[**YOLO: Custom Object Detection**](https://ibm-learning.udemy.com/course/yolo-custom-object-detection/)

**Steps:**

1. **FineTune The Training Images and Generate XML File**
2. Collect the Trainable Images
3. With the Help of **LABELLING Tool –** create the Bounding Boxes manually – It will generate **XML File** for all the images
4. **Extract the Necessary Information from XML file – (folder 1\_datapreparation)**
5. Create Python File - **01 Extract\_Object\_Info\_from\_XML.ipynb**
6. Load all XML file.
7. Perform Data Cleaning.
8. Finetune the XML file and fetch necessary information.
9. Flatten the Data
10. Prepare the Data Frame and add necessary columns (center\_x, center\_y, w, h).
11. Split Data/Images into train and test sets.
12. Label Encoding : Read & Extract Labels Data from XML files.
13. Create Train & Test Folder
14. Create Function and Move Train image, and label text in train folder
15. Move Test images, and label text in test folder.
16. **Create Labels for YOLO model in Python – data.yaml**
17. Create yaml file for Labels – **data.yaml**
18. **Training YOLO Model – Google Collab – GPU and import best.onnx**

Link: https://drive.google.com/drive/folders/1JW\_06D\_1DSz2gKZaqYtsoMcUKgrDl9tD?usp=drive\_link

1. Creta a python file -> **yolo\_training.ipynb**
2. Setting Up Google Collab – allocate GPU.
3. Clone Yolov5 repository from GIT
4. Manually upload the Data Image folder from Laptop to yolov5 storage
5. Manually Upload data.yaml file to yolov5 storage
6. Training the YOLO V5 model – take almost 2 hours.
7. Save the Yolo Model
8. Export Model into onnx file - **best.onnx**
9. **Predictions on YOLO model ( folder - 2\_Predictions)**
10. Create python file: yolo\_predictions.ipynb
11. Load data.yaml file
12. Load YOLO model with OpenCV
13. Get detection from YOLO model.
14. NON max suppression
15. Draw Bounding box.
16. **Create YOLO Predictions Module (folder - 2\_Predictions)**
17. Create .py file from yolo\_predictions.ipynb - yolo\_predictions.py
18. Include class and functions to fine tune our previous python file.
19. **Predictions task (folder - 2\_Predictions)**
20. Create a python file **02\_predictions.ipynb**
21. Simple code to detect objects (From Image, From Video, From Live Camera).