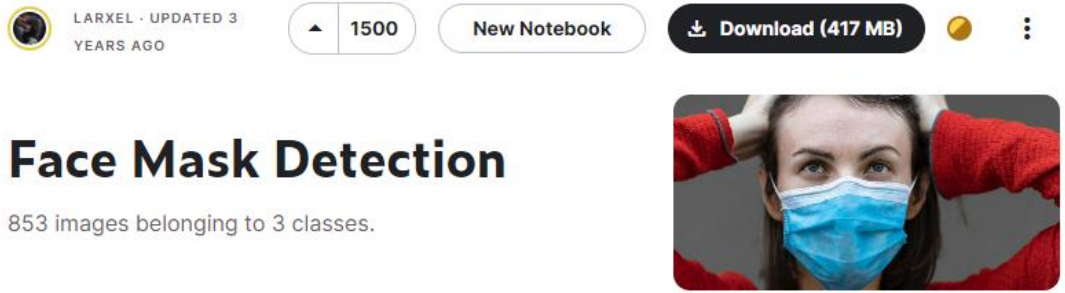
Object Detection:

Project „Face Mask Detection with Yolo v7“

Object Detection: YOLO Project

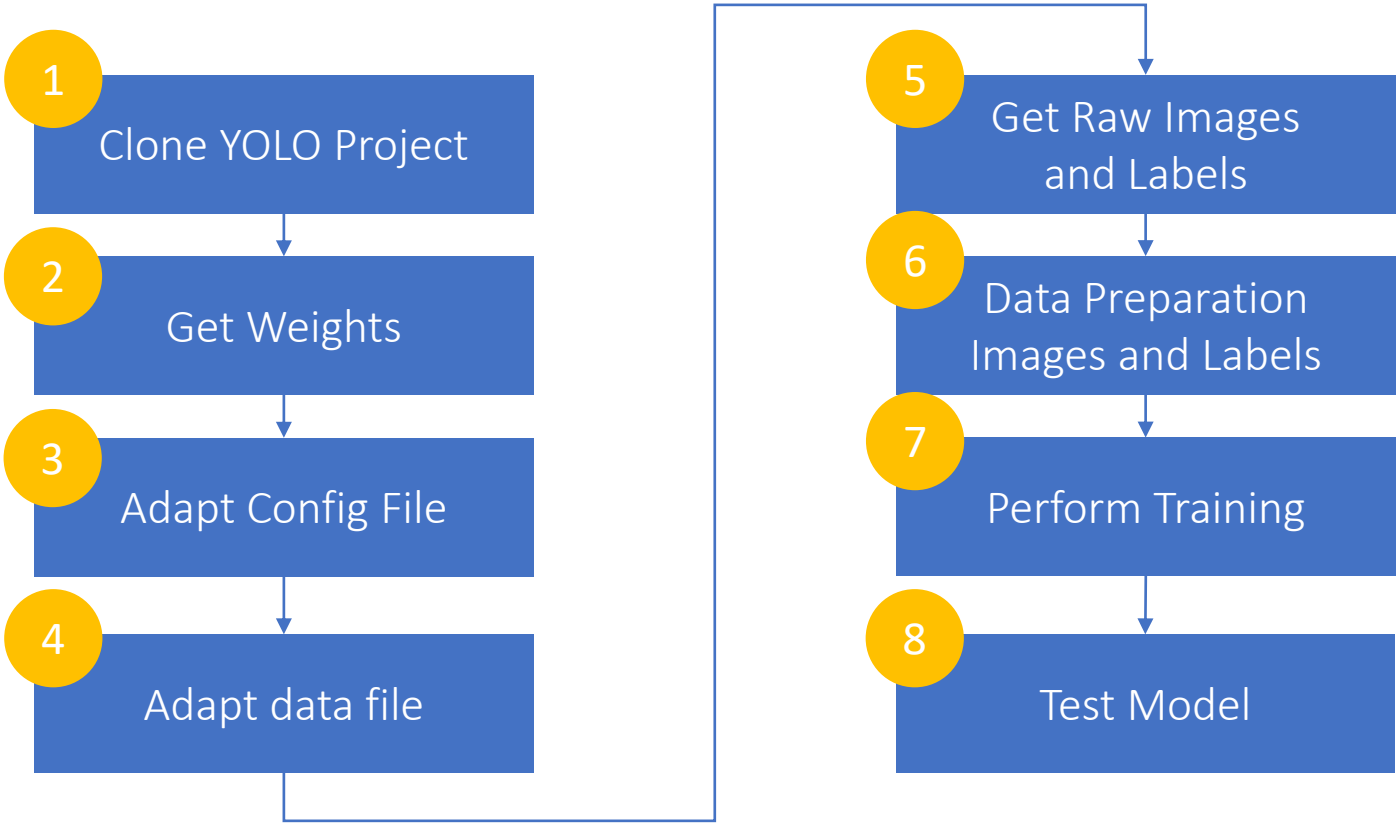
Data Overview

- Face Mask Detection
- Data Source: https://www.kaggle.com/datasets/andrewmvd/face-mask-detection
- Classes:
  - with_mask
  - without_mask
  - mask_weared_incorrect
- 853 images
- Labels in Pascal Voc format



Object Detection: YOLO Project

Steps



Object Detection: YOLO Project

Steps

1. Clone YOLO Project

   git clone https://github.com/WongKinYiu/yolov7.git

2. Get Weights

   - download from https://github.com/WongKinYiu/yolov7/releases/download/v0.1/yolov7-e6e.pt
   - store in yolo7 folder

3. Adapt Config File

   - create copy of yolov7\cfg\training\yolov7-e6e.yaml
   - set number of classes

```
1   # parameters
2   nc: 7  # number of classes
```

Object Detection: YOLO Project

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Adapt data file

yolov7 > data > masks.yaml

```yaml
train: ./train
val: ./val
test: ./test

# Classes
nc: 3  # number of classes
names: ['with_mask', 'without_mask', 'mask_weared_incorrect']
```

Object Detection: YOLO Project

Steps

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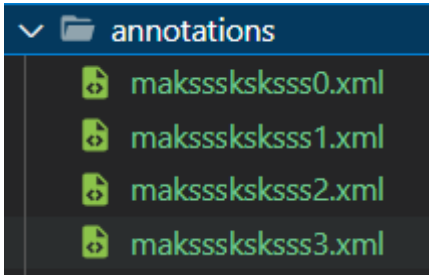
Get Raw Images and Labels

download from Kaggle

source: https://www.kaggle.com/datasets/andrewmvd/face-mask-detection



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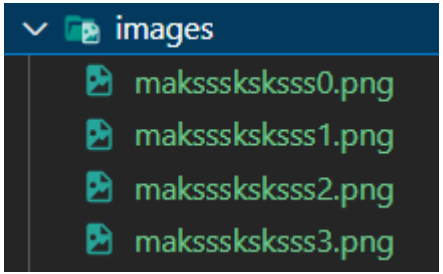

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Object Detection: YOLO Project

Steps

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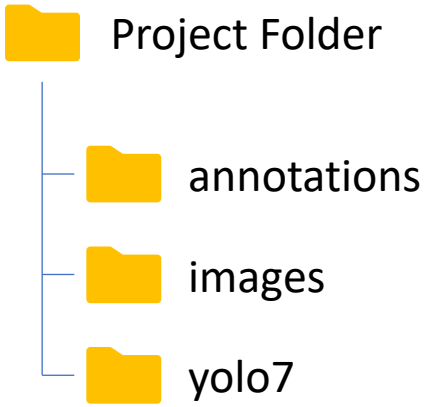
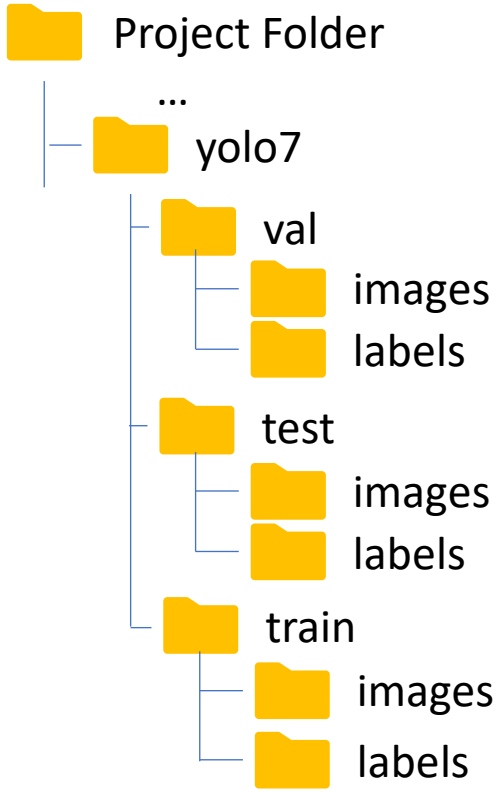
Data Preparation
Images and Labels

- Convert Pascal Voc labels to Yolo format
- split data into subfolders

before



after



Object Detection: YOLO Project

Steps

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Perform Training

```
python train.py
       --weights yolov7-e6e.pt
       --data "data/masks.yaml"
       --workers 1
       --batch-size 4
       --img 640
       --cfg cfg/training/yolov7-masks.yaml
       --name yolov7
       --epochs 50
```

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Steps

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Test Model


```
python detect.py
       --weights runs/train/yolov73/weights/best.pt
       --conf 0.4
       --img-size 640
       --source ./test/images/file_to_test.png
```