In the context of YOLO (You Only Look Once) and specifically YOLOv4 Tiny, "Darknet" refers to the open-source neural network framework that was developed by Joseph Redmon. Darknet is the framework on which YOLO models are built and trained. It supports a variety of neural network architectures, and YOLO is one of the popular ones implemented using Darknet.

Darknet provides the necessary infrastructure for designing, training, and using neural networks for various computer vision tasks, including object detection. YOLOv4 Tiny is a compact version of YOLOv4 designed for real-time object detection on resource-constrained devices. It uses the Darknet framework as its base, and the "Tiny" version typically involves a **smaller number of layers and parameters** compared to the full YOLOv4 model, making it more suitable for applications with limited computational resources.

All of the YOLO models are object detection models. Object detection models are trained to look at an image and search for a subset of object classes. When found, these object classes are enclosed in a bounding box and their class is identified. Object detection models are typically trained and evaluated on the COCO dataset which contains a broad range of 80 object classes. From there, it is assumed that object detection models will generalize to new object detection tasks if they are exposed to new training data.

Object Localization and Bounding Box

**Object localization** is the process of identifying the location of an object in an image or video. It involves drawing a bounding box around the object and identifying its class. In two-stage detectors, the task of object localization and classification is decoupled for each bounding box. [In contrast, one-stage detectors like YOLO make the predictions for object localization and classification at the same time 1](https://blog.roboflow.com/a-thorough-breakdown-of-yolov4/).

Dataset

COCO Model : 80 Classes