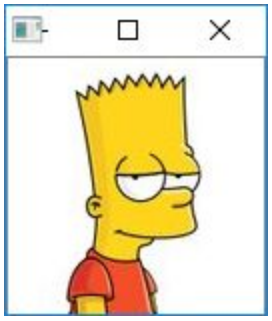
Augmented Reality Midterm Exam - March 27th 2019 (Terrassa)

- You have two hours to complete the assignment.
- If the code does not execute properly, the exercise won't be accepted for submission.
- Code is expected to be readable, clean, and optimal.
- When you finish, upload your python file with name **"lastname_name.py"** to the Midterm Exam folder.

Exercise 1 (5 points). Implement a program that applies a 5x5 Gaussian filter to the given image. The kernel of the Gaussian filter will be as follows:

$$\frac{1}{256} \cdot \begin{bmatrix} 1 & 4 & 6 & 4 & 1 \\ 4 & 16 & 24 & 16 & 4 \\ 6 & 24 & 36 & 24 & 6 \\ 4 & 16 & 24 & 16 & 4 \\ 1 & 4 & 6 & 4 & 1 \end{bmatrix}$$

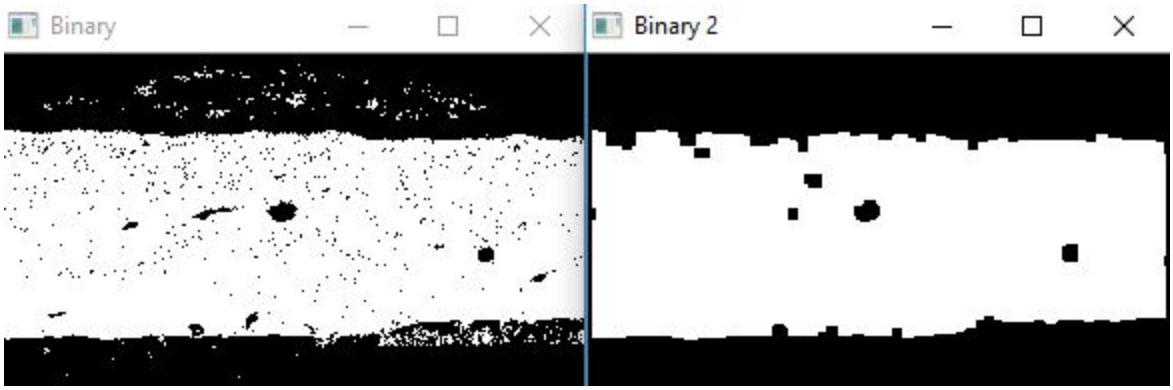
As a result, your program must show the following two images:



Original image

Filtered image

Exercise 2 (5 points). Implement a program that removes the noise of the given image. To that aim, use the dilation and erosion filters. Take into account that several iterations of each one could be necessary. The result should be something similar to the image “Binary 2” shown below:



IMPORTANT!!
All the opencv methods that you can use are already provided in the templates. Exercises using the OpenCV version of the algorithms required will not be accepted for submission.