EXPERIMENT-6

Contour Based Image Segmentation

Aim: To perform Image Segmentation using Contours

Algorithm:

Step1: import necessary libraries, cv2 and numpy as np

Step2: Load the image using cv2.imread

Step3: Apply Gaussian blur to the image

Step4: Convert the image to grayscale

Step5: Perform edge detection using the Canny algorithm

Step6: Find and Draw contours on the original image using findContours() and drawContours()

Step7: Display the original image and the contour image.

Program Code:

```
[15]: import cv2
      import numpy as np

      image = cv2.imread("Beach and boat.jpg")
      gray = cv2.cvtColor(image, cv2.COLOR_BGR2GRAY)

      blurred = cv2.GaussianBlur(gray, (9, 9), 0)

      edges = cv2.Canny(blurred, 50, 150)

      contours, _ = cv2.findContours(edges, cv2.RETR_EXTERNAL, cv2.CHAIN_APPROX_SIMPLE)

      contour_image = image.copy()
      cv2.drawContours(contour_image, contours, -1, (0, 255, 0), 2)

      cv2.imshow('Original Image', image)
      cv2.imshow('Contour Image', contour_image)
      cv2.waitKey(0)
      cv2.destroyAllWindows()
```

Input:

Output: