

HomeWork 2 Report

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Explanation for Quantization tables:

First Table used is standard table other 2 multiple of 4 and 8 of standard table to check the correlation between no of bits in compressed image and magnitude of numbers in table, similarly to find image quality.

Expected result is with increase in magnitude of numbers in table the values will be smaller and when we divide this table with original image we will have small numbers to encode and hence with this we can get highly compressed images, but the quality of these images will not be good.

Discussion on the selection of quantization settings on the compression ratio:

3 Quantization tables have been used included Standard Jpeg table , 4 times standard table and 8 times standard table. Observation which is made here is compression increases as magnitude of numbers in table increase, as we divide the table with image numbers will be smaller and we have to encode very less as compare to number in tables which has less magnitude of numbers. Like for quantization setting I used besides Standard one compression is much in case of other. compression Table is shown below with results. So compression ratio will decrease with increase in magnitude of numbers in table.

Compression Ratio Table :

No of bits in original image : 1024*1024*8

	Self Image	Outside	Inside
Quantization 1 (standard Jpeg table)	Ratio = 0.044 Compressed bits : 375723	Ratio = 0.0367 Compressed bits : 308096	Ratio = 0.0256 Compressed bits : 215042
Quantization 2 (4 *Quantization 1)	Ratio = 0.01789 Compressed bits : 150136	Ratio = 0.01607 Compressed bits : 134808	Ratio = 0.01587 Compressed bits : 133199
Quantization 3 (8*Quantization 1)	Ratio = 0.01410 Compressed bits : 118305	Ratio = 0.01356 Compressed bits : 113825	Ratio = 0.01395 Compressed bits : 117043

Discussion on the selection of quantization settings on the quality of compressed images

Quality of compressed images get decreased with increase in magnitude of numbers in table. In Other words as compression increase the quality gets much poor, Difference we can see in below images where Quantization 2 and Quantization 3 are shown with much less quality than standard table.

Original Image:



Compressed Image(standard table)



Compressed Image(4*standard table)



Compressed Image(8*standard table)



PSNR Table :

	Self Image	Outside	Inside
Quantization 1	19.1713	18.0090	19.3903
Quantization 2	19.1058	17.9483	19.2776
Quantization 3	18.9659	17.9031	19.1660