THRESHOLDING

Aim

To segment the image using global thresholding, adaptive thresholding and Otsu's thresholding using python and OpenCV.

Software Required

1. Anaconda - Python 3.7
2. OpenCV

Algorithm

Step1:

Load the necessary packages

Step2:

Read the Image and convert to grayscale

Step3:

Use Global thresholding to segment the image.

Step4:

Use Adaptive thresholding to segment the image.

Step5:

Use Otsu's method to segment the image and display the results.

Program

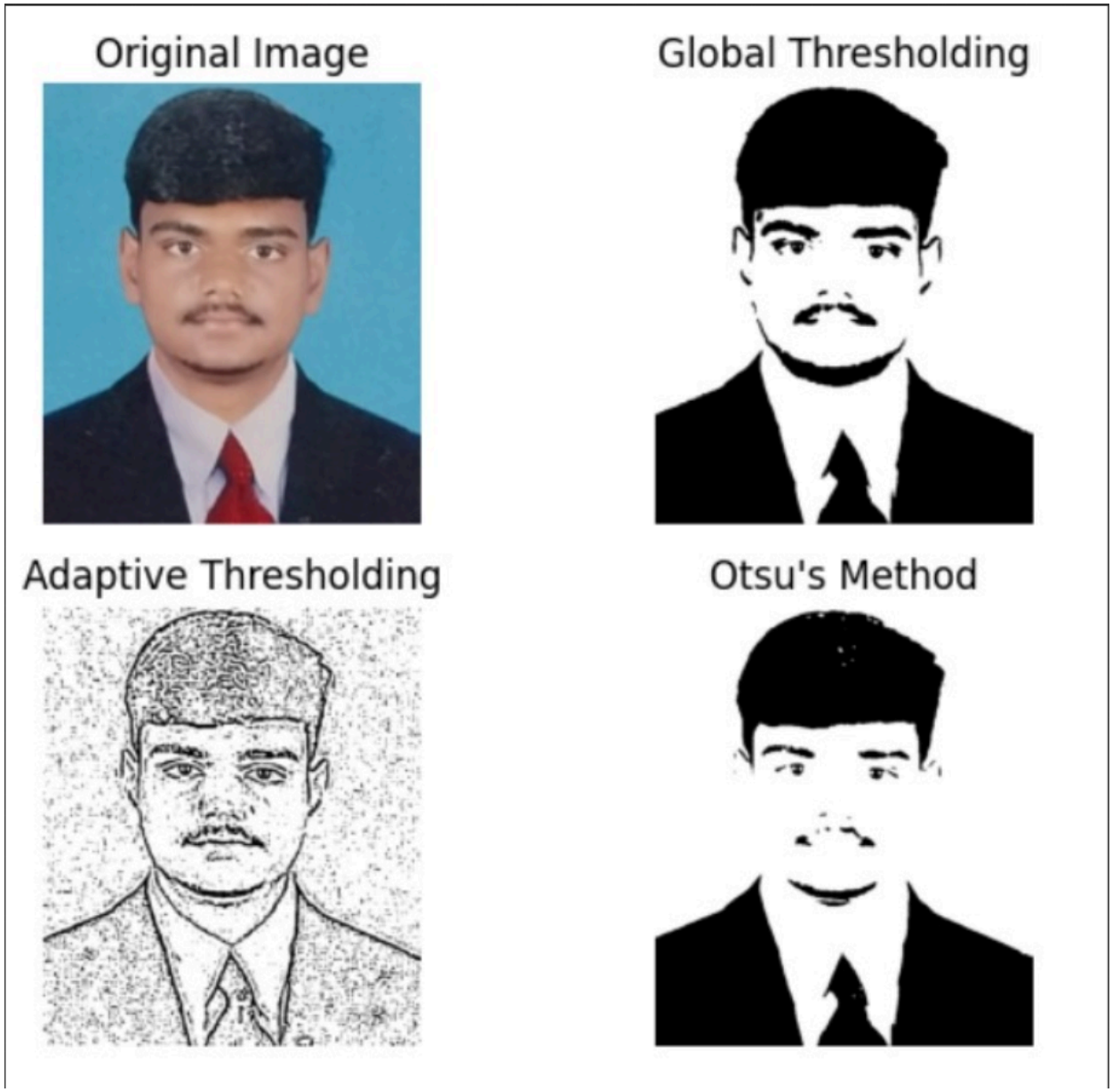
NAME : NARESH.M

REG NO :212223220046

```
import cv2
import matplotlib.pyplot as plt

# Read the Image and convert to grayscale

image=cv2.imread('nar.jpg')
gray_img=cv2.cvtColor(image,cv2.COLOR_BGR2GRAY)

# Original image

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

# Use Global thresholding to segment the image

_,global_thresholded = cv2.threshold(gray_img, 127, 255,
cv2.THRESH_BINARY)

# Use Adaptive thresholding to segment the image

adaptive_thresholded = cv2.adaptiveThreshold(gray_img, 255,
cv2.ADAPTIVE_THRESH_GAUSSIAN_C, cv2.THRESH_BINARY, 11, 2)

# Use Otsu's method to segment the image

_,otsu_thresholded = cv2.threshold(gray_img, 0, 255, cv2.THRESH_BINARY +
cv2.THRESH_OTSU)

# Global Thresholding
plt.subplot(2, 2, 2)
plt.imshow(global_thresholded, cmap='gray')
plt.title("Global Thresholding")
plt.axis('off')

# Adaptive Thresholding
plt.subplot(2, 2, 3)
```

```
plt.imshow(adaptive_thresholded, cmap='gray')
plt.title("Adaptive Thresholding")
plt.axis('off')

# Otsu's Method
plt.subplot(2, 2, 4)
plt.imshow(otsu_thresholded, cmap='gray')
plt.title("Otsu's Method")
plt.axis('off')

# Show the plot
plt.tight_layout()
plt.show()
```

Output



Result

Thus the images are segmented using global thresholding, adaptive thresholding and optimum global thresholding using python and OpenCV.