3rd module: Image segmentation

Requirements:
Before starting the implementation of the tasks outlined in this file, please make sure to read Chapter 9 and Chapter 10 of *Digital Image Processing* (4th Edition) by Gonzalez. All tasks must be implemented without using any external image processing libraries, except for reading, loading, or displaying images.

Taks:

1. **Threshold segmentation**
   Perform segmentation on the grayscale images located in the images folder using the thresholding technique. Optionally, apply post-processing techniques such as morphological operations to refine the segmentation results. Save the generated segmentation masks for each image.
2. **Region Growing segmentation**
   Apply the Region Growing method to segment the grayscale images in the images folder. Optionally, use post-processing techniques such as morphological operations to improve the quality of the segmentation. Save the resulting segmentation masks for each processed image.
3. **Watershed segmentation**
   Use the Watershed algorithm to segment the grayscale images from the images folder. Post-processing methods, such as morphological operations, can be employed to enhance the segmentation results. Save the segmentation masks obtained through this process.
4. **Evaluation of segmentation methods**
   Implement the segmentation metrics specified in the file Segmentation Metrics. Evaluate the segmentation results from all three methods (Thresholding, Region Growing, and Watershed) by comparing their segmentation masks—after optional postprocessing—against the provided ground truth images. Document the performance of each method based on the implemented metrics.

You can use either C++ or Python for the lab tasks. If you choose C++ and need assistance configuring your workstation, feel free to contact me. For those using Python, the easiest option is to work on Google Colaboratory. Once you complete the assignment, please send me a compressed archive containing both the source code and a report. The report should include your results, along with any observations or comparisons you've made.