Information Theory and Coding Techniques

Programming Homework(optional) - JPEG Decoder

National Taiwan University
Due: 23:59 Wednesday, June 17

Basic Requirement (10%)

1. Implement a JPEG baseline (sequential DCT-based) decoder.
2. Correctly decode the assigned ".jpg" images into ".bmp" images.
3. Language: C/C++
4. Do not use any external libraries, except writing to BMP files and FDCT.
5. Please write comment in the source codes.
6. Submitted package must include:

   (a) Source codes

   (b) README which indicates how to compile and execute your code. In your README file, at least, you should provide your environment, gcc version and so on. Please not use .doc or .docx.

   (c) (optional) Makefile so that we can compile with "make".

   (d) (optional) We expect we can execute the code as "./main input_file".

Bonus (Points is decided by Prof.)

1. Implement a JPEG baseline encoder.
2. Support other JPEG modes, e.g. progressive mode.
3. Provide an user friendly GUI.
4. Any practical improvement.
5. Others.

Policy

1. Slow decoding time will get some penalties, expect realtime.
2. Virus-infected package will get 0.
3. Do not include any obj or language-dependent files in the submitted package. The one with unreasonable file-size will get some penalties.
4. Late homework will be deducted 20% each day.
5. Taking any unfair advantages over other class members (or letting anyone do so) is strictly prohibited. Violating university policy would result in F for this course.
6. Any form of cheating or plagiarism will not be tolerated, which will also result in F for students with such misconduct.
7. The file name format should be: StudentID_Name, e.g. R08922001_王小明.zip.
8. Please submit to: itct@cmlab.csie.ntu.edu.tw