

ECE 6354/5354 Fall 2016 HW 5 due 9/29

Problem 1. For an uncompressed BMP image file of 4-bits per pixel (16 colors) and size 256x192, list each-and-every byte (BITMAPFILEHEADER, BITMAPINFOHEADER, RGBQUAD structures, and filler bytes if you add them) up to the 1st image-data pixel value. For the colortable, use 16 greylevels, to include 0 and 255.

Byte#	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
value																				

Byte#	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39
value																				

Byte#	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59
value																				

Byte#	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
value																				

Byte#	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99
value																				

Byte#	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119
value																				

Byte#	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139
value																				

Problem 2. Decode information from the following BMP file and answer the questions below.

Byte#	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
value	66	77	176	4	12	0	0	0	0	0	176	4	0	0	40	0	0	0	0	4

Byte#	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39
value	0	0	0	3	0	0	1	0	8	0	0	0	0	0	0	0	12	0	0	1

Byte#	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59
value	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	1	1

What is the image size (width and height)?

How many bits per pixel?

How many colors in the image?

How many significant colors in the image?

How many bytes should be skipped over to reach the first image pixel data in the file?

Is this a compressed image file?

How many total bytes are in the image data?

How many padding bytes are appended between the RGBQUAD bytes and the 1st pixel data value?

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Problem 3.

Given the following 2 lines of 1-byte-per-pixel un-encoded imagedata , encode the imagedata using RLE8.

7	7	8	8	7	7	6	6	7
8	8	7	8	8	6	6	7	7