Experiment Title: 8

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Branch:AIML-1 **Section/Group:B**

Semester:5 **Date of Performance:**

Subject Name:DIP LAB **Subject Code: CSF-336**

1. Aim/Overview of the practical:

Write the python program which help us to understand the implementation and technicalities behind the image histogram, image pyramid, image translation using the required libraries

2. The task to be done:

a) Plot an image into graph.

b) Using of pydrown () function

3. Required libraries or software

```
import numpy as np
import imageio
import matplotlib.pyplot as plt
import cv2 as cv
```

4. Algorithm/Flowchart :

5. Theme/Interests definition(For creative domains):

6. Steps for experiment/practical:

```
# ## Understanding the relation of image with graphs
# ### 1.1 Histogram
# In[4]:
# importing required libraries of opencv
import cv2
```

```
from matplotlib import pyplot as plt
# In[5]:
# reads an input image
img = cv2.imread('aa.jpg',0)
# In[6]:

# find frequency of pixels in range 0-255
histr = cv2.calcHist([img],[0],None,[256],[0,255])
# show the plotting graph of an image
plt.plot(histr)
plt.show()
# In[7]:
# Alternative method of plotting image into histogram
plt.hist(img.ravel(),256,[0,255])
plt.show()
# ## 2. Pydrown function
# In[8]:
import cv2
import matplotlib.pyplot as plt
img = cv2.imread('aa.jpg')
layer = img.copy()
for i in range(4):
    plt.subplot(2, 2, i + 1)
    # using pyrDown() function
layer = cv2.pyrDown(layer)
plt.imshow(layer)
cv2.imshow("str(i)", layer)
cv2.waitKey(0)
cv2.destroyAllWindows()
# In[9]:
import cv2
import numpy as np
image = cv2.imread('aa.jpg')
```

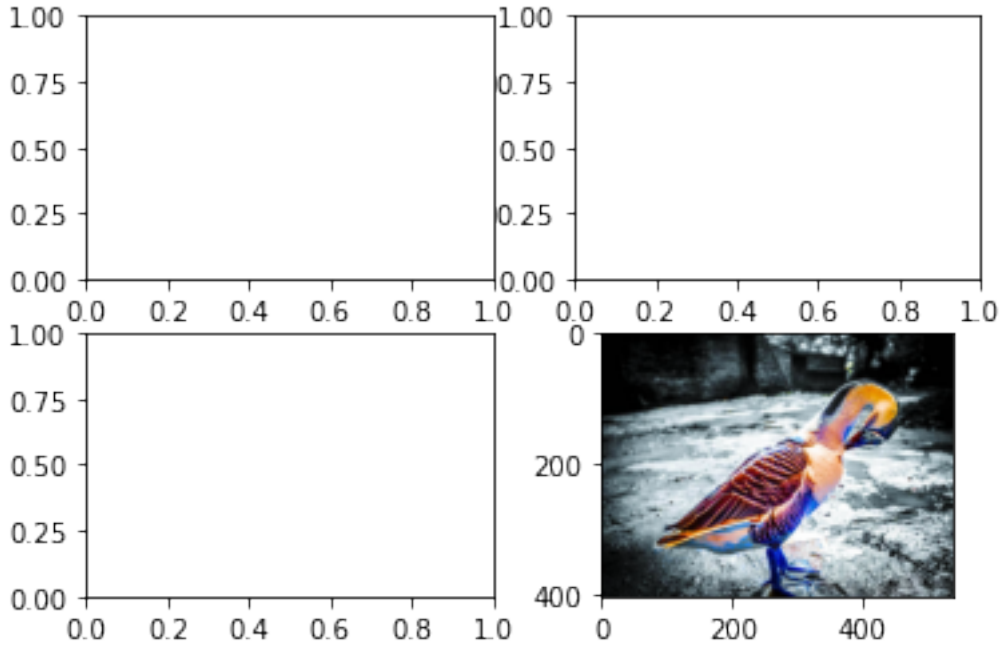
```
# Store height and width of the image
height, width = image.shape[:2]
quarter_height, quarter_width = height / 4, width / 4
T = np.float32([[1, 0, quarter_width], [0, 1, quarter_height]])
# the image using the matrix, T
img_translation = cv2.warpAffine(image, T, (width, height))
cv2.imshow("Originalimage", image)
cv2.imshow('Translation', img_translation)
cv2.waitKey()
cv2.destroyAllWindow()
##  Thank You for visiting my worksheet
```

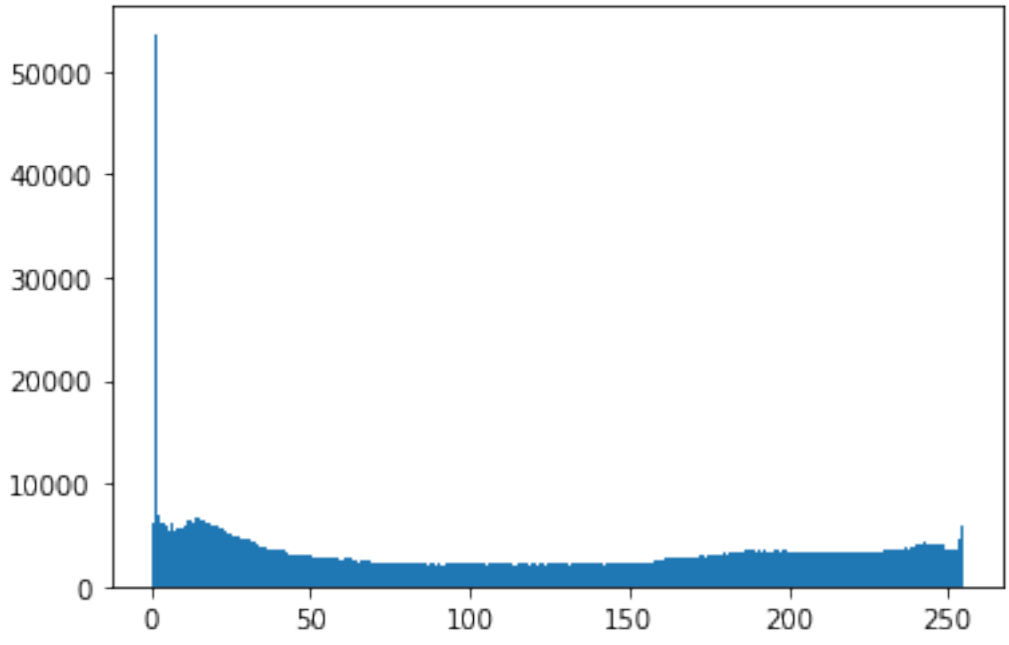
7. Observations/Discussions(For applied/experimental sciences/materials based labs):

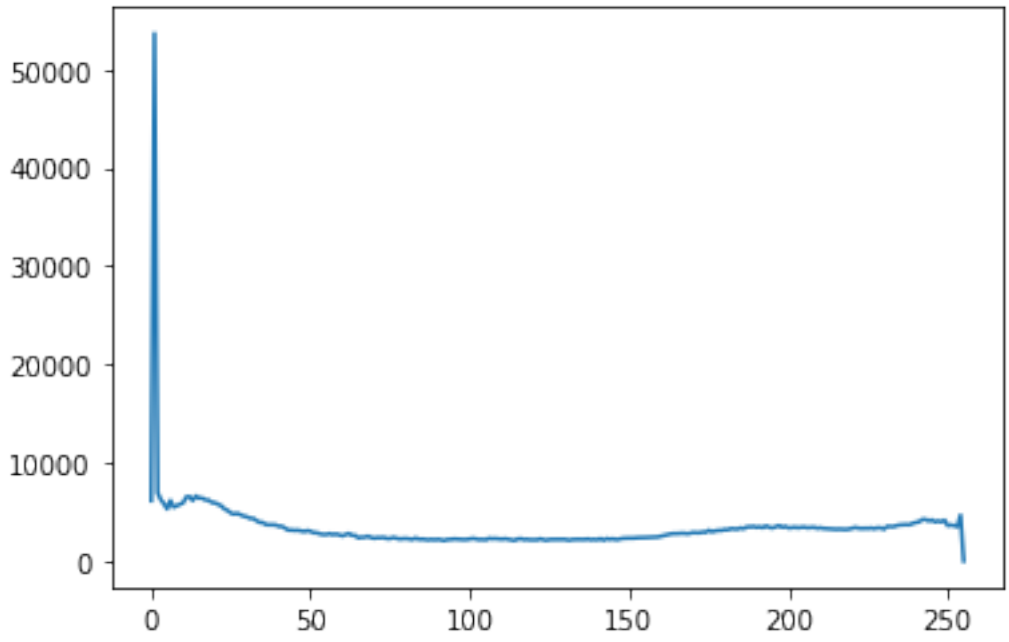
8. Percentage error (if any or applicable):

9. The command that we have learned today in the program :

10. Result/Output/Writing Summary of the concept behind the experiment:


1.00
0.75
0.50
0.25
0.00
0.0
0.2
0.4
0.6
0.8
1.0
0
200
400


50000
40000
30000
20000
10000
0
0
50
100
150
200
250



11. Graphs (If Any): Image /Soft copy of graph paper to be attached here