```
import cv2
import numpy as np
import matplotlib.pyplot as plt

# Load image in grayscale
image = cv2.imread('/content/do_nawab-100x100.png', cv2.IMREAD_GRAYSCALE)

# Apply Sobel operator in X and Y directions
sobel_x = cv2.Sobel(image, cv2.CV_64F, 1, 0, ksize=3)
sobel_y = cv2.Sobel(image, cv2.CV_64F, 0, 1, ksize=3)

# Compute the magnitude of the gradient
magnitude = np.sqrt(sobel_x**2 + sobel_y**2)

# Convert to 8-bit image
magnitude = np.uint8(np.absolute(magnitude))

# Display the results
plt.figure(figsize=(10, 7))
plt.subplot(1, 3, 1), plt.imshow(image, cmap='gray'), plt.title('Original Image')
plt.subplot(1, 3, 2), plt.imshow(magnitude, cmap='gray'), plt.title('Sobel Edge Magnitude')
plt.subplot(1, 3, 3), plt.imshow(sobel_x, cmap='gray'), plt.title('Sobel X Direction')
plt.show()
```