Task 1

Objective: To detect the objects in real time using Open CV python

Abstract:

This script uses OpenCV's DNN library to load weights from a MobileNet SSD tensorflow model. The classes available are from the COCO dataset. The efficient urllib.request is used for web cam using mobile.

Working Explanation:

- First of all we import all the necessary libraries (urrlib, cv2, numpy).
- Now we open our coco.names file which contains our all classes' names and store them all into a python list which is classes_names.
- The ssd_mobilenet_v3_large_coco_2020_01_14.pbtxt is our architecture or configuration file for our object detection algorithm ssd_mobilenet.
- A frozen graph defines the combination of the model graph structure with kept values of the required variables, for example, weights.
- Then we make an object of our model and pass these two files and set all the input parameters for images.
- Using while True we iterate a loop continuously and in loop body first we get the IP of our webcamp and read the data and convert into numpy array and store into a varirable. Then we detect the array or images using our model and pass the image variable and threshold value which control the accuracy of prediction for our model. This gives use three values the predicted classes, the confidence values and the bounding box. Then we pass a condition that if the class id is not equal to 0 then we iterate all the prediction values one by one and the we apply the rectangle shape, the class name on each detected object by tuning there parameters like color, thickness, etc. and finally we show the result through webcamp using imshow method and if the object is not detected by camera on any condition it just print out a message on console that "Not Recognize".