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SYMCA-SEM-IV

SUBJECT: IMAGE PROCESSING AND COMPUTER VISION

Ex no: 1

Date: 02-1-2020

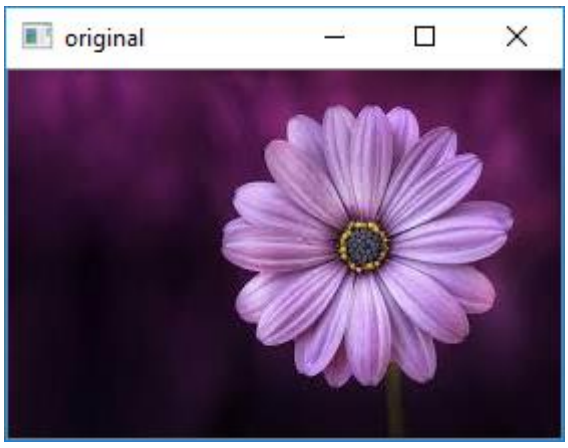
Problem Statement:

Display image

Program:

```
import cv2
import dlib
import numpy as np
img=cv2.imread('flower.jpg')
cv2.imshow('original',img)
cv2.waitkey(0)
cv2.destoryAllwindows()
```

Output:



Ex no: 2

Date: 02-1-2020

Problem Statement:

Display gray image

Program:

```
import cv2
import dlib
import numpy as np
img=cv2.imread('flower.jpg',0)
cv2.imshow('original',img)
cv2.waitkey(0)
cv2.destoryAllwindows()
```

Output:

Ex no: 3

Date: 02-01-2020

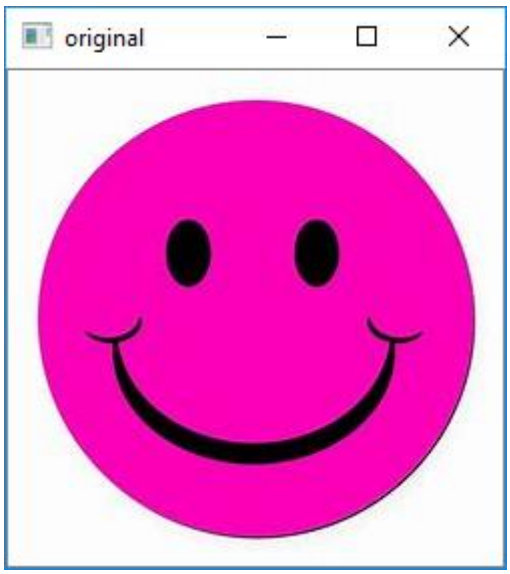
Problem Statement:

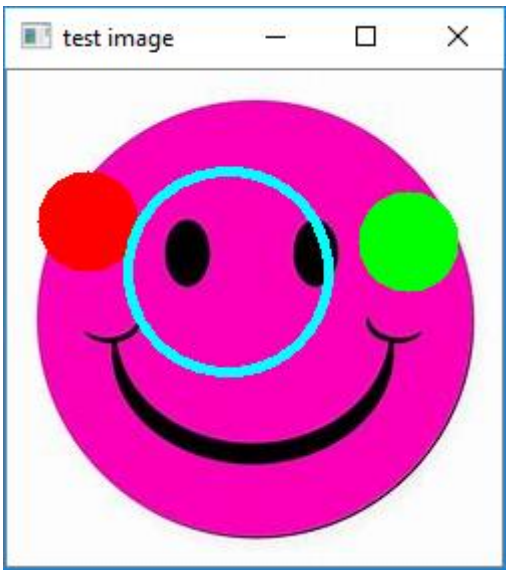
Color handling

Program:

```
import cv2
image=cv2.imread('face.jpg')
cv2.imshow('original',image)
cv2.circle(image,(200,85),25,(0,255,0),-1)
cv2.circle(image,(40,75),25,(0,0,255),-1)
cv2.circle(image,(110,100),50,(255,255,0),3)
cv2.imshow("test image",image)
cv2.waitKey(0)
cv2.destoryAllwindow()
```

Output:





Ex no: 4

Date: 02-01-2020

Problem Statement:

Image negative

Program:

```
import cv2
image=cv2.imread('clown1.jpg')
cv2.imshow('original',image)
img_not=cv2.bitwise_not(image)
cv2.imshow("Negative",img_not)
cv2.waitKey(0)
cv2.destoryAllWindows()
```

Output:

Ex no: 5

Date: 02-01-2020

Problem Statement:

Contrast stretching

Program:

```
import cv2
from matplotlib import pyplot as plt
img1=cv2.imread('images.jpg')
img=cv2.cvtColor(img1,cv2.COLOR_BGR2RGB)
nmax=255
nmin=0
out=cv2.normalize(img1,None,alpha=nmin,beta=nmax,norm_type=cv2.NORM_MINMAX)
plt.subplot(1,2,1),plt.imshow(img)
plt.title('original'),plt.xticks([]),plt.yticks([])
plt.subplot(1,2,2),plt.imshow(out,cmap='gray')
plt.title('output image'),plt.xticks([]),plt.yticks([])
plt.show()
```

Output:

Ex no: 6

Date: 02-01-2020

Problem Statement:

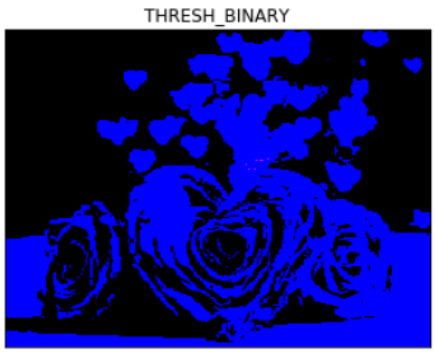
Thresholding

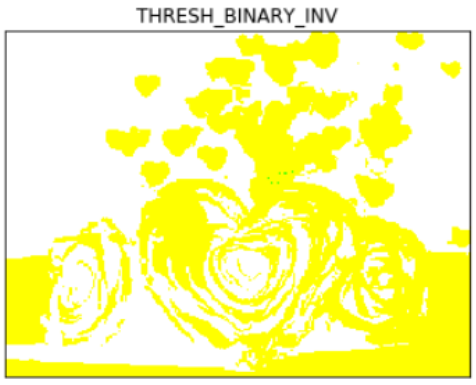
Program:

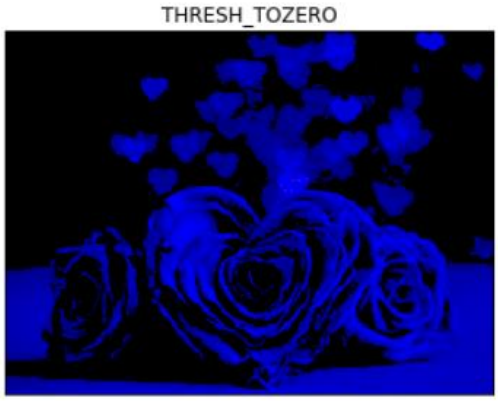
```
from cv2 import *
from matplotlib import pyplot as plt
img1=cv2.imread('download.jpg')
img=cv2.cvtColor(img1,cv2.COLOR_BGR2RGB)
ret,thresh1=threshold(img1,120,255,THRESH_BINARY)
ret,thresh2=threshold(img1,120,255,THRESH_BINARY_INV)
ret,thresh3=threshold(img1,120,255,THRESH_TRUNC)
ret,thresh4=threshold(img1,120,255,THRESH_TOZERO)
ret,thresh5=threshold(img1,120,255,THRESH_TOZERO_INV)
images=[img,thresh1,thresh2,thresh3,thresh4,thresh5]
titles=["Original","THRESH_BINARY","THRESH_BINARY_INV","THRESH_TRUNC","
THRESH_TOZERO","THRESH_TOZERO_INV"]
for i in range(6):
    plt.subplot()
    plt.imshow(images[i],cmap="gray")
    plt.title(titles[i])
    plt.xticks([])
    plt.yticks([])
    plt.show()
waitKey(0)
destroyAllWindows()
```

Output:


Original


THRESH_BINARY


THRESH_BINARY_INV


THRESH_TOZERO


THRESH_TOZERO_INV

Ex no: 7

Date: 02-01-2020

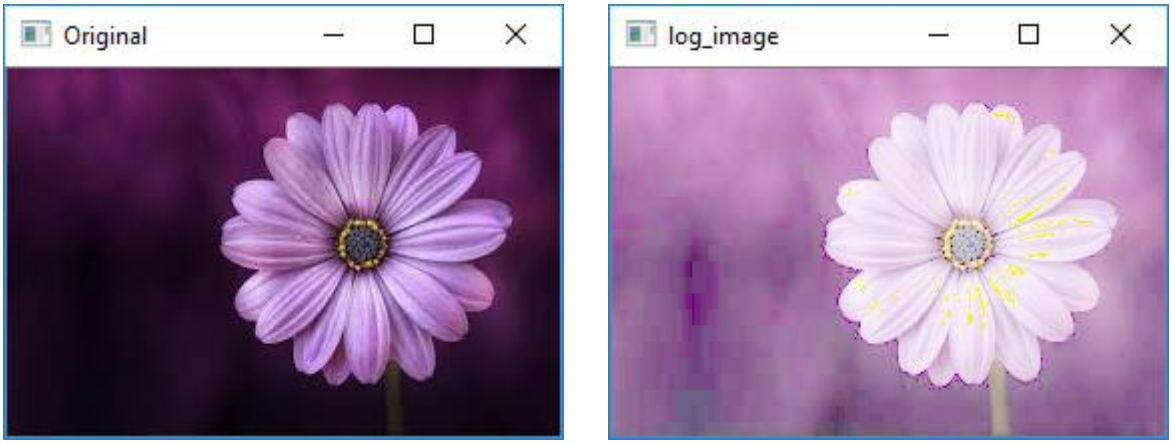
Problem Statement:

log transformation

Program:

```
import cv2
import numpy as np
img=cv2.imread('flower.jpg')
img_log=(np.log(img+1)/(np.log(1+np.max(img))))*255
img_log=np.array(img_log,dtype=np.uint8)
cv2.imshow('log_image',img_log)
cv2.imshow('Original',img)
cv2.waitKey(0)
cv2.destroyAllWindows()
```

Output:



Ex no: 8

Date: 02-01-2020

Problem Statement:

Power law transformation

Program:

```
import cv2
import numpy as np
img=cv2.imread('boat.jpg')
cv2.imshow('Original',img)
im1=img/255.0
im_power_law_transformation=cv2.pow(im1,0.6)
cv2.imshow("power law tansformation",im_power_law_transformation)
cv2.waitKey(0)
cv2.destroyAllWindows()
```

Output: