IMAGE COMPRESSION

Deepa.M.N
Asst. Prof.
ECE, MIST

Image Compression

The process of reducing the amount of data required to represent a given quantity of information.

Why to compress image?

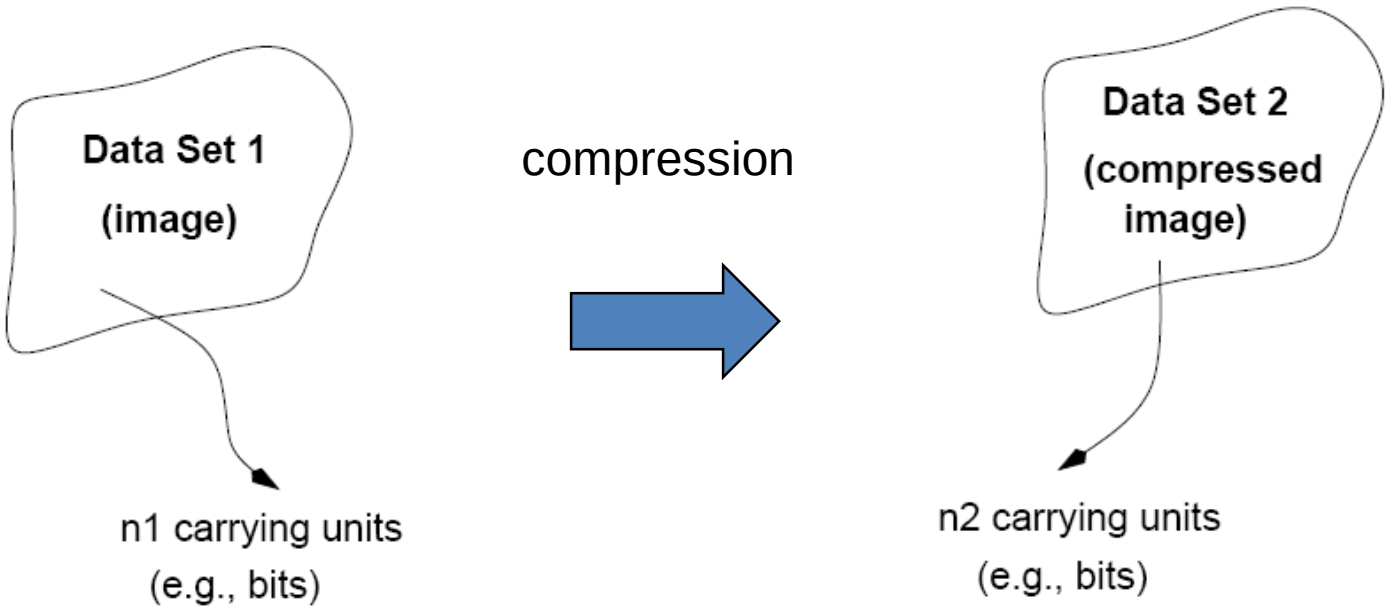
Compression can

- Save storage capacity
- Speed up file transfer
- Decrease cost for network bandwidth

Data ≠ Information

- Data and information are not synonymous terms!
- Data is the means by which information is conveyed.
- Data compression aims to reduce the amount of data while preserving as much information as possible.

Compression Ratio



Compression ratio: $C_R = \frac{n_1}{n_2}$

Relevant Data Redundancy

$$R_D = 1 - \frac{1}{C_R}$$

Example:

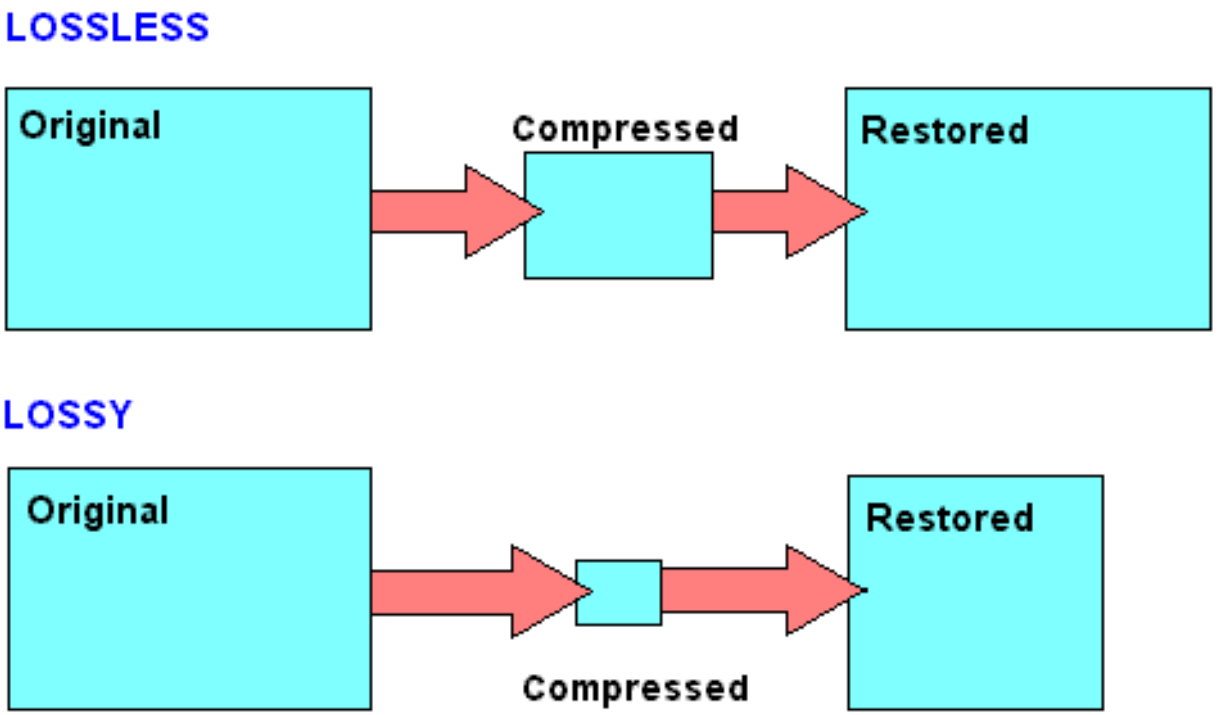
If $C_R = \frac{10}{1}$, then $R_D = 1 - \frac{1}{10} = 0.9$

(90% of the data in dataset 1 is redundant)

if $n_2 = n_1$, then C_R=1, R_D=0

if $n_2 \ll n_1$, then $C_R \to \infty$, $R_D \to 1$

Lossless and Lossy Compression

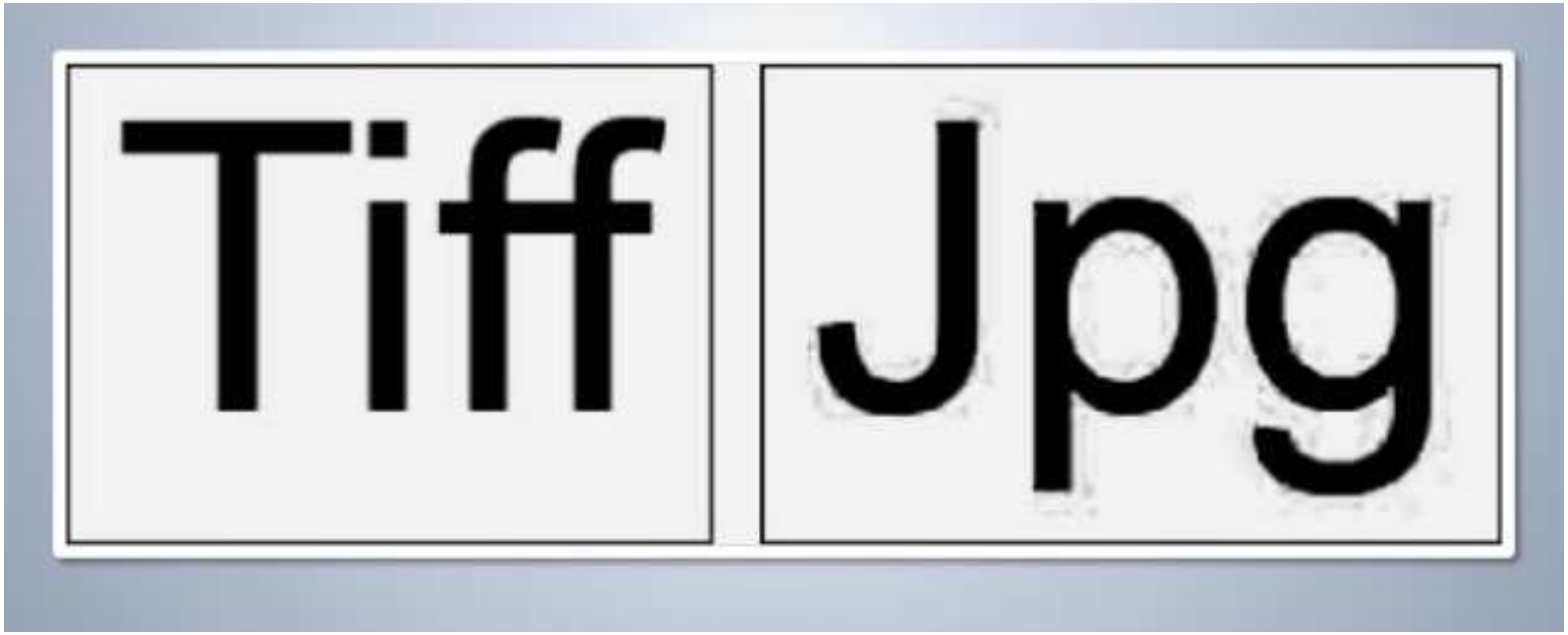


Examples

Examples

Lossless

Lossy



Compression methods