Universiti Malaysia PAHANG	COURSE: IMAGE PROCESSING		**MARKS**: /100
	TOPIC: Image Compression	CODE: BCM2063	
	Assignment NO: 2	DURATION: 6 hours	

[CO2/P2/12.5%] [CO2/P3/12.5%] [CO2/P4/25%]

[CO3/A3/25%] [CO3/A4/25%]

Choose the digital images from internet sources, and you are requiring to:

1. Develop JPEG lossy compression for grayscale image using different types of the quantization table which given as follows:

16	14	13	15	19	28	37	55
14	13	15	19	28	37	55	64
13	15	19	28	37	55	64	83
15	19	28	37	55	64	83	103
19	28	37	55	64	83	103	117
28	37	55	64	83	103	117	117
37	55	64	83	103	117	117	111
55	64	83	103	117	117	111	90

18	18	23	34	45	61	71	92
18	23	34	45	61	71	92	92
23	34	45	61	71	92	92	104
34	45	61	71	92	92	104	115
45	61	71	92	92	104	115	119
61	71	92	92	104	115	119	112
71	92	92	104	115	119	112	106
92	92	104	115	119	112	106	110

(a)

16	11	10	16	24	40	51	61
12	12	14	19	26	58	60	55
14	13	16	24	40	57	69	56
14	17	22	29	51	87	80	62
18	22	37	56	68	109	103	77
24	35	55	64	81	104	113	92
49	64	78	87	103	121	120	101
72	92	95	98	112	100	103	99

18	12	11	18	27	44	57	68
13	13	16	21	29	64	67	61
16	14	18	27	44	63	77	62
16	19	24	32	57	97	89	69
20	24	41	62	76	121	114	86
27	39	61	71	90	116	126	102
54	71	87	97	114	134	133	112
80	102	106	109	124	111	114	110

(b)

2. Prepare a report. Your report (softcopy) should be submitted to KALAM before 5.00 pm on Monday (November 24, 2017). The contents of your reports as following:
    a. Introduction
    b. Objective
    c. Summary of quantization tables
    d. Experiments:
        i. Read the original true colour image
        ii. Write lossy image compression in Matlab code (without built-in-function).
        iii. Calculate the Absolute Reconstruction Error (ARE), Mean Square Error (MSE), and Peak Signal to Noise Ratio (PSNR) of lossy image compression.
        iv. Compare the results from quantization (a) and quantization (b) in image compression in terms of ARE, MSE and PSNR values.
    e. Results: you need to display the visual output of compressed image.
    f. Discussion: analyze the experimental results from quantization tables (a) and quantization tables (b).
    g. Conclusion.
    h. References

Rubric

Lecturer :	Dr. Ferda Ernawan		
Course Code & Name :	BCM2063 Image Processing		
Program :	Graphic & Multimedia	**Section :**	1
Faculty :	Faculty of Computer Systems & Software Engineering		
Semester :	I	**Session :**	2016 / 2017

Total Mark **0** **%**

Student Name	**1** _ _ _
	2 _ _
	3 _ _ _

Assignment 1

CRITERIA	**LEVEL OF ACHIEVEMENT**						**WEIGHTAGE**	**SCORE GAINED**	**MARK**	**Cognitive**
	0	**1**	**2**	**3**	**4**	**5**				
CO1										
Report proposed alternative solutions.		less than 40% problem identification and logical proposal related to image processing techniques		60% problem identification and logical proposal related to image processing techniques		more than 80% problem identification and logical proposal related to image processing techniques	2		0	C2

Demonstrate appropriate image input relevant to the problem		apply single image input to be tested		3 images are tested in the experiment		more than 5 images are tested in the experiment	2		0	C3
Analyze the experimental results		30% able to discuss and analyze the results		60% able to discuss and analyze the results		more than 80% able to discuss and analyze the results	6		0	C4
									0	
CO2									**Psychomotor**	
The overall program structure		6 or 7 errors.		2 or 3 errors.		Ability to execute without error	1	5	5	P4
The presentation of final output		presentation of the final output, 30% complete		presentation of the final output, 60% complete		presentation of the final output, 100% complete	1		0	P2
Usage of arithmetic expression (calculation)		6 or 7 errors.		2 or 3 errors.		The calculation without error	2		0	P3
Correct usage of selection control statement (if/if..else/case)		6 or 7 errors.		2 or 3 errors.		The selection control statement without error	3		0	P4

correct usage of loops statement (for/do-while/while...etc)		6 or 7 errors.		2 or 3 errors.		The loops control statement without error	3		0	P4
									0	
Grand Total									0	