Assignment 1

Name Surname
Matriculation number

<your visual task>

1. **Exercise 1**

   Write your answer here.

2. **Exercise 2**

   Write your answer here.

3. **Implementation.** For each of the 3 solvers (gradient descent, Linearization+Gauss-Seidel, Linearization+SOR):

   - Show images of the inputs
   - Show 5 images of the reconstruction as the method progresses iteration by iteration: The initial, the final image and 3 more images in between.
   - Show the energy against iteration time (we should see it decreasing over time).

4. **State which of the 3 solvers you choose. Show images obtained by very high, very low and manually-tuned (approximately optimal) λ.** In this section you should:

   - Display 3 images with different λ: one with very low, one with very high and one with the manually-tuned (approximately optimal) λ.
   - Describe the effect of λ on the solution.

5. **Inpainting:** State which of the 3 solvers you choose. Find the optimal λ as described in the assignment. In this section you should:

   - Plot the SSD error (Y axis) vs. λ (X axis).

- Describe the effect of λ with respect to the SSD between the ground truth and the solution image.

Image blending:

- Display your own image composition here along with the foreground, background and mask images.
- Describe how you used or modified the code to create your image(s).