importing librairies

In [10]:
```
import cv2 as cv
import matplotlib.pyplot as plt
```

loading our model

In [11]:
```
configFile = 'ssd_mobilenet_v3_large_coco_2020_01_14.pbtxt'
frozenModel = 'frozen_inference_graph.pb'
model = cv.dnn_DetectionModel(frozenModel,configFile)
```

Creating the class file

In [12]:
```
classFile = 'labels.txt'
classNames = []
with open(classFile, 'rt') as fpt:
    classNames = fpt.read().rstrip('\n').split('\n')
```

In [13]:
```
print(classNames)
```

```
['person', 'bicycle', 'car', 'motorbike', 'aeroplane', 'bus', 'train', 'truck', 'boat',
'traffic light', 'fire hydrant', 'stop sign', 'parking meter', 'bench', 'bird', 'cat',
'dog', 'horse', 'sheep', 'cow', 'elephant', 'bear', 'zebra', 'giraffe', 'backpack', 'umb
rella', 'handbag', 'tie', 'suitcase', 'frisbee', 'skis', 'snowboard', 'sports ball', 'ki
te', 'baseball bat', 'baseball glove', 'skateboard', 'surfboard', 'tennis racket', 'bott
le', 'wine glass', 'cup', 'fork', 'knife', 'spoon', 'bowl', 'banana', 'apple', 'sandwic
h', 'orange', 'broccoli', 'carrot', 'hot dog', 'pizza', 'donut', 'cake', 'chair', 'sof
a', 'pottedplant', 'bed', 'diningtable', 'toilet', 'tvmonitor', 'laptop', 'mouse', 'remo
te', 'keyboard', 'cell phone', 'microwave', 'oven', 'toaster', 'sink', 'refrigerator',
'book', 'clock', 'vase', 'scissors', 'teddy bear', 'hair drier', 'toothbrush']
```

In [14]:
```
print(classNames, len(classNames)) #classNames ==> Contains all the 80 classes from the
```

```
['person', 'bicycle', 'car', 'motorbike', 'aeroplane', 'bus', 'train', 'truck', 'boat',
'traffic light', 'fire hydrant', 'stop sign', 'parking meter', 'bench', 'bird', 'cat',
'dog', 'horse', 'sheep', 'cow', 'elephant', 'bear', 'zebra', 'giraffe', 'backpack', 'umb
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a', 'pottedplant', 'bed', 'diningtable', 'toilet', 'tvmonitor', 'laptop', 'mouse', 'remo
te', 'keyboard', 'cell phone', 'microwave', 'oven', 'toaster', 'sink', 'refrigerator',
'book', 'clock', 'vase', 'scissors', 'teddy bear', 'hair drier', 'toothbrush'] 80
```

Setting up the configuration of the model

In [15]:
```
model.setInputSize(320,320)
model.setInputScale(1.0/127.5)
model.setInputMean((127.5,127.5,127.5))
model.setInputSwapRB(True)
```

Out[15]:
```
<dnn_Model 0000027ED0A20590>
```

Capturing the Video

In [16]:
```
cap = cv.VideoCapture('traffic.mp4')
#cap = cv.VideoCapture(0) ==> webcam
if not cap.isOpened():
    raise IOError("Cannot Open Video")
```

Setting the font scale and font style

In [17]:
```
font_scale = 1.1
font = cv.FONT_HERSHEY_COMPLEX
```

Reading each frame and detecting the objects in it

In [ ]:
```
while True:
    ret,frame = cap.read()
    ClassIndex, confidence, bbox = model.detect(frame,confThreshold=0.62)
    if len(ClassIndex)!= 0:
        for ClassInd,conf,boxes in zip(ClassIndex.flatten(),confidence.flatten(),bbox):
            if ClassInd <= 80:
                cv.rectangle(frame,boxes,(255,0,0),2)
                cv.putText(frame,classNames[ClassInd-1],(boxes[0]+10,boxes[1]+40),font,
    cv.imshow("output",frame)
    if cv.waitKey(2) & 0xFF == ord('q'):
        break  #breaks out of the loop as soon as we press 'q' from our keyboard
cap.release()
cv.destroyAllWindows()
```

In [ ]:

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