Universiti Malaysia PAHANG	COURSE: IMAGE PROCESSING			**MARKS**: /10
	TOPIC: Intensity Transformation		CODE: BCM2063	
	Lab Exercise	NO: 2	DURATION: 90 minutes	

QUESTION 1 **[2.5 Marks]**

Negative of image *f* is defined as: `g = max(f(i,j))- f(i,j)`

Instruction:

(a) Open "Breast Cancer.bmp", read the file into *f*.

(b) Write a new function to make negative image (without built-in-function)

(c) Display the original image and the result obtained from a new function (b).

(d) Analyse the results of the image output.

QUESTION 2 **[2.5 Marks]**

Logarithmic transform of image *f* is defined as: `g = c*log(1 + double(f)`

Instruction:

(a) Open "Lena.tiff", read the file into *f*.

(b) Write a new function to make logarithmic transformation (without built-in-function)

(c) The constant *c* is usually used to scale the range of the log function.

(d) Given c=3, display the result obtained from a new function (b) logarithmic transformation.

(e) Use *imhist* to display the histogram of the original image and the result obtained from logarithmic transformation.

(f) Inspect the visual quality of the original image and the output image.

(g) Analyse the histogram from the results of logarithmic transformation.

QUESTION 3 **[2.5 Marks]**

Contrast-Stretching Transformation of image *f* is defined as:

```
g=1./(1 + (m./(double(f) + eps)).^E)
```

E controls the slope of the function and *m* is the mid-line where you want to switch from dark values to light values.

Instruction:

(a) Open "Lena.tiff", read the file into *f*.

(b) Write a new function to make Contrast-Stretching Transformation (without built-in-function)

(c) *E* is usually used to scale the contrast image.

(d) Given *E*=4, display the result obtained from a new function (b) Contrast-Stretching Transformation.

(e) Use *imhist* to display the histogram of the original image and the result obtained from Contrast-Stretching Transformation.

(f) Inspect the visual quality of the original image and the output image.

(g) Analyse the histogram from the results of Contrast-Stretching Transformation.

QUESTION 4 **[2.5 Marks]**

Instruction:

(a) Open "Lena.tiff", read the file into *f*.

(b) Use *histeq* distribute the occurrence of pixel intensities.

(c) Inspect the visual quality of the original image and the output image.

(d) Analyse the histogram from the results of Histogram equalization.