import cv2

import numpy as np

import matplotlib.pyplot as plt

# Load an image

image = cv2.imread('/content/Sample-jpg-image-10mb.jpg', cv2.IMREAD\_COLOR)

gray\_image = cv2.cvtColor(image, cv2.COLOR\_BGR2GRAY)

# Define the Laplacian kernel with a negative center coefficient

laplacian\_kernel = np.array([[0, -1, 0],

[-1, 5, -1],

[0, -1, 0]])

# Apply the Laplacian filter to the image

laplacian\_result = cv2.filter2D(gray\_image, -1, laplacian\_kernel)

# Sharpen the image by adding the Laplacian result to the original image

sharpened\_image = cv2.add(gray\_image, laplacian\_result)

# Display the original and sharpened images

plt.figure(figsize=(10, 5))

plt.subplot(1, 2, 1)

plt.title('Original Image')

plt.imshow(gray\_image, cmap='gray')

plt.axis('off')

plt.subplot(1, 2, 2)

plt.title('Sharpened Image')

plt.imshow(sharpened\_image, cmap='gray')

plt.axis('off')

plt.show()

