```python
import sys
import torch
print(f"Python version: {sys.version}, {sys.version_info} ")
print(f"Pytorch version: {torch.__version__} ")
```

```
Python version: 3.12.0 (tags/v3.12.0:0fb18b0, Oct  2 2023, 13:03:39)
[MSC v.1935 64 bit (AMD64)], sys.version_info(major=3, minor=12,
micro=0, releaselevel='final', serial=0)
Pytorch version: 2.2.2+cpu
```

```
!nvidia-smi
```

```
Tue Apr 16 16:08:43 2024
+-----------------------------------------------------------------------------+
| NVIDIA-SMI 526.98       Driver Version: 526.98       CUDA Version: 12.0      |
|-------------------------------+----------------------+----------------------+
| GPU  Name            TCC/WDDM | Bus-Id        Disp.A | Volatile Uncorr. ECC |
| Fan  Temp  Perf  Pwr:Usage/Cap|         Memory-Usage | GPU-Util  Compute M. |
|                               |                      |               MIG M. |
|===============================+======================+======================|
|   0  NVIDIA GeForce ... WDDM  | 00000000:01:00.0  On |                  N/A |
|  0%   34C    P8    16W / 200W |    961MiB /  8192MiB |     19%      Default |
|                               |                      |                  N/A |
+-------------------------------+----------------------+----------------------+

+-----------------------------------------------------------------------------+
| Processes:                                                                  |
|  GPU   GI   CI        PID   Type   Process name                  GPU Memory |
|        ID   ID                                                   Usage      |
|=============================================================================|
```

```
|    0   N/A  N/A      2984      C+G   ...zilla Firefox\firefox.exe
N/A      |
|    0   N/A  N/A      3516      C+G   ...lPanel\SystemSettings.exe
N/A      |
|    0   N/A  N/A      4208      C+G   ...420.97\msedgewebview2.exe
N/A      |
|    0   N/A  N/A      4532      C+G   ...e\PhoneExperienceHost.exe
N/A      |
|    0   N/A  N/A      5568      C+G   ...ge\Application\msedge.exe
N/A      |
|    0   N/A  N/A      8148      C+G   C:\Windows\explorer.exe
N/A      |
|    0   N/A  N/A      8328      C+G   ...y\GalaxyClient Helper.exe
N/A      |
|    0   N/A  N/A      9392      C+G   ...n1h2txyewy\SearchHost.exe
N/A      |
|    0   N/A  N/A      9428      C+G   ...artMenuExperienceHost.exe
N/A      |
|    0   N/A  N/A      9704      C+G   ...-3.3.13\GitHubDesktop.exe
N/A      |
|    0   N/A  N/A     10324      C+G   ...zilla Firefox\firefox.exe
N/A      |
|    0   N/A  N/A     11972      C+G   ...cw5n1h2txyewy\LockApp.exe
N/A      |
|    0   N/A  N/A     12836      C+G   ...werToys.ColorPickerUI.exe
N/A      |
|    0   N/A  N/A     12864      C+G   ...\PowerToys.FancyZones.exe
N/A      |
|    0   N/A  N/A     12956      C+G   ...werToys.PowerLauncher.exe
N/A      |
|    0   N/A  N/A     14256      C+G   ...perience\NVIDIA Share.exe
N/A      |
|    0   N/A  N/A     14664      C+G   ...2txyewy\TextInputHost.exe
N/A      |
|    0   N/A  N/A     16528      C+G   ...\app-1.0.9041\Discord.exe
N/A      |
|    0   N/A  N/A     16944      C+G   ...y\ShellExperienceHost.exe
N/A      |
|    0   N/A  N/A     18816      C+G   ...4__8j3eq9eme6ctt\IGCC.exe
N/A      |
|    0   N/A  N/A     19356      C+G   ...wekyb3d8bbwe\ms-teams.exe
N/A      |
|    0   N/A  N/A     24404      C+G   ...icrosoft VS Code\Code.exe
N/A      |
+-----------------------------------------------------------------
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# Download YOLOv7 code
!git clone https://github.com/WongKinYiu/yolov7
%cd yolov7
```

```
c:\Users\Piotr\Desktop\School\IntelOb\lab7\yolov7

fatal: destination path 'yolov7' already exists and is not an empty
directory.
c:\Users\Piotr\Desktop\School\IntelOb\.venv\Lib\site-packages\IPython\
core\magics\osm.py:417: UserWarning: This is now an optional IPython
functionality, setting dhist requires you to install the `pickleshare`
library.
  self.shell.db['dhist'] = compress_dhist(dhist)[-100:]
```

!# Download trained weights
!#curl -O -L
https://github.com/WongKinYiu/yolov7/releases/download/v0.1/yolov7.pt

```
'#' is not recognized as an internal or external command,
operable program or batch file.

'#curl' is not recognized as an internal or external command,
operable program or batch file.
```

!# Detection
!python detect.py --weights yolov7.pt --conf 0.25 --img-size 640 --
source inference//images//horses.jpg

```
'#' is not recognized as an internal or external command,
operable program or batch file.

Namespace(weights=['yolov7.pt'],
source='inference//images//horses.jpg', img_size=640, conf_thres=0.25,
iou_thres=0.45, device='', view_img=False, save_txt=False,
save_conf=False, nosave=False, classes=None, agnostic_nms=False,
augment=False, update=False, project='runs/detect', name='exp',
exist_ok=False, no_trace=False)
Fusing layers...
RepConv.fuse_repvgg_block
RepConv.fuse_repvgg_block
RepConv.fuse_repvgg_block
 Convert model to Traced-model...
 traced_script_module saved!
 model is traced!

5 horses, Done. (323.1ms) Inference, (1.0ms) NMS
 The image with the result is saved in: runs\detect\exp10\horses.jpg
Done. (0.341s)

YOLOR  v0.1-128-ga207844 torch 2.2.2+cpu CPU

Model Summary: 306 layers, 36905341 parameters, 6652669 gradients
c:\Users\Piotr\Desktop\School\IntelOb\.venv\Lib\site-packages\torch\
functional.py:507: UserWarning: torch.meshgrid: in an upcoming
release, it will be required to pass the indexing argument. (Triggered
```

```
internally at ..\aten\src\ATen\native\TensorShape.cpp:3550.)
  return _VF.meshgrid(tensors, **kwargs)  # type: ignore[attr-defined]

# define helper functions to show images
def imShow(path):
  import cv2
  import matplotlib.pyplot as plt
  %matplotlib inline

  image = cv2.imread(path)
  height, width = image.shape[:2]
  resized_image = cv2.resize(image,(3*width, 3*height), interpolation
= cv2.INTER_CUBIC)

  fig = plt.gcf()
  fig.set_size_inches(18, 10)
  plt.axis("off")
  plt.imshow(cv2.cvtColor(resized_image, cv2.COLOR_BGR2RGB))
  plt.show()

imShow("runs/detect/exp10/horses.jpg")
```