# 使用 Google Colab 訓練 Yolov5 模組:

此份文件是參閱 Robofolw 訓練 Yolov5 模組，詳細內容請參閱。

https://blog.roboflow.com/how-to-train-yolov5-on-a-custom-dataset/

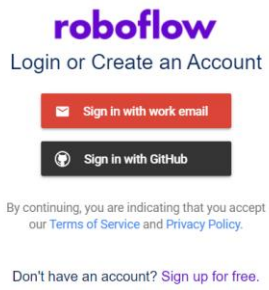
此份文件以仍未建立自己的資料數據庫進行步驟解說，不包含程式碼解說。

## 步驟一、建立資料庫

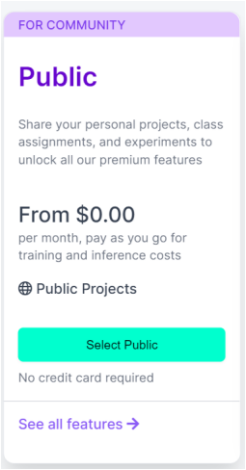
資料庫建立首先需要拍攝一系列自己所需辨識的照片，檔案需統一圖片檔(.jpg, .png, .bmp) 或 影片(.mov, .mp4, .avi)。 #影片的訓練我沒用過，詳細我不是很了解。

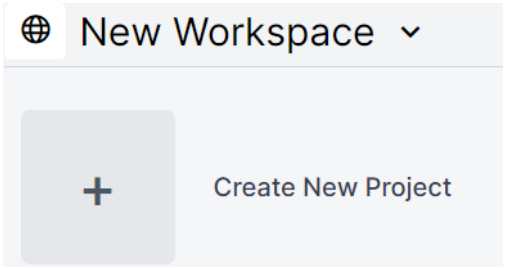
## 步驟二、特徵標註

至 roboflow 申請帳號，上傳自建資料庫資料，使用免費線上標註資源。

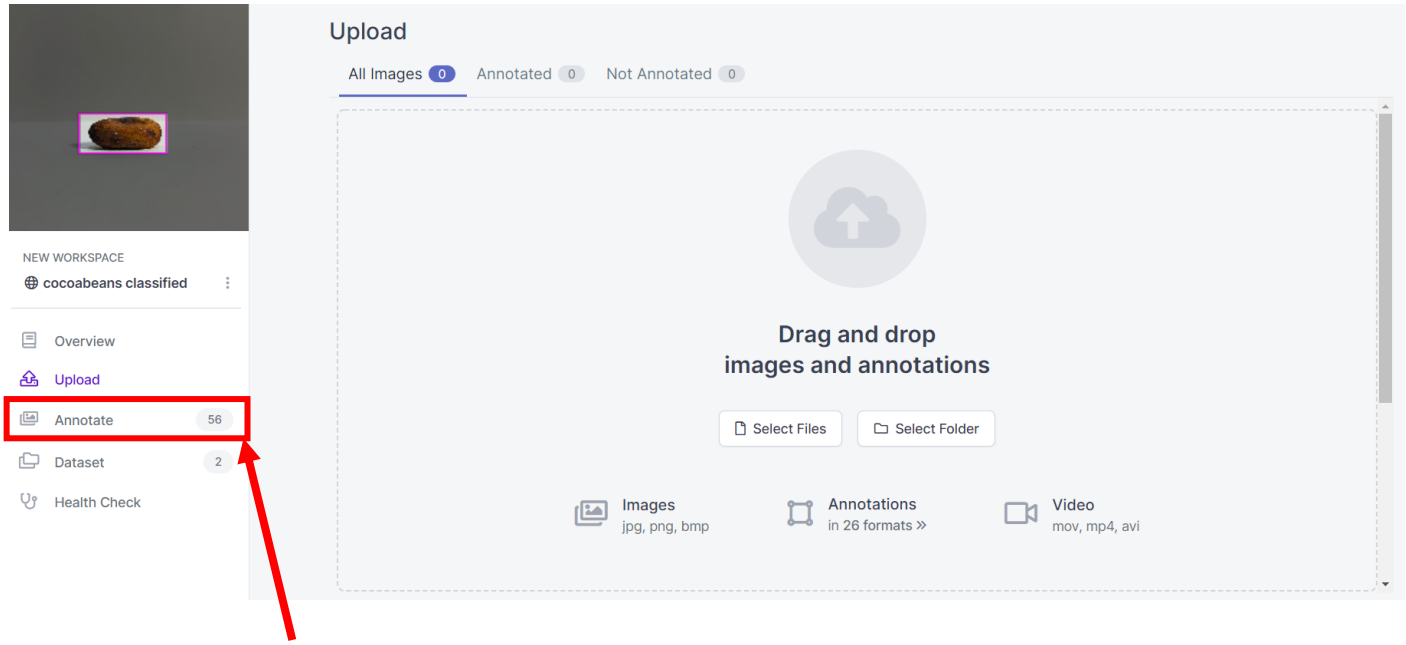

登入後選 Public，然後建立自己的 Project。



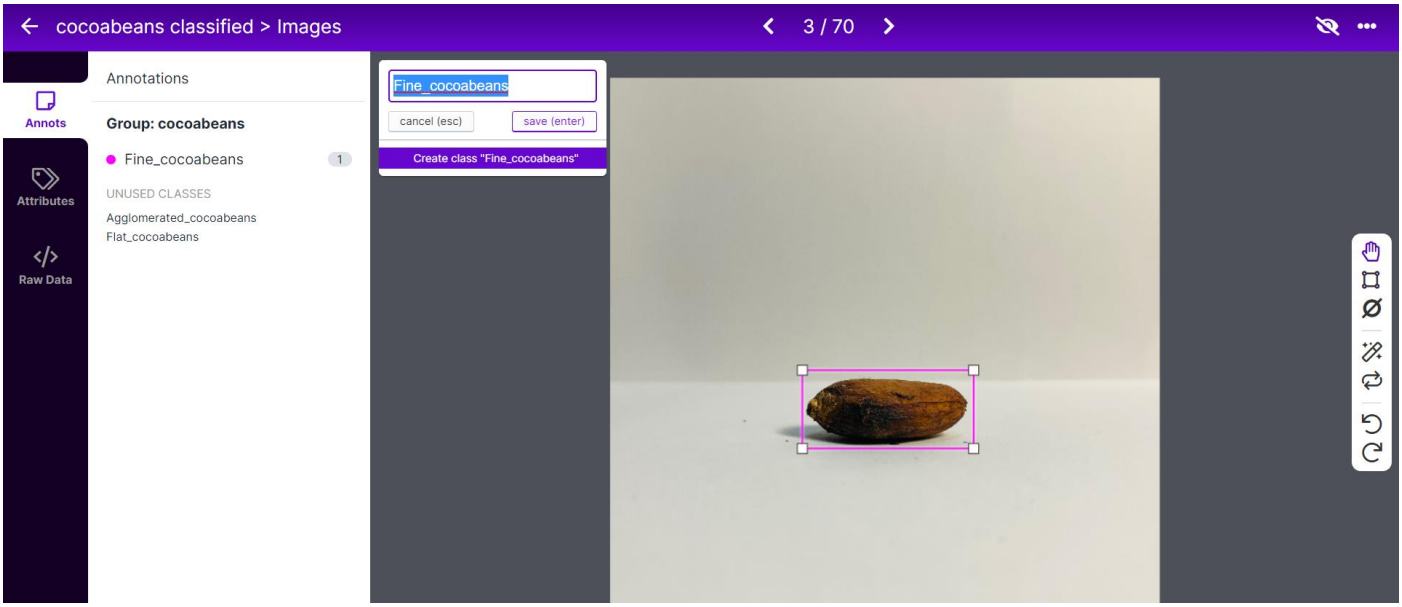
然後上傳自己的數據資料，上傳後 Roboflow 會自動規畫你的資料並分成訓練、測試及驗證圖片，

當然訓練、測試及驗證圖片數量比例也可以自行調整。




然後就可以在 Annotate 選項，開始進行特徵標註。(只要直接在圖片中拉一框框並在上面打上自己

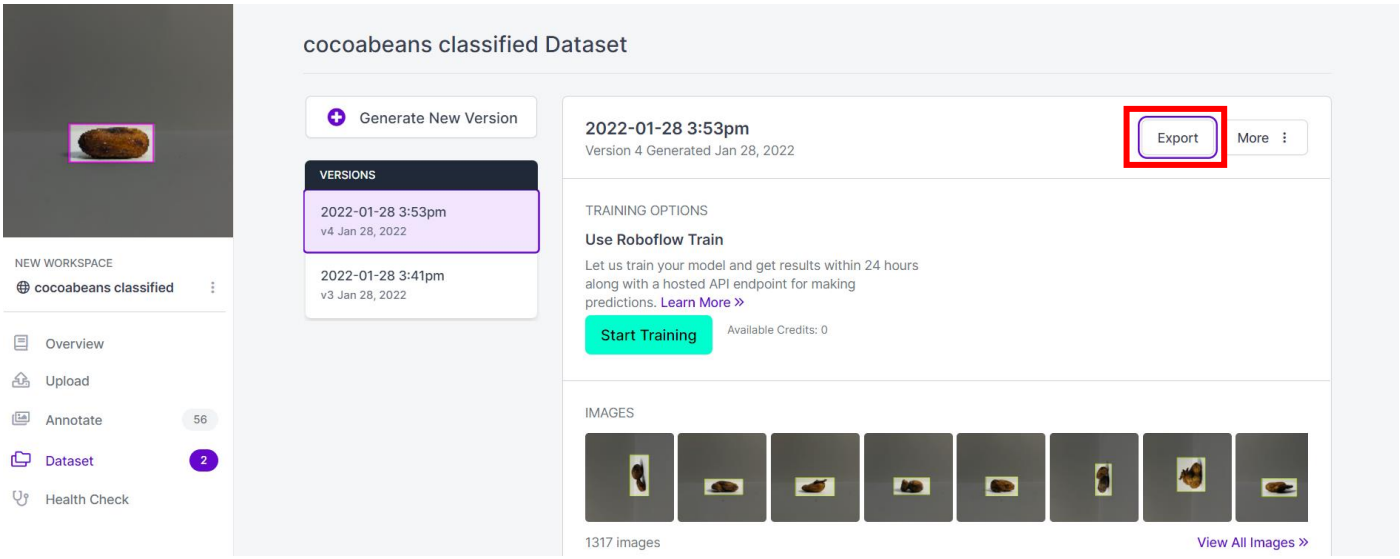
定義的標籤即可，更換圖片可以用鍵盤左右建控制。)

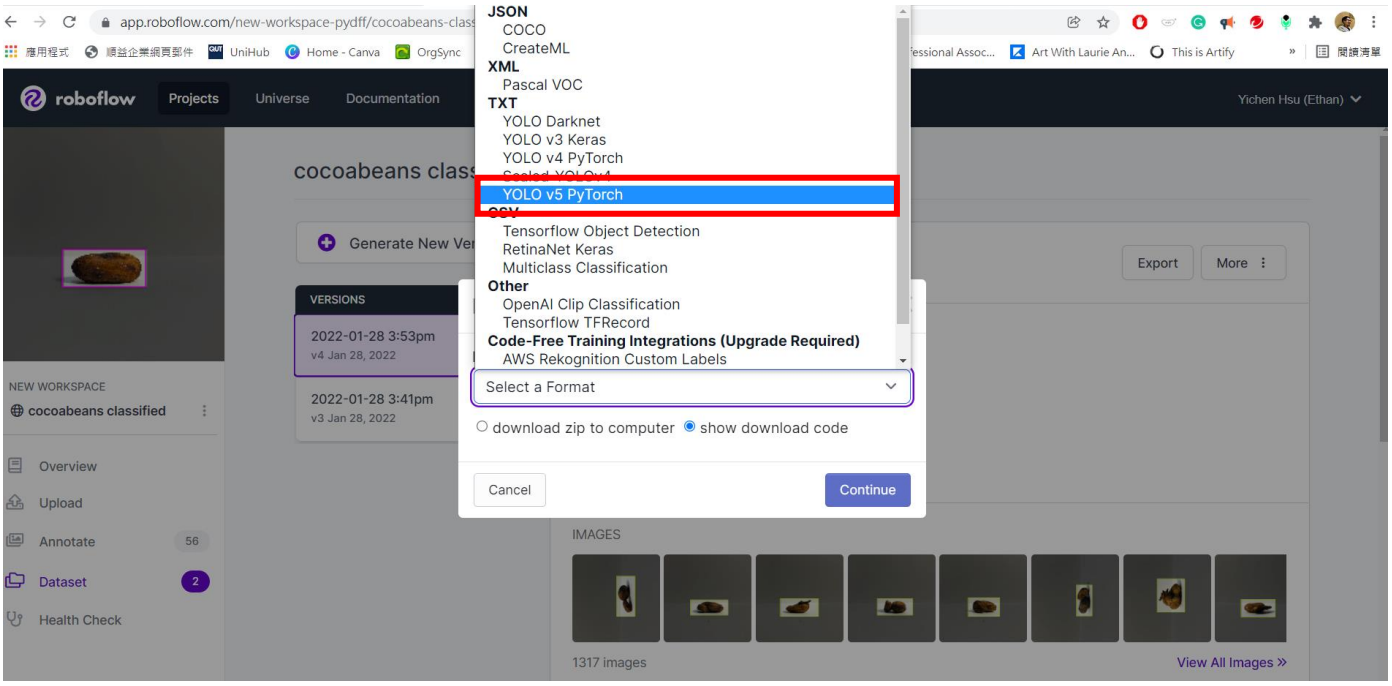



標註後框框無法去除，但可以重新定義。

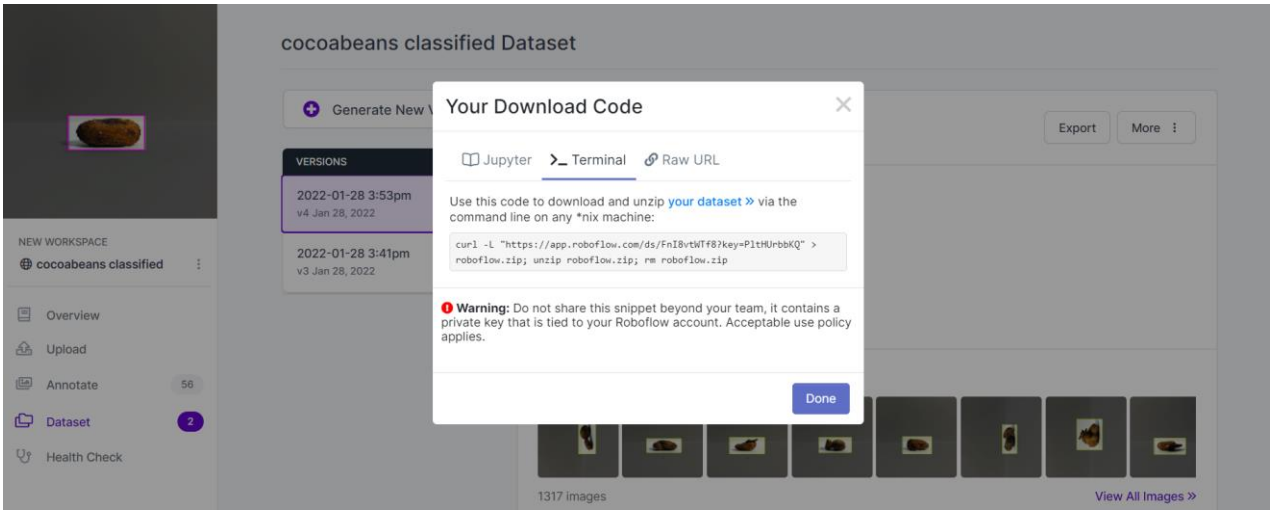
## 步驟三、匯出標註好的檔案。

至 Dataset，按下 Export。 輸出 Yolov5 PyTorch，點選 show download code。



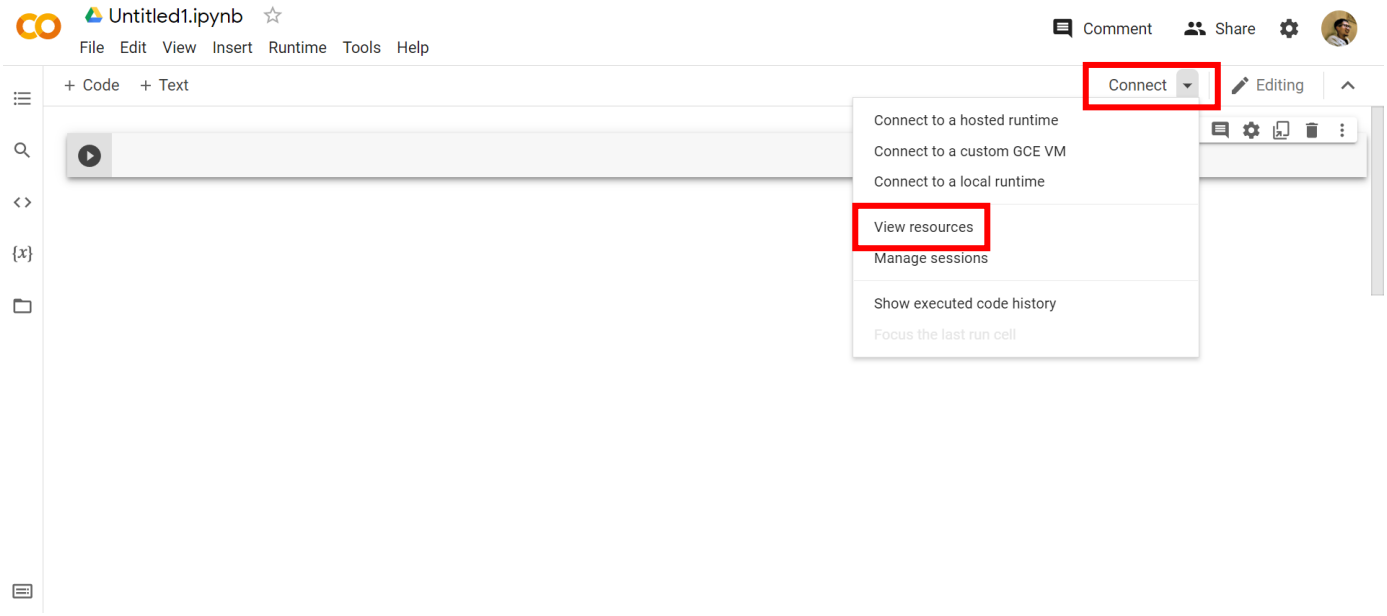




**按下 continue 後，點選_Terminal，複製下面的 code，之後將貼上在 Google Colab 上以下載自己的資料檔，完成標註檔案建立!**

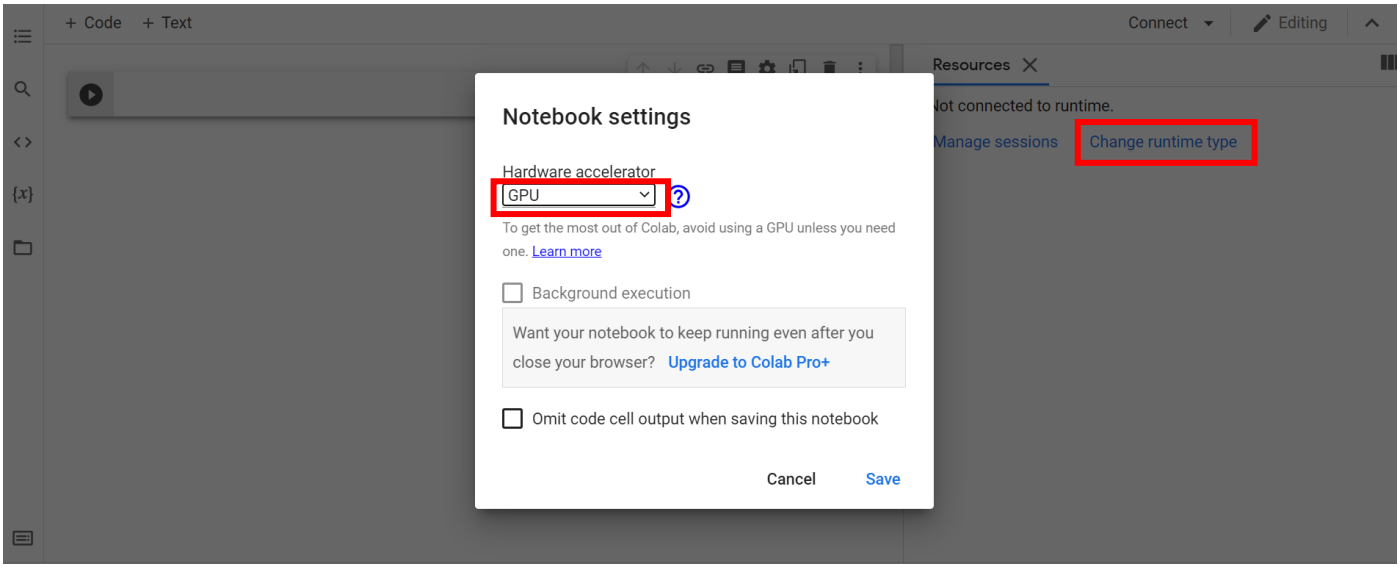


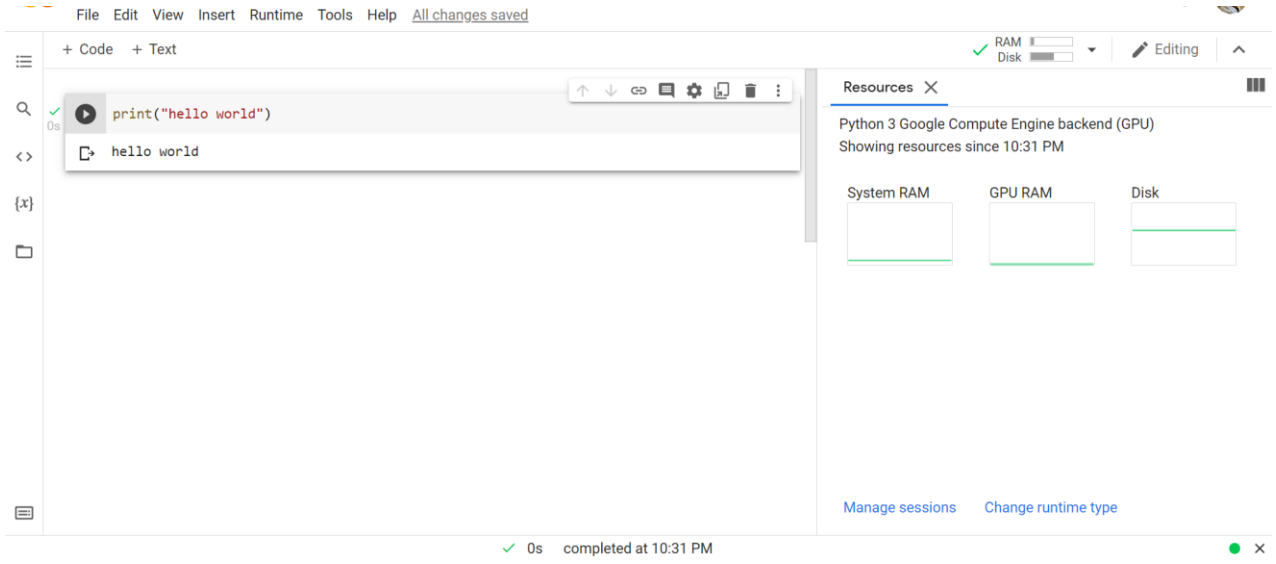
# 步驟四、打開 Google Colab 設定 GPU 加速。

## 點選連結，查看資源。




## 變更運行種類，使用 GPU。



## 步驟五、在 google colab 上安裝 yolov5 需求環境。

```
!git clone https://github.com/ultralytics/yolov5  # clone repo
!pip install -U -r yolov5/requirements.txt  # install dependencies

%cd /content/yolov5
```

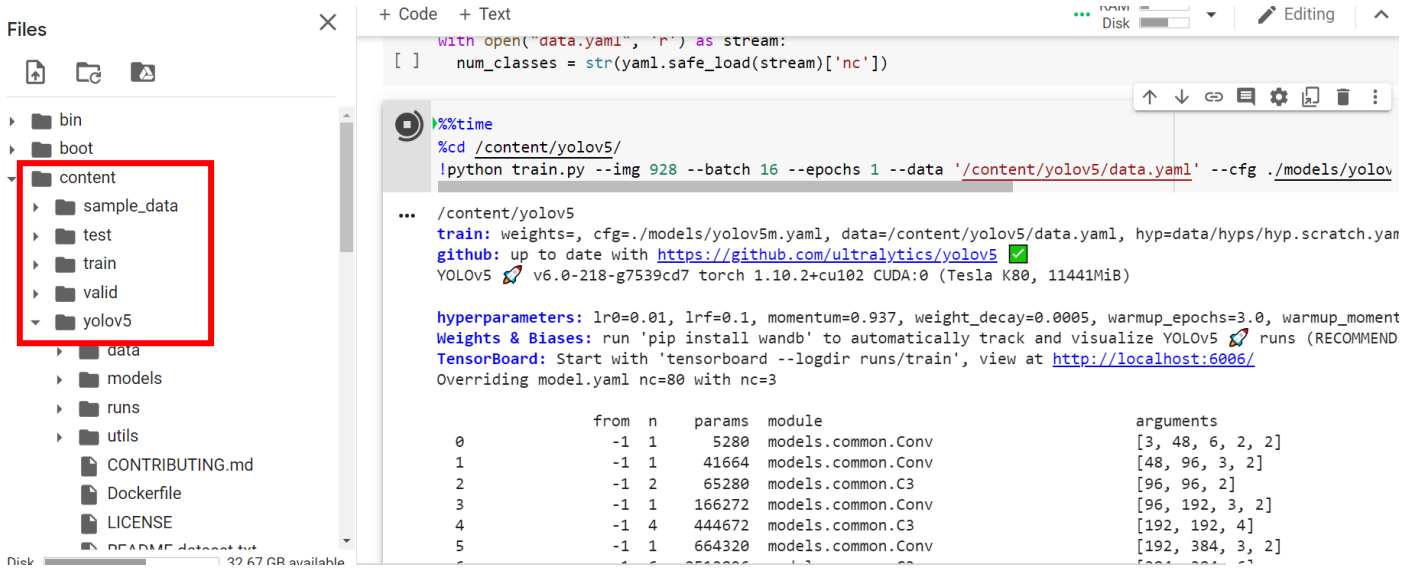
## 步驟六、輸入並下載步驟三建置好的資料檔案。

```
!curl -L "https://app.roboflow.com/ds/FnI8vtWTf8?key=PltHUrbbKQ" > roboflow.zip; unzip roboflow.zip; rm roboflow.zip
```

## 步驟七、訓練模組

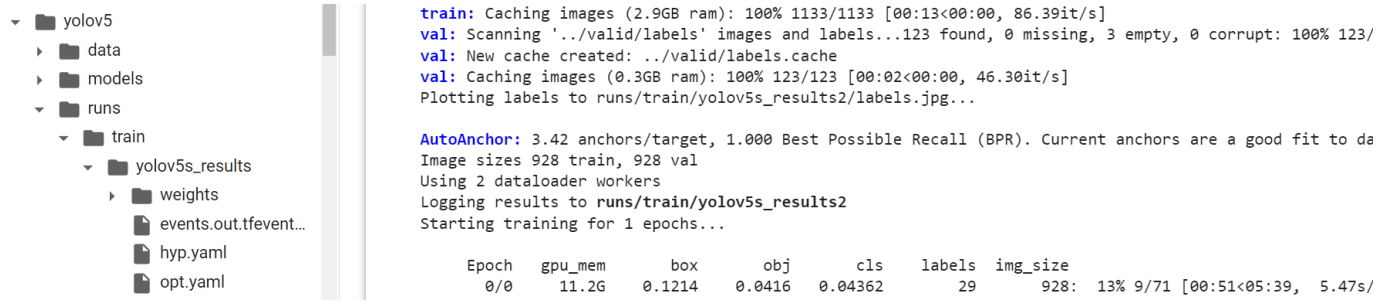
**(注意：訓練、測試及驗證資料須在 content 資料夾底下)**

```
%%time
%cd /content/yolov5/
!python train.py --img 928 --batch 16 --epochs 100 --
data '/content/yolov5/data.yaml' --cfg ./models/yolov5s.yaml --weights '' --
name yolov5s_results --nosave --cache
```




## 步驟八、儲存訓練權重(weights)

**訓練完後的模組權重會儲存在檔案夾 runs 裡面。**




## 步驟九、使用 Tensorboard 查看訓練歷史過程

```
%load_ext tensorboard
%tensorboard --logdir runs
```

## 以上完成在 Google Colab 訓練 Yolov5 自定義資料庫的過程。