Practice Module

Part 1

- **Build** your dataset for object segmentation (including images and labels). Your dataset should have at least two class of objects (excluding background). Each class should have at least 200 instances.

- Train and test a deep learning model to perform semantic segmentation using one of these methods: Mask RCNN, DeepLab V3, YOLACT. Your model must be built using Tensorflow Keras API.

- Submission deadline: 10 May 2020

- Only **two** python scripts are allowed: one serves as the library to be imported, another for training and testing of your segmentation model (for training and testing you can submit a Jupyter notebook)

- Publish your dataset and your python scripts in GitHub; submit a group report to Luminus

- Include an installation guide in your GitHub, so that the others can reproduce your environment and your results

Practice Module

Submission

- Use library 'imgaug' to do the necessary data augmentation
- A detail report is expected
- The report should:
  - Explain the working detail of the method
  - Explain the structure of the code
  - Explain the design of the APIs
  - Detail the steps to improve performance
  - Findings and conclusions
- Marking criteria:
  - Dataset
  - Quality of code
  - Design of APIs (functions)
  - Model performance
  - Report

Practice Module

Preferred design for APIs

- Assume the method is SSD, the file name of the script (to be imported) is 'ssd.py'

```
> from ssd import buildSSD
...

> ssdModel = buildSSD(...,
                      ...)
...
```

```
> ssdModel.fit(...,
               ...)

or

> ssdModel.fit_generator(...,
                         ...)

...


> ssdModel.predict(...,
                   ...)
```