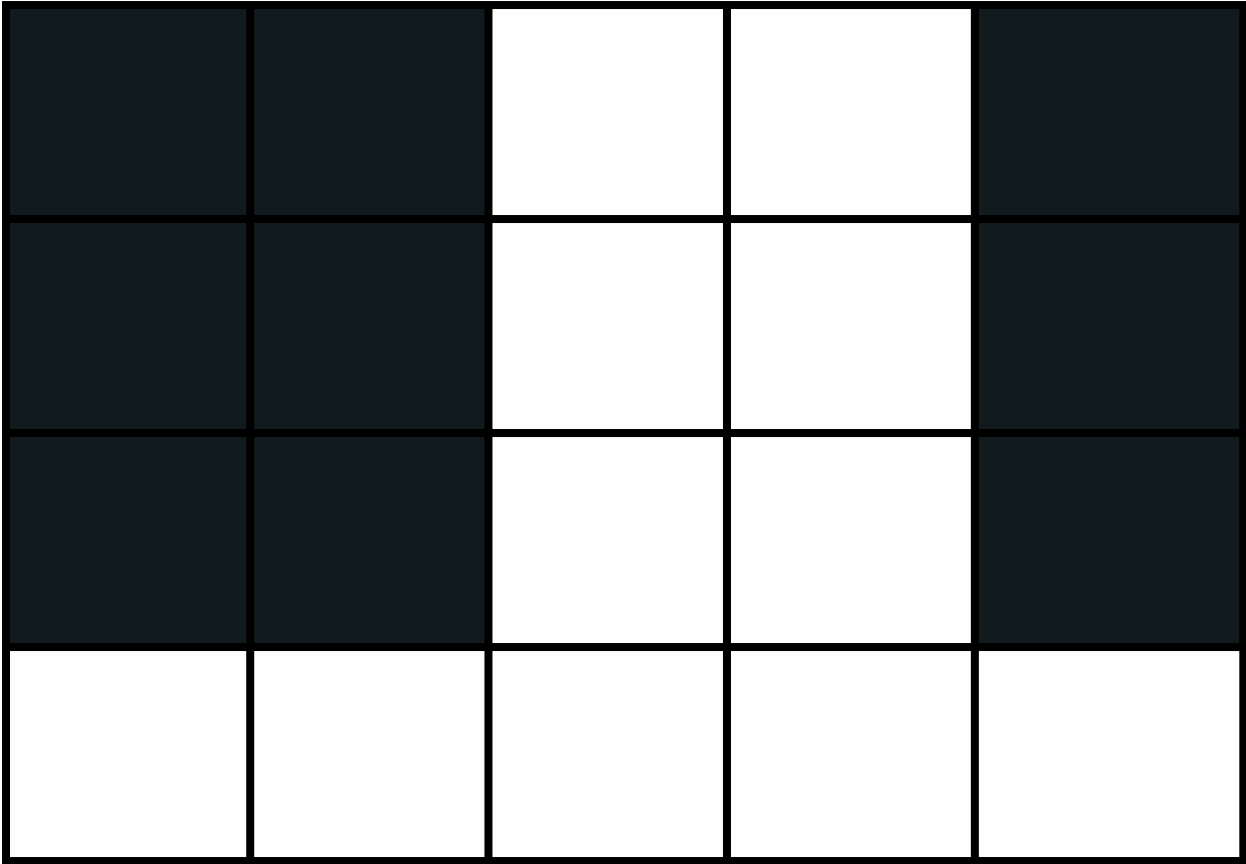


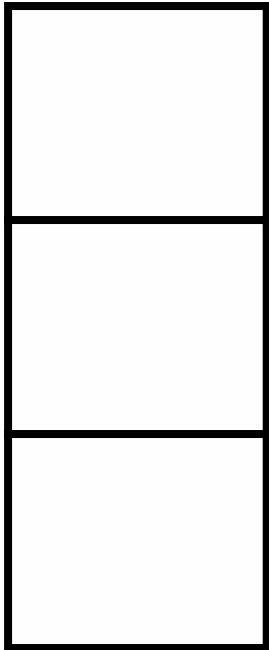
# **Exercises 17**

**Morphological methods, Convolution and Denoising (1400)**

1- Apply the kernel to the image with erosion method. Use Zero-Padding method for padding. (300 points)

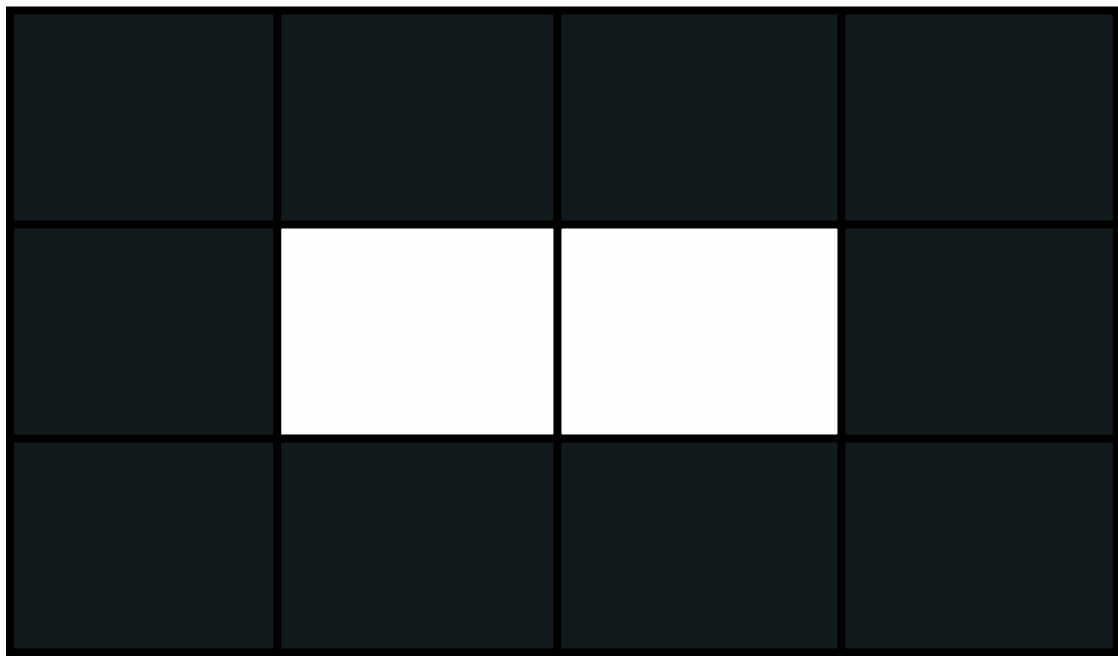


Original Image (4 x 5 )

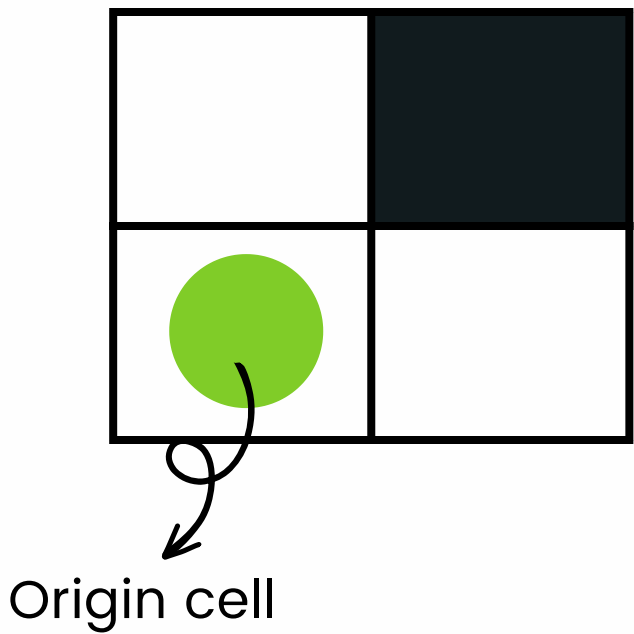


Kernel (3x1)

2- Apply the kernel to the image with dilation method. Use Zero-Padding method for padding. (300 points)



Original Image (3 x 4 )



Kernel (2x2)

**3-Convolve the following image with Gaussian kernel (3x3), use Zero-Padding. (400 points)**

50	60	90	0	0
18	95	20	36	0
8	10	1	0	0
6	20	40	20	80
3	0	0	15	0

Original Image

4-Convolve the following image with Median kernel (3x3), use Zero-Padding. (400 points)

50	60	90	0	0
18	95	20	36	0
8	10	1	0	0
6	20	40	20	80
3	0	0	15	0

Original Image