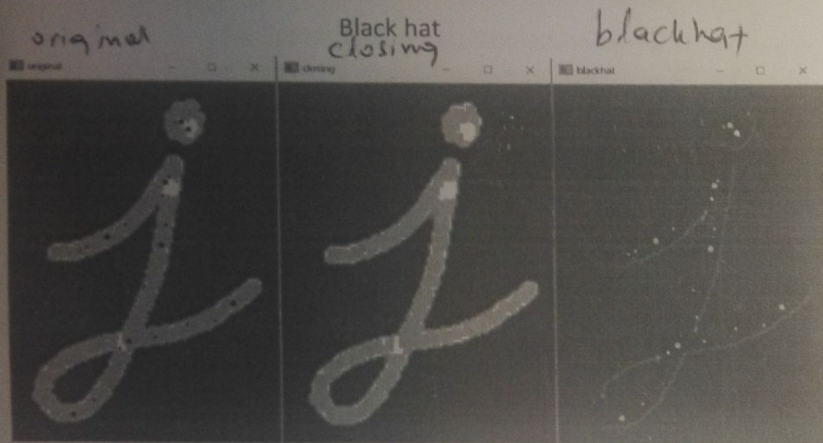
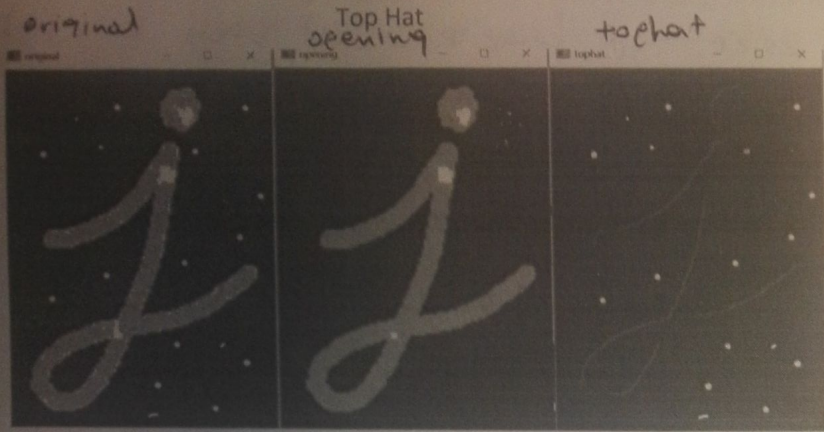


Top hat: The difference between input image and opening the image.

$\text{tophat} = \text{cv2.morphologyEx}(\text{img}, \text{cv2.MORPH_TOPHAT}, \text{kernel})$





The difference between the closing and the input image


$\text{blackhat} = \text{cv2.morphologyEx}(\text{img}, \text{cv2.MORPH_BLACKHAT}, \text{kernel})$

We can create an elliptical or ~~ee~~ circular shaped kernels, instead of rectangular shapes, as we did in the previous example.

for this purpose, we use `cv2.getStructuringElement()`

Rectangular kernel 
`cv2.getStructuringElement(cv2.MORPH_RECT, (x, y))` ^{size}

Elliptical kernel 
`cv2.getStructuringElement(cv2.MORPH_ELLIPSE, (x, y))`

Cross-shaped kernel 
`cv2.getStructuringElement(cv2.MORPH_CROSS, (x, y))`

(2,2)