# Task 1

In this small task we want you to write a data iterator in Python which is independent of deep learning frameworks. A data iterator reads in the raw data and preprocesses the data so that it is well suited for our machine learning models.

In the task we consider a dataset with images which have a resolution of 1920x1080. The images are passed to the generator as a list of paths pointing to the location on the disk.
The data iterator should read in the original images from disk and randomly select one 512x512 patch in the image.

Once the data iterator processed 32 images, it should yield/return a batch with 32 patches. So the data iterator serves numpy arrays with the following dimensions, 32 x 3 x 512 x 512 (patches x color channels, height, width). An input image is only used once for selecting a patch until all input images where processed.

The generator should also have the option to run forever. In that case, after each input image was used, it starts again.

The generator should also have the option to process the input images in a random order. In the "run forever" case the order should be different for each pass through the dataset.
When designing the generator consider that image datasets could get really big and loading all images into memory might not be possible.

# Task 2

In the *“Task2”* folder you will find a python file called task.py. The task has four steps:

1. Please describe concisely in your own words what the program is doing.

2. The current implementation of the TaskHandler is not really maintainable and extensible. We would like you to refactor it. After you are done it should still be able to run the scenario1.txt file without any errors.

3. Please add the new task name “count” which will calculate the total number of values of a task. After this step also file sceneraio2.txt should run without any issues.

4. In the final step we would like you to make the handler more robust. In the case a task name is received which is not handled by the handler it shouldn’t crash. Instead it should just give out a message notifying about the task name and continue with other tasks. After this step all scenario files should run through without any errors.

Please only submit the final solution which is able to run all files.

**Please provide the solutions to both tasks in one zip file in a seperate folder each.**