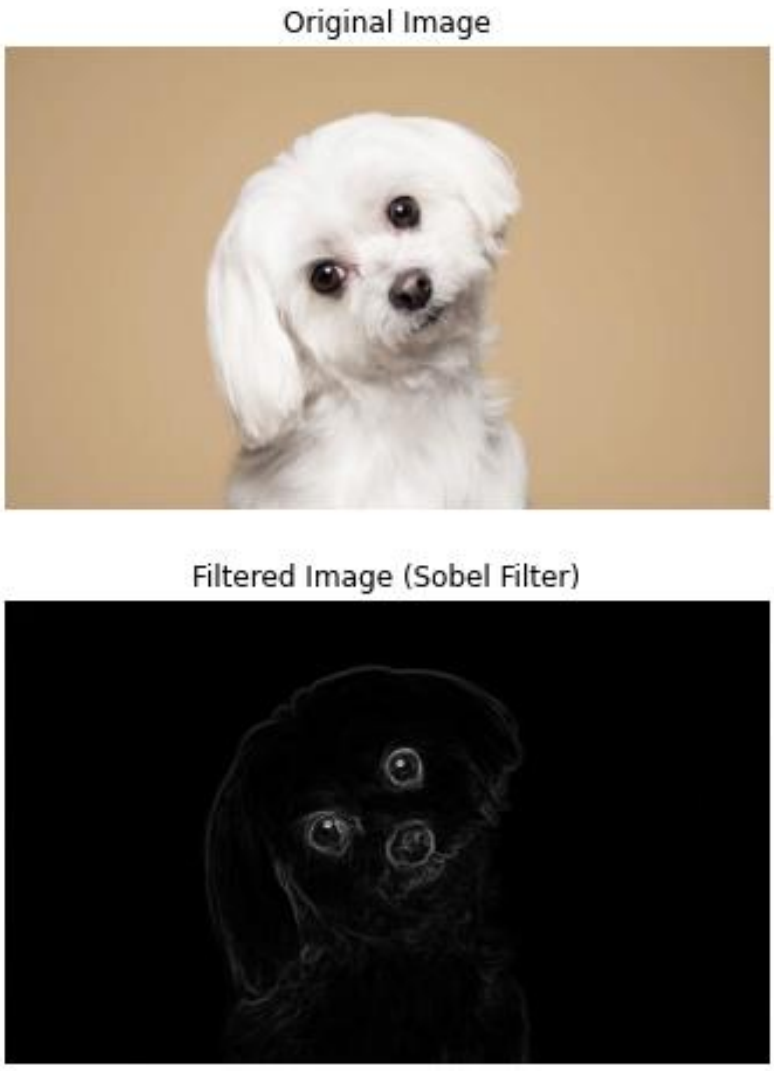
```
# Using a sobel filter, filter the image and display it.

import cv2
import matplotlib.pyplot as plt

# Load the original image
image = cv2.imread(r'C:\Users\91702\Downloads\dog.jpg', cv2.IMREAD_COLOR)

# Convert to grayscale
gray_image = cv2.cvtColor(image, cv2.COLOR_BGR2GRAY)

# Apply Sobel filter
sobelx = cv2.Sobel(gray_image, cv2.CV_64F, 1, 0, ksize=5)
sobely = cv2.Sobel(gray_image, cv2.CV_64F, 0, 1, ksize=5)
sobel_combined = cv2.magnitude(sobelx, sobely)

# Plot original and filtered images
plt.figure(figsize=(10, 8))

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

plt.subplot(2, 1, 2)
plt.title('Filtered Image (Sobel Filter)')
```

```
plt.imshow(sobel_combined, cmap='gray')

plt.axis('off')


plt.show()
```

Output=>



```
# Using SciPy Linear Algebra please solve the below problem. Input: 7x + 2y = 8 4x + 5y = 10

import numpy as np
from scipy.linalg import solve

# Coefficient matrix A
A = np.array([[7, 2],
        [4, 5]])

# Right-hand side vector b
b = np.array([8, 10])

# Solve the system
solution = solve(A, b)

# Output the solution
solution


# Output =>

array([0.74074074, 1.40740741])
```