Edge-Linking-using-Hough-Transformm

Aim:

To write a Python program to detect the lines using Hough Transform.

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 Canny operator from cv2,detect the edges of the image.

Step5:

Using the HoughLinesP(),detect line co-ordinates for every points in the images.Using For loop,draw the lines on the found co-ordinates.Display the image.

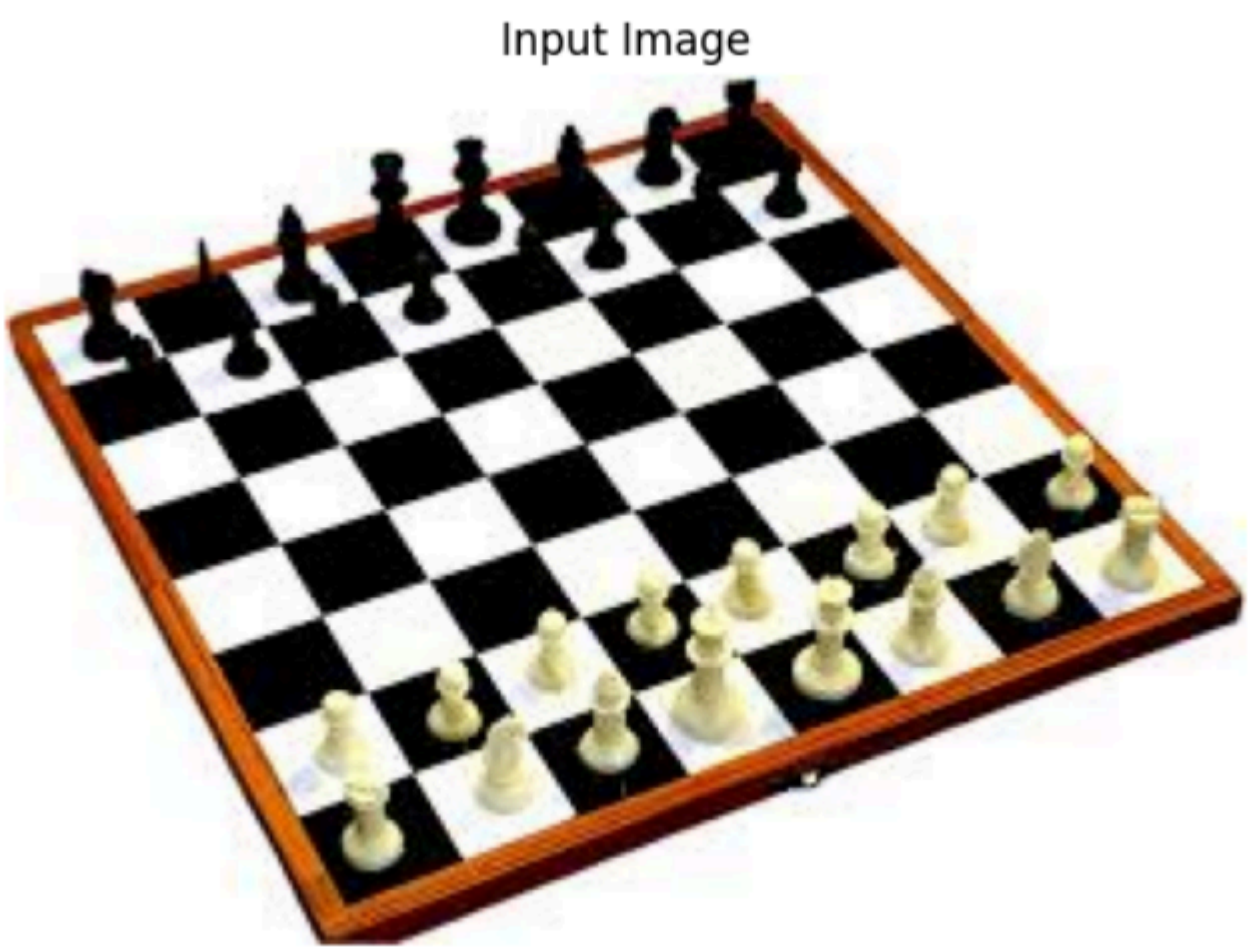
Code

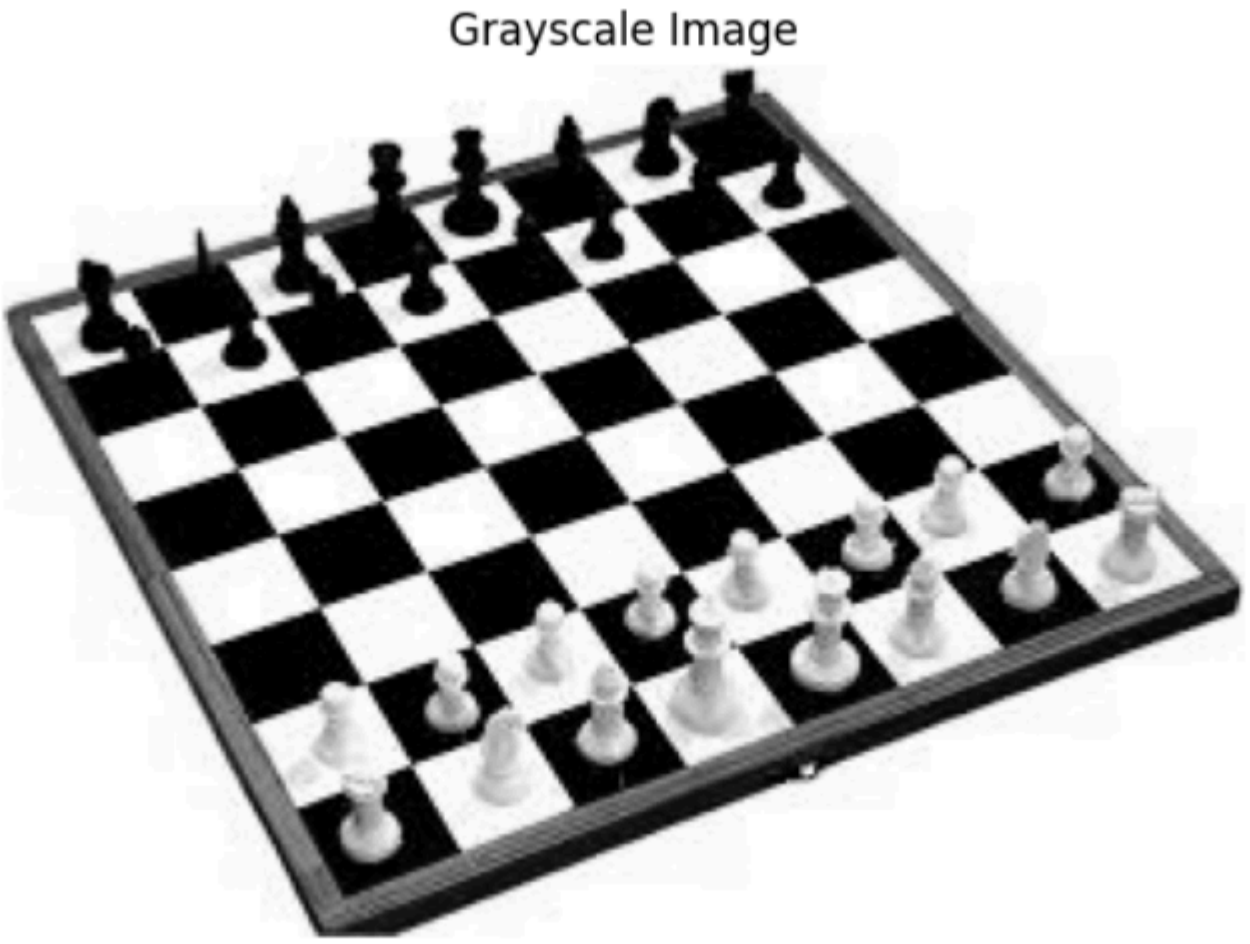
```
import cv2
import numpy as np
import matplotlib.pyplot as plt

image = cv2.imread('Qn_7_.jpg')

gray_image = cv2.cvtColor(image, cv2.COLOR_BGR2GRAY)
plt.imshow(cv2.cvtColor(image, cv2.COLOR_BGR2RGB))
plt.title("Input Image")
```

```
plt.axis('off')

plt.imshow(gray_image, cmap='gray')
plt.title("Grayscale Image")
plt.axis('off')

edges = cv2.Canny(gray_image, 50, 150)
plt.imshow(edges, cmap='gray')
plt.title("Canny Edge Detector")
plt.axis('off')

lines = cv2.HoughLinesP(edges, 1, np.pi / 180, 100, minLineLength=50, maxLineGap=10)

for line in lines:
    x1, y1, x2, y2 = line[0]
    cv2.line(image, (x1, y1), (x2, y2), (0, 255, 0), 2)

plt.imshow(cv2.cvtColor(image, cv2.COLOR_BGR2RGB))
plt.title("Result of Hough Transform")
plt.axis('off')
```

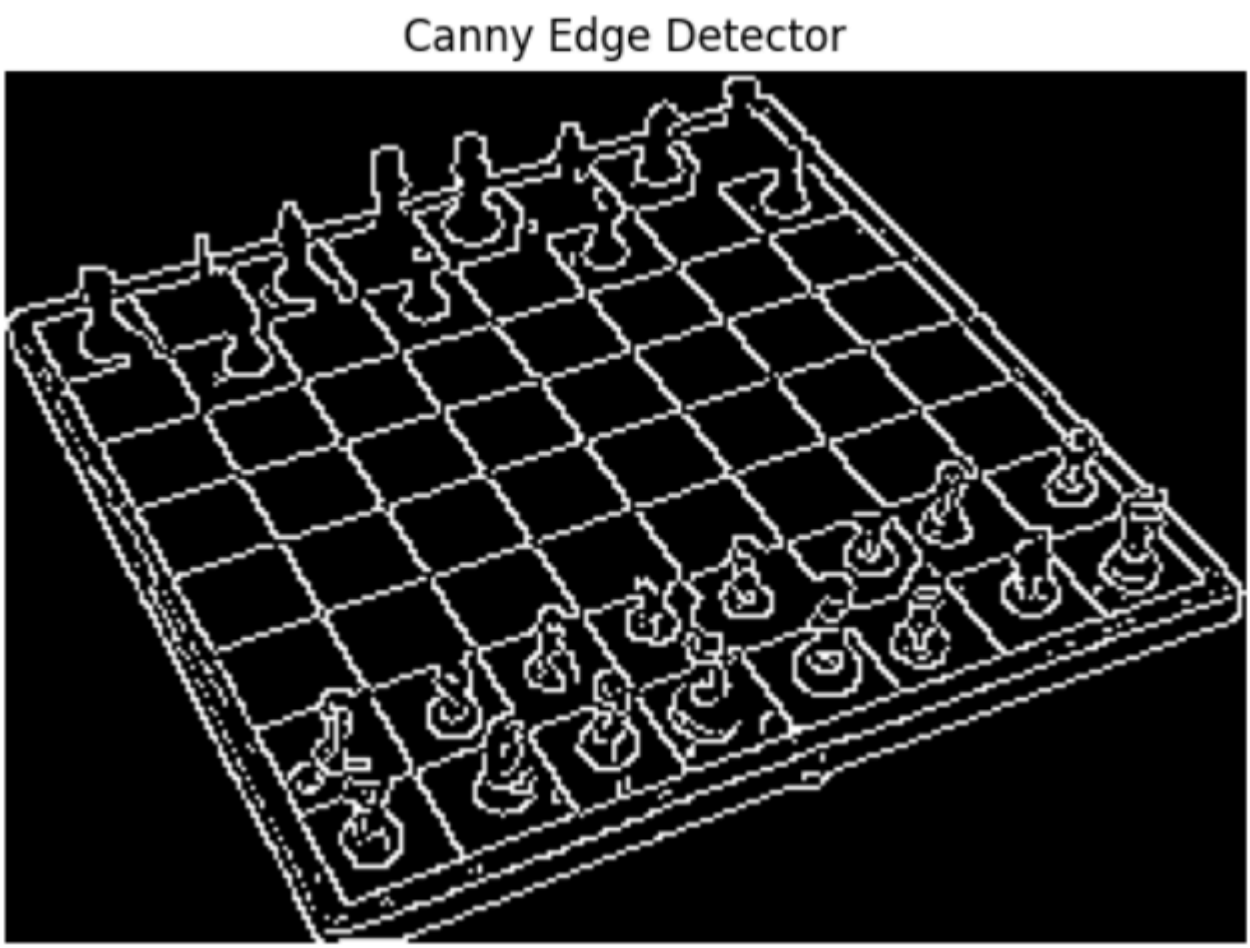
Output

Input image and grayscale image





Canny Edge detector output



Display the result of Hough transform

Result

Thus,The Python program to detect the lines using Hough Transform run successfully.