DIP Assignments 1
Deadline: September 5, 2017; Maximum marks: 60

1. Write a program to implement histogram equalization. Capture a photograph in dark. No light (or less light) should be visible in the photograph. Then, apply your histogram equalization program on all the 3 channels (R,G,B) of your dark image, and show the result.

2. Write a program to take the same image as input, and apply gamma transformation on all the 3 channels. Show the results for taking (a) gamma as 5 and (b) gamma as 0.2.

3. Write a program to smoothen a greyscale image by a 3X3 smoothing filter, which emphasizes on the current pixel value, gives lesser weightage to its 4-neighbors and much lesser weightage to the 8-neighbor pixels. Compare the result with median filter.

4. Write a program to sharpen the same image by (a) gradient and (b) Laplacian and compare the results.

5. Write a program to transform a greyscale image to frequency domain by Fourier transform. Apply any three low-pass filters on it and transform back each of the results to spatial domain and display the result images.

6. Write a program to transform a greyscale image to frequency domain by Fourier transform. Apply any three high-pass filters on it and transform back each of the results to spatial domain and display the result images.

Please note the following points:

1. The mentioned deadline is a hard deadline. Whatever you can complete before this deadline, you may submit them. Marks will be given accordingly.

2. All the questions carry equal marks.

3. You may write the programs in any platform of your choice.

4. You must NOT use any in-built image processing function to perform the operations. In such case zero marks will be given to the question.

5. The assignments have to be submitted as a zipped file into a google drive, which will be provided to you.

6. For erroneous/ incomplete programs, part marks may be given if the approach is correct.