage mechanisms) of fonts are possible. The two kinds of fonts seen on a computer are: Raster Fonts which are also known as Bitmap Fonts and **Vector Fonts.**

In a raster font the shape of a character is stored in a **twodimensional array of cells.** Each cell in this array is called a pixel or picture element. The

shape of the letter is displayed on the screen by turning the pixels within this array on and off, or by filling them with various shades of colours.

Raster fonts are **extremely fast** and simple to render since they require very little resources to store and render. The load on the computer is considerably lower than rendering vector fonts. Raster fonts if they are not processed will always give the same output, so a high level of consistency is achieved in the display of information.



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Raster fonts usually have a **poor** visual quality when compared with vector fonts. This visual quality can become worse when they are scaled (size is changed) or transformed. These fonts are usually designed for a particular size. Scaling and transformation procedures (algorithms) can get very complex for the computer.

Raster fonts are not used as much as vector fonts when it comes to commercial designs. On some computers, all textual interfaces: command prompts, BIOS setups, and boot configuration information is displayed in raster fonts. Some mobile phones also use raster fonts for their entire interface. Due to their small size, raster fonts were often stored and used in dot matrix printers.

Vector Fonts are much finer than raster fonts. A vector font stores the shape of the letter in the form of a mathematical formula. The shapes of the letters are created and stored as a combination of bézier curves. The bézier curve is represented as a mathematical equation, the shape of the curve changes according to the values assigned to parameters within the bézier curve equations.

There are two kinds of vector fonts. The predominantly used **vector outline fonts** and the lesser known **stroke based vector fonts**.

Most of the fonts that are currently used in computer systems are outline fonts. They are computer files, which store the image of the glyph as vector shapes. The resolution independent vector shapes are defined by an outline (the lines define the edge of the shape) covering the glyph.





Vector Fonts which define the glyph by placing the defining vector lines along the centre of the stroke used to draw the glyph are called **stroke based fonts**. The font stores the drawing stroke vector, on which the system can later on add various pen strokes or 'flesh' according to requirements. Their main advantage lies

in the number of storage points. Stroke based fonts require considerably less storage space than outline vector fonts.