

# DLCV Project Group 9 : Active Learning for Deep Object Detection

## 1. Requirements:

1. sys
2. re
3. os
4. pand
5. tensorflow
6. colorsys
7. PIL
8. torch
9. torchmetrics.detection.map
10. shutil
11. pprint
12. numpy

## 2. Folder structure

1. coco\_dataset
  - A. images folder - have coco dataset images
  - B. image\_annotations.csv - have annotation for all the images in the images folder.
2. yolocode
  - A. model\_data - This folder have three file coco\_classes.txt have names of all classes in coco dataset, yolo\_anchors.txt have anchor for yolo model, yolo\_weights.h5 are weights for pretrained model.
  - B. yolo3 - Contains model.py file have code for model architecture and utils.py file have utils function for yolo model.

## 3. How to run code

1. Active learning code is in yolo\_active\_learning.ipynb notebook.
2. To select dataset size to consider in make\_annotation\_txtfile function change value of nrow in read\_csv function.  
make\_annotation\_txtfile function split dataset into testing and unlabel pool. It create txt file as image\_name followed by annotation.
3. In section 6.1 make\_annotation\_txtfile is called followed by select\_train\_data function this function select N data from unlabel pool to train set. N is given as parameter.
4. In section 6.2 train function outside loop will train model on N data selected from section 6.1.
5. In loop 'n' parameter of annotated\_images specify to select next most informative sample for next training.