Exp-6- Record-EDGE DETECTION

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Aim:

To perform edge detection using Sobel, Laplacian, and Canny edge detectors.

Software Required:

Anaconda - Python 3.7

Algorithm:

Step1:

Import all the necessary modules for the program.

Step2:

Load a image using imread() from cv2 module.

Step3:

Convert the image to grayscale

Step4:

Using Sobel operator from cv2,detect the edges of the image.

Step5:

Using Laplacian operator from cv2,detect the edges of the image and Using Canny operator from cv2,detect the edges of the image.

Program:

```
## Exp-6- Record-EDGE DETECTION ##
## NAME : AANKARSH J ##
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import cv2
import matplotlib.pyplot as plt
img=cv2.imread("suflower.png")
gray=cv2.cvtColor(image,cv2.COLOR_BGR2GRAY)
gray = cv2.GaussianBlur(gray,(3,3),0)
sobelx = cv2.Sobel(gray,cv2.CV_64F,1,0,ksize=5)
plt.figure(figsize=(8,8))
plt.subplot(1,2,1)
plt.imshow(gray)
plt.title("Original Image")
plt.axis("off")
plt.subplot(1,2,2)
plt.imshow(sobelx)
plt.title("Sobel X axis")
plt.axis("off")
plt.show()
sobely = cv2.Sobel(gray,cv2.CV_64F,0,1,ksize=5)
plt.figure(figsize=(8,8))
plt.subplot(1,2,1)
plt.imshow(gray)
plt.title("Original Image")
plt.axis("off")
plt.subplot(1,2,2)
plt.imshow(sobely)
plt.title("Sobel Y axis")
plt.axis("off")
plt.show()
sobelxy = cv2.Sobel(gray,cv2.CV_64F,1,1,ksize=5)
plt.figure(figsize=(8,8))
plt.subplot(1,2,1)
plt.imshow(gray)
plt.title("Original Image")
```
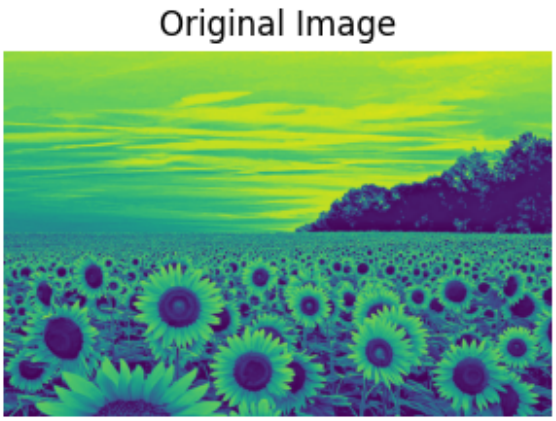
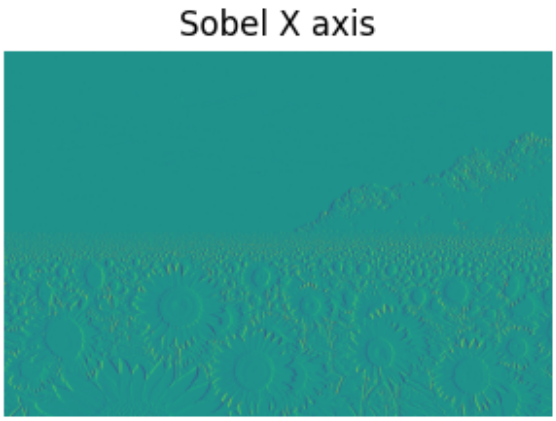

```
plt.axis("off")
plt.subplot(1,2,2)
plt.imshow(sobelxy)
plt.title("Sobel XY axis")
plt.axis("off")
plt.show()
lap=cv2.Laplacian(gray,cv2.CV_64F)
plt.figure(figsize=(8,8))
plt.subplot(1,2,1)
plt.imshow(gray)
plt.title("Original Image")
plt.axis("off")
plt.subplot(1,2,2)
plt.imshow(lap)
plt.title("Laplacian Edge Detector")
plt.axis("off")
plt.show()
canny=cv2.Canny(gray,120,150)
plt.figure(figsize=(8,8))
plt.subplot(1,2,1)
plt.imshow(gray)
plt.title("Original Image")
plt.axis("off")
plt.subplot(1,2,2)
plt.imshow(canny)
plt.title("Canny")
plt.axis("off")
plt.show()
```

Output:

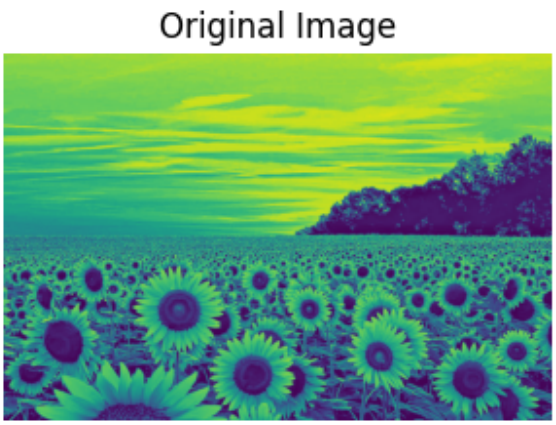
SOBEL EDGE DETECTOR

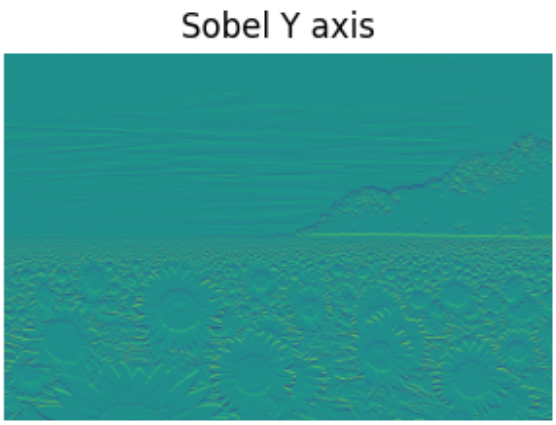
SOBEL X:



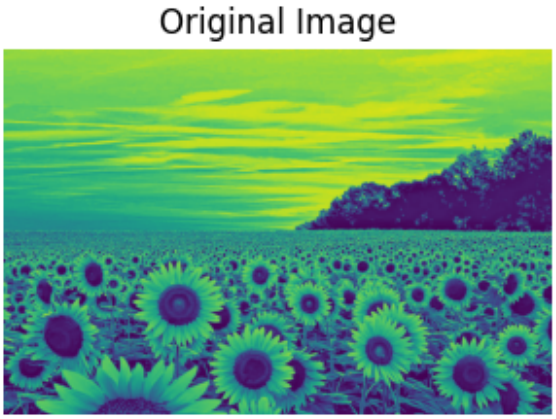


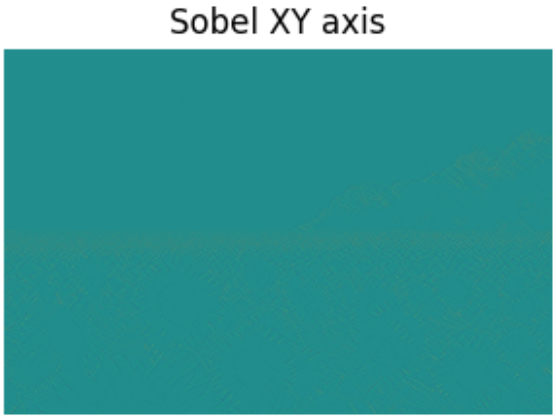
SOBEL Y:



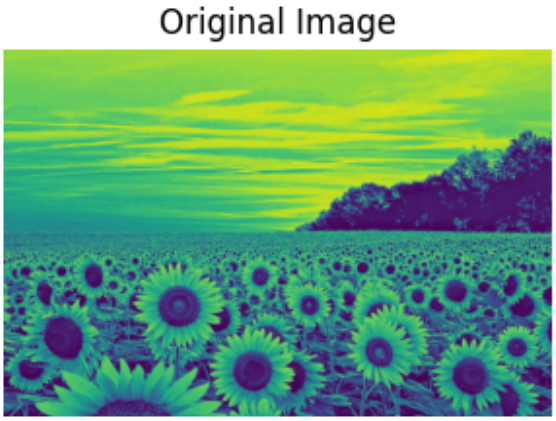


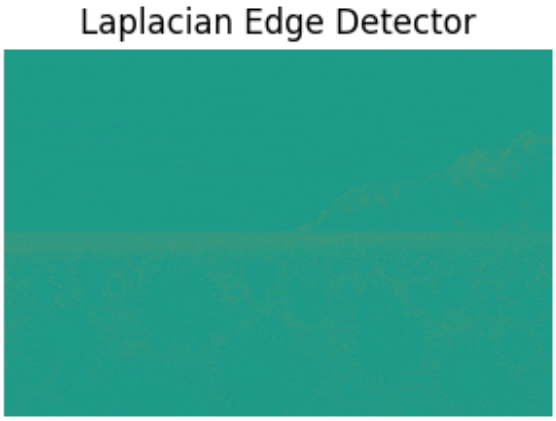
SOBEL XY:



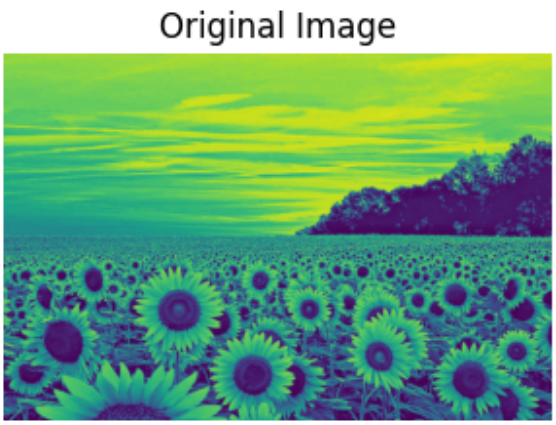


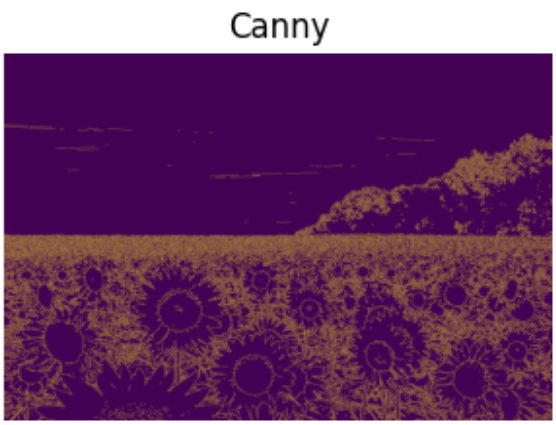
LAPLACIAN EDGE DETECTOR





CANNY EDGE DETECTOR





Result:

Thus the edges are detected using Sobel, Laplacian, and Canny edge detectors.