Homework 2: JPEG-like Compression

You will implement a still image transform coding, i.e. a prototype JPEG. You may use any computer language that you are most familiar with. The test images to be compressed are 256x256 gray-level images, **lena.raw**, **baboon.raw**, and color images, **lenaRGB.raw**, **baboonRGB.raw**. You may download irfanview from http://www.irfanview.com (plus the plug-in) to view the image.

You will be given the TMN version of 8x8 DCT, which is optimized for H.263 video coding. You are free to find the routine from other sources or build it from the scratch. Then you can apply quantization and coding to compress the images. The quantization table can be determined by adjusting the Quality Factor (QF). You can find the table of the differential coding of luminance DC and the AC table in the class note. The image should be able to be recovered (to .raw) for viewing. Calculate PSNR of the original image and compressed image in the cases of QF=90, 80, 50, 20, 10 and 5.

You may refer “jpeg_6a” on the course website for performance improvement.

The deadline is **May. 22, 2024 11:59am**. The homework should be compressed into one file (.zip or .rar) with your student ID as the filename (ID#.zip or ID#.rar). The zipped file should contain your source code, the necessary compiling information and the report.