Miniproject three - Photogrammetry

https://nextcloud.sdu.dk/index.php/s/TfpsbEtAYrTjYNg

In this miniproject, you will work in groups of two to three students. The project deals with how to estimate the number of pumpkins in a pumpkin field. You are being provided with source UAV images together with their exif information. The goal of the project is for you to demonstrate you are able to create orthomosaics and process them in correct manner.

I expect you to hand in a report that describes how your have dealt with the exercises listed below. Please include the following elements in the report:

- a description of the overall goal of the project
- a description of what has been done and why
- references to sources of information
- description of used tiling and reference methods
- source code for reproducing the results
- example input data
- example output data
- comments on all of the obtained results

The report should be handed in before Thursday the 25th of April at midnight (23.59) using the SDU Assigment system on blackboard.

Exercise 1

Choose an apropriate software to perform bundle adjustement and create orthomosaic. Perform the above and analyse the results.

Exercise 2

Create a tile-wise processing pipeline for created orthomosaic. Remember to take unto account reference coordinate system for the tiles and subsequently for the detected pumpkins.

Exercise 3

Count number of pumpkins (you can use code written for Miniproject one) in each tile. Remember to remove the duplicates.

Exercise 4

Mark the located pumpkins in the sample tile image.

Exercise 5

Reflect on whether you chose apropriate processing methods (for photogrametric part).

- Could the process been faster?
- Is the accuracy of the process good enough for given task?
- Is the camera calibration process accurate enough?