

Exp:Opening and Closing

Opening

```
image1 = cv2.morphologyEx(image1, cv2.MORPH_OPEN, kernel)
```

Closing

```
image2 = cv2.morphologyEx(image1, cv2.MORPH_CLOSE, kernel)
```

Kernel

```
kernel11 = cv2.getStructuringElement(cv2.MORPH_CROSS,(11,11))
```

```
# Rectangular Kernel
```

```
>>> cv2.getStructuringElement(cv2.MORPH_RECT,(5,5))  
array([[1, 1, 1, 1, 1],  
       [1, 1, 1, 1, 1],  
       [1, 1, 1, 1, 1],  
       [1, 1, 1, 1, 1],  
       [1, 1, 1, 1, 1]], dtype=uint8)
```

```
# Elliptical Kernel
```

```
>>> cv2.getStructuringElement(cv2.MORPH_ELLIPSE,(5,5))  
array([[0, 0, 1, 0, 0],  
       [1, 1, 1, 1, 1],  
       [1, 1, 1, 1, 1],  
       [1, 1, 1, 1, 1],  
       [0, 0, 1, 0, 0]], dtype=uint8)
```

```
# Cross-shaped Kernel
```

```
>>> cv2.getStructuringElement(cv2.MORPH_CROSS,(5,5))  
array([[0, 0, 1, 0, 0],  
       [0, 0, 1, 0, 0],  
       [1, 1, 1, 1, 1],  
       [0, 0, 1, 0, 0],  
       [0, 0, 1, 0, 0]], dtype=uint8)
```