Algorithms and Data Structures

Laboratory 2

**Exercise 1 Image processing (2+4+6+8 pts)**

1. Read the files containing the image, so that each pixel has a RGB representation. (for example using Pillow <https://pillow.readthedocs.io/en/stable/reference/Image.html> )
2. Convert the image yoda.jpg to black and white (not grayscale) using single and double thresholding
3. For a greyscale image yoda.jpg, enhance the contrast in the image using histogram equalization. (<https://en.wikipedia.org/wiki/Histogram_equalization> )
4. For a greyscale image road.jpg, apply a mean filter with square mask of size 71x71. Optimise your calculations using summed-area table. Compare time of execution with naïve approach. (<https://en.wikipedia.org/wiki/Summed-area_table> )