AI LAB ASSIGNMENT 2

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QUESTION 1:

Q1. Perform Histogram Equalization on the following image

CODE:

```
import cv2

import numpy as np

from matplotlib import pyplot as plt

img = cv2.imread('C:\\Users\\muxxa\\OneDrive\\Desktop\\img.png',0)


hist,bins = np.histogram(img.flatten(),256,[0,256])


cdf = hist.cumsum()

cdf_normalized = cdf * hist.max()/ cdf.max()
```
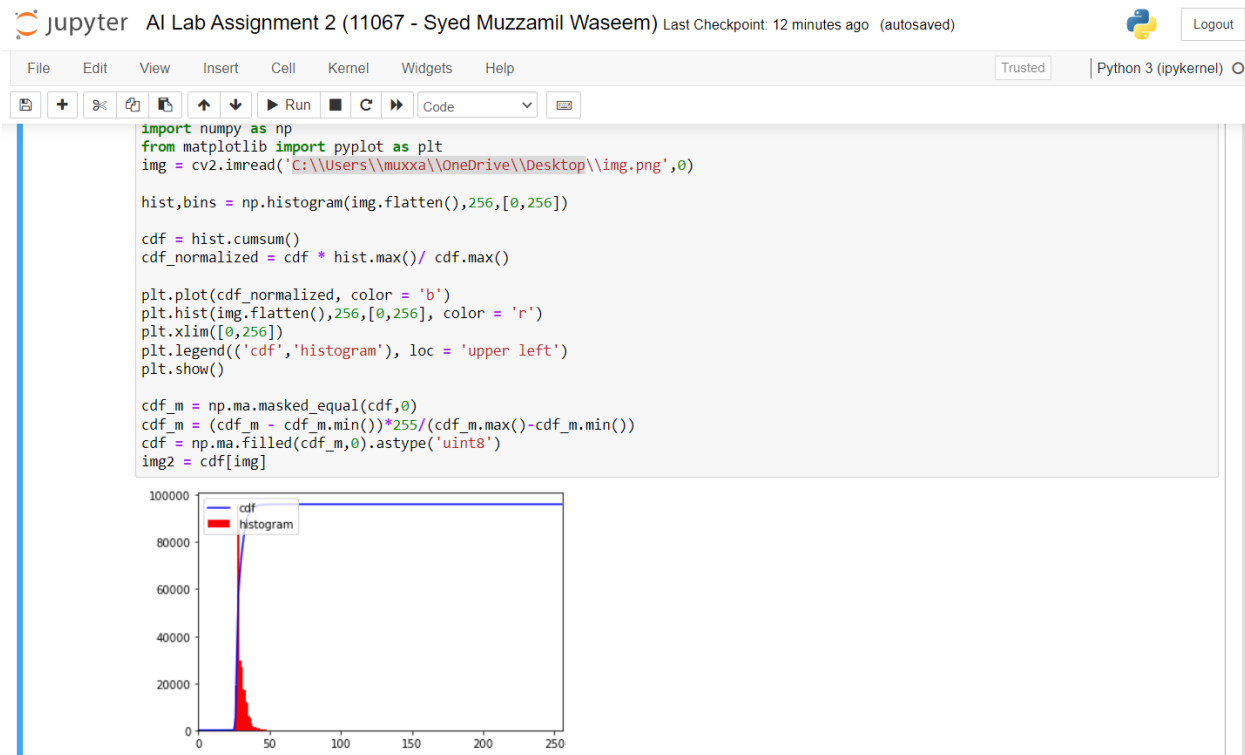
plt.plot(cdf_normalized, color = 'b')

plt.hist(img.flatten(),256,[0,256], color = 'r')

plt.xlim([0,256])

plt.legend(('cdf','histogram'), loc = 'upper left')

plt.show()

cdf_m = np.ma.masked_equal(cdf,0)

cdf_m = (cdf_m - cdf_m.min())*255/(cdf_m.max()-cdf_m.min())

cdf = np.ma.filled(cdf_m,0).astype('uint8')

img2 = cdf[img]

OUTPUT:

QUESTION 2:

Q2.Write a program to implement linear regression on following data:

x = [5,7,8,7,2,17,2,9,4,11,12,9,6]

y = [99,86,87,88,111,86,103,87,94,78,77,85,86]

CODE:

```
import matplotlib.pyplot as plt
from scipy import stats


x = [5,7,8,7,2,17,2,9,4,11,12,9,6]
y = [99,86,87,88,111,86,103,87,94,78,77,85,86]


slope, icp, r, p, std_err = stats.linregress(x, y)


def func(x):
    return  icp+slope * x


model = list(map(func, x))


plt.scatter(x, y)
plt.plot(x, model)
plt.show()
```

OUTPUT:


```python
import matplotlib.pyplot as plt
from scipy import stats

x = [5,7,8,7,2,17,2,9,4,11,12,9,6]
y = [99,86,87,88,111,86,103,87,94,78,77,85,86]

slope, icp, r, p, std_err = stats.linregress(x, y)

def func(x):
    return  icp+slope * x

model = list(map(func, x))

plt.scatter(x, y)
plt.plot(x, model)
plt.show()
```