

This assignment regards writing programs that compress a given bitmap image into JPEG format. The input image file may feature arbitrary size, also it may be in black white, grayscale, 256 color or full color. You could use various bitmap files to test your program, the TA will use his own file to verify your result. Prepare your program so that the testing image file could be input as a parameter.

You may use any programming language you like. The grading criteria are as follows:

1. Correctness – Your program should work correctly for any testing bitmap file.
2. Performance – The compression ratio of your program will be evaluated by comparing with that used in Windows.
3. Documentation – Your code should be documented so that it can be read and understood easily.

The followings are web sites where you could find some ways to retrieve and manipulate the pixels in the image.

Reading pixel: [https://msdn.microsoft.com/en-us/library/system.drawing.bitmap.getpixel\(v=vs.110\).aspx?cs-save-lang=1&cs-lang=cpp#code-snippet-1](https://msdn.microsoft.com/en-us/library/system.drawing.bitmap.getpixel(v=vs.110).aspx?cs-save-lang=1&cs-lang=cpp#code-snippet-1)

Setting pixel: [https://msdn.microsoft.com/en-us/library/system.drawing.bitmap.setpixel\(v=vs.110\).aspx?cs-save-lang=1&cs-lang=cpp#code-snippet-1](https://msdn.microsoft.com/en-us/library/system.drawing.bitmap.setpixel(v=vs.110).aspx?cs-save-lang=1&cs-lang=cpp#code-snippet-1)

Image processing example:

<http://www.math.cornell.edu/~web6140/TopTenAlgorithms/JPEG.html>