

```
In [125]: import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import cv2
```

```
In [142]: def GetIndices(file_name):
img = cv2.imread(file_name,0)
bg=img[0,0]

set1=np.array([],int)
for i in range(200):
    if np.sum(np.array(img[:,i]!=bg))>50:
        set1=np.append(set1,i)
pos1=int(np.mean(set1))

set2=np.array([],int)
for i in range(pos1+50,350):
    if np.sum(np.array(img[:,i]!=bg))>50:
        set2=np.append(set2,i)
pos2=int(np.mean(set2))


set3=np.array([],int)
for i in range(pos2+50,500):
    if np.sum(np.array(img[:,i]!=bg))>50:
        set3=np.append(set3,i)
pos3=int(np.mean(set3))

## Below are the row and column slicing indices for the three segments img[ro
# segment1=[5:175,pos1-70:pos1+70]
# segment2=[5:175,pos2-70:pos2+70]
# segment3=[5:175,pos3-70:pos3+70]

segment1=[pos1-70,pos1+70]
segment2=[pos2-70,pos2+70]
segment3=[pos3-70,pos3+70]

return [segment1,segment2,segment3]
```

```
In [143]: def Processimage(file_name):
img = cv2.imread(file_name,0)
ker=np.ones((4,4))
ret,thresh = cv2.threshold(img, 0, 255, cv2.THRESH_BINARY_INV|cv2.THRESH_OTS
img2=cv2.erode(thresh,ker,iterations=1)

img2=255-img2 ##to return white image instead of black image

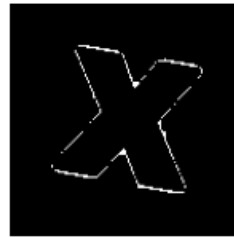
return img2
```

```
In [144]: def GetSegmentedImages(file_name):
a=GetIndices(file_name)
img2=Processimage(file_name)
image1=img2[5:145,a[0][0]:a[0][1]]
image2=img2[5:145,a[1][0]:a[1][1]]
image3=img2[5:145,a[2][0]:a[2][1]]
image = image1, image2, image3
```

```
images = [image1, image2, image3]
```

```
return images
```

```
In [145]: images=GetSegmentedImages("8.png")
for i in range(3):
    ax = plt.subplot(1, 3, i+1)
    plt.imshow(images[i].astype("uint8"), cmap='gray')
    #plt.title(class_names[labels[i]])
    plt.axis("off")
```



```
In [146]: images=GetSegmentedImages("16.png")
for i in range(3):
    ax = plt.subplot(1, 3, i+1)
    plt.imshow(images[i].astype("uint8"), cmap='gray')
    #plt.title(class_names[labels[i]])
    plt.axis("off")
```



```
In [148]: images=GetSegmentedImages("11.png")
for i in range(3):
    ax = plt.subplot(1, 3, i+1)
    plt.imshow(images[i].astype("uint8"), cmap='gray')
    #plt.title(class_names[labels[i]])
    plt.axis("off")
```



```
In [ ]:
```