

## 10.KNN

```
from sklearn.datasets import load_digits
from sklearn.model_selection import train_test_split
from sklearn.neighbors import KNeighborsClassifier
from sklearn.metrics import accuracy_score

digits=load_digits()
x_train,x_test,y_train,y_test=train_test_split(digits.data,digits.target,test_size=0.25,random_state=0)

knn=KNeighborsClassifier()
knn.fit(x_train,y_train)

prediction=knn.predict(x_test)
print('KNN Accuracy : %.3f%% accuracy_score(y_test,prediction))
```

## 7.

```
import cv2

img=cv2.imread('C:/Users/Dell/Downloads/71.jpg',cv2.IMREAD_GRAYSCALE)
sbx=cv2.Sobel(img,cv2.CV_64F,1,0,ksize=3)
sby=cv2.Sobel(img,cv2.CV_64F,0,1,ksize=3)

scx=cv2.Scharr(img,cv2.CV_64F,1,0)
scy=cv2.Scharr(img,cv2.CV_64F,0,1)

cv2.imshow("Sobel X",sbx)
cv2.imshow("Sobel y",sby)
cv2.imshow("Scharr X",scx)
cv2.imshow("Scharr y",scy)
cv2.waitKey(0)
cv2.destroyAllWindows()
```

6.

```
import cv2

im=cv2.imread('C:/Users/Dell/Downloads/71.jpg')
img=cv2.cvtColor(im,cv2.COLOR_BGR2GRAY)
ret,thresh1=cv2.threshold(img,120,255,cv2.THRESH_BINARY)
cv2.imshow("Binary Threshold",thresh1)
cv2.waitKey(0)
```

5.

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

im=cv2.imread('C:/Users/Dell/Downloads/71.jpg')
ne_im=cv2.blur(im,(9,9))
plt.title("Blur Image")
plt.imshow(cv2.cvtColor(ne_im,cv2.COLOR_BGR2RGB))
plt.show()
```

```
im=cv2.imread('C:/Users/Dell/Downloads/1.jpg')
dst=cv2.GaussianBlur(im,(9,9),cv2.BORDER_REFLECT_101)
cv2.imshow("Gaussian Blur Image",np.hstack((im,dst)))
cv2.waitKey(0)
```

4.

```
import cv2

im_1=cv2.imread("C:/Users/Dell/Downloads/2-500x250-2.jpg")
im_2=cv2.imread("C:/Users/Dell/Downloads/1-500x250-3.jpg")
res = cv2.addWeighted(im_1, 0.7, im_2, 0.3, 0)
cv2.imshow("Additions Image",res)
cv2.waitKey(0)
```

3.

```
import cv2

img=cv2.imread("C:/Users/Dell/Downloads/1.jpg")
re_img=cv2.resize(img,(600,300))
rot_ma=cv2.getRotationMatrix2D((img.shape[1]/2,img.shape[0]/2),30,1)
rot_img=cv2.warpAffine(img,rot_ma,(img.shape[1],img.shape[0]))

cv2.imshow("Resized Image",re_img)
cv2.imshow("Rotation Image",rot_img)
cv2.waitKey(0)
```

2.

```
import cv2

img=cv2.imread("C:/Users/Dell/Downloads/71.jpg")
value=img[10,10,:]
print("Accessing the pixel value",value)

img[10,10,0]=255
value=img[10,10,:]
print("Modifying the pixel value",value)
```

1.

```
import cv2

im=cv2.imread("C:/Users/Dell/Downloads/71.jpg")
imGray=cv2.cvtColor(im,cv2.COLOR_BGR2GRAY)
cv2.imshow("Gray Image",imGray)
cv2.waitKey(0)
```