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LAB 4

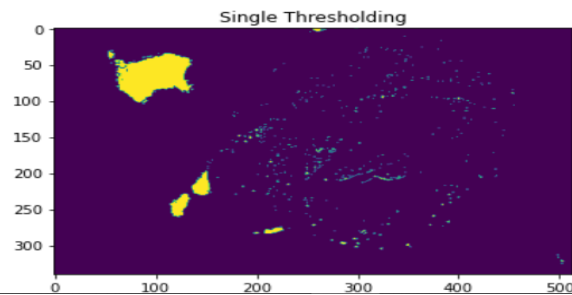## 4.1.Thresholding

4.1.1:Single Thresholding:

Single

```
In [1]: import cv2
        import numpy as np
        from matplotlib import pyplot as plt

        img = cv2.imread('blue.png',0)
        [M,N]=(img.shape)
        T=125
        for i in range (M):
            for j in range(N):
                if img[i,j]<T:
                    img[i,j]=0
                else:
                    img[i,j]=1
        plt.imshow(img)
        plt.title("Single Thresholding")

Out[1]: Text(0.5, 1.0, 'Single Thresholding')
```


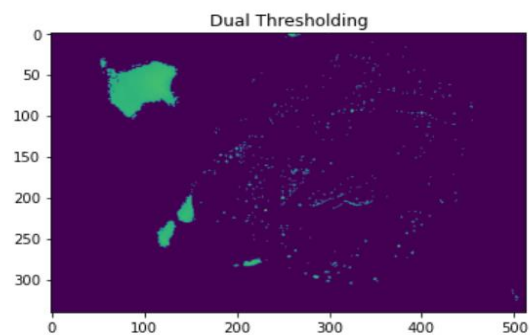### 4.1.2.Dual Thresholding:

Dual

```
In [3]: img = cv2.imread('blue.png',0)
        [M,N]=(img.shape)
        T1=125
        T2=200
        for i in range (M):
            for j in range(N):
                if (img[i,j]>=T1 and img[i,j]<=T2):
                    pass
                else:
                    img[i,j] =0

        plt.imshow(img)
        plt.title("Dual Thresholding")

Out[3]: Text(0.5, 1.0, 'Dual Thresholding')
```

4.1.3.Grayscale:

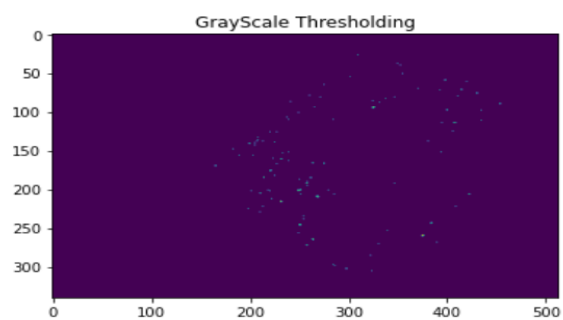**Gray Scale**

```
In [4]: img = cv2.imread('blue.png',0)
        A=150
        B=200
        for i in range (M):
            for j in range(N):
                if (img[i,j]>=A and img[i,j]<=B):
                    img[i,j] =255 #L-1
                else:
                    img[i,j]=0

        plt.imshow(img)
        plt.title("GrayScale Thresholding")

Out[4]: Text(0.5, 1.0, 'GrayScale Thresholding')
```


4.2.Gray Level Slicing:

4.2.1. 1st approach:

Gray Level Slicing

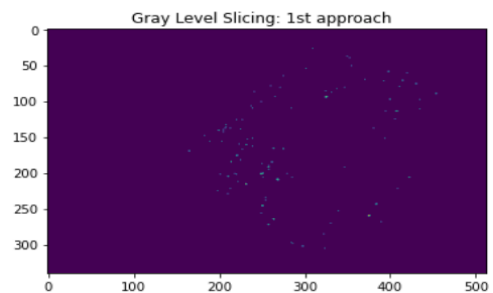#### 1st approach

```python
In [5]: img = cv2.imread('blue.png',0)
        A=150
        B=200
        for i in range (M):
            for j in range(N):
                if (img[i,j]>=A and img[i,j]<=B):
                    img[i,j] =255 #L-1
                else:
                    img[i,j]=0

        plt.imshow(img)
        plt.title("Gray Level Slicing: 1st approach  ")

Out[5]: Text(0.5, 1.0, 'Gray Level Slicing: 1st approach  ')
```


Gray Level Slicing: 1st approach

4.2.2. 2nd approach:

2nd approach

```python
In [6]: img = cv2.imread('blue.png',0)
        A=150
        B=200
        for i in range (M):
            for j in range(N):
                if (img[i,j]>=A and img[i,j]<=B):
                    img[i,j] =255 #L-1
                else:
                    pass

        plt.imshow(img)
        plt.title("Gray Level Slicing: 2nd approach  ")

Out[6]: Text(0.5, 1.0, 'Gray Level Slicing: 2nd approach  ')
```


Gray Level Slicing: 2nd approach