SNS COLLEGE OF TECHNOLOGY

Coimbatore-35
An Autonomous Institution

Accredited by NBA – AICTE and Accredited by NAAC – UGC with 'A+' Grade
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

19ECE301 – IMAGE PROCESSING AND COMPUTER VISION

III B.E. ECE / V SEMESTER

UNIT 3 – IMAGE COMPRESSION AND SEGMENTATION

TOPIC – IMAGE COMPRESSION

Image Compression.

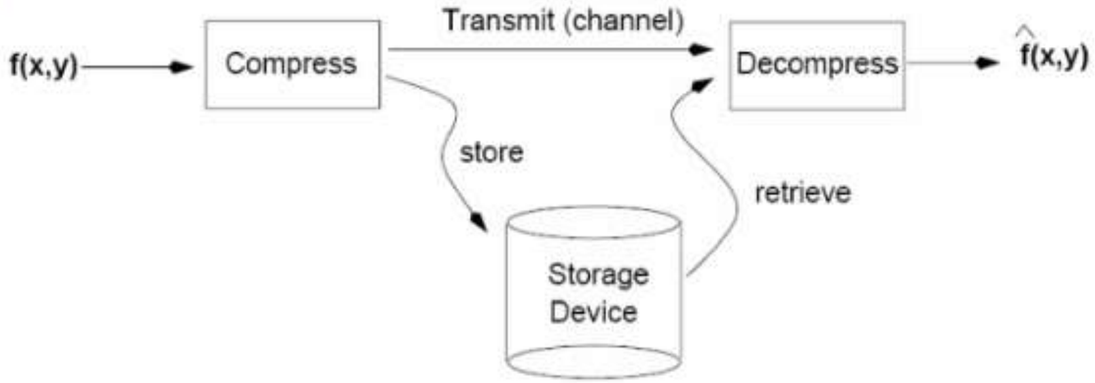
Size-270 KB

Size-22 KB

"Without Compression a CD store only 200 Pictures or 8 Seconds Movie"

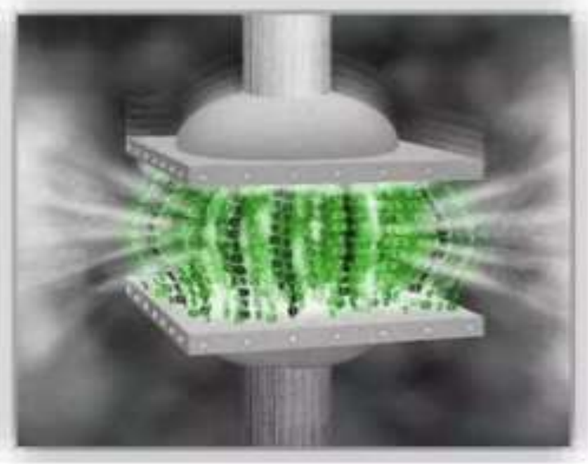
What is Image Compression?

- Image compression is the process of reducing the amount of data required to represent an image



Why Image Compression?

Storage

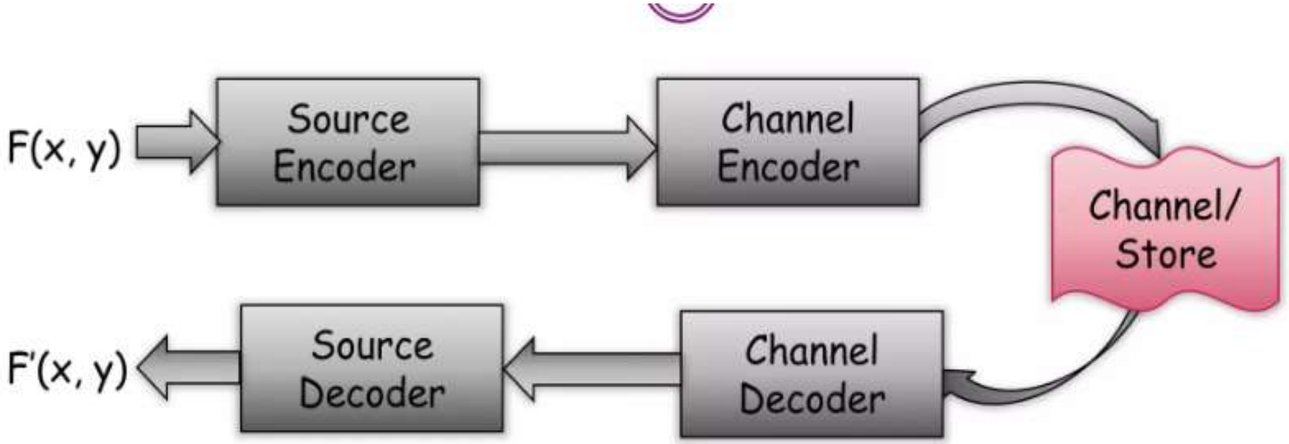


Ease of Transmission

COMPRESSION FUNDAMENTALS

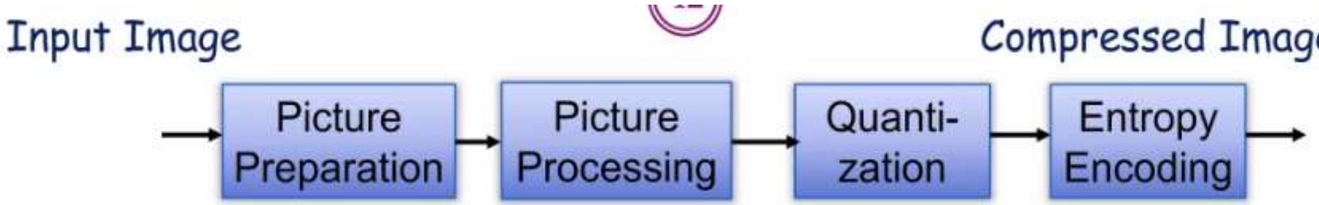
- ✓ Image compression involves reducing the size of image data files, while retaining necessary information
- ✓ Retaining necessary information depends upon the application
- ✓ Image segmentation methods, which are primarily a data reduction process, can be used for compression
- ✓ The ratio of the original, uncompressed image file and the compressed file is referred to as the *compression ratio*

IMAGE COMPRESSION MODELS



- Some image Compression Standard
  - JPEG-Based on DCT
  - JPEG 2000-Based on DWT
  - GIF-Graphics Interchange Format etc.

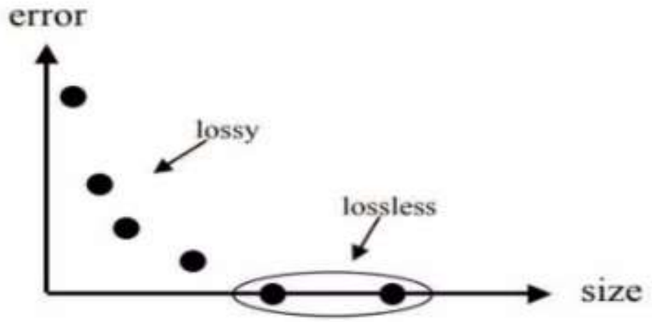
COMPRESSION STEPS



- Preparation: analog to digital conversion.
- Processing: transform data into a domain easier to compress.
- Quantization: reduce precision at which the output is stored.
- Entropy Encoding: remove redundant information in the resulting data stream.

TRADE OFF: QUALITYS Vs COMPRESSION

- **Lossless Compression** (Information Preserving) - *Original can be recovered exactly. Higher quality, bigger.*
- **Lossy Compression-** *Only an approximation of the original can be recovered. Lower quality, smaller.*



BASIC COMPRESSION METHODS

- Huffman Coding,
- Arithmetic Coding,
- Run length coding,
- Lossy compression - Transform coding, Wavelet coding

Thank you!