Multimedia

Assignment 4 – Standard Uniform Quantization Algorithm

Due Dates

Bonus: The week starting from 29 – 11 – 2014

Normal: The week starting from 6 – 12 – 2014

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Notes:
- The sent ImageRW project contains two methods read and write image to be used in your assignment.
- You can use the attached image `lena.jpg.`

1- **Inputs** are a grayscale image in which the red, green and blue components all have equal intensity **and** the number of quantization levels.

2- **Compression**
   - Read the image into a 2D array using the sent code.
   - Construct the uniform quantizer.
   - Quantize the image using the quantizer you built and save the output code and the quantizer on files.

3- **Decompression**
   - Read the compressed file and the quantizer.
   - Dequantize the data and save the result in a 2D array.
   - Write the image using the sent code.

4- **Calculate the mean square error between the original image and output**.

$$MSE = \frac{\sum (Dequantized\ Pixel\ Value - Original\ Pixel\ Value)^2}{Number\ of\ Pixels}$$