TRANSFORM DATA FROM JSON TO MASK RCNN INPUTS

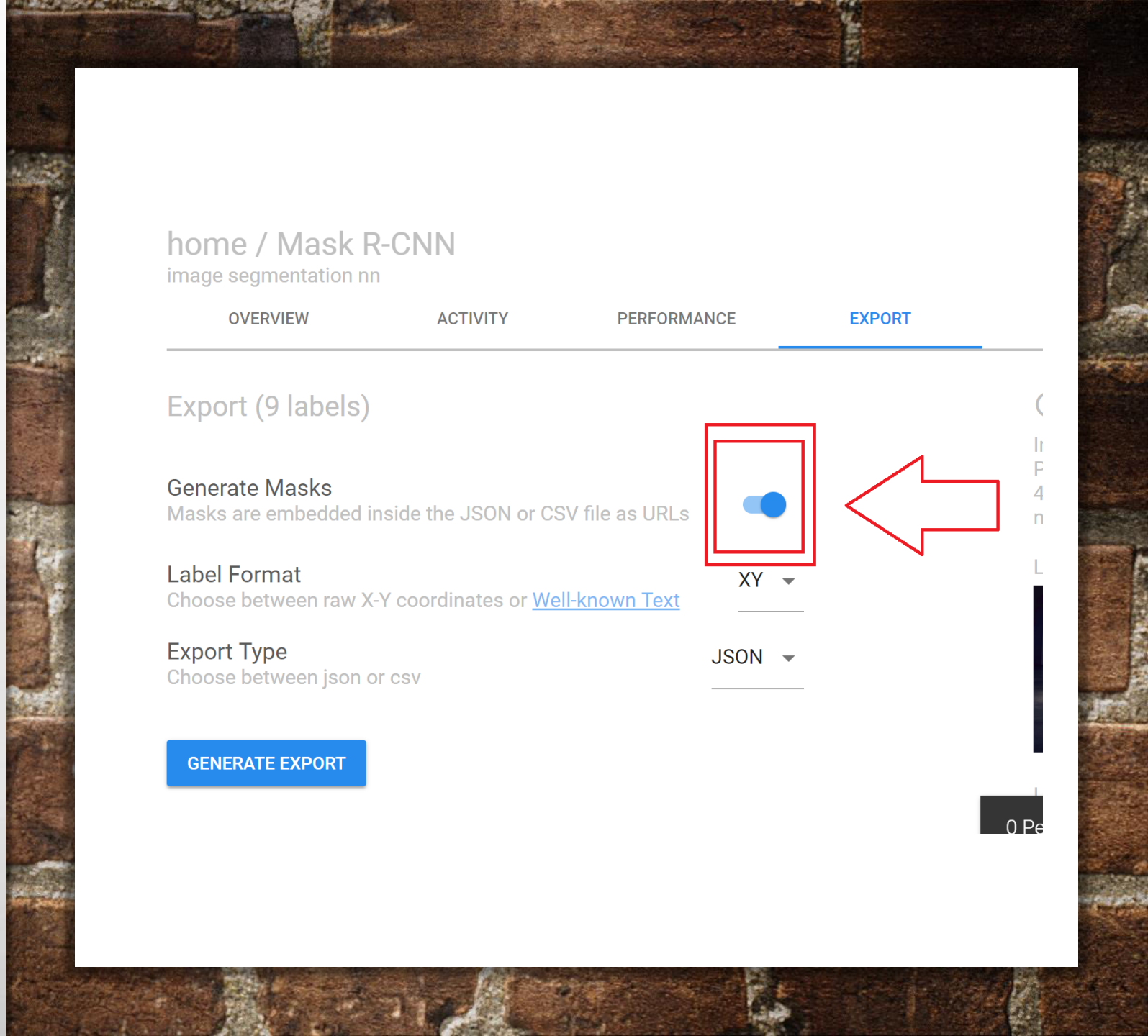
STEP BY STEP GUIDE

STEP 1: EXPORT DATA FROM LABELBOX

YOU SHOULD EXTRACT DATA FROM LABELBOX ONLINE PLATFORM.

NB: MASK FLAG SHOULD BE TICKED

STEP 1: FROM THE PREVIOUS SLIDES



STEP 2

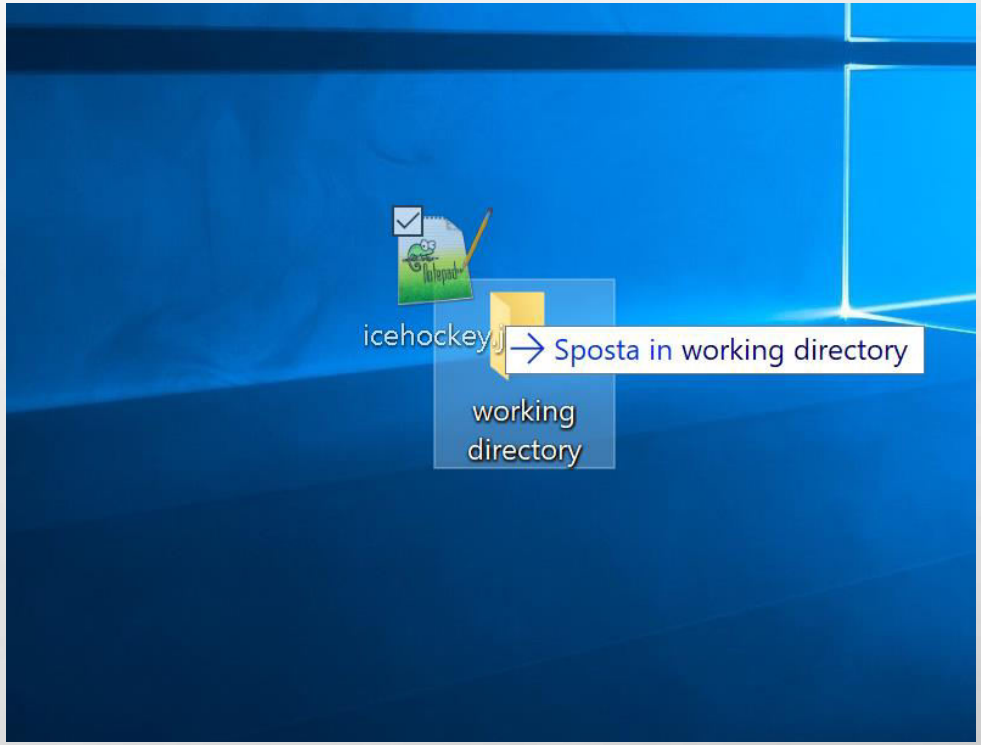
Tips: rename you json file with a readable name

Create a folder where you want to keep data

Move your json file inside

STEP 2

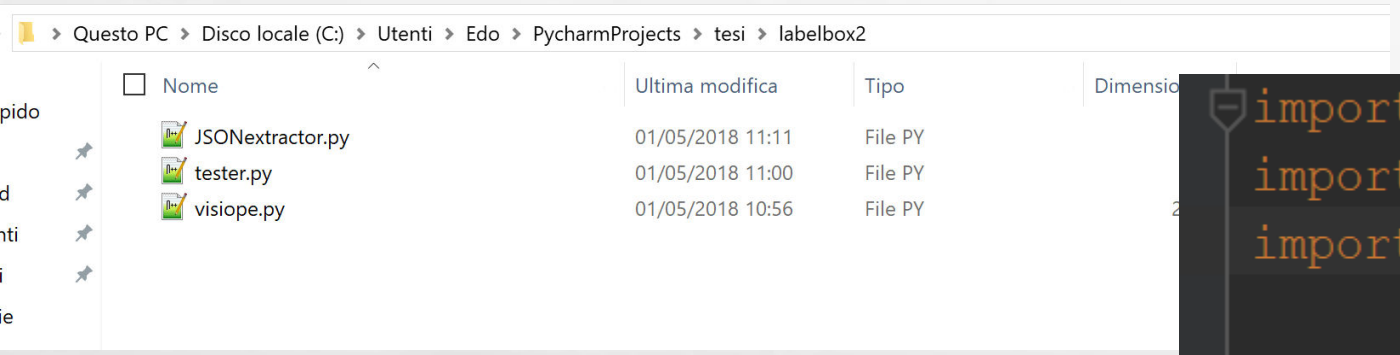

Notepad++
icehockey.json


icehockey.j
Sposta in working directory
working
directory

STEP 3

- Download the 3 scripts on course webpage
- check imported libraries
- Open tester.py
- Complete the TODO part with your own pc paths

STEP 3




```python
import json
import urllib.request
import os

from PIL import Image
```

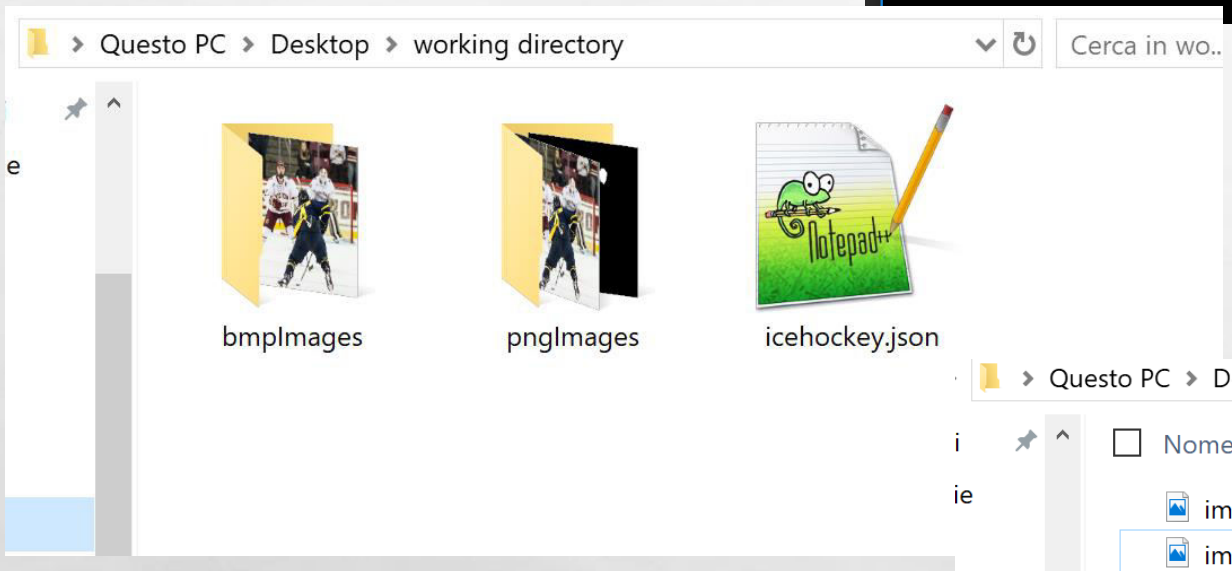
```python
path = "C:/Users/Edo/Desktop/working directory" ##TODO: path to your working folder
jsonName = "myJson.json"                        ##TODO: your json file name
```

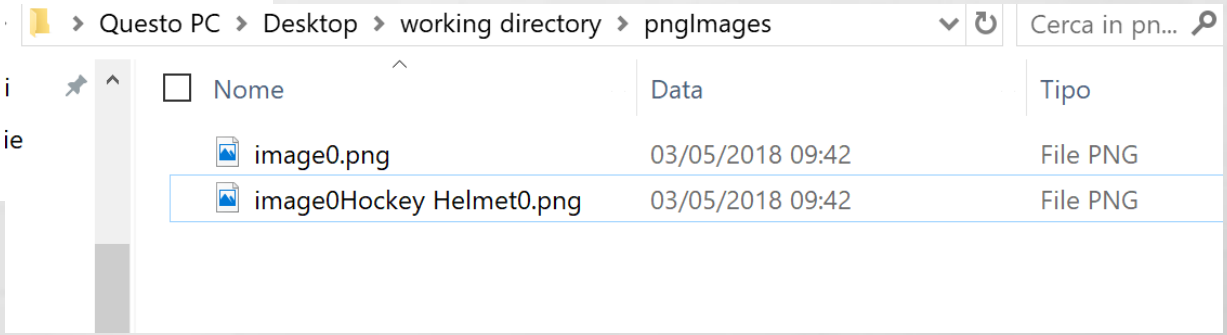
STEP 4

- RUN TESTER.PY SCRIPT.
- THIS STEP SHOULD BE PERFORMED ON YOU OWN PC AND NOT ON ALCOR LAB COMPUTERS. IT WILL TAKE YOU SOME TIME.
- THIS SCRIPT DOWNLOADS, LAYS OUT AND CONVERT IMAGES FROM THE ONLINE DATABASE OF LABELBOX
- WHEN THE SCRIPTS ENDS, YOU SHOULD FIND (IN YOUR WORKING DIRECTORY) TWO OTHER FOLDERS WITH THE .PNG AND .BMP IMAGES

STEP 4

```
(base) C:\Users\Edo\PycharmProjects\tesi\labelbox2>python tester.py
there are  4  objects.
Hockey Helmet  appears  49  times.
Hockey Ball  appears  32  times.
Hockey Stick  appears  50  times.
Hockey Goal  appears  22  times.
There are  153  objects labeled in total.
```





STEP 5

- IN THE VISIOPE.PY FILE, COMPLETE THE TODO PARTS. THERE ARE 4 PATH VARIABLES TO BE MODIFIED IN THE CODE, ONE RELATED TO YOUR OWN DATABASE AND THE LAST ONE RELATED TO THE SPECIFIC PC YOU ARE USING.
- THIS FILE SHOULD REPLACE/COMPLEMENT COCO.PY IN THE YOUR MATTERPORT NETWORK FILES

STEP 5

```
# We use a GPU with 12GB memory, which can fit two images.
# Adjust down if you use a smaller GPU.
IMAGES_PER_GPU = 2  ##TODO: your pc or alcorlab's pc

# Uncomment to train on 8 GPUs (default is 1)
# GPU_COUNT = 8

# Number of classes (including background)
NUM_CLASSES = 0 ###TODO your assignment
```

```
self.path = "C:/Users/Edo/Desktop/working directory"  ##TODO: add the path to the dataset folder
self.jsonName = "icehockey.json"  ##TODO: add json file name
```

STEP 5.B: WHAT'S VISIOPE.PY?

```
class CocoConfig(Config):
    """Configuration for training on MS COCO.
    Derives from the base Config class and overrides values specific
    to the COCO dataset.
    """
    # Give the configuration a recognizable name
    NAME = "visiope"
```

```
def load_coco(self, dataset_dir, subset, year=DEFAULT_DATASET_YEAR, class_ids=None,
              class_map=None, return_coco=False, auto_download=False):
    """Load a subset of the COCO dataset
```

```
def load_mask(self, image_id):
    """Load instance masks for the given image.
```

```
def image_reference(self, image_id):
```

STEP 7 : MAKE IT RUN

- **WRITE ON THE COMMAND LINE THE FOLLOWING TO START THE TRAINING:**

  python3 visiope.py train --dataset=/path/to/dataset **--model=coco**

STRONGLY SUGGESTED

- READ THIS «ARTICLE» :

HTTPS://ENGINEERING.MATTERPORT.COM/SPLASH-OF-COLOR-INSTANCE-SEGMENTATION-WITH-MASK-R-CNN-AND-TENSORFLOW-7C761E238B46

THE FIRST PART IS A BRIEF RECAP OF ALL MASK RCNN FEATURES AND «ANCESTRORS», ALSO WELL WRITTEN

THE SECOND PART IS A SHORT TUTORIAL ON HOW TO TRAIN YOUR OWN DATASET (THE SAME TUTORIAL I HAVE USED TOO.