```
#iit2020022 RAHUL MAHTO
import cv2
from google.colab.patches import cv2_imshow
img = cv2.imread("images/photo.jpg")
cv2_imshow(img)
```

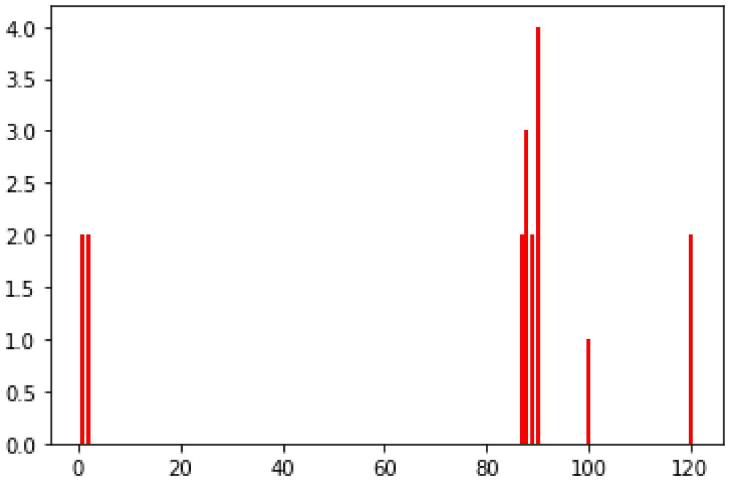
```
import numpy as np

flipimg = np.flipud(img)
cv2_imshow(flipimg)
```

```
intnsimg = img
dimensions = intnsimg.shape
row = dimensions[0]
column = dimensions[1]
for i in range(row):
  for j in range(column):
    pix = intnsimg[i,j]
    temp = (pix[0] + pix[1] + pix[2])/3
    if(temp>150):
      intnsimg[i,j] = (255,255,255)
    elif(temp<50):
      intnsimg[i,j] = (0,0,0)
cv2_imshow(img)
```

```
/usr/local/lib/python3.7/dist-packages/ipykernel_launcher.py:8: RuntimeWarning: o
```

```
import matplotlib.pyplot as plt
pix = [[87, 90, 1],[1, 89, 89],[87, 120, 120],[88, 100, 90],[2, 88, 88],[2, 90, 90]]
temp = {}
for i in pix:
  for j in i:
```

```
    if j in temp:
      temp[j]+=1
    else:
      temp[j]=1

plt.bar(list(temp.keys()), temp.values(), color='r')
plt.show()
```



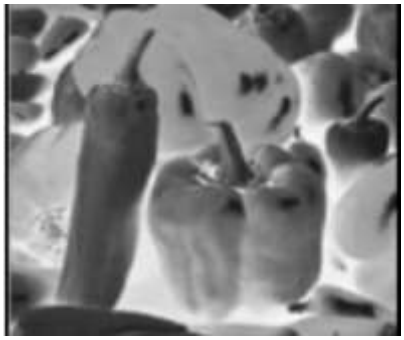

```
import cv2
image = cv2.imread("/content/images/PIC_OF_ASS.png")
gray_image = cv2.cvtColor(image, cv2.COLOR_BGR2GRAY)
cv2_imshow(gray_image)
img1=gray_image
simg = np.zeros((img1.shape[0],img1.shape[1]))
c=img1.min()
d=img1.max()
a=0
b=255
for i in range(img1.shape[0]):
  for j in range(img1.shape[1]):
    simg[i,j]=int(((img1[i,j]-c)*(b-a)/(d-c))+a)
cv2_imshow(simg)
```

```
from PIL import Image
import scipy.ndimage
import numpy as np

im = Image.open('/content/images/PIC_OF_ASS.png')
display(im)
data = im.getdata()
r = [(d[0], 0, 0) for d in data]
g = [(0, d[1], 0) for d in data]
b = [(0, 0, d[2]) for d in data]
im.putdata(r)
display(im)
im.putdata(g)
display(im)
im.putdata(b)
display(im)
```

```
im = Image.open('/content/images/PIC_OF_ASS.png')
shift_image = scipy.ndimage.shift(im, np.array([0, 0, 1]))
si = Image.fromarray(shift_image)
display(si)
```

```
im = Image.open('/content/images/PIC_OF_ASS1.png')
im = im.convert('L')
display(im)
```

```
pix = im.load()
width, height = im.size
mgl = 0
for i in range(int(width)):
  for j in range(int(height)):
    mgl = max(mgl, pix[i,j])

for i in range(int(width)):
  for j in range(int(height)):
    pix[i,j] = mgl-pix[i,j]
display(im)
```



```
gray_image = cv2.imread('/content/images/P.png')
ret, threshold_image = cv2.threshold(gray_image, 127, 250, 0)
cv2_imshow(threshold_image)
```