

# IMAGE PROCESSING & FILE FORMATS



## Bitmap/Raster/Pixel Graphics:

- **Definition:** Bitmap images define the position and color of each pixel in the file.
- **Creation:** They can be created using cameras, software like Paint, Photoshop, and displayed on web pages.
- **File Types:**
  - **JPEG (.jpg):** Compressed, smaller file size, may lose detail (lossy).
  - **GIF:** Compressed, suitable for small images and animations, limited to 256 colors (lossy).
  - **PNG:** Lossless, larger files, no animation support.
  - **TIFF:** Widely used for printed publications, maintains resolution and quality (lossless).
- **Scalability:** Not scalable; quality degrades when magnified.

## Vector Graphics:

- **Definition:** Stores mathematical definitions of lines, curves, and shapes.
- **Creation:** Created using software like Adobe Illustrator, which uses EPS files.
- **Characteristics:** Very large, lossless, suitable for printing crisp clear images.
- **File Types:** PDF can include both vector and bitmap graphics.
- **Scalability:** Scalable without loss of quality; software redraws shapes when resized.

### LOSSY:

**Definition:** Removes some data to reduce file size.

**Quality:** Lower quality (e.g., JPEG, GIF).

### LOSSLESS:

**Definition:** Retains all data while reducing file size.

**Quality:** Maintains original quality (e.g., PNG, TIFF).