FollowUp 0

1. Run the 01_image_processing_PIL_tutorial.ipynb

2. Masks are geometric filters on an image. For instance, if we want to extract a region of an image, we may do it by multiplying the matrix of the original image by a matrix of equal size containing 1′s in the region we want to keep and 0′s otherwise.

In this exercise we extract a circular region of the image ***lena_gray_512.tif*** of radious 150. Follow the next instructions and report every step:

- Read the image and convert it to double.
- Create a matrix of the same dimensions filled with zeros.
- Modify the above matrix to contain 1′s in a circle of radious 150, i.e. if (j−cx)2+(i−cy)2<150exp2, where (cx,cy) is the center of the image.
- Multiply the image by the mask (they are matrices!)
- Show the results.

When multiplying by zero, you set to black the pixels out of the circle. Modify the program to make visible those pixels with half the intensity.

Hint

a.shape[0] is the number of rows of **a** and **a.shape[1]** the number of columns.

3. Briefly compare PIL and CV2 libraries, similarities, strengths and weakness.