

## PRIOR KNOWLEDGE

**One should have knowledge of the following Concepts:**

**YOLO v3**

**Flask**

### **YOLOv3:**

YOLOv3 (You Only Look Once, Version 3) is a real-time object detection algorithm that identifies specific objects in videos, live feeds, or images. The YOLO machine learning algorithm uses features learned by a deep convolutional neural network to detect an object

### **.How does YOLOv3 work? (Overview):**

YOLO is a Convolutional Neural Network (CNN) for performing object detection in real-time. CNNs are classifier-based systems that can process input images as structured arrays of data and recognize patterns between them (view image below). YOLO has the advantage of being much faster than other networks and still maintains accuracy. It allows the model to look at the whole image at test time, so its predictions are informed by the global context in the image. YOLO and other convolutional neural network algorithms “score” regions based on their similarities to predefined classes. High-scoring regions are noted as positive detections of whatever class they most closely identify with. For example, in a live feed of traffic, YOLO can be used to detect different kinds of vehicles depending on which regions of the video score highly in comparison to predefined classes of vehicles.

### **Flask:**

**Flask is a web application framework written in Python**  
**Flask is based on Werkzeug, WSGI toolkit and Jinja2 template engine. Both are Pocco projects.**

#### **Werkzeug:**

**It is a WSGI toolkit, which implements requests, response objects, and other utility functions. This enables building a web framework on top of it. The Flask framework uses Werkzeug as one of its bases.**

#### **WSGI:**

**Web Server GatewayInterface (WSGI) has been adopted as a standard for Python web application development. WSGI is a specification for a universal interface between the web server and the web applications.**

#### **Jinja2:**

**Jinja2 is a popular templating engine for Python. A web templating system**

**combines a template with a certain data source to render dynamic web pages.**

**Install virtualenv for development environment:**

**virtualenv is a virtual Python environment builder. It helps a user to create multiple Python environments side-by-side.**