


# EXERCISES

**Instructions**

Appendix: Code with comments, Reference, etc.

**Delivery**

- All homework should be sent through VU (No Telegram, Email, etc.).
- The report in PDF format named “Number of Homework-First Name Last Name.pdf”.
- Notice the deadlines.

**Points**

- Don't use MATLAB, Python, etc. library/toolbox for solving problems (Except math functions)
- Utilize functions when explicitly mentioned in the question.
- Any form of plagiarism will not be entertained and will result in a loss of grade.
- You can compare your own result by MATLAB, etc. output (optional).

# 1. Image Fundamentals

## 1.1. Quantization & Interpolation

1.1.1. Display the quantized image in (4,8,64,128) levels and also the optimum mean square error obtained for each case on gray scale Lena image. Note that you can only use rgb2gray, mean-square-error functions for this problem.

1.1.2. Create new images using 6,4,2,1 bit only for each pixel discuss the results using mean square error on gray scale Lena.

1.1.3. By using point processing create new images to make it Darken, Lighten, Lower contrast, raised contrast and finally Invert image and display the results on gray scale Lena.