```
# -*- coding: utf-8 -*-
"""
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"""

import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
from matplotlib.pyplot import imshow
import skimage.color as sc
from PIL import Image

a = np.array(Image.open('pandey.jpg'))
imshow(a)

b = sc.rgb2gray(a)
imshow(b)

c = sc.rgb2grey(a)
imshow(c)

#visualizing the histogram of pixel distribution of the image:
def hist(img):
    fig = plt.figure(figsize=(16,6))
    fig.clf()
    ax = fig.gca()
    ax.hist(img.flatten(), bins = 128)
    plt.show()

hist(b)
```

```
a.shape
b.shape

#visualizing the cumulative histogram of pixel  distribution of the image:
def cum_hist(img):
    fig = plt.figure(figsize=(8,6))
    fig.clf()
    bx = fig.gca()
    bx.hist(img.flatten(), bins = 128, cumulative = 'True')
    plt.show()

cum_hist(b)

#equalizing the image for differentiating close contrast regions
#by using skimage library

from skimage import exposure

img_eq = exposure.equalize_hist(b, nbins = 256, mask = '1')
imshow(img_eq)
hist(img_eq)
cum_hist(img_eq)

img_eq = exposure.equalize_hist(b, nbins = 256, mask = None)
imshow(img_eq)
hist(img_eq)
cum_hist(img_eq)

imshow(b, cmap = 'gray')
imshow(img_eq, cmap= 'gray')
```

```
hist(a)

hist(b)

hist(c)


img_eq = exposure.equalize_hist(a, nbins = 256, mask = '1')

imshow(img_eq)

hist(img_eq)

cum_hist(img_eq)
```