NAMA = Diky Kristian E.
NPM : 2213020160
kelas : 3A

Tugas 1

1) Dx 1 = 213.80.155
O = (0,2989 x 213) + (0,5870 x 80) + (0,1190 x 155)
= 63,4857 + 46,96 + 17,67
= 128,12

Dx 2 = 211, 200, 155
O = (0,2989 x 211) + (0,5870 x 200) + (0,1140 x 155
= 63, 3979 + 117.40 + 17.67
= 192.19

Dx 3 = 213, 222, 12
O = (0,2989 x 213) + (0,5870 x 222) + (0,1190 x 12)
= 63,4857 + 130,319 + 1,368
= 195.51

Dx 4 = 24, 60, 122
O = (0,2989 x 24) + (0,5870 x 60) + (0,1190 x 122)
= 7,1736 + 35.22 + 13.908
= 56.30

Dx 5 = 153, 155, 154
O = (0,2989 x 153) + (0,5870 x 155) + (0,1190 x 154)
= 45.2217 + 90.985 + 17.556
= 154.22

Dx 6 = 15, 25, 155
O = (0,2989 x 15) + (0,5870 + 25) + (0,1190 x 155)
= 4.4835 + 14.675 + 17.69
= 40.81

Dx 7 = 212, 9, 19
O = (0,2968 x 212) + (0,5810 x 9) + (0,1190 x 19)
= 63.3668 + 5,283 + 2.166
= 69.96

Px 8 = 8, 8, 100

0 = (0,2989 × 8) + (0,5870 × 8) + (0, 1190 × 100)

= 2,3912 + 4.696 + 11.9

= 19.10

Px 9 = 143, 100, 123

0 = (0, 2989 × 143) + (0,5870 × 100) + (0, 1190 × 123)

= 42.2327 + 58.7 + 14.022

= 115, 98

Tugas 2

Hitung konveksi citra biner dengan T (threshold) yang sudah ditentukan

Diket : T = 110

1	213, 80, 155	24, 60, 122	212, 9, 13
2	211, 200, 155	153, 155, 154	8, 8, 100
3	213, 222, 12	15, 25, 155	143, 100, 123

jawab

ambil nilai intensitas dengan rumus :

I = (0, 2989 × R) + (0, 5870 × G) + (0, 1190 × B)

jika I ≥ 110 piksel maka diberi nilai 1 (putih

jika I ≤ 110 piksel maka diberi nilai 0 (hitam)

1) (213, 80, 155)

R, G, B

Px I = (0, 2989 × 213) + (0,5870 × 80) + (0, 1190 × 155)

= 63, 6657 + 96.96 + 17.67

= 128.30 ≥ 110 = 1

Px 2 = 24, 60, 122

= (0,2989 × 24) + (0,5870 + 60) + (0, 1190 × 122)

= 7, 1736 + 35, 22 + 13, 908

= 56, 30 ≤ 110 = 0//

Px 3 = 212, 9, 19
= (0,2989 x 212) + (0,5870 x 9) + (0,1140 x 19)
= 63,3668 + 5,283 + 2,166
= 70,82 ≤ = 0

2) Px1 = 211, 200, 155)
= (0,2989 x 211) + (0,5870 x 200) + (0,1140 x 155)
= 63.1579 + 117,4 + 17,67
= 198,23 ≥ 110 = 1

Px2 = 153, 155, 154
= (0,2989 x 153) + (0,5870 x 155) + (0,1140 x 154)
= 45.2217 + 90,985 + 17.556
= 153.26 ≥ 110 = 1

Px3 = 8, 8, 100
= (0,2989 x 8) + (0,5870 x 8) + 6,1140 x 100)
= 2,3912 + 4,696 + 11,4
= 18,49 ≤ 110 = 0

3) Px1 = 213, 222, 12
= (0,2989 x 213) + (0,5870 x 222) + (0,1140 x 12)
= 63.6657 + 130,319 + 1,136
= 195,35 ≥ 110 = 1

Px 2 = 15, 25, 155
= 4,4835 + 14,675 + 17,67
= 36,83 ≤ 110 = 0

Px3 = 193, 100, 123
= 42,2237 + 58,7 + 14,022
= 114,94 ≥ 110 = 1

hasil akhir dalam konversi biner

1	0	0	→ basis pertama
1	1	0	→ kedua
1	0	1	→ ketiga

VISION

Soal 3 Index setiap Pixel berdasar color pallete

color pallete
warna 0 : hitam (RGB = 0,0,0)
warna 1 : merah (RGB = 255,0,0)
warna 2 : hijau (RGB = 0,255.0)
warna 3 : Biru (RGB = 0,0,255)

Rumus jarak Euclidean jarak = $\sqrt{(R_1-R_2)^2+(G_1-G_2)^2+(B_1-B_2)^2}$

1. Piksel (1,1) = 213,80,155
- hitam = $\sqrt{(213-0)^2+(80-0)^2+(155-0)^2} = \sqrt{45369+6400+24025} = \sqrt{75794} = 275,24$
- merah = $\sqrt{(213-255)^2+(80-0)^2+(155-0)^2} = \sqrt{1764+6400+24025} = \sqrt{32189} = 179,42$
- hijau = $\sqrt{(213-0)^2+(80-255)^2+(155-0)^2} = \sqrt{45369+30625+24025} = \sqrt{100019} = 316,19$
- Biru = $\sqrt{(213-0)^2+(80-0)^2+(155-255)^2} = \sqrt{45369+6400+10000} = \sqrt{61769} = 248,54$

2. Piksel (1,2) = 24,60,122
- hitam = $\sqrt{(24-0)^2+(60+0)^2+(122+0)^2} = \sqrt{576+3600+19884} = \sqrt{19060} = 138,02$
- merah = $\sqrt{(24-255)^2+(60+0)^2+(122+0)^2} = \sqrt{53361+3600+19884} = \sqrt{71845} = 268,03$
- hijau = $\sqrt{(24-0)^2+(60+255)^2+(122+0)^2} = \sqrt{576+38025+19884} = \sqrt{53485} = 231,30$
- biru = $\sqrt{(24-0)^2+(60+0)^2+(122+255)^2} = \sqrt{576+3600+17689} = \sqrt{21865} = 147.85$

3. Piksel (1,3) = 212,9,19
- hitam = $\sqrt{(212-0)^2+(9-0)^2+(19-0)^2} = \sqrt{44944+81+361} = \sqrt{45386} = 213,14$
- merah = $\sqrt{(212-255)^2+(9-0)^2+(19-0)^2} = \sqrt{1849+81+361} = \sqrt{2291} = 47,87$
- hijau = $\sqrt{(212-0)^2+(9-255)^2+(19-0)^2} = \sqrt{44944+60516+361} = \sqrt{105821} = 325,32$
- biru = $\sqrt{(212-0)^2+(9-0)^2+(19-255)^2} = \sqrt{44944+81+55696} = \sqrt{100721} = 317,47$

4. Piksel (2,1) = 211,200,155
- hitam = $\sqrt{(211-0)^2+(200-0)^2+(155-0)^2} = \sqrt{44521+40000+24025} = \sqrt{108596} = 329,48$
- merah = $\sqrt{(211-255)^2+(200-0)^2+(155-0)^2} = \sqrt{1936+40000+24025} = \sqrt{65961} = 256,92$
- hijau = $\sqrt{(211-0)^2+(200-255)^2+(155-0)^2} = \sqrt{44521+3025+24025} = \sqrt{71571} = 267,62$
- biru = $\sqrt{(211-0)^2+(200-0)^2+(155-255)^2} = \sqrt{44521+40000+10000} = \sqrt{94521} = 302,99$

5. Piksel (2,2) = (153, 155, 154)
- hitam = $\sqrt{(153-0)^2+(155-0)^2+(154-0)^2} = \sqrt{23409+24025+23716} = \sqrt{71150} = 266,88$
- merah = $\sqrt{(153-255)^2+(155-0)^2+(154-0)^2} = \sqrt{10404+24025+23716} = \sqrt{58145} = 241,14$
- hijau = $\sqrt{(153-0)^2+(155-255)^2+(154-0)} = \sqrt{23409+10000+23716} = \sqrt{57125} = 238,99$
- biru = $\sqrt{(153-0)^2+(155-0)^2+(154-255)^2} = \sqrt{23409+24025+10201} = \sqrt{57635} = 240,07$

VISION

6. Piksel (2,3) = 8, 8, 100

- hitam = $\sqrt{(8-0)^2 + (8-0)^2 + (100-0)^2} = \sqrt{64+64+10000} = \sqrt{10128} = 100.64$
- merah = $\sqrt{(8-255)^2 + (8-0)^2 + (100-0)^2} = \sqrt{61009+64+10000} = \sqrt{71073} = 266.61$
- hijau = $\sqrt{(8-0)^2 + (8-255)^2 + (100-0)^2} = \sqrt{64+61009+10000} = \sqrt{71073} = 266.61$
- biru = $\sqrt{(8-0)^2 + (8-0)^2 + (100-255)^2} = \sqrt{64+64+24025} = \sqrt{24153} = 155.47$

7. Piksel (3,1) = 213, 222, 12

- hitam = $\sqrt{(213-0)^2 + (222-0)^2 + (12-0)^2} = \sqrt{45369+49284+144} = \sqrt{94797} = 307.93$
- merah = $\sqrt{(213-255)^2 + (222-0)^2 + (12-0)^2} = \sqrt{1764+49284+144} = \sqrt{51252} = 226.38$
- hijau = $\sqrt{(213-0)^2 + (222-255)^2 + (12-0)^2} = \sqrt{45369+1089+144} = \sqrt{46602} = 215.96$
- biru = $\sqrt{(213-0)^2 + (222-0)^2 + (12-255)^2} = \sqrt{45369+49284+59049} = \sqrt{153702} = 392.03$

8. Piksel (3,2) = 15, 25, 155

- hitam = $\sqrt{(15-0)^2 + (25-0)^2 + (155-0)^2} = \sqrt{225+625+24025} = \sqrt{24875} = 157.72$
- merah = $\sqrt{(15-255)^2 + (25-0)^2 + (155-0)^2} = \sqrt{57600+625+24025} = \sqrt{82250} = 286.87$
- hijau = $\sqrt{(15-0)^2 + (25-255)^2 + (155-0)^2} = \sqrt{225+52900+24025} = \sqrt{77150} = 277.75$
- biru = $\sqrt{(15-0)^2 + (25-0)^2 + (155-255)^2} = \sqrt{225+625+10000} = \sqrt{10850} = 104.15$

9. Piksel (3,3) = 193, 100, 123

- hitam = $\sqrt{(193-0)^2 + (100-0)^2 + (123-0)^2} = \sqrt{20449+10000+15129} = \sqrt{45578} = 213.59$
- merah = $\sqrt{(193-255)^2 + (100-0)^2 + (123-0)^2} = \sqrt{12544+10000+15129} = \sqrt{37673} = 194.12$
- hijau = $\sqrt{(193-0)^2 + (100-255)^2 + (123-0)^2} = \sqrt{20449+24025+15129} = \sqrt{59503} = 243.97$
- biru = $\sqrt{(193-0)^2 + (100-0)^2 + (123-255)^2} = \sqrt{20449+10000+17424} = \sqrt{47873} = 218.78$

hasil akhir

- piksel

(1,1) = merah	(2,1) = merah	(3,1)
(1,2) = hitam	(2,2) = hijau	(3,2)
(1,3) = merah	(2,3) = hitam	(3,3)

hasil Pixel citra terendus

255,0,0	0,0,0	255,0,0
255,0,0	0,255,0	0,0,0
0,255,0	0,0,255	255,0,0