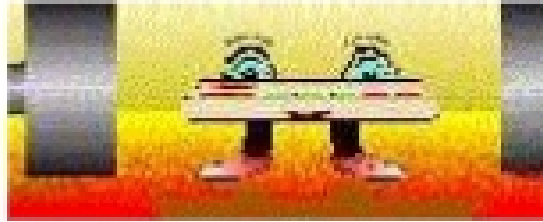


Data Compression



- Reduce the size of data.
 - Reduces storage space and hence storage cost.
 - Compression ratio = original data size/compressed data size
 - Reduces time to retrieve and transmit data.

Lossless And Lossy Compression

- $\text{compressedData} = \text{compress}(\text{originalData})$
- $\text{decompressedData} = \text{decompress}(\text{compressedData})$
- When $\text{originalData} = \text{decompressedData}$, the compression is lossless.
- When $\text{originalData} \neq \text{decompressedData}$, the compression is lossy.

Lossless And Lossy Compression

- Lossy compressors generally obtain much higher compression ratios than do lossless compressors.
 - Say **100** vs. **2**.
- Lossless compression is essential in applications such as text file compression.
- Lossy compression is acceptable in many imaging applications.
 - In video transmission, a slight loss in the transmitted video is not noticed by the human eye.