

17. Perform Sharpening of Image using Laplacian mask implemented with an extension of diagonal neighbors,

PROGRAM:

```
EXP-17.py - C:\Users\reddy\OneDrive\Desktop\COMPUTER VISION\EXP-17.py (3.11.9)
File Edit Format Run Options Window Help
import cv2
import numpy as np

# Read image
img = cv2.imread(r"C:\Users\reddy\OneDrive\Desktop\COMPUTER VISION\iii.jpg")

# Convert to grayscale
gray = cv2.cvtColor(img, cv2.COLOR_BGR2GRAY)

# Laplacian mask with diagonal neighbors
kernel = np.array([[1, 1, 1],
                  [1, -8, 1],
                  [1, 1, 1]])

# Apply filter
laplacian = cv2.filter2D(gray, -1, kernel)

# Sharpen image
sharpened = cv2.subtract(gray, laplacian)

# Show images
cv2.imshow("Original Image", gray)
cv2.imshow("Sharpened Image", sharpened)
cv2.waitKey(0)
cv2.destroyAllWindows()
```

OUTPUT:

