

Assignment 02 (Odd ID)

1. Histogram Equalization:

- a. Read the image 'cameraman.png'
- b. Compute no. of pixels for each gray level intensity (to generate histogram)
- c. Compute Probability Distribution Function (PDF) = no. of pixels for each level / total no of pixels
- d. Compute Cumulative Distribution Function (CDF) = Cumulative sum of PDF
- e. Multiply each CDF by L-1
- f. Round the value obtained in step e
- g. Display original image and Equalized image using subplot
- h. Display original histogram and equalized histogram using subplot
- i. **Bonus:** Perform Histogram Specification of the input image with your desired image (you can choose any of your image for performing the specification).

2. Bit Plane Slicing:

a	Take a RGB input image and convert it into grayscale image.	01
b	Extract the dimension of the grayscale image (say R).	01
c	For every column of bit depth of R, starting from the LSB, take the column number of the bit positions (say k) of R. Example: If R is an 8-bit image, for the MSB bit position, k should be 7.	02
d	For every k, calculate X, where X is 2 to the power of that column number. $X=2^k$	02
e	Calculate the bitwise and operation for every pixel of the image using the following function. $S = \text{bitand}(A, B)$ ***where A and B are unsigned integers or arrays of unsigned integers. Let, A be the input image (R), and B be X.	03
f	Show the output images (S) for every bit position. It is recommended to use subplot function for showing the output images.	01