## Homework-5

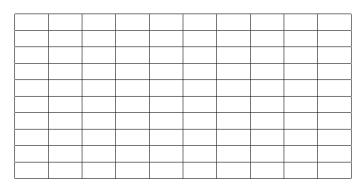
# Question 1

You are given the following picture:

					0		
		8			8	8	
					8	8	
P =							
			8	8	8	8	
			0	0	0	0	

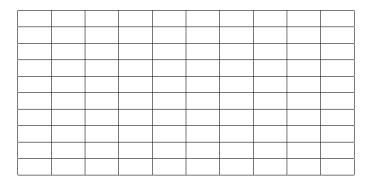
What picture is obtained if noise cleaning is applied to P, using the technique of smoothing with the following mask:

or.	
0.25	0.25
0.25	0.25



What picture is obtained if noise cleaning is applied to P, performed by median filtering over a cross shaped neighborhood as shown below:

	X	
X	X	X
	X	



# Question 2

The picture P is specified below:

		x = 0	x = 1	x = 2	x = 3	x = 4	x = 5	x = 6	x = 7
	y = 0	0	0	0	9	9	9	9	9
	y=1	0	0	0	9	9	9	9	9
D _	y=2	0	0	0	9	9	9	9	9
<i>r</i> =	y=3	0	0	0	9	9	9	9	9
	y=4	0	0	0	9	9	9	9	9
	y=5	0	0	0	9	9	9	9	9
	y = 6	0	0	0	9	9	9	9	9

#### A.

What picture is obtained if noise cleaning is applied to P, using the technique of smoothing with the following mask:

1	1	1	1
$\frac{1}{9}$	1	1	1
	1	1	1

Compute the answer only for the window of 3 rows and 5 columns specified below.

	x = 1	x = 2	x = 3	x = 4	x = 5
y=2					
y = 3					
y=4					

#### В.

What picture is obtained if noise cleaning is applied to P, performed by median filtering over a cross shaped neighborhood as shown below:

	X	
X	X	X
	X	

Compute the answer only for the window of 3 rows and 5 columns specified below.

	x = 1	x = 2	x = 3	x = 4	x = 5
y=2					
y = 3					
y = 4					

## $\mathbf{C}.$

What picture is obtained if the Sobel edge detection technique is applied to P? Compute the answer only for the window of 3 rows and 5 columns specified below.

	x = 1	x=2	x = 3	x = 4	x = 5
y = 2					
y = 3					
y=4					