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# Step 1: Upload an image
from google.colab import files
uploaded = files.upload()

# Step 2: Import necessary libraries
import cv2
import matplotlib.pyplot as plt
import numpy as np
from PIL import Image
import io

# Step 3: Extract filename and read the image
filename = next(iter(uploaded))
image = Image.open(io.BytesIO(uploaded[filename]))

# Convert the PIL image to a numpy array and then to OpenCV format (BGR)
image = cv2.cvtColor(np.array(image), cv2.COLOR_RGB2BGR)

# Step 4: Convert the image to grayscale
gray_image = cv2.cvtColor(image, cv2.COLOR_BGR2GRAY)

# Step 5: Define a custom kernel for erosion (e.g., a 5x5 kernel)
kernel = np.ones((5, 5), np.uint8)

# Step 6: Apply erosion to the grayscale image
eroded_image = cv2.erode(gray_image, kernel, iterations=2)

# Step 7: Display the original and eroded images
plt.figure(figsize=(10,5))

# Original Image
plt.subplot(1, 2, 1)
plt.title("Original Image")
plt.imshow(gray_image, cmap='gray')
plt.axis('off')

# Eroded Image
plt.subplot(1, 2, 2)
plt.title("Eroded Image")
plt.imshow(eroded_image, cmap='gray')
plt.axis('off')

plt.show()
```

Original Image

Eroded Image