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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 image to numpy array and then to OpenCV format (BGR)
image = cv2.cvtColor(np.array(image), cv2.COLOR_RGB2BGR)

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

# Step 5: Apply Canny edge detection
edges = cv2.Canny(gray_image, threshold1=100, threshold2=200)

# Step 6: Display the original and edge-detected images
plt.figure(figsize=(10,5))

# Original Image
plt.subplot(1, 2, 1)
plt.title("Original Image")
plt.imshow(cv2.cvtColor(image, cv2.COLOR_BGR2RGB))
plt.axis('off')

# Edge-detected Image (Canny)
plt.subplot(1, 2, 2)
plt.title("Canny Edge Detection")
plt.imshow(edges, cmap='gray')
plt.axis('off')

plt.show()
```

Original Image



Canny Edge Detection

