

Professional Readiness for Innovation, Employability and Entrepreneurship

Project Report for Week 6

Project Tile: AI-powered Nutrition Analyzer for Fitness Enthusiasts

Team ID: PNT2022TMID15800

GitHub ID: IBM-Project-24498-1659943754

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Assigned Tasks

- Solution Fit Document**

 main ▾ IBM-Project-24498-1659943754 / Project Design & Planning / Project Design Phase 1 / problem-solution fit NT.pdf Go to file ...

 jai-siva Add files via upload Latest commit 3350bc2 7 days ago History

 1 contributor

884 KB Download 

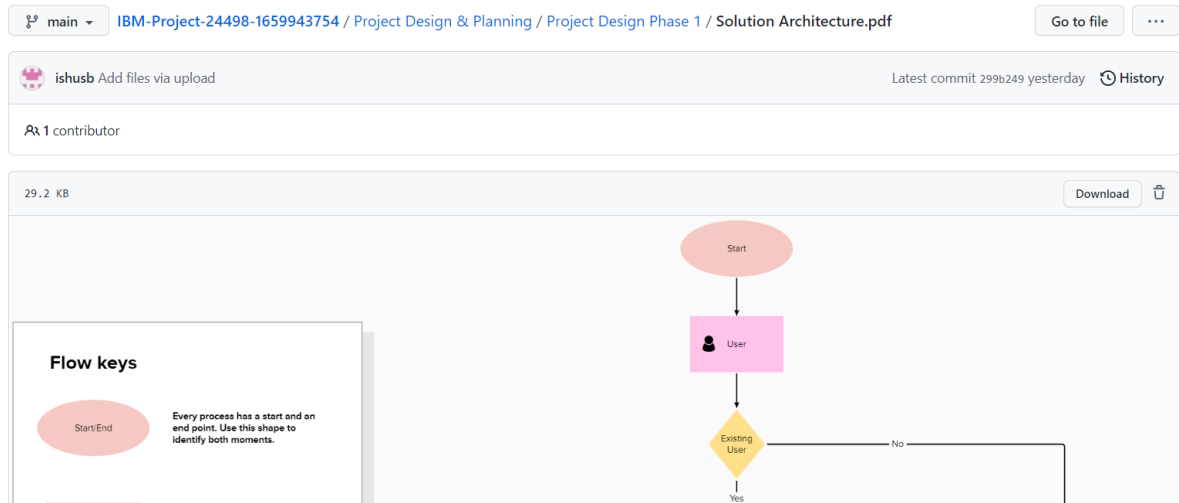
Problem-Solution Fit canvas

Purpose / Vision To enhance people's lifestyle

Version:

<div>Define CS, fit into CL</div>	<div>1. CUSTOMER SEGMENT(S) CS</div> <div>People who are in need to enhance their lifestyle and keep their lifestyle balanced. Those who want to follow the healthy diet .</div>	<div>6. CUSTOMER LIMITATIONS CL <small>EG. BUDGET, DEVICES</small></div> <div>Sometimes the images may not be processed well. In that case it may produce wrong analysis of the food.</div>	<div>5. AVAILABLE SOLUTIONS AS <small>PLUSES & MINUSES</small></div> <div>The packed food may contain the nutrition content of the food, but it may not be apt according to the customers diet.</div>	<div>Explore AS, differentiate</div>
	<div>2. PROBLEMS / PAINS PR <small>+ ITS FREQUENCY</small></div> <div>Nowadays people are not feeding their personal nutrition</div>	<div>9. PROBLEM ROOT / CAUSE RC</div> <div>People diet is filled with excess of sugars, fatty acids, so they have</div>	<div>7. BEHAVIOR BE <small>+ ITS INTENSITY</small></div> <div>The behavioral changes in users reflect</div>	

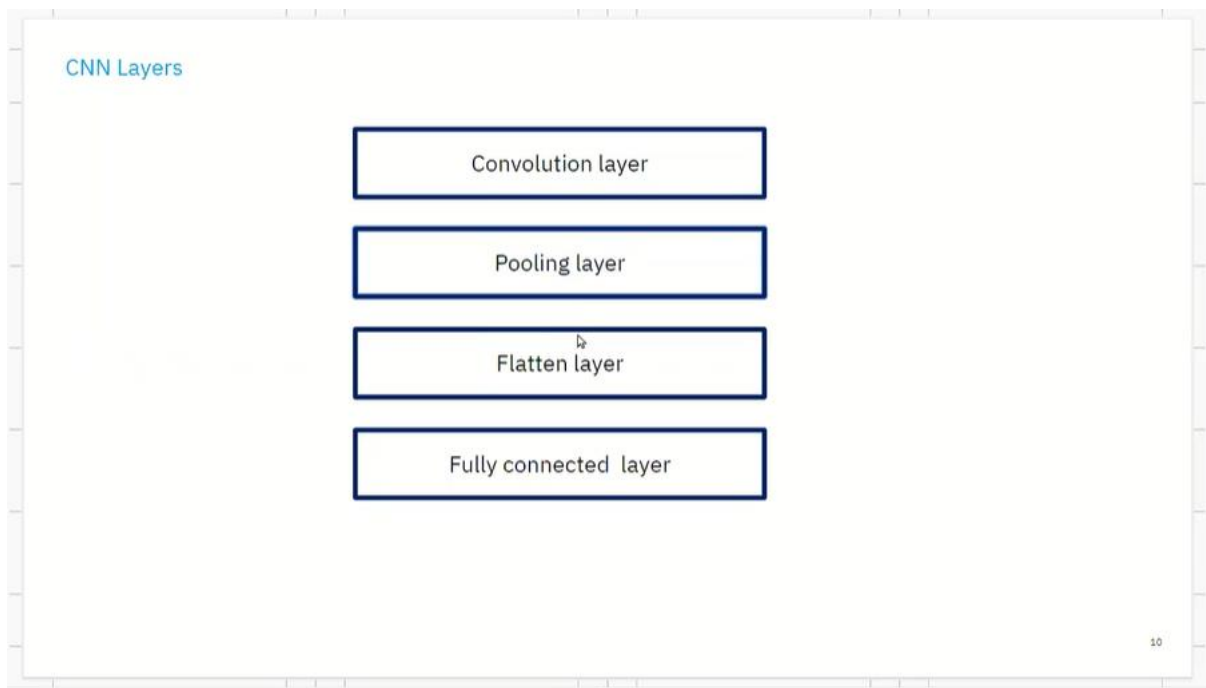
- **Solution Architecture**



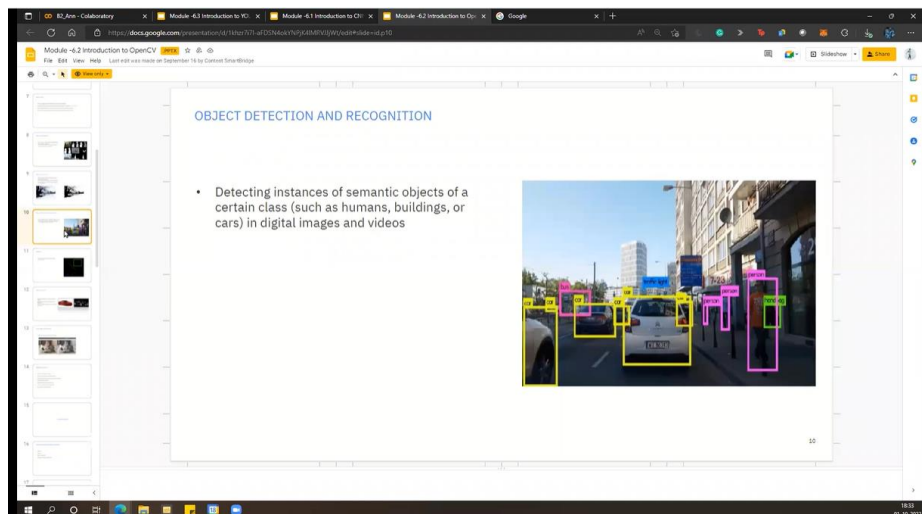
Classes

- On **October 1st** we had our **Day 10 Session**

Revision of CNN Layers



Revision of Open CV



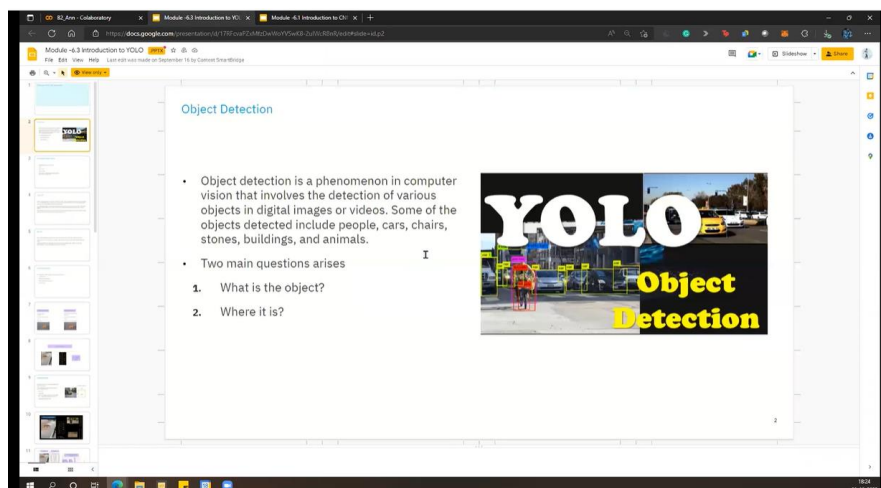
Module-4.2 Introduction to OpenCV

OBJECT DETECTION AND RECOGNITION

- Detecting instances of semantic objects of a certain class (such as humans, buildings, or cars) in digital images and videos

35

About YOLO(You Only Look Once) Algorithm

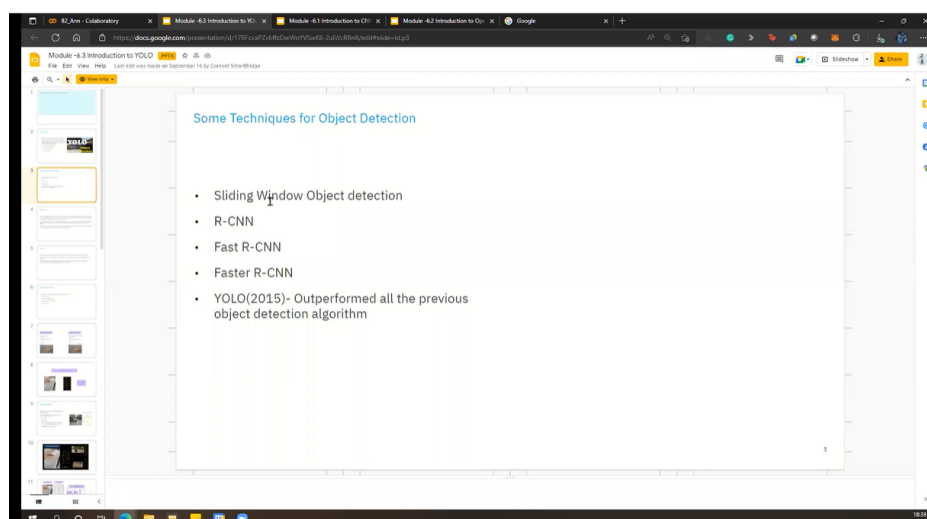


Module-4.3 Introduction to YOLO

Object Detection

- Object detection is a phenomenon in computer vision that involves the detection of various objects in digital images or videos. Some of the objects detected include people, cars, chairs, stones, buildings, and animals.
- Two main questions arises
 1. What is the object?
 2. Where it is?

3



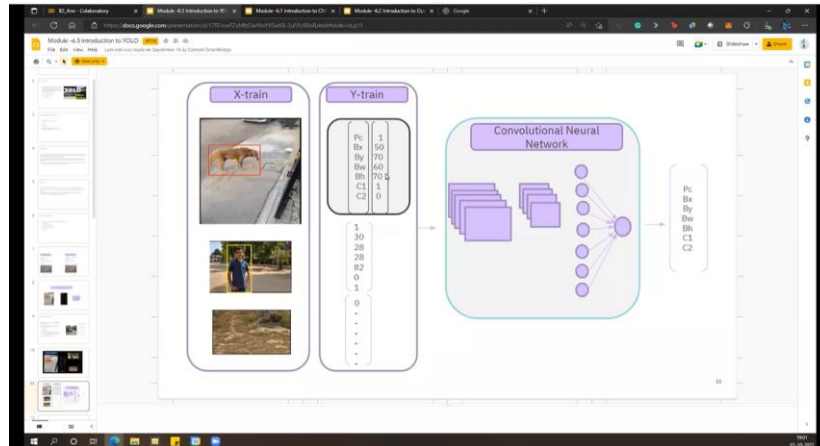
Module-4.3 Introduction to YOLO

Some Techniques for Object Detection

- Sliding Window Object detection
- R-CNN
- Fast R-CNN
- Faster R-CNN
- YOLO(2015)- Outperformed all the previous object detection algorithm

3

How YOLO algorithm works



Versions of YOLO

Versions of YOLO

YOLOv4

- With the original authors work on YOLO coming to a standstill, YOLOv4 was released by Alexey Bochkovskiy, Chien-Yao Wang, and Hong-Yuan Mark Liao. The paper was titled [YOLOv4: Optimal Speed and Accuracy of Object Detection](#)
- Author: [Alexey Bochkovskiy](#), [Chien-Yao Wang](#), and [Hong-Yuan Mark Liao](#)
- Released: 23 April 2020

YOLOv5

- Shortly after the release of YOLOv4 Glenn Jocher introduced YOLOv5 using the Pytorch framework. The open source code is available on [GitHub](#)
- Author: [Glenn Jocher](#)
- Released: 18 May 2020

YOLO7 GitHub

WongKinYiu / yolov7

Implementation of paper - YOLOv7: Trainable bag-of-freebies sets new state-of-the-art for real-time object detectors

Releases

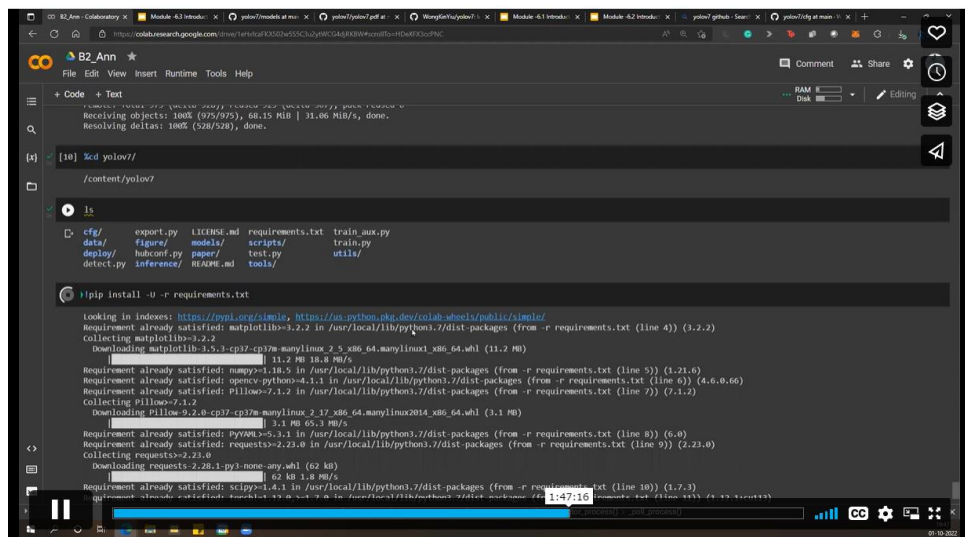
1 tag

Contributors

119 commits

File	Commit	Time
city	main code	3 months ago
data	Added param_box_size for hyp.yaml, to disable OTA for faster training	2 months ago
display/tf16n-reference-server	Add Triton Inference Server deployment (#346)	2 months ago
figure	main figure	last month
inference-images	Support dynamic batch for TensorRT and onnxruntime (#329)	2 months ago
models	main code	3 days ago
paper	main code	2 months ago
scripts	main code	3 months ago
tools	updated Reparameterization weight path & added steps for doing Rep...	19 days ago
utils	Add option to use YOLOv5 AP metric (#775)	15 days ago
utils	update glogone (#461)	2 months ago
LICENSE.md	Create LICENSE.md	1 month ago
README.md	main code	last month
detect.py	minor fix	2 months ago
export.py	Fixed issue with confidence for single class detectors when en...	19 days ago

Running YOLO7



The screenshot shows a Jupyter Notebook interface with a terminal window at the bottom. The terminal output shows the command `!pip install -U -r requirements.txt` being executed. The output lists the packages being installed: `matplotlib`, `numpy`, `opencv-python`, `Pillow`, `requests`, and `scipy`. The installation is successful, and the terminal shows the progress of downloading each package.

```
[10] %cd yolov7/
/content/yolov7/

ls
  cfg/      export.py  LICENSE.md  requirements.txt  train_aux.py
  data/     figure/    models/     scripts/         train.py
  deploy/   hubconf.py paper/      test.py          utils/
  detect.py inference README.md  tools/

!pip install -U -r requirements.txt
Looking in indexes: https://pypi.org/simple, https://us.python.pkgs.develop.colab.wheels/public/simple/
Requirement already satisfied: matplotlib>=3.2.2 in /usr/local/lib/python3.7/dist-packages (from -r requirements.txt (line 4)) (3.2.2)
Collecting matplotlib>=3.2.2
  Downloading matplotlib-3.5.3-cp37-cp37m-manylinux1_x86_64.whl (11.2 MB)
Requirement already satisfied: numpy>=1.18.5 in /usr/local/lib/python3.7/dist-packages (from -r requirements.txt (line 5)) (1.21.6)
Requirement already satisfied: opencv-python>=4.1.1 in /usr/local/lib/python3.7/dist-packages (from -r requirements.txt (line 6)) (4.6.0.66)
Requirement already satisfied: Pillow>=7.1.2 in /usr/local/lib/python3.7/dist-packages (from -r requirements.txt (line 7)) (7.1.2)
Collecting Pillow>=7.1.2
  Downloading Pillow-9.2.0-cp37-cp37m-manylinux_2_17_x86_64_manylinux2014_x86_64.whl (3.1 MB)
Requirement already satisfied: PyYAML>=5.3.1 in /usr/local/lib/python3.7/dist-packages (from -r requirements.txt (line 8)) (6.0)
Requirement already satisfied: requests>=2.23.0 in /usr/local/lib/python3.7/dist-packages (from -r requirements.txt (line 9)) (2.23.0)
Collecting requests>=2.23.0
  Downloading requests-2.28.1-py3-none-any.whl (62 kB)
Requirement already satisfied: scipy>=1.4.1 in /usr/local/lib/python3.7/dist-packages (from -r requirements.txt (line 10)) (1.7.3)
Requirement already satisfied: urllib3<1.27.0, >=1.25.9 in /usr/local/lib/python3.7/dist-packages (from requests>=2.23.0) (1.26.13)
Requirement already satisfied: idna<3.0, >=2.5 in /usr/local/lib/python3.7/dist-packages (from requests>=2.23.0) (2.10)
Requirement already satisfied: certifi<2021.10.8, >=2021.10.5 in /usr/local/lib/python3.7/dist-packages (from requests>=2.23.0) (2021.10.8)
```

