Nama : Rifaldi Yoga A
NBI : 1461900291

Diketahui sebuah citra dengan resolusi keabuan L=8 sebagai berikut:

2	0	7	6	3
4	0	7	5	1
5	2	3	5	0
3	2	1	0	6
3	5	6	5	1

1. Image Negative
   Rumus : s = (L - 1) - r

- (0, 0) s = (8 - 1) - 2 = 5
- (0, 1) s = (8 - 1) - 0 = 7
- (0, 2) s = (8 - 1) - 7 = 0
- (0, 3) s = (8 - 1) - 6 = 1
- (0, 4) s = (8 - 1) - 3 = 4
- (1, 0) s = (8 - 1) - 4 = 3
- (1, 1) s = (8 - 1) - 0 = 7
- (1, 2) s = (8 - 1) - 7 = 0
- (1, 3) s = (8 - 1) - 5 = 2
- (1, 4) s = (8 - 1) - 1 = 6
- (2, 0) s = (8 - 1) - 5 = 2
- (2, 1) s = (8 - 1) - 2 = 5
- (2, 2) s = (8 - 1) - 3 = 4
- (2, 3) s = (8 - 1) - 5 = 2
- (2, 4) s = (8 - 1) - 0 = 7
- (3, 0) s = (8 - 1) - 3 = 4
- (3, 1) s = (8 - 1) - 2 = 5
- (3, 2) s = (8 - 1) - 1 = 6
- (3, 3) s = (8 - 1) - 0 = 7
- (3, 4) s = (8 - 1) - 6 = 1
- (4, 0) s = (8 - 1) - 3 = 4
- (4, 1) s = (8 - 1) - 5 = 2
- (4, 2) s = (8 - 1) - 6 = 1
- (4, 3) s = (8 - 1) - 5 = 2
- (4, 4) s = (8 - 1) - 1 = 6

5	7	0	1	4
3	7	0	2	6
2	5	4	2	7
4	5	6	7	1
4	2	1	2	6

2. Histogram Equalization

Derajat Keabuan	0	1	2	3	4	5	6	7	8	9	10
Kemunculan	4	3	3	4	1	5	3	2	0	0	0
Probabilitas Kemunculan	0.16	0.12	0.12	0.16	0.04	0.2	0.12	0.08	0	0	0
Sk	0.16	0.28	0.4	0.56	0.6	0.8	0.92	1	1	1	1
SK * 10	1.6	2.8	4	5.6	6	8	9.2	10	10	10	10
Derajat keabuan baru	2	3	4	6	6	8	9	10	10	10	10

Hasil :

4	2	10	9	6
6	2	10	8	3
8	4	6	8	2
6	4	3	2	9
6	6	9	8	3

3. Median Filter

Pixel Replication

2	2	0	7	6	3	3
2	2	0	7	6	3	3
4	4	0	7	5	1	1
5	5	2	3	5	0	0
3	3	2	1	0	6	6
3	3	5	6	5	1	1
3	3	5	6	5	1	1

- (0,0) 4 4 2 2 2 2 0 0 0 = 2
- (0,1) 7 7 7 4 2 2 0 0 0 = 2
- (0,2) 7 7 7 6 6 5 0 0 0 = 6

- (0,3) 7 7 7 6 6 5 3 3 1 = 6
- (0,4) 3 3 3 3 6 6 5 1 1 = 6
- (1,0) 5 5 4 4 2 2 2 0 0 = 2
- (1,1) 7 7 5 4 3 2 2 0 0 = 3
- (1,2) 7 7 6 5 5 3 2 0 0 = 5
- (1,3) 7 7 6 5 5 3 3 1 0 = 5
- (1,4) 6 5 5 3 3 1 1 0 0 = 3
- (2,0) 5 5 4 4 3 3 2 2 0 = 3
- (2,1) 7 5 4 3 3 2 2 1 0 = 3
- (2,2) 7 5 5 3 2 2 1 0 0 = 2
- (2,3) 7 6 5 5 3 1 1 0 0 = 3
- (2,4) 6 6 5 5 1 1 0 0 0 = 1
- (3,0) 5 5 5 3 3 3 3 2 2 = 3
- (3,1) 6 5 5 3 2 2 1 1 0 = 2
- (3,2) 6 5 5 5 3 2 2 1 0 = 3
- (3,3) 6 6 5 5 3 1 1 0 0 = 3
- (3,4) 6 6 5 5 1 1 0 0 0 = 1
- (4,0) 5 5 3 3 3 3 3 3 2 = 3
- (4,1) 6 6 5 5 3 3 3 2 1 = 3
- (4,2) 6 6 5 5 5 5 2 1 0 = 5
- (4,3) 6 6 6 5 5 1 1 1 0 = 5
- (4,4) 6 6 5 5 1 1 1 1 0 = 1

Hasil

2	2	6	6	6
2	3	5	5	3
3	3	2	3	1
3	2	3	3	1
3	3	5	5	1

4. Laplacian Filter (2 arah horisontal dan vertikal)

0	2	0	7	6	3	0
2	-4	9	-15	-9	-5	3
4	-9	13	-13	-1	4	1
5	-11	2	3	-12	12	0
3	-2	3	7	17	-23	6
3	-5	-9	-13	-13	7	1
0	3	5	6	5	1	0

5. Prewit Edge dengan Threshold = 5

2	0	7	6	3

4	0	7	5	1
5	2	3	5	0
3	2	1	0	6
3	5	6	5	1

vertical

-1	0	1
-1	0	1
-1	0	1

hor

1	1	1
0	0	0
-1	-1	-1

vertical

	6	14	-13	
	-1	3	-4	
	-7	1	-3	

horizontal

	-2	3	8	
	5	9	6	
	-4	-6	-4	

M

	6,3245 5532	14,31 78210	15,26 4337	

		6	52	
	5,099019514	9,486832981	7,21110251	
	8,062257748	6,08276253	5	

Threshold 5

	1	1	1	
	1	1	1	
	1	1	1	

5. Global Thresholding dengan threshold mula-mula T=2

1	0	1	1	1
1	0	1	1	0
1	1	1	1	0
1	1	0	0	1
1	1	1	1	0