Course Digital Image Processing

Format of submission

Submission contains MATLAB files with necessary code and .docx file with results and explanations which has to be archived in **ZIP FILE** with the following name:

<mark>lab<#>_<IDnumber1>_<IDnumber2>,</mark> where # is a lab number.

Lab 2: Point Processing

Tasks to do:

1. Open the files Lab2_.m and Lab2_1.m and read the code.
2. Take the RGB image `pout.jpg` , save it as a matrix using the function `imread()`.
   The image size is 291*240*3 (rows*cols*colors)

   ```
   imrows=size(im,1);  %number of rows
   imcols=size(im,2);  %number of cols
   ```

3. Convert the RGB image to a new grayscale image **gray_image** . The image size is 291*240 (rows*cols)
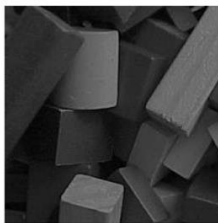   ```
   gray_image = rgb2gray(im);
   ```
   (formula:  Gray=0.299*R + 0.587*G + 0.114*B)

4. Show in subplot of size (2,3) the gray_image and it histogram (imhist()))
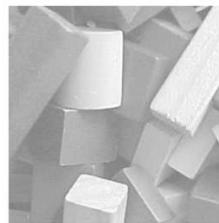
**Independent work 1:**

1. Change the gray_image in according to one of the methods:

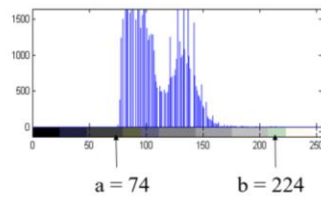

b3: $y = x/2$     b4: $y = 2x$     b5: $y = x/2 + 128$

   Show in subplot the new image and its histogram

2. Change the gray_image in according to **Histogram Streching**:

   Show in subplot the new image and its histogram

# Histogram stretching



$$J = \frac{I-a}{b-a} \cdot (B-A) + A$$

Stretching if (B-A)/(b-a) > 1

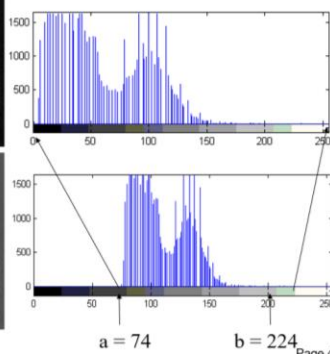# Histogram stretching (cont.)



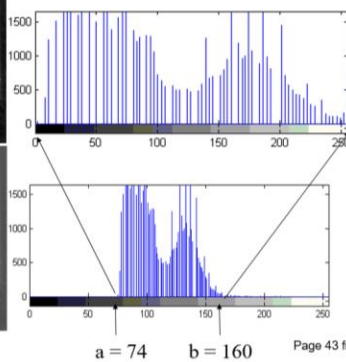a = 74       b = 224

Image processing

# Histogram stretching (adjustment)



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