

Why Compress?

- To reduce the volume of data to be transmitted (text, fax, images)
- To reduce the bandwidth required for transmission and to reduce storage requirements (speech, audio, video)

Compression

- How is compression possible?
 - Redundancy in digital audio, image, and video data
 - Properties of human perception
- Digital audio is a series of sample values; image is a rectangular array of pixel values; video is a sequence of images played out at a certain rate
- Neighboring sample values are correlated

Redundancy

- Adjacent audio samples are similar (predictive encoding); samples corresponding to silence (silence removal)
- In digital image, neighboring samples on a scanning line are normally similar (spatial redundancy)
- In digital video, in addition to spatial redundancy, neighboring images in a video sequence may be similar (temporal redundancy)