Fig 3. :Original Image

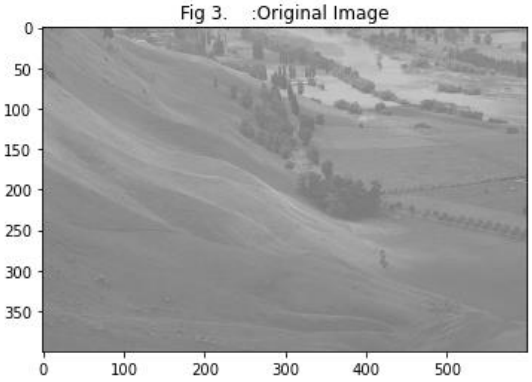


Fig 3. :Input Image histogram

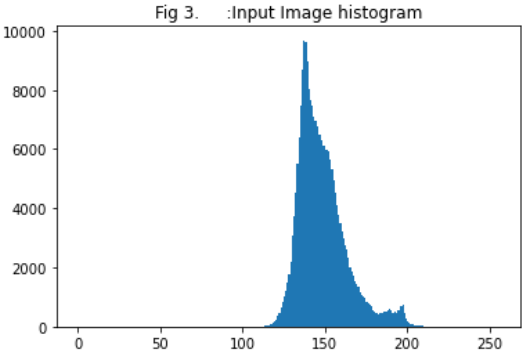
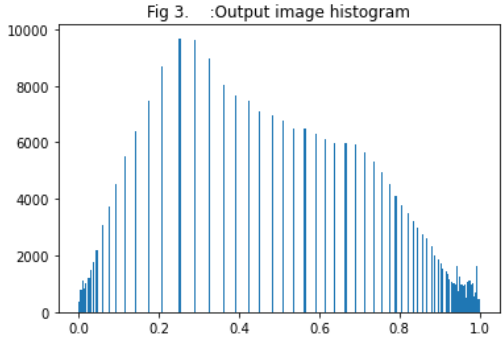


Fig 3. :Output image histogram




```python
def pdf_creation(image,image_level = 256):
    width,height = image.shape

    pdf = np.zeros(image_level, np.float32)

    for i in range(width):
        for j in range(height):
            pdf[image[i][j]]= pdf[image[i][j]] + 1
    pdf = pdf / (height*width)

    return pdf

def cdf_creation(pdf,level = 256):
    cdf = np.zeros(level, np.float32)
    cdf[0] = pdf[0]
    for i in range(1,len(pdf)):
        cdf [i] = cdf[i-1]+pdf[i]

    cdf = np.round((level - 1) * cdf)
    #print(cdf)
    return cdf

def recreation_image(image,cdf):
    output = np.zeros(image.shape)
    width,height = image.shape

    for i in range(width):
        for j in range(height):
            output[i][j]= cdf[image[i][j]]


    #histogram_creation(output,"output")
    from skimage.exposure import rescale_intensity
    output = rescale_intensity(output, in_range=(0, 255))
    #print(output)

    plt.title("Fig 3.    :Output image histogram")
    plt.hist(output.ravel(),256,(0,1))
    plt.show()

    cv2.imshow("output",output)
    cv2.waitKey(0)
    cv2.destroyAllWindows()
```

Fig 3. :Original Image

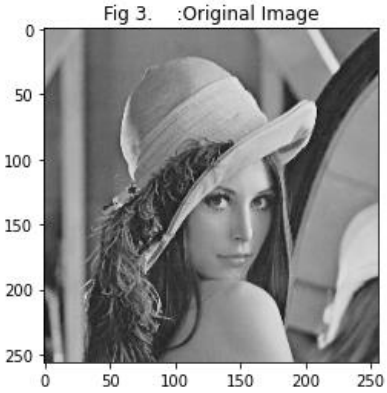


Fig 3. :Input Image histogram

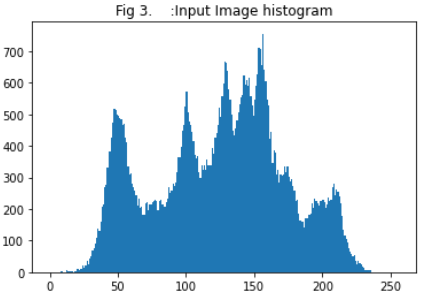


Fig 3. :Output image histogram

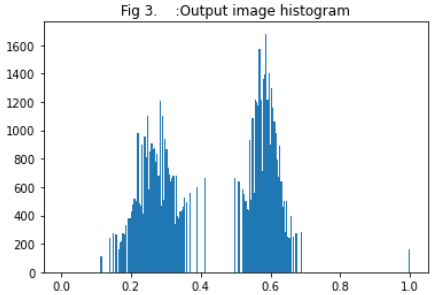


Fig 3. :Guess 1

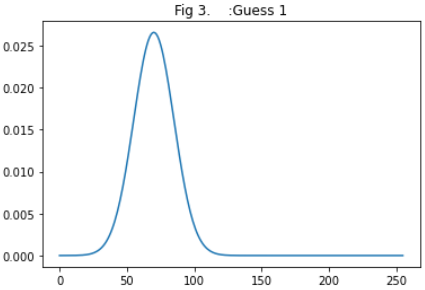


Fig 3. :Guess 2

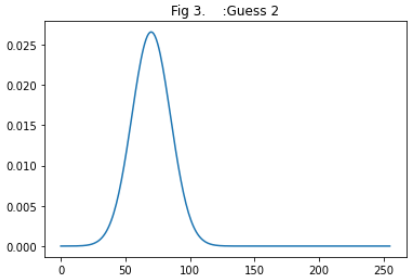
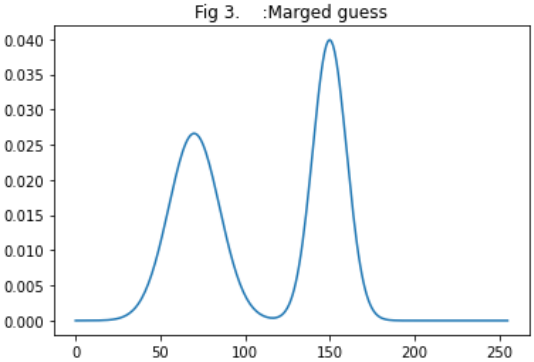


Fig 3. :Marged guess



```python
def pdf_creation(image,image_lavel = 256):
    width,height = image.shape

    pdf = np.zeros(image_lavel, np.float32)

    for i in range(width):
        for j in range(height):
            pdf[image[i][j]]= pdf[image[i][j]] + 1
    pdf = pdf / (height*width)

    return pdf

def cdf_creation(pdf,lavel = 256):
    cdf = np.zeros(lavel, np.float32)
    cdf[0] = pdf[0]
    for i in range(1,len(pdf)):
        cdf [i] = cdf[i-1]+pdf[i]

    cdf = np.round((lavel - 1) * cdf)
    #print(cdf)
    return cdf

def recreation_image(image,cdf):
    output = np.zeros(image.shape)
    width,height = image.shape

    for i in range(width):
        for j in range(height):
            output[i][j]= cdf[image[i][j]]


    #histogram_creation(output,"output")
    from skimage.exposure import rescale_intensity
    output = rescale_intensity(output, in_range=(0, 255))
    #print(output)

    plt.title("Fig 3.    :Output image histogram")
    plt.hist(output.ravel(),256,(0,1))
    plt.show()

    cv2.imshow("output",output)
    cv2.waitKey(0)
    cv2.destroyAllWindows()
```