

## DSA0210 Computer Vision with Open CV LAB Experiments

Experiment-28: Morphological operations based on OpenCV using Morphological Gradient technique.

### **PROGRAM:**

```
import cv2

import numpy as np

import matplotlib.pyplot as plt

# Read the input image

img = cv2.imread(r"D:\New Folder\input.jpeg")

# Check if image is loaded

if img is None:

    raise FileNotFoundError("Image not found. Check the file path.")

# Convert image to grayscale

gray = cv2.cvtColor(img, cv2.COLOR_BGR2GRAY)

# Create structuring element (kernel)

kernel = np.ones((5, 5), np.uint8)

# Apply Morphological Gradient

morph_gradient = cv2.morphologyEx(gray, cv2.MORPH_GRADIENT, kernel)

# Display images

plt.figure(figsize=(8, 4))

plt.subplot(1, 2, 1)
```

```
plt.imshow(gray, cmap="gray")  
plt.title("Original Grayscale Image")  
plt.axis("off")
```

```
plt.subplot(1, 2, 2)  
plt.imshow(morph_gradient, cmap="gray")  
plt.title("Morphological Gradient Image")  
plt.axis("off")
```

```
plt.tight_layout()  
plt.show()
```

### OUTPUT:

