Assignment #1
Possible points: 100 **Due date: Feb 28th 2022**

Please generate a report containing snapshot of the output for all the questions. The pdf version of the report should be uploaded to the blackboard by the due date.

1. Download PASCAL VOC 2012 dataset available at this link: http://host.robots.ox.ac.uk/pascal/VOC/. (25 points)

- On a randomly selected three images from PASCAL VOC dataset compute (a) image statistics, (b) histogram, (c) histogram equalization and (d) binarize it.
- On a subset of 150 images from PASCAL VOC dataset, compute mean statistics and plot the histogram. Perform data augmentation on these 150 images by applying affine transformation to the images (translation, rotation, scaling etc..), compute mean statistics and plot the histogram of mean statistic again. Compare the histograms before and after the data augmentation

2. Apply inpainting operation based on the algorithm Fast Marching to remove glare from the below image. The corresponding mask is also given. (25 points)

Notes: **Glare** is a visual sensation caused by excessive and uncontrolled brightness. It can be disabling or simply uncomfortable.

3. Explain Canny edge detector, apply it on three random images from PASCAL VOC dataset and show the output. (25 points)

4. Apply Gaussian blur filter on a randomly selected image and choose the optimum value of sigma through empirical evidence. Show all the outputs obtained on varying sigma. (25 points)