Python exercise sheet

This exercise should be implemented in OpenCV.

Exercise 1: Preprocessing

1. Load a color image of choice using OpenCV
2. Rotate the image by 90° and convert it to grayscale
3. Display the image
4. Explain the difference in data structure, when comparing the color image to the grayscale image

Exercise 2: Preprocessing 2

1. Load the image “plant-seedling.jpg” directly as grayscale
2. Show the image, save the grayscale version to file
3. Create a histogram of the image, and save it to file
4. Set all the image values that are below 50 to zero, show the image again

Hints:

- You may need to “flatten” the image, to turn it into a vector before making a histogram

Exercise 3: Face-mesh

(This exercise is conditional on having a webcam installed on your machine)

1. Install the mediapipe library for python
2. Run the script “ex1_mediapipe.py” and test it. You can quit with pressing the escape button.
3. Try to convert the video to grayscale
4. Can you tell which line tells OpenCV to open a camera stream?

Hints:

- Regarding point 3, there is a single frame that is returned to the cv2 function that shows images, try to manipulate that frame
- The line in point 4 is rather at the beginning of the script