Digital Image Processing

Lab Assignment – 2

1. Write a function that computes the histogram of an intensity (gray scale) image. Do not use specific Python functions for histogram computation (like hist).
2. Convert the image into grey scale image and apply exponential transformation. Compare the original image with image generated by exponential transformation and find out parameters which generate the best image.
3. Write a function that performs a histogram equalization (see lecture notes and course book). Use your own function , but do not use functions like **cv2.equalizeHist();**
4. Plot POWER LAW TRANSFORMATION of an image (use c = $\frac{255}{255\hat{}\gamma}$ where C and γ are positive constants, R is original pixel value and S is the resultant pixel value.)
5. Convert the image into grey scale and rotate the image by 30 degree and by 180 degree .Display the results.
6. Perform Contrast Stretching on an image and display original image as well as resultant image.
7. Apply bit plane slicing and then display the original image and the biplanes formed by bits extracted.

Note: Use the given image (convert the color image into grayscale image) as input image for all the problems.