Universiti Malaysia PAHANG	COURSE: IMAGE PROCESSING		**MARKS**: /10
	TOPIC: Image Acquisition and Basic Operation (MATLAB)	CODE: BCM2063	
	Lab Exercise	NO: 1	DURATION: 30 minutes

QUESTION 1 **[4 Marks]**

(a) Copy "Lena.tiff", read the file into *f*. How large is the image (rows, columns)?

(b) How big is the file above (bytes)?

(c) What are the minimum and maximum grey values for each color channel (Red, Green and Blue)?

(d) How many bytes in the file are used to store one pixel?

QUESTION 2 **[6 Marks]**

Wherever you see a pair of <...>, you need to replace <> by the MATLAB code. If you see a pair of [...], you need to write a new MATLAB function with the specified syntax. When you see a pair of {…}, you need to write your answers as MATLAB annotation, e.g. starting with %

Part 1: Use the digital image provided by the lecturer ("Lena.tiff")

(a) % Read in the image you have acquired (either from a digital camera or from the web)
x=<read in the image you have acquired in part 1>;

% display the information of matrix x
whos x

(b) %please make sure you see a color image properly, e.g. blue channel is given by *x*(:,:,3)
<display each color (red, green, blue) channel image x>;

(c) %convert a color image into grayscale
x_g=<converted grayscale image of x>;
<display the grayscale version of the image x>;

Part 2: Basic Image Operation

% transpose the image x_g and display it
imshow(x_g',0);

(d) % Hint: MATLAB tutorial is useful for this task
<crop the top -left quarter of the image x_g and display it>;

(e) % Hint: you can either write your own MATLAB codes to do the flipping
<flip the image x_g left to right and display it>;

(f) %test JPEG compression, Hint: use "help imwrite" to learn how to handle JPEG image format.
<write the image out into a new file named xxx.jpg (you can specify the quality factor of 50>