

```
## Comparative study of real time fire and smoke detection using different versions of yolo
##yolo versions which we are going to use yolov5,yolov8
```

```
# !python --version
!pip install roboflow
from roboflow import Roboflow
rf = Roboflow(api_key="VxheCdLuJSmrgU2pwJss" Run cell (Ctrl+Enter)
project = rf.workspace("custom-thxhn").proje cell has not been executed in this session
version = project.version(8) Previous execution ended unsuccessfully
dataset = version.download("yolov8") currently executing...
```

→ Requirement already satisfied: roboflow in /usr/local/lib/python3.11/dist-packages (1.1.61)  
Requirement already satisfied: certifi in /usr/local/lib/python3.11/dist-packages (from roboflow) (2025.1.31)  
Requirement already satisfied: idna==3.7 in /usr/local/lib/python3.11/dist-packages (from roboflow) (3.7)  
Requirement already satisfied: cycler in /usr/local/lib/python3.11/dist-packages (from roboflow) (0.12.1)  
Requirement already satisfied: kiwisolver>=1.3.1 in /usr/local/lib/python3.11/dist-packages (from roboflow) (1.4.8)  
Requirement already satisfied: matplotlib in /usr/local/lib/python3.11/dist-packages (from roboflow) (3.10.0)  
Requirement already satisfied: numpy>=1.18.5 in /usr/local/lib/python3.11/dist-packages (from roboflow) (2.0.2)  
Requirement already satisfied: opencv-python-headless==4.10.0.84 in /usr/local/lib/python3.11/dist-packages (from  
Requirement already satisfied: Pillow>=7.1.2 in /usr/local/lib/python3.11/dist-packages (from roboflow) (11.1.0)  
Requirement already satisfied: pillow-heif>=0.18.0 in /usr/local/lib/python3.11/dist-packages (from roboflow) (0.2  
Requirement already satisfied: python-dateutil in /usr/local/lib/python3.11/dist-packages (from roboflow) (2.8.2)  
Requirement already satisfied: python-dotenv in /usr/local/lib/python3.11/dist-packages (from roboflow) (1.1.0)  
Requirement already satisfied: requests in /usr/local/lib/python3.11/dist-packages (from roboflow) (2.32.3)  
Requirement already satisfied: six in /usr/local/lib/python3.11/dist-packages (from roboflow) (1.17.0)  
Requirement already satisfied: urllib3>=1.26.6 in /usr/local/lib/python3.11/dist-packages (from roboflow) (2.3.0)  
Requirement already satisfied: tqdm>=4.41.0 in /usr/local/lib/python3.11/dist-packages (from roboflow) (4.67.1)  
Requirement already satisfied: PyYAML>=5.3.1 in /usr/local/lib/python3.11/dist-packages (from roboflow) (6.0.2)  
Requirement already satisfied: requests-toolbelt in /usr/local/lib/python3.11/dist-packages (from roboflow) (1.0.0)  
Requirement already satisfied: filetype in /usr/local/lib/python3.11/dist-packages (from roboflow) (1.2.0)  
Requirement already satisfied: contourpy>=1.0.1 in /usr/local/lib/python3.11/dist-packages (from matplotlib->robof  
Requirement already satisfied: fonttools>=4.22.0 in /usr/local/lib/python3.11/dist-packages (from matplotlib->robo  
Requirement already satisfied: packaging>=20.0 in /usr/local/lib/python3.11/dist-packages (from matplotlib->robofl  
Requirement already satisfied: pyparsing>=2.3.1 in /usr/local/lib/python3.11/dist-packages (from matplotlib->robof  
Requirement already satisfied: charset-normalizer<4,>=2 in /usr/local/lib/python3.11/dist-packages (from requests-  
loading Roboflow workspace...  
loading Roboflow project...  
Downloading Dataset Version Zip in fire-8 to yolov8::: 100%|██████████| 33054/33054 [00:03<00:00, 9852.49it/s]

Extracting Dataset Version Zip to fire-8 in yolov8::: 100%|██████████| 1970/1970 [00:00<00:00, 9093.92it/s]

```
# Step 2: Define dataset path
dataset_path = dataset.location
```

```
import os

# Define separate project directories
v5_dir = "yolov5_project"
v8_dir = "yolov8_project"

# Create both directories if they don't already exist
os.makedirs(v5_dir, exist_ok=True)
os.makedirs(v8_dir, exist_ok=True)

# Just to confirm: print the paths created
print("YOLOv5 project directory:", os.path.abspath(v5_dir))
print("YOLOv8 project directory:", os.path.abspath(v8_dir))
```

→ YOLOv5 project directory: /content/yolov5\_project  
YOLOv8 project directory: /content/yolov8\_project

```
# Check PyTorch and CUDA availability : PyTorch is a deep learning library, and CUDA is a parallel computing platform
import torch
print(f"Setup complete. Using torch {torch.__version__} ({torch.cuda.get_device_properties(0).name} if torch.cuda.is_av

→ Setup complete. Using torch 2.6.0+cu124 (Tesla T4)

data_yaml = """
train: /content/fire-8/train/images
val: /content/fire-8/train/images
test: /content/fire-8/train/images
nc: 3
names: ['fire', 'other', 'smoke']

"""

with open('/content/fire-8/data.yaml', 'w') as f:
    f.write(data_yaml)

import os
print(os.listdir('/content/fire-8/'))

→ ['README.roboflow.txt', 'data.yaml', 'valid', 'test', 'README.dataset.txt', 'train']

# ===== TRAIN YOLOv5 =====

### Train YOLOv5
%cd /content/yolov5_project
!git clone https://github.com/ultralytics/yolov5.git
%cd yolov5
!pip install -r requirements.txt
!python train.py --img 640 --batch 16 --epochs 50 --data /content/fire-8/data.yaml --weights yolov5s.pt --workers 1 --pr
```

→ Streaming output truncated to the last 5000 lines.

|                                    |        |           |         |  |    |       |           |       |               |               |
|------------------------------------|--------|-----------|---------|--|----|-------|-----------|-------|---------------|---------------|
| 6/49                               | 4.41G  | 0.04891   | 0.02107 | 0.01375  | 45 | 640:  | 65%       | 36/55 | [00:15<00:08, | 2.27it/s]     |
| with torch.cuda.amp.autocast(amp): |        |           |         |  |    |       |           |       |               |               |
| 6/49                               | 4.41G  | 0.04835   | 0.02109 | 0.01371  | 44 | 640:  | 67%       | 37/55 | [00:16<00:07, | 2.31it/s]     |
| with torch.cuda.amp.autocast(amp): |        |           |         |  |    |       |           |       |               |               |
| 6/49                               | 4.41G  | 0.04777   | 0.021   | 0.01357  | 40 | 640:  | 69%       | 38/55 | [00:16<00:07, | 2.27it/s]     |
| with torch.cuda.amp.autocast(amp): |        |           |         |  |    |       |           |       |               |               |
| 6/49                               | 4.41G  | 0.04801   | 0.02105 | 0.01354  | 45 | 640:  | 71%       | 39/55 | [00:16<00:06, | 2.35it/s]     |
| with torch.cuda.amp.autocast(amp): |        |           |         |  |    |       |           |       |               |               |
| 6/49                               | 4.41G  | 0.04798   | 0.      | Run cell (Ctrl+Enter)<br>cell has not been executed in this session<br>Previous execution ended unsuccessfully |    | 640:  | 73%       | 40/55 | [00:17<00:06, | 2.33it/s]     |
| with torch.cuda.amp.autocast(amp): |        |           |         |  |    |       |           |       |               |               |
| 6/49                               | 4.41G  | 0.04757   | 0.      | currently executing...   |    | 640:  | 75%       | 41/55 | [00:17<00:06, | 2.29it/s]     |
| with torch.cuda.amp.autocast(amp): |        |           |         |  |    |       |           |       |               |               |
| 6/49                               | 4.41G  | 0.04719   | 0.02094 | 0.01317  | 41 | 640:  | 76%       | 42/55 | [00:18<00:05, | 2.29it/s]     |
| with torch.cuda.amp.autocast(amp): |        |           |         |  |    |       |           |       |               |               |
| 6/49                               | 4.41G  | 0.04751   | 0.02089 | 0.01323  | 41 | 640:  | 78%       | 43/55 | [00:18<00:05, | 2.36it/s]     |
| with torch.cuda.amp.autocast(amp): |        |           |         |  |    |       |           |       |               |               |
| 6/49                               | 4.41G  | 0.04789   | 0.02094 | 0.01318  | 51 | 640:  | 80%       | 44/55 | [00:19<00:04, | 2.34it/s]     |
| with torch.cuda.amp.autocast(amp): |        |           |         |  |    |       |           |       |               |               |
| 6/49                               | 4.41G  | 0.04811   | 0.02091 | 0.01301  | 44 | 640:  | 82%       | 45/55 | [00:19<00:04, | 2.29it/s]     |
| with torch.cuda.amp.autocast(amp): |        |           |         |  |    |       |           |       |               |               |
| 6/49                               | 4.41G  | 0.04874   | 0.02087 | 0.01288  | 42 | 640:  | 84%       | 46/55 | [00:20<00:04, | 2.25it/s]     |
| with torch.cuda.amp.autocast(amp): |        |           |         |  |    |       |           |       |               |               |
| 6/49                               | 4.41G  | 0.0489    | 0.02088 | 0.01276  | 44 | 640:  | 85%       | 47/55 | [00:20<00:03, | 2.23it/s]     |
| with torch.cuda.amp.autocast(amp): |        |           |         |  |    |       |           |       |               |               |
| 6/49                               | 4.41G  | 0.04901   | 0.02092 | 0.01269  | 50 | 640:  | 87%       | 48/55 | [00:20<00:03, | 2.32it/s]     |
| with torch.cuda.amp.autocast(amp): |        |           |         |  |    |       |           |       |               |               |
| 6/49                               | 4.41G  | 0.04901   | 0.02088 | 0.01264  | 41 | 640:  | 89%       | 49/55 | [00:21<00:02, | 2.14it/s]     |
| with torch.cuda.amp.autocast(amp): |        |           |         |  |    |       |           |       |               |               |
| 6/49                               | 4.41G  | 0.04924   | 0.02098 | 0.0127   | 53 | 640:  | 91%       | 50/55 | [00:22<00:02, | 1.98it/s]     |
| with torch.cuda.amp.autocast(amp): |        |           |         |  |    |       |           |       |               |               |
| 6/49                               | 4.41G  | 0.04941   | 0.02094 | 0.01257  | 39 | 640:  | 93%       | 51/55 | [00:22<00:02, | 1.91it/s]     |
| with torch.cuda.amp.autocast(amp): |        |           |         |  |    |       |           |       |               |               |
| 6/49                               | 4.41G  | 0.04945   | 0.02104 | 0.01252  | 54 | 640:  | 95%       | 52/55 | [00:23<00:01, | 1.86it/s]     |
| with torch.cuda.amp.autocast(amp): |        |           |         |  |    |       |           |       |               |               |
| 6/49                               | 4.41G  | 0.04975   | 0.02104 | 0.01245  | 45 | 640:  | 96%       | 53/55 | [00:23<00:01, | 1.80it/s]     |
| with torch.cuda.amp.autocast(amp): |        |           |         |  |    |       |           |       |               |               |
| 6/49                               | 4.41G  | 0.04932   | 0.02108 | 0.01234  | 46 | 640:  | 98%       | 54/55 | [00:24<00:00, | 1.53it/s]     |
| with torch.cuda.amp.autocast(amp): |        |           |         |  |    |       |           |       |               |               |
| 6/49                               | 4.41G  | 0.04978   | 0.02105 | 0.01227  | 32 | 640:  | 100%      | 55/55 | [00:25<00:00, | 2.20it/s]     |
| Class                              | Images | Instances |         | P  |    | mAP50 | mAP50-95: | 100%  | 28/28         | [00:12<00:00, |
| all                                | 877    | 971       | 0.431   | 0.53   |    | 0.507 | 0.193     |       |               |               |

| Epoch                              | GPU_mem | box_loss   | obj_loss | cls_loss | Instances | Size  |     |       |               |           |
|------------------------------------|---------|--|----------|----------|-----------|---|-----|-------|---------------|-----------|
| 0%                                 | 0/55    | [00:00<?, ?it/s]/content/yolov5_project/yolov5/train.py:412: |          |          |           | FutureWarning: `torch.cuda.amp.autocast(arg |     |       |               |           |
| with torch.cuda.amp.autocast(amp): |         |  |          |          |           |   |     |       |               |           |
| 7/49                               | 4.41G   | 0.02376  | 0.01712  | 0.00346  | 38        | 640:  | 2%  | 1/55  | [00:00<00:12, | 4.33it/s] |
| with torch.cuda.amp.autocast(amp): |         |  |          |          |           |   |     |       |               |           |
| 7/49                               | 4.41G   | 0.03344  | 0.02027  | 0.006032 | 49        | 640:  | 4%  | 2/55  | [00:00<00:12, | 4.38it/s] |
| with torch.cuda.amp.autocast(amp): |         |  |          |          |           |   |     |       |               |           |
| 7/49                               | 4.41G   | 0.04288  | 0.0214   | 0.007427 | 48        | 640:  | 5%  | 3/55  | [00:00<00:14, | 3.66it/s] |
| with torch.cuda.amp.autocast(amp): |         |  |          |          |           |   |     |       |               |           |
| 7/49                               | 4.41G   | 0.04517  | 0.02069  | 0.01065  | 39        | 640:  | 7%  | 4/55  | [00:01<00:17, | 2.99it/s] |
| with torch.cuda.amp.autocast(amp): |         |  |          |          |           |   |     |       |               |           |
| 7/49                               | 4.41G   | 0.04897  | 0.02053  | 0.01007  | 37        | 640:  | 9%  | 5/55  | [00:01<00:18, | 2.73it/s] |
| with torch.cuda.amp.autocast(amp): |         |  |          |          |           |   |     |       |               |           |
| 7/49                               | 4.41G   | 0.05113  | 0.02059  | 0.009605 | 42        | 640:  | 11% | 6/55  | [00:02<00:19, | 2.56it/s] |
| with torch.cuda.amp.autocast(amp): |         |  |          |          |           |   |     |       |               |           |
| 7/49                               | 4.41G   | 0.05185  | 0.02048  | 0.009789 | 44        | 640:  | 13% | 7/55  | [00:02<00:20, | 2.38it/s] |
| with torch.cuda.amp.autocast(amp): |         |  |          |          |           |   |     |       |               |           |
| 7/49                               | 4.41G   | 0.05425  | 0.02032  | 0.009662 | 43        | 640:  | 15% | 8/55  | [00:03<00:20, | 2.29it/s] |
| with torch.cuda.amp.autocast(amp): |         |  |          |          |           |   |     |       |               |           |
| 7/49                               | 4.41G   | 0.05269  | 0.02038  | 0.009358 | 40        | 640:  | 16% | 9/55  | [00:03<00:19, | 2.36it/s] |
| with torch.cuda.amp.autocast(amp): |         |  |          |          |           |   |     |       |               |           |
| 7/49                               | 4.41G   | 0.05201  | 0.02035  | 0.009359 | 38        | 640:  | 18% | 10/55 | [00:03<00:19, | 2.34it/s] |
| with torch.cuda.amp.autocast(amp): |         |  |          |          |           |   |     |       |               |           |
| 7/49                               | 4.41G   | 0.05236  | 0.02023  | 0.009185 | 40        | 640:  | 20% | 11/55 | [00:04<00:19, | 2.21it/s] |
| with torch.cuda.amp.autocast(amp): |         |  |          |          |           |   |     |       |               |           |
| 7/49                               | 4.41G   | 0.05367  | 0.01995  | 0.009132 | 34        | 640:  | 22% | 12/55 | [00:04<00:18, | 2.33it/s] |
| with torch.cuda.amp.autocast(amp): |         |  |          |          |           |   |     |       |               |           |
| 7/49                               | 4.41G   | 0.05255  | 0.02026  | 0.009111 | 48        | 640:  | 24% | 13/55 | [00:05<00:17, | 2.37it/s] |
| with torch.cuda.amp.autocast(amp): |         |  |          |          |           |   |     |       |               |           |

```

with torch.cuda.amp.autocast(amp):
    7/49    4.41G   0.05251  0.02019  0.009055    44    640:  25% 14/55 [00:05<00:17,  2.38it/s]
    with torch.cuda.amp.autocast(amp):
        7/49    4.41G   0.05224  0.01987  0.009325    36    640:  27% 15/55 [00:05<00:16,  2.38it/s]
    with torch.cuda.amp.autocast(amp):
        7/49    4.41G   0.0529   0.01972  0.009097    39    640:  29% 16/55 [00:06<00:15,  2.44it/s]
    with torch.cuda.amp.autocast(amp):
        7/49    4.41G   0.05268  0.01938  0.009143    29    640:  31% 17/55 [00:06<00:15,  2.45it/s]
    with torch.cuda.amp.autocast(amp):
        7/49    4.41G   0.05395  0. Run cell (Ctrl+Enter)
    with torch.cuda.amp.autocast(amp):
        cell has not been executed in this session
        7/49    4.41G   0.05494  0. Previous execution ended unsuccessfully
    with torch.cuda.amp.autocast(amp):
        7/49    4.41G   0.05468  0. currently executing...
    with torch.cuda.amp.autocast(amp):
        7/49    4.41G   0.05475  0.01928  0.009492    41    640:  38% 21/55 [00:08<00:13,  2.45it/s]
    with torch.cuda.amp.autocast(amp):
        7/49    4.41G   0.05585  0.01899  0.009248    30    640:  40% 22/55 [00:08<00:13,  2.46it/s]
    with torch.cuda.amp.autocast(amp):
        7/49    4.41G   0.0548   0.01904  0.00929    41    640:  42% 23/55 [00:09<00:13,  2.43it/s]
    with torch.cuda.amp.autocast(amp):
        7/49    4.41G   0.05444  0.01913  0.009422    42    640:  44% 24/55 [00:09<00:12,  2.44it/s]
    with torch.cuda.amp.autocast(amp):
        7/49    4.41G   0.05419  0.01921  0.009363    47    640:  45% 25/55 [00:10<00:13,  2.30it/s]
    with torch.cuda.amp.autocast(amp):
        7/49    4.41G   0.05367  0.01933  0.009514    45    640:  47% 26/55 [00:10<00:13,  2.12it/s]
    with torch.cuda.amp.autocast(amp):
        7/49    4.41G   0.05397  0.01927  0.009419    39    640:  49% 27/55 [00:11<00:15,  1.84it/s]
    with torch.cuda.amp.autocast(amp):
        7/49    4.41G   0.05429  0.01939  0.009357    49    640:  51% 28/55 [00:12<00:15,  1.78it/s]
    with torch.cuda.amp.autocast(amp):
        7/49    4.41G   0.05333  0.01932  0.009223    43    640:  53% 29/55 [00:12<00:14,  1.74it/s]
    with torch.cuda.amp.autocast(amp):
        7/49    4.41G   0.05279  0.01938  0.009207    44    640:  55% 30/55 [00:13<00:14,  1.70it/s]
    with torch.cuda.amp.autocast(amp):
        7/49    4.41G   0.05294  0.01945  0.009382    49    640:  56% 31/55 [00:13<00:13,  1.85it/s]
    with torch.cuda.amp.autocast(amp):
        7/49    4.41G   0.05297  0.01952  0.009304    47    640:  58% 32/55 [00:14<00:11,  2.03it/s]
    with torch.cuda.amp.autocast(amp):
        7/49    4.41G   0.05303  0.01955  0.009244    39    640:  60% 33/55 [00:14<00:10,  2.16it/s]
    with torch.cuda.amp.autocast(amp):
        7/49    4.41G   0.05354  0.01951  0.009308    43    640:  62% 34/55 [00:14<00:09,  2.21it/s]
    with torch.cuda.amp.autocast(amp):
        7/49    4.41G   0.05375  0.0196   0.009337    45    640:  64% 35/55 [00:15<00:08,  2.24it/s]
    with torch.cuda.amp.autocast(amp):
        7/49    4.41G   0.0538   0.01969  0.009469    48    640:  65% 36/55 [00:15<00:08,  2.32it/s]
    with torch.cuda.amp.autocast(amp):
        7/49    4.41G   0.05309  0.0196   0.009327    35    640:  67% 37/55 [00:16<00:07,  2.40it/s]
    with torch.cuda.amp.autocast(amp):
        7/49    4.41G   0.0535   0.01963  0.00926    39    640:  69% 38/55 [00:16<00:07,  2.37it/s]
    with torch.cuda.amp.autocast(amp):
        7/49    4.41G   0.05273  0.0196   0.009214    39    640:  71% 39/55 [00:16<00:06,  2.42it/s]
    with torch.cuda.amp.autocast(amp):
        7/49    4.41G   0.05291  0.01967  0.009172    44    640:  73% 40/55 [00:17<00:06,  2.34it/s]
    with torch.cuda.amp.autocast(amp):
        7/49    4.41G   0.05226  0.01969  0.009109    38    640:  75% 41/55 [00:17<00:05,  2.36it/s]
    with torch.cuda.amp.autocast(amp):
        7/49    4.41G   0.05212  0.0198   0.009167    49    640:  76% 42/55 [00:18<00:05,  2.40it/s]
    with torch.cuda.amp.autocast(amp):
        7/49    4.41G   0.05194  0.01978  0.009185    44    640:  78% 43/55 [00:18<00:04,  2.40it/s]
    with torch.cuda.amp.autocast(amp):
        7/49    4.41G   0.05139  0.01985  0.009077    52    640:  80% 44/55 [00:18<00:04,  2.46it/s]
    with torch.cuda.amp.autocast(amp):
        7/49    4.41G   0.0513   0.01988  0.009075    44    640:  82% 45/55 [00:19<00:04,  2.46it/s]
    with torch.cuda.amp.autocast(amp):
        7/49    4.41G   0.05072  0.0198   0.008958    38    640:  84% 46/55 [00:19<00:03,  2.36it/s]
    with torch.cuda.amp.autocast(amp):
        7/49    4.41G   0.05014  0.01978  0.008925    41    640:  85% 47/55 [00:20<00:03,  2.40it/s]
    with torch.cuda.amp.autocast(amp):
        7/49    4.41G   0.05053  0.01975  0.008937    41    640:  87% 48/55 [00:20<00:02,  2.46it/s]
    with torch.cuda.amp.autocast(amp):
        7/49    4.41G   0.0509   0.01964  0.009011    38    640:  89% 49/55 [00:21<00:02,  2.44it/s]
    with torch.cuda.amp.autocast(amp):

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with torch.cuda.amp.autocast(amp):
    7/49    4.41G   0.05113   0.01963   0.009286   37   640:  91% 50/55 [00:21<00:02,  2.42it/s]
    with torch.cuda.amp.autocast(amp):
        7/49    4.41G   0.05151   0.01957   0.009219   40   640:  93% 51/55 [00:21<00:01,  2.36it/s]
    with torch.cuda.amp.autocast(amp):
        7/49    4.41G   0.05152   0.0196   0.00937   47   640:  95% 52/55 [00:22<00:01,  2.46it/s]
    with torch.cuda.amp.autocast(amp):
        7/49    4.41G   0.0515   0.01957   0.009349   37   640:  96% 53/55 [00:22<00:00,  2.46it/s]
    with torch.cuda.amp.autocast(amp):
        7/49    4.41G   0.0511   0. Run cell (Ctrl+Enter)
    with torch.cuda.amp.autocast(amp): cell has not been executed in this session
        7/49    4.41G   0.05091   0. Previous execution ended unsuccessfully
            Class   Images   Inst
                all     877      currently executing...
                                         mAP50   mAP50-95: 100% 28/28 [00:11<00:00,
                                         0.524      0.199

```

| Epoch  | GPU_mem   | box_loss | obj_loss | cls_loss | Instances | Size  |
|--|---|----------|----------|----------|-----------|---|
| 0%   | 0/55 [00:00<?, ?it/s]/content/yolov5_project/yolov5/train.py:412: |          |          |          |           | FutureWarning: `torch.cuda.amp.autocast(arg |
|  |   |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |   |          |          |          |           |   |
| 8/49    4.41G   0.02506   0.0183   0.006855   41   640:  2% 1/55 [00:00<00:10,  5.16it/s]/ |   |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |   |          |          |          |           |   |
| 8/49    4.41G   0.02755   0.01799  0.005897   34   640:  4% 2/55 [00:00<00:10,  5.08it/s]/ |   |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |   |          |          |          |           |   |
| 8/49    4.41G   0.03952   0.01864  0.006297   39   640:  5% 3/55 [00:00<00:12,  4.08it/s]/ |   |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |   |          |          |          |           |   |
| 8/49    4.42G   0.03905   0.01923  0.006055   46   640:  7% 4/55 [00:01<00:17,  2.84it/s]/ |   |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |   |          |          |          |           |   |
| 8/49    4.42G   0.04132   0.01964  0.00615   48   640:  9% 5/55 [00:01<00:20,  2.44it/s]/  |   |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |   |          |          |          |           |   |
| 8/49    4.42G   0.04214   0.01971  0.006278   46   640: 11% 6/55 [00:02<00:23,  2.09it/s]/ |   |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |   |          |          |          |           |   |
| 8/49    4.42G   0.04236   0.01942  0.006534   37   640: 13% 7/55 [00:02<00:24,  1.98it/s]/ |   |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |   |          |          |          |           |   |
| 8/49    4.42G   0.04331   0.01918  0.006593   44   640: 15% 8/55 [00:03<00:25,  1.88it/s]/ |   |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |   |          |          |          |           |   |
| 8/49    4.42G   0.04138   0.01888  0.006665   39   640: 16% 9/55 [00:04<00:24,  1.87it/s]/ |   |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |   |          |          |          |           |   |
| 8/49    4.42G   0.04447   0.01878  0.00656   38   640: 18% 10/55 [00:04<00:23,  1.88it/s]  |   |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |   |          |          |          |           |   |
| 8/49    4.42G   0.04305   0.01869  0.006655   42   640: 20% 11/55 [00:04<00:21,  2.06it/s] |   |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |   |          |          |          |           |   |
| 8/49    4.42G   0.04495   0.01878  0.006904   45   640: 22% 12/55 [00:05<00:20,  2.12it/s] |   |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |   |          |          |          |           |   |
| 8/49    4.42G   0.04629   0.01889  0.00676   37   640: 24% 13/55 [00:05<00:18,  2.26it/s]  |   |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |   |          |          |          |           |   |
| 8/49    4.42G   0.04615   0.01888  0.006708   44   640: 25% 14/55 [00:06<00:17,  2.32it/s] |   |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |   |          |          |          |           |   |
| 8/49    4.42G   0.04493   0.01872  0.00648   37   640: 27% 15/55 [00:06<00:16,  2.40it/s]  |   |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |   |          |          |          |           |   |
| 8/49    4.42G   0.04579   0.01867  0.006465   43   640: 29% 16/55 [00:06<00:16,  2.39it/s] |   |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |   |          |          |          |           |   |
| 8/49    4.42G   0.04629   0.01855  0.006339   38   640: 31% 17/55 [00:07<00:15,  2.46it/s] |   |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |   |          |          |          |           |   |
| 8/49    4.42G   0.04607   0.01856  0.006769   41   640: 33% 18/55 [00:07<00:14,  2.50it/s] |   |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |   |          |          |          |           |   |
| 8/49    4.42G   0.04597   0.01868  0.007897   44   640: 35% 19/55 [00:08<00:14,  2.46it/s] |   |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |   |          |          |          |           |   |
| 8/49    4.42G   0.04513   0.01865  0.007831   41   640: 36% 20/55 [00:08<00:14,  2.43it/s] |   |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |   |          |          |          |           |   |
| 8/49    4.42G   0.04429   0.01871  0.007951   41   640: 38% 21/55 [00:08<00:13,  2.49it/s] |   |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |   |          |          |          |           |   |
| 8/49    4.42G   0.04537   0.01876  0.007972   45   640: 40% 22/55 [00:09<00:13,  2.46it/s] |   |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |   |          |          |          |           |   |
| 8/49    4.42G   0.04444   0.01879  0.007851   42   640: 42% 23/55 [00:09<00:13,  2.45it/s] |   |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |   |          |          |          |           |   |
| 8/49    4.42G   0.04362   0.01874  0.007784   38   640: 44% 24/55 [00:10<00:12,  2.43it/s] |   |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |   |          |          |          |           |   |
| 8/49    4.42G   0.04343   0.01872  0.007693   46   640: 45% 25/55 [00:10<00:12,  2.50it/s] |   |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |   |          |          |          |           |   |
| 8/49    4.42G   0.04435   0.01863  0.00772   36   640: 47% 26/55 [00:10<00:11,  2.52it/s]  |   |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |   |          |          |          |           |   |
| 8/49    4.42G   0.04381   0.01855  0.007691   37   640: 49% 27/55 [00:11<00:11,  2.48it/s] |   |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |   |          |          |          |           |   |
| 8/49    4.42G   0.04432   0.01855  0.007956   41   640: 51% 28/55 [00:11<00:10,  2.46it/s] |   |          |          |          |           |   |

4/15/25, 5:34 PM

## yolo\_fire\_smoke.ipynb - Colab

```

with torch.cuda.amp.autocast(amp):
 8/49    4.42G  0.04385  0.01854  0.007909      43    640: 53% 29/55 [00:12<00:10,  2.49it/s]
with torch.cuda.amp.autocast(amp):
 8/49    4.42G  0.04329  0.01851  0.00779      39    640: 55% 30/55 [00:12<00:09,  2.51it/s]
with torch.cuda.amp.autocast(amp):
 8/49    4.42G  0.04423  0.01847  0.008261      34    640: 56% 31/55 [00:12<00:09,  2.47it/s]
with torch.cuda.amp.autocast(amp):
 8/49    4.42G  0.04446  0.01845  0.008234      42    640: 58% 32/55 [00:13<00:09,  2.48it/s]
with torch.cuda.amp.autocast(amp): Run cell (Ctrl+Enter)
 8/49    4.42G  0.04391  0.          cell has not been executed in this session
with torch.cuda.amp.autocast(amp): Previous execution ended unsuccessfully
 8/49    4.42G  0.04418  0.          currently executing...
with torch.cuda.amp.autocast(amp):
 8/49    4.42G  0.04458  0.01834  0.0081      46    640: 64% 35/55 [00:14<00:08,  2.31it/s]
with torch.cuda.amp.autocast(amp):
 8/49    4.42G  0.04448  0.01846  0.008094     46    640: 65% 36/55 [00:15<00:09,  1.98it/s]
with torch.cuda.amp.autocast(amp):
 8/49    4.42G  0.04395  0.01838  0.008034     37    640: 67% 37/55 [00:15<00:09,  1.94it/s]
with torch.cuda.amp.autocast(amp):
 8/49    4.42G  0.04426  0.01846  0.008004     49    640: 69% 38/55 [00:16<00:09,  1.78it/s]
with torch.cuda.amp.autocast(amp):
 8/49    4.42G  0.04446  0.01859  0.007973     51    640: 71% 39/55 [00:17<00:09,  1.72it/s]
with torch.cuda.amp.autocast(amp):
 8/49    4.42G  0.04463  0.01862  0.007891     47    640: 73% 40/55 [00:17<00:08,  1.74it/s]
with torch.cuda.amp.autocast(amp):
 8/49    4.42G  0.04465  0.01867  0.007959     43    640: 75% 41/55 [00:18<00:07,  1.90it/s]
with torch.cuda.amp.autocast(amp):
 8/49    4.42G  0.04455  0.01866  0.00792      44    640: 76% 42/55 [00:18<00:06,  2.04it/s]
with torch.cuda.amp.autocast(amp):
 8/49    4.42G  0.04411  0.01863  0.007831     39    640: 78% 43/55 [00:18<00:05,  2.17it/s]
with torch.cuda.amp.autocast(amp):
 8/49    4.42G  0.04423  0.01863  0.007737     39    640: 80% 44/55 [00:19<00:04,  2.21it/s]
with torch.cuda.amp.autocast(amp):
 8/49    4.42G  0.04472  0.01868  0.007783     43    640: 82% 45/55 [00:19<00:04,  2.32it/s]
with torch.cuda.amp.autocast(amp):
 8/49    4.42G  0.04503  0.01867  0.007737     39    640: 84% 46/55 [00:20<00:03,  2.37it/s]
with torch.cuda.amp.autocast(amp):
 8/49    4.42G  0.04512  0.0187    0.008081     41    640: 85% 47/55 [00:20<00:03,  2.40it/s]
with torch.cuda.amp.autocast(amp):
 8/49    4.42G  0.04527  0.01872  0.008063     43    640: 87% 48/55 [00:21<00:02,  2.37it/s]
with torch.cuda.amp.autocast(amp):
 8/49    4.42G  0.04488  0.01872  0.008129     44    640: 89% 49/55 [00:21<00:02,  2.47it/s]
with torch.cuda.amp.autocast(amp):
 8/49    4.42G  0.04524  0.01874  0.008068     44    640: 91% 50/55 [00:21<00:02,  2.45it/s]
with torch.cuda.amp.autocast(amp):
 8/49    4.42G  0.04537  0.01876  0.007995     43    640: 93% 51/55 [00:22<00:01,  2.45it/s]
with torch.cuda.amp.autocast(amp):
 8/49    4.42G  0.04557  0.01873  0.008332     39    640: 95% 52/55 [00:22<00:01,  2.40it/s]
with torch.cuda.amp.autocast(amp):
 8/49    4.42G  0.04519  0.01868  0.008258     35    640: 96% 53/55 [00:23<00:00,  2.48it/s]
with torch.cuda.amp.autocast(amp):
 8/49    4.42G  0.04533  0.01873  0.008197     41    640: 98% 54/55 [00:23<00:00,  2.46it/s]
with torch.cuda.amp.autocast(amp):
 8/49    4.42G  0.04499  0.01872  0.008252     31    640: 100% 55/55 [00:23<00:00,  2.32it/s]
    Class   Images Instances P
      all      877       971    0.577    0.606
                                         mAP50      mAP50-95: 100% 28/28 [00:11<00:00,
                                                0.585        0.291

```

| Epoch  | GPU_mem | box_loss | obj_loss | cls_loss | Instances | Size  |
|--|---------|----------|----------|----------|-----------|---|
| 0% 0/55 [00:00<?, ?it/s]/content/yolov5_project/yolov5/train.py:412: |         |          |          |          |           | FutureWarning: `torch.cuda.amp.autocast(arg |
| with torch.cuda.amp.autocast(amp):                                   |         |          |          |          |           |   |
| 9/49    4.43G  0.02527  0.01799  0.007656                            |         |          |          |          | 34        | 640: 2% 1/55 [00:00<00:11,  4.55it/s]/      |
| with torch.cuda.amp.autocast(amp):                                   |         |          |          |          |           |   |
| 9/49    4.43G  0.04612  0.02025  0.01363                             |         |          |          |          | 46        | 640: 4% 2/55 [00:00<00:12,  4.35it/s]/      |
| with torch.cuda.amp.autocast(amp):                                   |         |          |          |          |           |   |
| 9/49    4.43G  0.04179  0.01971  0.0116                              |         |          |          |          | 40        | 640: 5% 3/55 [00:00<00:12,  4.07it/s]/      |
| with torch.cuda.amp.autocast(amp):                                   |         |          |          |          |           |   |
| 9/49    4.43G  0.04545  0.02066  0.01083                             |         |          |          |          | 48        | 640: 7% 4/55 [00:01<00:15,  3.19it/s]/      |
| with torch.cuda.amp.autocast(amp):                                   |         |          |          |          |           |   |
| 9/49    4.43G  0.04404  0.02066  0.01062                             |         |          |          |          | 42        | 640: 9% 5/55 [00:01<00:17,  2.82it/s]/      |
| with torch.cuda.amp.autocast(amp):                                   |         |          |          |          |           |   |
| 9/49    4.43G  0.04116  0.02052  0.009876                            |         |          |          |          | 42        | 640: 11% 6/55 [00:01<00:17,  2.79it/s]/     |
| with torch.cuda.amp.autocast(amp):                                   |         |          |          |          |           |   |

```

with torch.cuda.amp.autocast(amp):
    9/49    4.43G   0.04125   0.01997   0.01039   37     640: 13% 7/55 [00:02<00:17, 2.68it/s]/
with torch.cuda.amp.autocast(amp):
    9/49    4.43G   0.04071   0.01976   0.01026   38     640: 15% 8/55 [00:02<00:17, 2.63it/s]/
with torch.cuda.amp.autocast(amp):
    9/49    4.43G   0.04346   0.01974   0.009894  42     640: 16% 9/55 [00:03<00:18, 2.52it/s]/
with torch.cuda.amp.autocast(amp):
    9/49    4.43G   0.04199   0.01996   0.009537  45     640: 18% 10/55 [00:03<00:17, 2.56it/s]
with torch.cuda.amp.autocast(amp):
    9/49    4.43G   0.04319   0. Run cell (Ctrl+Enter)
with torch.cuda.amp.autocast(amp):
    9/49    4.43G   0.04429   0. cell has not been executed in this session
with torch.cuda.amp.autocast(amp):
    9/49    4.43G   0.04462   0 Previous execution ended unsuccessfully
with torch.cuda.amp.autocast(amp):
    9/49    4.43G   0.04463   0 currently executing...
with torch.cuda.amp.autocast(amp):
    9/49    4.43G   0.04552   0.02028   0.008814  40     640: 31% 17/55 [00:06<00:20, 1.86it/s]
with torch.cuda.amp.autocast(amp):
    9/49    4.43G   0.04546   0.02015   0.008586  42     640: 33% 18/55 [00:07<00:20, 1.84it/s]
with torch.cuda.amp.autocast(amp):
    9/49    4.43G   0.04456   0.02029   0.00843   48     640: 35% 19/55 [00:08<00:20, 1.74it/s]
with torch.cuda.amp.autocast(amp):
    9/49    4.43G   0.04527   0.02031   0.008501  54     640: 36% 20/55 [00:08<00:18, 1.86it/s]
with torch.cuda.amp.autocast(amp):
    9/49    4.43G   0.04627   0.02013   0.008419  41     640: 38% 21/55 [00:09<00:17, 1.96it/s]
with torch.cuda.amp.autocast(amp):
    9/49    4.43G   0.04616   0.02016   0.008333  47     640: 40% 22/55 [00:09<00:15, 2.07it/s]
with torch.cuda.amp.autocast(amp):
    9/49    4.43G   0.04523   0.02002   0.008176  41     640: 42% 23/55 [00:09<00:14, 2.16it/s]
with torch.cuda.amp.autocast(amp):
    9/49    4.43G   0.04442   0.01987   0.008078  40     640: 44% 24/55 [00:10<00:13, 2.24it/s]
with torch.cuda.amp.autocast(amp):
    9/49    4.43G   0.04522   0.01978   0.008287  37     640: 45% 25/55 [00:10<00:13, 2.28it/s]
with torch.cuda.amp.autocast(amp):
    9/49    4.43G   0.04582   0.01989   0.008254  50     640: 47% 26/55 [00:11<00:12, 2.38it/s]
with torch.cuda.amp.autocast(amp):
    9/49    4.43G   0.04582   0.01984   0.008365  41     640: 49% 27/55 [00:11<00:11, 2.44it/s]
with torch.cuda.amp.autocast(amp):
    9/49    4.43G   0.04599   0.01974   0.008656  39     640: 51% 28/55 [00:11<00:10, 2.46it/s]
with torch.cuda.amp.autocast(amp):
    9/49    4.43G   0.04574   0.01973   0.008657  44     640: 53% 29/55 [00:12<00:10, 2.43it/s]
with torch.cuda.amp.autocast(amp):
    9/49    4.43G   0.04622   0.01976   0.008587  41     640: 55% 30/55 [00:12<00:09, 2.53it/s]
with torch.cuda.amp.autocast(amp):
    9/49    4.43G   0.04665   0.01984   0.008729  49     640: 56% 31/55 [00:13<00:09, 2.52it/s]
with torch.cuda.amp.autocast(amp):
    9/49    4.43G   0.04597   0.01975   0.008533  39     640: 58% 32/55 [00:13<00:09, 2.53it/s]
with torch.cuda.amp.autocast(amp):
    9/49    4.43G   0.04542   0.01965   0.008523  35     640: 60% 33/55 [00:13<00:08, 2.48it/s]
with torch.cuda.amp.autocast(amp):
    9/49    4.43G   0.04597   0.01964   0.008478  45     640: 62% 34/55 [00:14<00:08, 2.52it/s]
with torch.cuda.amp.autocast(amp):
    9/49    4.43G   0.04622   0.01957   0.008493  41     640: 64% 35/55 [00:14<00:08, 2.50it/s]
with torch.cuda.amp.autocast(amp):
    9/49    4.43G   0.04556   0.01939   0.008441  34     640: 65% 36/55 [00:15<00:07, 2.49it/s]
with torch.cuda.amp.autocast(amp):
    9/49    4.43G   0.04507   0.01946   0.008403  47     640: 67% 37/55 [00:15<00:07, 2.47it/s]
with torch.cuda.amp.autocast(amp):
    9/49    4.43G   0.04512   0.01956   0.008516  49     640: 69% 38/55 [00:15<00:06, 2.51it/s]
with torch.cuda.amp.autocast(amp):
    9/49    4.43G   0.04566   0.01951   0.008458  35     640: 71% 39/55 [00:16<00:06, 2.52it/s]
with torch.cuda.amp.autocast(amp):
    9/49    4.43G   0.04515   0.01944   0.008461  36     640: 73% 40/55 [00:16<00:05, 2.54it/s]
with torch.cuda.amp.autocast(amp):
    9/49    4.43G   0.04546   0.01942   0.008495  42     640: 75% 41/55 [00:17<00:05, 2.49it/s]
with torch.cuda.amp.autocast(amp):
    9/49    4.43G   0.04494   0.01943   0.008387  41     640: 76% 42/55 [00:17<00:05, 2.54it/s]
with torch.cuda.amp.autocast(amp):

```

yolo fire smoke.ipynb - Colab

```

with torch.cuda.amp.autocast(amp):
    9/49      4.43G  0.04524   0.01946  0.008379    43      640: 78% 43/55 [00:17<00:04,  2.53it/s]
with torch.cuda.amp.autocast(amp):
    9/49      4.43G  0.04548   0.0195   0.008481    43      640: 80% 44/55 [00:18<00:04,  2.48it/s]
with torch.cuda.amp.autocast(amp):
    9/49      4.43G  0.04548   0.01957  0.008397    48      640: 82% 45/55 [00:18<00:04,  2.21it/s]
with torch.cuda.amp.autocast(amp):
    9/49      4.43G  0.04548   0.01963  0.008576    48      640: 84% 46/55 [00:19<00:04,  2.12it/s]
with torch.cuda.amp.autocast(amp):
    9/49      4.43G  0.04579   0.          Run cell (Ctrl+Enter)
with torch.cuda.amp.autocast(amp):                                cell has not been executed in this session
    9/49      4.43G  0.04552   0.          Previous execution ended unsuccessfully
with torch.cuda.amp.autocast(amp):
    9/49      4.43G  0.04542   0.          currently executing...
with torch.cuda.amp.autocast(amp):
    9/49      4.43G  0.04559   0.01977  0.009263    47      640: 89% 49/55 [00:21<00:03,  1.52it/s]
with torch.cuda.amp.autocast(amp):
    9/49      4.43G  0.04518   0.01974  0.009194    43      640: 91% 50/55 [00:21<00:02,  1.70it/s]
with torch.cuda.amp.autocast(amp):
    9/49      4.43G  0.04525   0.01972  0.009447    40      640: 95% 52/55 [00:22<00:01,  2.03it/s]
with torch.cuda.amp.autocast(amp):
    9/49      4.43G  0.04522   0.01962  0.009389    32      640: 96% 53/55 [00:23<00:00,  2.13it/s]
with torch.cuda.amp.autocast(amp):
    9/49      4.43G  0.04479   0.0195   0.00934     35      640: 98% 54/55 [00:23<00:00,  2.29it/s]
with torch.cuda.amp.autocast(amp):
    9/49      4.44G  0.04511   0.01952  0.009476    36      640: 100% 55/55 [00:23<00:00,  2.31it/s]
          Class  Images Instances P
          all       877      971      0.684      0.645      mAP50
                                         R
                                         all       0.672      0.395      mAP50-95: 100% 28/28 [00:11<00:00,

```

| Epoch                              | GPU_mem               | box_loss  | obj_loss | cls_loss | Instances | Size                                   |
|------------------------------------|-----------------------|---|----------|----------|-----------|--|
| 0%                                 | 0/55 [00:00:?, ?it/s] | content/yolov5_project/yolov5/train.py:412: FutureWarning: `torch.cuda.amp.autocast(arg with torch.cuda.amp.autocast(amp):` |          |          |           |  |
| 10/49                              | 4.44G                 | 0.05972   | 0.01978  | 0.005272 | 45        | 640: 2% 1/55 [00:00<00:11, 4.82it/s]/  |
| with torch.cuda.amp.autocast(amp): |                       |   |          |          |           |  |
| 10/49                              | 4.45G                 | 0.05466   | 0.02014  | 0.01357  | 44        | 640: 4% 2/55 [00:00<00:11, 4.51it/s]/  |
| with torch.cuda.amp.autocast(amp): |                       |   |          |          |           |  |
| 10/49                              | 4.45G                 | 0.05135   | 0.01881  | 0.01068  | 37        | 640: 5% 3/55 [00:00<00:12, 4.08it/s]/  |
| with torch.cuda.amp.autocast(amp): |                       |   |          |          |           |  |
| 10/49                              | 4.45G                 | 0.05054   | 0.01963  | 0.009874 | 44        | 640: 7% 4/55 [00:01<00:15, 3.25it/s]/  |
| with torch.cuda.amp.autocast(amp): |                       |   |          |          |           |  |
| 10/49                              | 4.45G                 | 0.05092   | 0.01931  | 0.009004 | 39        | 640: 9% 5/55 [00:01<00:17, 2.92it/s]/  |
| with torch.cuda.amp.autocast(amp): |                       |   |          |          |           |  |
| 10/49                              | 4.45G                 | 0.04932   | 0.02001  | 0.008445 | 52        | 640: 11% 6/55 [00:01<00:18, 2.65it/s]/ |
| with torch.cuda.amp.autocast(amp): |                       |   |          |          |           |  |
| 10/49                              | 4.45G                 | 0.04721   | 0.01979  | 0.007888 | 45        | 640: 13% 7/55 [00:02<00:17, 2.67it/s]/ |
| with torch.cuda.amp.autocast(amp): |                       |   |          |          |           |  |
| 10/49                              | 4.45G                 | 0.04644   | 0.01967  | 0.007835 | 42        | 640: 15% 8/55 [00:02<00:17, 2.62it/s]/ |
| with torch.cuda.amp.autocast(amp): |                       |   |          |          |           |  |
| 10/49                              | 4.45G                 | 0.04656   | 0.01994  | 0.008174 | 43        | 640: 16% 9/55 [00:03<00:17, 2.58it/s]/ |
| with torch.cuda.amp.autocast(amp): |                       |   |          |          |           |  |
| 10/49                              | 4.45G                 | 0.04741   | 0.01973  | 0.008708 | 41        | 640: 18% 10/55 [00:03<00:18, 2.46it/s] |
| with torch.cuda.amp.autocast(amp): |                       |   |          |          |           |  |
| 10/49                              | 4.45G                 | 0.04564   | 0.0193   | 0.008433 | 38        | 640: 20% 11/55 [00:03<00:17, 2.45it/s] |
| with torch.cuda.amp.autocast(amp): |                       |   |          |          |           |  |
| 10/49                              | 4.45G                 | 0.04512   | 0.01908  | 0.008185 | 40        | 640: 22% 12/55 [00:04<00:17, 2.39it/s] |
| with torch.cuda.amp.autocast(amp): |                       |   |          |          |           |  |
| 10/49                              | 4.45G                 | 0.04408   | 0.01886  | 0.007978 | 38        | 640: 24% 13/55 [00:04<00:17, 2.40it/s] |
| with torch.cuda.amp.autocast(amp): |                       |   |          |          |           |  |
| 10/49                              | 4.45G                 | 0.0428  | 0.01873  | 0.008288 | 39        | 640: 25% 14/55 [00:05<00:17, 2.38it/s] |
| with torch.cuda.amp.autocast(amp): |                       |   |          |          |           |  |
| 10/49                              | 4.45G                 | 0.04439   | 0.01865  | 0.008241 | 41        | 640: 27% 15/55 [00:05<00:16, 2.48it/s] |
| with torch.cuda.amp.autocast(amp): |                       |   |          |          |           |  |
| 10/49                              | 4.45G                 | 0.04531   | 0.01868  | 0.008249 | 42        | 640: 29% 16/55 [00:06<00:15, 2.45it/s] |
| with torch.cuda.amp.autocast(amp): |                       |   |          |          |           |  |
| 10/49                              | 4.45G                 | 0.04409   | 0.01857  | 0.008001 | 40        | 640: 31% 17/55 [00:06<00:15, 2.51it/s] |
| with torch.cuda.amp.autocast(amp): |                       |   |          |          |           |  |
| 10/49                              | 4.45G                 | 0.04459   | 0.01912  | 0.008278 | 57        | 640: 33% 18/55 [00:06<00:15, 2.45it/s] |
| with torch.cuda.amp.autocast(amp): |                       |   |          |          |           |  |
| 10/49                              | 4.45G                 | 0.04573   | 0.01924  | 0.008201 | 36        | 640: 35% 19/55 [00:07<00:14, 2.49it/s] |
| with torch.cuda.amp.autocast(amp): |                       |   |          |          |           |  |
| 10/49                              | 4.45G                 | 0.04675   | 0.01925  | 0.008244 | 41        | 640: 38% 21/55 [00:08<00:13, 2.52it/s] |

```

with torch.cuda.amp.autocast(amp):
    10/49    4.45G   0.04688   0.01941   0.009541      50    640: 40% 22/55 [00:08<00:13, 2.46it/s]
with torch.cuda.amp.autocast(amp):
    10/49    4.45G   0.04717   0.01953   0.009441      44    640: 42% 23/55 [00:08<00:12, 2.51it/s]
with torch.cuda.amp.autocast(amp):
    10/49    4.45G   0.04615   0.01944   0.009498      44    640: 44% 24/55 [00:09<00:13, 2.29it/s]
with torch.cuda.amp.autocast(amp):
    10/49    4.45G   0.04699   0.01949   0.009346      46    640: 45% 25/55 [00:10<00:17, 1.73it/s]
with torch.cuda.amp.autocast(amp): Run cell (Ctrl+Enter)
    10/49    4.45G   0.04686   0.          cell has not been executed in this session
with torch.cuda.amp.autocast(amp): Previous execution ended unsuccessfully
    10/49    4.45G   0.04689   0.          currently executing...
with torch.cuda.amp.autocast(amp):
    10/49    4.45G   0.04604   0.01944   0.009367      39    640: 51% 28/55 [00:12<00:16, 1.62it/s]
with torch.cuda.amp.autocast(amp):
    10/49    4.45G   0.0458    0.01942   0.00939       39    640: 53% 29/55 [00:12<00:14, 1.78it/s]
with torch.cuda.amp.autocast(amp):
    10/49    4.45G   0.04589   0.01949   0.009281      45    640: 55% 30/55 [00:13<00:12, 1.93it/s]
with torch.cuda.amp.autocast(amp):
    10/49    4.45G   0.04598   0.01954   0.009215      46    640: 56% 31/55 [00:13<00:11, 2.08it/s]
with torch.cuda.amp.autocast(amp):
    10/49    4.45G   0.04603   0.01954   0.009374      43    640: 58% 32/55 [00:14<00:10, 2.19it/s]
with torch.cuda.amp.autocast(amp):
    10/49    4.45G   0.04586   0.01952   0.00978       47    640: 60% 33/55 [00:14<00:09, 2.24it/s]
with torch.cuda.amp.autocast(amp):
    10/49    4.45G   0.04613   0.01953   0.01013       43    640: 62% 34/55 [00:14<00:09, 2.30it/s]
with torch.cuda.amp.autocast(amp):
    10/49    4.45G   0.04585   0.01955   0.01024       41    640: 64% 35/55 [00:15<00:08, 2.36it/s]
with torch.cuda.amp.autocast(amp):
    10/49    4.45G   0.04607   0.01968   0.01018       47    640: 65% 36/55 [00:15<00:08, 2.37it/s]
with torch.cuda.amp.autocast(amp):
    10/49    4.45G   0.04645   0.01969   0.01014       43    640: 67% 37/55 [00:16<00:07, 2.41it/s]
with torch.cuda.amp.autocast(amp):
    10/49    4.45G   0.04659   0.01979   0.01007       45    640: 69% 38/55 [00:16<00:07, 2.35it/s]
with torch.cuda.amp.autocast(amp):
    10/49    4.45G   0.04612   0.01959   0.01012       30    640: 71% 39/55 [00:16<00:06, 2.51it/s]
with torch.cuda.amp.autocast(amp):
    10/49    4.45G   0.04582   0.01964   0.01005       47    640: 73% 40/55 [00:17<00:06, 2.47it/s]
with torch.cuda.amp.autocast(amp):
    10/49    4.45G   0.04571   0.01965   0.01025       44    640: 75% 41/55 [00:17<00:05, 2.46it/s]
with torch.cuda.amp.autocast(amp):
    10/49    4.45G   0.04517   0.01968   0.01022       47    640: 76% 42/55 [00:18<00:05, 2.47it/s]
with torch.cuda.amp.autocast(amp):
    10/49    4.45G   0.04467   0.01965   0.01012       43    640: 78% 43/55 [00:18<00:04, 2.52it/s]
with torch.cuda.amp.autocast(amp):
    10/49    4.45G   0.04498   0.01971   0.01018       46    640: 80% 44/55 [00:18<00:04, 2.47it/s]
with torch.cuda.amp.autocast(amp):
    10/49    4.45G   0.04511   0.01974   0.01004       46    640: 82% 45/55 [00:19<00:04, 2.46it/s]
with torch.cuda.amp.autocast(amp):
    10/49    4.45G   0.04532   0.01969   0.01015       45    640: 84% 46/55 [00:19<00:03, 2.39it/s]
with torch.cuda.amp.autocast(amp):
    10/49    4.45G   0.04523   0.01969   0.01016       42    640: 85% 47/55 [00:20<00:03, 2.51it/s]
with torch.cuda.amp.autocast(amp):
    10/49    4.45G   0.04528   0.01964   0.01011       38    640: 87% 48/55 [00:20<00:02, 2.51it/s]
with torch.cuda.amp.autocast(amp):
    10/49    4.45G   0.04487   0.01961   0.01006       38    640: 89% 49/55 [00:20<00:02, 2.54it/s]
with torch.cuda.amp.autocast(amp):
    10/49    4.45G   0.04449   0.01955   0.009942      40    640: 91% 50/55 [00:21<00:02, 2.46it/s]
with torch.cuda.amp.autocast(amp):
    10/49    4.45G   0.04454   0.01954   0.01001       38    640: 93% 51/55 [00:21<00:01, 2.47it/s]
with torch.cuda.amp.autocast(amp):
    10/49    4.45G   0.04444   0.01964   0.009974      52    640: 95% 52/55 [00:22<00:01, 2.39it/s]
with torch.cuda.amp.autocast(amp):
    10/49    4.45G   0.04408   0.01965   0.009912      42    640: 96% 53/55 [00:22<00:00, 2.25it/s]
with torch.cuda.amp.autocast(amp):
    10/49    4.45G   0.04401   0.01964   0.01009       39    640: 98% 54/55 [00:23<00:00, 1.98it/s]
with torch.cuda.amp.autocast(amp):
    10/49    4.45G   0.04437   0.01957   0.01008       31    640: 100% 55/55 [00:23<00:00, 2.32it/s]
          Class   Images Instances   P           R
          all        877      971     0.582     0.543
          mAP50      mAP50-95: 100% 28/28 [00:10<00:00, 0.438     0.177

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Epoch GPU mem hov loss obj loss rle loss Tnctanroc size

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0% 0/55 [00:00<?, ?it/s]/content/yolov5_project/yolov5/train.py:412: FutureWarning: `torch.cuda.amp.autocast(arg
with torch.cuda.amp.autocast():
    11/49      4.45G      0.04266      0.02058      0.005682      42      640:      2% 1/55 [00:00<00:10,  4.98it/s]/
with torch.cuda.amp.autocast():
    11/49      4.45G      0.03946      0.0202      0.01192      44      640:      4% 2/55 [00:00<00:10,  4.87it/s]/
with torch.cuda.amp.autocast():
    11/49      4.45G      0.04031      0.01976      0.01055      41      640:      5% 3/55 [00:00<00:15,  3.35it/s]/
with torch.cuda.amp.autocast():
    11/49      4.45G      0.03907      0. Run cell (Ctrl+Enter)
with torch.cuda.amp.autocast():
    11/49      4.45G      0.03556      0. cell has not been executed in this session
with torch.cuda.amp.autocast():
    11/49      4.45G      0.04062      0. Previous execution ended unsuccessfully
with torch.cuda.amp.autocast():
    11/49      4.45G      0.04047      0.1903      0.008795      37      640:      13% 7/55 [00:03<00:26,  1.83it/s]/
with torch.cuda.amp.autocast():
    11/49      4.45G      0.03846      0.0188      0.008669      39      640:      15% 8/55 [00:03<00:25,  1.87it/s]/
with torch.cuda.amp.autocast():
    11/49      4.45G      0.03878      0.01897      0.008732      44      640:      16% 9/55 [00:04<00:23,  1.94it/s]/
with torch.cuda.amp.autocast():
    11/49      4.45G      0.03896      0.01924      0.008644      44      640:      18% 10/55 [00:04<00:21,  2.09it/s]/
with torch.cuda.amp.autocast():
    11/49      4.45G      0.03987      0.01907      0.008401      40      640:      20% 11/55 [00:04<00:20,  2.19it/s]/
with torch.cuda.amp.autocast():
    11/49      4.45G      0.04014      0.01899      0.00826      40      640:      22% 12/55 [00:05<00:18,  2.28it/s]/
with torch.cuda.amp.autocast():
    11/49      4.45G      0.03881      0.01875      0.008116      34      640:      24% 13/55 [00:05<00:17,  2.36it/s]/
with torch.cuda.amp.autocast():
    11/49      4.45G      0.03887      0.01886      0.008037      42      640:      25% 14/55 [00:06<00:17,  2.39it/s]/
with torch.cuda.amp.autocast():
    11/49      4.45G      0.03769      0.01865      0.007817      36      640:      27% 15/55 [00:06<00:16,  2.37it/s]/
with torch.cuda.amp.autocast():
    11/49      4.45G      0.03952      0.01874      0.00801      44      640:      29% 16/55 [00:06<00:16,  2.43it/s]/
with torch.cuda.amp.autocast():
    11/49      4.45G      0.03966      0.01894      0.008335      46      640:      31% 17/55 [00:07<00:15,  2.46it/s]/
with torch.cuda.amp.autocast():
    11/49      4.45G      0.03975      0.01885      0.009336      38      640:      33% 18/55 [00:07<00:14,  2.47it/s]/
with torch.cuda.amp.autocast():
    11/49      4.45G      0.0408      0.01897      0.009391      43      640:      35% 19/55 [00:08<00:14,  2.42it/s]/
with torch.cuda.amp.autocast():
    11/49      4.45G      0.03993      0.01888      0.009119      41      640:      36% 20/55 [00:08<00:14,  2.49it/s]/
with torch.cuda.amp.autocast():
    11/49      4.45G      0.03915      0.01863      0.009078      36      640:      38% 21/55 [00:08<00:13,  2.49it/s]/
with torch.cuda.amp.autocast():
    11/49      4.45G      0.03906      0.01859      0.009012      38      640:      40% 22/55 [00:09<00:13,  2.49it/s]/
with torch.cuda.amp.autocast():
    11/49      4.45G      0.03845      0.01857      0.008887      41      640:      42% 23/55 [00:09<00:13,  2.44it/s]/
with torch.cuda.amp.autocast():
    11/49      4.45G      0.03827      0.01871      0.009097      46      640:      44% 24/55 [00:10<00:12,  2.51it/s]/
with torch.cuda.amp.autocast():
    11/49      4.45G      0.03913      0.01855      0.009042      39      640:      45% 25/55 [00:10<00:12,  2.48it/s]/
with torch.cuda.amp.autocast():
    11/49      4.45G      0.03855      0.01842      0.009062      35      640:      47% 26/55 [00:10<00:11,  2.45it/s]/
with torch.cuda.amp.autocast():
    11/49      4.45G      0.03804      0.01844      0.009015      42      640:      49% 27/55 [00:11<00:11,  2.45it/s]/
with torch.cuda.amp.autocast():
    11/49      4.45G      0.03899      0.01839      0.009042      43      640:      51% 28/55 [00:11<00:11,  2.42it/s]/
with torch.cuda.amp.autocast():
    11/49      4.45G      0.03945      0.01843      0.0093      41      640:      53% 29/55 [00:12<00:10,  2.45it/s]/
with torch.cuda.amp.autocast():
    11/49      4.45G      0.04021      0.01836      0.009438      40      640:      55% 30/55 [00:12<00:10,  2.44it/s]/
with torch.cuda.amp.autocast():
    11/49      4.45G      0.04019      0.01841      0.009543      39      640:      56% 31/55 [00:13<00:10,  2.38it/s]/
with torch.cuda.amp.autocast():
    11/49      4.45G      0.03991      0.01842      0.009442      41      640:      58% 32/55 [00:13<00:09,  2.46it/s]/
with torch.cuda.amp.autocast():
    11/49      4.45G      0.04005      0.01846      0.009561      41      640:      60% 33/55 [00:13<00:08,  2.45it/s]/
with torch.cuda.amp.autocast():
    11/49      4.45G      0.03963      0.01849      0.009484      41      640:      62% 34/55 [00:14<00:09,  2.24it/s]/
with torch.cuda.amp.autocast():
    11/49      4.45G      0.03945      0.01853      0.009587      42      640:      64% 35/55 [00:15<00:10,  1.93it/s]/
with torch.cuda.amp.autocast():

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with torch.cuda.amp.autocast(amp):
    11/49    4.45G    0.03996    0.01846    0.009548    38    640: 65% 36/55 [00:15<00:10, 1.87it/s]
    with torch.cuda.amp.autocast(amp):
        11/49    4.45G    0.04026    0.01855    0.009461    48    640: 67% 37/55 [00:16<00:09, 1.84it/s]
    with torch.cuda.amp.autocast(amp):
        11/49    4.45G    0.0403    0.01877    0.009304    54    640: 69% 38/55 [00:16<00:09, 1.82it/s]
    with torch.cuda.amp.autocast(amp):
        11/49    4.45G    0.0407    0.01883    0.009523    48    640: 71% 39/55 [00:17<00:08, 1.79it/s]
    with torch.cuda.amp.autocast(amp):
        11/49    4.45G    0.04133    0. Run cell (Ctrl+Enter)
    with torch.cuda.amp.autocast(amp):
        11/49    4.45G    0.04169    0. cell has not been executed in this session
    with torch.cuda.amp.autocast(amp):
        11/49    4.45G    0.04138    0. Previous execution ended unsuccessfully
    with torch.cuda.amp.autocast(amp):
        11/49    4.45G    0.04176    0.01883    0.009375    53    640: 78% 43/55 [00:18<00:05, 2.23it/s]
    with torch.cuda.amp.autocast(amp):
        11/49    4.45G    0.04139    0.01873    0.009265    37    640: 80% 44/55 [00:19<00:04, 2.31it/s]
    with torch.cuda.amp.autocast(amp):
        11/49    4.45G    0.04171    0.01877    0.009183    47    640: 82% 45/55 [00:19<00:04, 2.34it/s]
    with torch.cuda.amp.autocast(amp):
        11/49    4.45G    0.0417    0.01884    0.009175    50    640: 84% 46/55 [00:20<00:03, 2.40it/s]
    with torch.cuda.amp.autocast(amp):
        11/49    4.45G    0.04181    0.01888    0.009087    45    640: 85% 47/55 [00:20<00:03, 2.39it/s]
    with torch.cuda.amp.autocast(amp):
        11/49    4.45G    0.0417    0.01891    0.009027    47    640: 87% 48/55 [00:20<00:02, 2.46it/s]
    with torch.cuda.amp.autocast(amp):
        11/49    4.45G    0.04177    0.01894    0.008971    39    640: 89% 49/55 [00:21<00:02, 2.47it/s]
    with torch.cuda.amp.autocast(amp):
        11/49    4.45G    0.04142    0.01892    0.009003    42    640: 91% 50/55 [00:21<00:02, 2.47it/s]
    with torch.cuda.amp.autocast(amp):
        11/49    4.45G    0.0411    0.01893    0.008951    48    640: 93% 51/55 [00:22<00:01, 2.39it/s]
    with torch.cuda.amp.autocast(amp):
        11/49    4.45G    0.04125    0.01889    0.008872    39    640: 95% 52/55 [00:22<00:01, 2.38it/s]
    with torch.cuda.amp.autocast(amp):
        11/49    4.45G    0.04162    0.01886    0.008798    40    640: 96% 53/55 [00:23<00:00, 2.42it/s]
    with torch.cuda.amp.autocast(amp):
        11/49    4.45G    0.04177    0.01883    0.008756    40    640: 98% 54/55 [00:23<00:00, 2.41it/s]
    with torch.cuda.amp.autocast(amp):
        11/49    4.45G    0.04205    0.01889    0.00878    38    640: 100% 55/55 [00:23<00:00, 2.31it/s]
        Class   Images Instances P R
        all     877      971      0.675    0.691
                                         mAP50      mAP50-95: 100% 28/28 [00:11<00:00, 0.726      0.421

```

| Epoch  | GPU_mem   | box_loss | obj_loss | cls_loss | Instances | Size |
|--|---|----------|----------|----------|-----------|------|
| 0%   | 0/55 [00:00<?, ?it/s]/content/yolov5_project/yolov5/train.py:412: FutureWarning: `torch.cuda.amp.autocast(arg |          |          |          |           |      |
| with torch.cuda.amp.autocast(amp):   |   |          |          |          |           |      |
| 12/49    4.46G    0.05408    0.0187    0.01216    45    640: 2% 1/55 [00:00<00:10, 4.95it/s]/    |   |          |          |          |           |      |
| with torch.cuda.amp.autocast(amp):   |   |          |          |          |           |      |
| 12/49    4.46G    0.05258    0.01901    0.008918    46    640: 4% 2/55 [00:00<00:11, 4.79it/s]/  |   |          |          |          |           |      |
| with torch.cuda.amp.autocast(amp):   |   |          |          |          |           |      |
| 12/49    4.46G    0.05673    0.01895    0.01344    44    640: 5% 3/55 [00:00<00:13, 3.83it/s]/   |   |          |          |          |           |      |
| with torch.cuda.amp.autocast(amp):   |   |          |          |          |           |      |
| 12/49    4.47G    0.05225    0.01949    0.01192    48    640: 7% 4/55 [00:01<00:17, 2.99it/s]/   |   |          |          |          |           |      |
| with torch.cuda.amp.autocast(amp):   |   |          |          |          |           |      |
| 12/49    4.47G    0.05352    0.01957    0.01257    43    640: 9% 5/55 [00:01<00:17, 2.84it/s]/   |   |          |          |          |           |      |
| with torch.cuda.amp.autocast(amp):   |   |          |          |          |           |      |
| 12/49    4.47G    0.04823    0.01921    0.01135    44    640: 11% 6/55 [00:01<00:17, 2.81it/s]/  |   |          |          |          |           |      |
| with torch.cuda.amp.autocast(amp):   |   |          |          |          |           |      |
| 12/49    4.47G    0.04487    0.01913    0.01045    47    640: 13% 7/55 [00:02<00:17, 2.77it/s]/  |   |          |          |          |           |      |
| with torch.cuda.amp.autocast(amp):   |   |          |          |          |           |      |
| 12/49    4.47G    0.04186    0.01821    0.009453    31    640: 15% 8/55 [00:02<00:17, 2.62it/s]/ |   |          |          |          |           |      |
| with torch.cuda.amp.autocast(amp):   |   |          |          |          |           |      |
| 12/49    4.47G    0.04012    0.01856    0.0096    45    640: 16% 9/55 [00:03<00:17, 2.64it/s]/   |   |          |          |          |           |      |
| with torch.cuda.amp.autocast(amp):   |   |          |          |          |           |      |
| 12/49    4.47G    0.03836    0.01858    0.009335    40    640: 18% 10/55 [00:03<00:17, 2.61it/s] |   |          |          |          |           |      |
| with torch.cuda.amp.autocast(amp):   |   |          |          |          |           |      |
| 12/49    4.47G    0.04027    0.01857    0.008985    45    640: 20% 11/55 [00:03<00:17, 2.56it/s] |   |          |          |          |           |      |
| with torch.cuda.amp.autocast(amp):   |   |          |          |          |           |      |
| 12/49    4.47G    0.03886    0.01836    0.008683    41    640: 22% 12/55 [00:04<00:16, 2.54it/s] |   |          |          |          |           |      |
| with torch.cuda.amp.autocast(amp):   |   |          |          |          |           |      |
| 12/49    4.47G    0.03781    0.01843    0.008722    49    640: 24% 13/55 [00:04<00:16, 2.57it/s] |   |          |          |          |           |      |
| with torch.cuda.amp.autocast(amp):   |   |          |          |          |           |      |
| 12/49    4.47G    0.03012    0.01820    0.008124    45    640: 25% 14/55 [00:05<00:16, 2.42it/s] |   |          |          |          |           |      |

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12/49    4.47G  0.03916  0.0182  0.008209      39    640: 27% 15/55 [00:05<00:17, 2.27it/s]
with torch.cuda.amp.autocast(amp):
12/49    4.47G  0.03833  0.01845 0.008034      54    640: 29% 16/55 [00:06<00:19, 2.00it/s]
with torch.cuda.amp.autocast(amp):
12/49    4.47G  0.03872  0.01849 0.007827      46    640: 31% 17/55 [00:06<00:19, 1.96it/s]
with torch.cuda.amp.autocast(amp):
12/49    4.47G  0.03869  0.01863 0.007799      47    640: 33% 18/55 [00:07<00:20, 1.77it/s]
with torch.cuda.amp.autocast(amp): Run cell (Ctrl+Enter)
12/49    4.47G  0.0392   0.          0.           640: 35% 19/55 [00:08<00:20, 1.79it/s]
cell has not been executed in this session
with torch.cuda.amp.autocast(amp): Previous execution ended unsuccessfully
12/49    4.47G  0.03914  0.          0.           640: 36% 20/55 [00:08<00:19, 1.78it/s]
with torch.cuda.amp.autocast(amp): currently executing...
12/49    4.47G  0.03916  0.01879 0.00803       57    640: 38% 21/55 [00:09<00:18, 1.87it/s]
with torch.cuda.amp.autocast(amp):
12/49    4.47G  0.0389   0.01862 0.007895      40    640: 40% 22/55 [00:09<00:16, 2.06it/s]
with torch.cuda.amp.autocast(amp):
12/49    4.47G  0.03986  0.01867 0.007836      48    640: 42% 23/55 [00:09<00:14, 2.20it/s]
with torch.cuda.amp.autocast(amp):
12/49    4.47G  0.03916  0.01856 0.00777       38    640: 44% 24/55 [00:10<00:14, 2.19it/s]
with torch.cuda.amp.autocast(amp):
12/49    4.47G  0.03981  0.01855 0.007774      40    640: 45% 25/55 [00:10<00:13, 2.26it/s]
with torch.cuda.amp.autocast(amp):
12/49    4.47G  0.03902  0.01874 0.007727      54    640: 47% 26/55 [00:11<00:12, 2.35it/s]
with torch.cuda.amp.autocast(amp):
12/49    4.47G  0.03853  0.01879 0.007723      39    640: 49% 27/55 [00:11<00:11, 2.37it/s]
with torch.cuda.amp.autocast(amp):
12/49    4.47G  0.03863  0.0187   0.007616       40    640: 51% 28/55 [00:11<00:11, 2.35it/s]
with torch.cuda.amp.autocast(amp):
12/49    4.47G  0.03911  0.01882 0.0077       50    640: 53% 29/55 [00:12<00:10, 2.39it/s]
with torch.cuda.amp.autocast(amp):
12/49    4.47G  0.03886  0.01873 0.007616       42    640: 55% 30/55 [00:12<00:10, 2.42it/s]
with torch.cuda.amp.autocast(amp):
12/49    4.47G  0.03882  0.01871 0.007732      40    640: 56% 31/55 [00:13<00:10, 2.39it/s]
with torch.cuda.amp.autocast(amp):
12/49    4.47G  0.03828  0.01866 0.007728      40    640: 58% 32/55 [00:13<00:09, 2.39it/s]
with torch.cuda.amp.autocast(amp):
12/49    4.47G  0.03786  0.01861 0.007635      38    640: 60% 33/55 [00:14<00:09, 2.42it/s]
with torch.cuda.amp.autocast(amp):
12/49    4.47G  0.03744  0.01848 0.007622      30    640: 62% 34/55 [00:14<00:08, 2.36it/s]
with torch.cuda.amp.autocast(amp):
12/49    4.47G  0.0371   0.0185  0.007555       41    640: 64% 35/55 [00:14<00:08, 2.41it/s]
with torch.cuda.amp.autocast(amp):
12/49    4.47G  0.03775  0.01857 0.007593       46    640: 65% 36/55 [00:15<00:08, 2.33it/s]
with torch.cuda.amp.autocast(amp):
12/49    4.47G  0.0378   0.01861 0.007505       46    640: 67% 37/55 [00:15<00:07, 2.47it/s]
with torch.cuda.amp.autocast(amp):
12/49    4.47G  0.03782  0.01862 0.0074       41    640: 69% 38/55 [00:16<00:06, 2.48it/s]
with torch.cuda.amp.autocast(amp):
12/49    4.47G  0.03746  0.01867 0.007317       47    640: 71% 39/55 [00:16<00:06, 2.47it/s]
with torch.cuda.amp.autocast(amp):
12/49    4.47G  0.03719  0.01863 0.007281       41    640: 73% 40/55 [00:16<00:06, 2.43it/s]
with torch.cuda.amp.autocast(amp):
12/49    4.47G  0.03765  0.01858 0.007245       39    640: 75% 41/55 [00:17<00:05, 2.45it/s]
with torch.cuda.amp.autocast(amp):
12/49    4.47G  0.0375   0.01873 0.007214       54    640: 76% 42/55 [00:17<00:05, 2.46it/s]
with torch.cuda.amp.autocast(amp):
12/49    4.47G  0.03768  0.01883 0.007157       55    640: 78% 43/55 [00:18<00:04, 2.46it/s]
with torch.cuda.amp.autocast(amp):
12/49    4.47G  0.03825  0.01884 0.007118       47    640: 80% 44/55 [00:18<00:04, 2.38it/s]
with torch.cuda.amp.autocast(amp):
12/49    4.47G  0.0379   0.01876 0.007098       32    640: 82% 45/55 [00:19<00:04, 2.30it/s]
with torch.cuda.amp.autocast(amp):
12/49    4.47G  0.03798  0.01873 0.007123       38    640: 84% 46/55 [00:19<00:04, 1.96it/s]
with torch.cuda.amp.autocast(amp):
12/49    4.47G  0.03794  0.01881 0.007073       50    640: 85% 47/55 [00:20<00:04, 1.87it/s]
with torch.cuda.amp.autocast(amp):
12/49    4.47G  0.03809  0.0188   0.007626       42    640: 87% 48/55 [00:20<00:03, 1.79it/s]
with torch.cuda.amp.autocast(amp):
12/49    4.47G  0.03863  0.01886 0.007606       47    640: 89% 49/55 [00:21<00:03, 1.74it/s]
with torch.cuda.amp.autocast(amp):
12/49    4.47G  0.03836  0.01887 0.007507       40    640: 91% 50/55 [00:22<00:02, 1.82it/s]

```

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with torch.cuda.amp.autocast(amp):
    12/49  4.47G  0.03804  0.01887  0.007508   49    640:  93% 51/55 [00:22<00:02,  1.98it/s]
with torch.cuda.amp.autocast(amp):
    12/49  4.47G  0.03771  0.01891  0.007497   45    640:  95% 52/55 [00:22<00:01,  2.06it/s]
with torch.cuda.amp.autocast(amp):
    12/49  4.47G  0.03813  0.01887  0.007808   43    640:  96% 53/55 [00:23<00:00,  2.23it/s]
with torch.cuda.amp.autocast(amp):
    12/49  4.47G  0.03784  0.01884  0.008086   40    640:  98% 54/55 [00:23<00:00,  2.24it/s]
with torch.cuda.amp.autocast(amp):
    12/49  4.47G  0.03755  0.          Run cell (Ctrl+Enter)
                                cell has not been executed in this session
                                Class   Images   Inst Previous execution ended unsuccessfully
                                all     877
                                currently executing...
Epoch      GPU_mem   box_loss   obj_loss   cls_loss Instances      Size
0% 0/55 [00:00<?, ?it/s]/content/yolov5_project/yolov5/train.py:412: FutureWarning: `torch.cuda.amp.autocast(arg
with torch.cuda.amp.autocast(amp):
    13/49  4.48G  0.02456  0.01822  0.004288   46    640:  2% 1/55 [00:00<00:12,  4.32it/s]
with torch.cuda.amp.autocast(amp):
    13/49  4.48G  0.02518  0.02053  0.007399   46    640:  4% 2/55 [00:00<00:11,  4.75it/s]
with torch.cuda.amp.autocast(amp):
    13/49  4.48G  0.03692  0.02051  0.007025   44    640:  5% 3/55 [00:00<00:12,  4.26it/s]
with torch.cuda.amp.autocast(amp):
    13/49  4.48G  0.04237  0.0197   0.007118   43    640:  7% 4/55 [00:01<00:15,  3.26it/s]
with torch.cuda.amp.autocast(amp):
    13/49  4.48G  0.03904  0.01968  0.007209   43    640:  9% 5/55 [00:01<00:17,  2.86it/s]
with torch.cuda.amp.autocast(amp):
    13/49  4.48G  0.03668  0.01915  0.006623   40    640: 11% 6/55 [00:01<00:17,  2.86it/s]
with torch.cuda.amp.autocast(amp):
    13/49  4.48G  0.03747  0.01899  0.006335   42    640: 13% 7/55 [00:02<00:18,  2.64it/s]
with torch.cuda.amp.autocast(amp):
    13/49  4.48G  0.03796  0.01918  0.00623   46    640: 15% 8/55 [00:02<00:18,  2.60it/s]
with torch.cuda.amp.autocast(amp):
    13/49  4.48G  0.04091  0.01952  0.006493   50    640: 16% 9/55 [00:03<00:18,  2.47it/s]
with torch.cuda.amp.autocast(amp):
    13/49  4.48G  0.04252  0.01951  0.006701   44    640: 18% 10/55 [00:03<00:17,  2.57it/s]
with torch.cuda.amp.autocast(amp):
    13/49  4.48G  0.04425  0.01931  0.007004   41    640: 20% 11/55 [00:03<00:17,  2.53it/s]
with torch.cuda.amp.autocast(amp):
    13/49  4.48G  0.04462  0.01941  0.006925   41    640: 22% 12/55 [00:04<00:16,  2.55it/s]
with torch.cuda.amp.autocast(amp):
    13/49  4.48G  0.04421  0.01932  0.006914   47    640: 24% 13/55 [00:04<00:16,  2.49it/s]
with torch.cuda.amp.autocast(amp):
    13/49  4.48G  0.04517  0.01953  0.007289   52    640: 25% 14/55 [00:05<00:16,  2.47it/s]
with torch.cuda.amp.autocast(amp):
    13/49  4.48G  0.04539  0.01941  0.007369   42    640: 27% 15/55 [00:05<00:16,  2.48it/s]
with torch.cuda.amp.autocast(amp):
    13/49  4.48G  0.04391  0.01917  0.007499   34    640: 29% 16/55 [00:05<00:15,  2.54it/s]
with torch.cuda.amp.autocast(amp):
    13/49  4.48G  0.04265  0.01916  0.007319   43    640: 31% 17/55 [00:06<00:15,  2.47it/s]
with torch.cuda.amp.autocast(amp):
    13/49  4.48G  0.04319  0.01928  0.007422   46    640: 33% 18/55 [00:06<00:15,  2.42it/s]
with torch.cuda.amp.autocast(amp):
    13/49  4.48G  0.04207  0.01929  0.007377   44    640: 35% 19/55 [00:07<00:14,  2.47it/s]
with torch.cuda.amp.autocast(amp):
    13/49  4.48G  0.04304  0.01928  0.007395   52    640: 36% 20/55 [00:07<00:14,  2.43it/s]
with torch.cuda.amp.autocast(amp):
    13/49  4.48G  0.04246  0.0194   0.007425   46    640: 38% 21/55 [00:08<00:13,  2.43it/s]
with torch.cuda.amp.autocast(amp):
    13/49  4.48G  0.04247  0.01933  0.007442   43    640: 40% 22/55 [00:08<00:13,  2.47it/s]
with torch.cuda.amp.autocast(amp):
    13/49  4.48G  0.04257  0.01919  0.007305   36    640: 42% 23/55 [00:08<00:12,  2.50it/s]
with torch.cuda.amp.autocast(amp):
    13/49  4.48G  0.04226  0.01914  0.007338   44    640: 44% 24/55 [00:09<00:12,  2.47it/s]
with torch.cuda.amp.autocast(amp):
    13/49  4.48G  0.04163  0.01916  0.007321   46    640: 45% 25/55 [00:09<00:13,  2.30it/s]
with torch.cuda.amp.autocast(amp):
    13/49  4.48G  0.04223  0.01914  0.007266   41    640: 47% 26/55 [00:10<00:13,  2.09it/s]
with torch.cuda.amp.autocast(amp):
    13/49  4.48G  0.04253  0.01925  0.007317   54    640: 49% 27/55 [00:10<00:13,  2.01it/s]
with torch.cuda.amp.autocast(amp):
    13/49  4.48G  0.04247  0.01934  0.007302   52    640: 51% 28/55 [00:11<00:15,  1.79it/s]
with torch.cuda.amp.autocast(amp):

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13/49    4.48G  0.04174  0.0193  0.007185    49      640:  53% 29/55 [00:12<00:14,  1.80it/s]
with torch.cuda.amp.autocast(amp):
  13/49    4.48G  0.04116  0.01927  0.007283    45      640:  55% 30/55 [00:12<00:13,  1.79it/s]
with torch.cuda.amp.autocast(amp):
  13/49    4.48G  0.04147  0.01918  0.007256    39      640:  56% 31/55 [00:13<00:13,  1.82it/s]
with torch.cuda.amp.autocast(amp):
  13/49    4.48G  0.04085  0.01904  0.007165    43      640:  58% 32/55 [00:13<00:11,  2.02it/s]
with torch.cuda.amp.autocast(amp):
  13/49    4.48G  0.04046  Run cell (Ctrl+Enter)
with torch.cuda.amp.autocast(amp):           cell has not been executed in this session
  13/49    4.48G  0.03988  0.01896  0.006951    39      640:  62% 34/55 [00:14<00:09,  2.23it/s]
with torch.cuda.amp.autocast(amp):
  13/49    4.48G  0.04021  0.01896  0.006951    40      640:  64% 35/55 [00:14<00:08,  2.29it/s]
with torch.cuda.amp.autocast(amp):
  13/49    4.48G  0.04038  0.01892  0.006951    39      640:  65% 36/55 [00:15<00:08,  2.29it/s]
with torch.cuda.amp.autocast(amp):
  13/49    4.48G  0.03996  0.01896  0.006925    46      640:  67% 37/55 [00:15<00:07,  2.30it/s]
with torch.cuda.amp.autocast(amp):
  13/49    4.48G  0.04035  0.0189  0.006888    39      640:  69% 38/55 [00:16<00:07,  2.38it/s]
with torch.cuda.amp.autocast(amp):
  13/49    4.48G  0.04044  0.01896  0.0069    48      640:  71% 39/55 [00:16<00:06,  2.40it/s]
with torch.cuda.amp.autocast(amp):
  13/49    4.48G  0.04104  0.01894  0.006967    37      640:  73% 40/55 [00:16<00:06,  2.42it/s]
with torch.cuda.amp.autocast(amp):
  13/49    4.48G  0.04117  0.01889  0.006938    40      640:  75% 41/55 [00:17<00:05,  2.39it/s]
with torch.cuda.amp.autocast(amp):
  13/49    4.48G  0.04123  0.01888  0.006944    46      640:  76% 42/55 [00:17<00:05,  2.38it/s]
with torch.cuda.amp.autocast(amp):
  13/49    4.48G  0.04152  0.01882  0.006861    42      640:  78% 43/55 [00:18<00:05,  2.29it/s]
with torch.cuda.amp.autocast(amp):
  13/49    4.48G  0.04133  0.01881  0.006875    41      640:  80% 44/55 [00:18<00:04,  2.39it/s]
with torch.cuda.amp.autocast(amp):
  13/49    4.48G  0.04154  0.01881  0.006832    48      640:  82% 45/55 [00:18<00:04,  2.39it/s]
with torch.cuda.amp.autocast(amp):
  13/49    4.48G  0.04112  0.01888  0.00677    48      640:  84% 46/55 [00:19<00:03,  2.48it/s]
with torch.cuda.amp.autocast(amp):
  13/49    4.48G  0.04075  0.01882  0.006837    40      640:  85% 47/55 [00:19<00:03,  2.48it/s]
with torch.cuda.amp.autocast(amp):
  13/49    4.48G  0.0411  0.01879  0.00686    37      640:  87% 48/55 [00:20<00:02,  2.49it/s]
with torch.cuda.amp.autocast(amp):
  13/49    4.48G  0.04081  0.01876  0.006827    42      640:  89% 49/55 [00:20<00:02,  2.47it/s]
with torch.cuda.amp.autocast(amp):
  13/49    4.48G  0.04077  0.01887  0.006854    50      640:  91% 50/55 [00:20<00:02,  2.50it/s]
with torch.cuda.amp.autocast(amp):
  13/49    4.48G  0.04044  0.01876  0.006881    34      640:  93% 51/55 [00:21<00:01,  2.50it/s]
with torch.cuda.amp.autocast(amp):
  13/49    4.48G  0.04048  0.01872  0.006806    37      640:  95% 52/55 [00:21<00:01,  2.49it/s]
with torch.cuda.amp.autocast(amp):
  13/49    4.48G  0.04052  0.01873  0.006904    40      640:  96% 53/55 [00:22<00:00,  2.46it/s]
with torch.cuda.amp.autocast(amp):
  13/49    4.48G  0.04082  0.01878  0.00693    50      640:  98% 54/55 [00:22<00:00,  2.53it/s]
with torch.cuda.amp.autocast(amp):
  13/49    4.48G  0.04094  0.01885  0.006883    39      640: 100% 55/55 [00:22<00:00,  2.41it/s]
    Class   Images Instances P
      all     877      971    0.756    0.593
                                         mAP50      mAP50-95: 100% 28/28 [00:11<00:00,
                                                0.69          0.291

```

| Epoch   | GPU_mem   | box_loss | obj_loss | cls_loss | Instances | Size |
|---|---|----------|----------|----------|-----------|------|
| 0%  | 0/55 [00:00<?, ?it/s]/content/yolov5_project/yolov5/train.py:412: FutureWarning: `torch.cuda.amp.autocast(arg |          |          |          |           |      |
| with torch.cuda.amp.autocast(amp):  |   |          |          |          |           |      |
| 14/49    4.48G  0.03575  0.01829  0.007941    42      640:  2% 1/55 [00:00<00:11,  4.85it/s]/ |   |          |          |          |           |      |
| with torch.cuda.amp.autocast(amp):  |   |          |          |          |           |      |
| 14/49    4.48G  0.03504  0.01814  0.006036    41      640:  4% 2/55 [00:00<00:12,  4.19it/s]/ |   |          |          |          |           |      |
| with torch.cuda.amp.autocast(amp):  |   |          |          |          |           |      |
| 14/49    4.48G  0.042  0.01833  0.006335    43      640:  5% 3/55 [00:00<00:12,  4.23it/s]/   |   |          |          |          |           |      |
| with torch.cuda.amp.autocast(amp):  |   |          |          |          |           |      |
| 14/49    4.48G  0.04235  0.01866  0.005733    48      640:  7% 4/55 [00:01<00:16,  3.09it/s]/ |   |          |          |          |           |      |
| with torch.cuda.amp.autocast(amp):  |   |          |          |          |           |      |
| 14/49    4.48G  0.04345  0.01892  0.006009    48      640:  9% 5/55 [00:01<00:17,  2.86it/s]/ |   |          |          |          |           |      |
| with torch.cuda.amp.autocast(amp):  |   |          |          |          |           |      |
| 14/49    4.48G  0.04146  0.01918  0.006208    44      640: 11% 6/55 [00:02<00:19,  2.52it/s]/ |   |          |          |          |           |      |
| with torch.cuda.amp.autocast(amp):  |   |          |          |          |           |      |
| 14/49    4.48G  0.04018  0.01937  0.00607    44      640: 13% 7/55 [00:02<00:21,  2.23it/s]/  |   |          |          |          |           |      |

```

with torch.cuda.amp.autocast(amp):
    14/49 4.48G 0.03767 0.01897 0.006073 38 640: 15% 8/55 [00:03<00:23, 2.00it/s]
with torch.cuda.amp.autocast(amp):
    14/49 4.48G 0.03847 0.01872 0.007981 35 640: 16% 9/55 [00:03<00:25, 1.83it/s]
with torch.cuda.amp.autocast(amp):
    14/49 4.48G 0.03859 0.01846 0.007761 40 640: 18% 10/55 [00:04<00:25, 1.77it/s]
with torch.cuda.amp.autocast(amp):
    14/49 4.48G 0.03901 0.01815 0.007397 39 640: 20% 11/55 [00:05<00:25, 1.73it/s]
with torch.cuda.amp.autocast(amp):
    14/49 4.48G 0.03968 0.01826 0.007286 40 640: 22% 12/55 [00:05<00:23, 1.86it/s]
Run cell (Ctrl+Enter)
with torch.cuda.amp.autocast(amp):
    14/49 4.48G 0.04189 0.01824 0.007088 41 640: 24% 13/55 [00:05<00:20, 2.02it/s]
currently executing...
with torch.cuda.amp.autocast(amp):
    14/49 4.48G 0.04255 0.01845 0.0115 45 640: 25% 14/55 [00:06<00:19, 2.09it/s]
with torch.cuda.amp.autocast(amp):
    14/49 4.48G 0.04189 0.01824 0.007088 41 640: 27% 15/55 [00:06<00:18, 2.20it/s]
with torch.cuda.amp.autocast(amp):
    14/49 4.48G 0.04138 0.01845 0.01096 35 640: 29% 16/55 [00:07<00:17, 2.24it/s]
with torch.cuda.amp.autocast(amp):
    14/49 4.48G 0.04187 0.0183 0.01096 35 640: 31% 17/55 [00:07<00:16, 2.30it/s]
with torch.cuda.amp.autocast(amp):
    14/49 4.48G 0.04195 0.01834 0.01089 40 640: 33% 18/55 [00:08<00:16, 2.31it/s]
with torch.cuda.amp.autocast(amp):
    14/49 4.48G 0.04099 0.01824 0.0106 41 640: 35% 19/55 [00:08<00:15, 2.36it/s]
with torch.cuda.amp.autocast(amp):
    14/49 4.48G 0.04014 0.01813 0.01019 39 640: 36% 20/55 [00:08<00:14, 2.44it/s]
with torch.cuda.amp.autocast(amp):
    14/49 4.48G 0.04074 0.0181 0.01268 40 640: 38% 21/55 [00:09<00:13, 2.49it/s]
with torch.cuda.amp.autocast(amp):
    14/49 4.48G 0.04079 0.01823 0.01239 47 640: 40% 22/55 [00:09<00:13, 2.42it/s]
with torch.cuda.amp.autocast(amp):
    14/49 4.48G 0.04063 0.01844 0.01206 51 640: 42% 23/55 [00:10<00:12, 2.47it/s]
with torch.cuda.amp.autocast(amp):
    14/49 4.48G 0.04052 0.0186 0.01202 49 640: 44% 24/55 [00:10<00:12, 2.45it/s]
with torch.cuda.amp.autocast(amp):
    14/49 4.48G 0.04075 0.01894 0.01212 56 640: 45% 25/55 [00:10<00:12, 2.45it/s]
with torch.cuda.amp.autocast(amp):
    14/49 4.48G 0.0413 0.01909 0.01185 48 640: 47% 26/55 [00:11<00:11, 2.42it/s]
with torch.cuda.amp.autocast(amp):
    14/49 4.48G 0.04139 0.01888 0.01172 36 640: 49% 27/55 [00:11<00:11, 2.49it/s]
with torch.cuda.amp.autocast(amp):
    14/49 4.48G 0.04181 0.01879 0.01179 36 640: 51% 28/55 [00:12<00:10, 2.48it/s]
with torch.cuda.amp.autocast(amp):
    14/49 4.48G 0.04188 0.01874 0.01262 42 640: 53% 29/55 [00:12<00:10, 2.48it/s]
with torch.cuda.amp.autocast(amp):
    14/49 4.48G 0.04176 0.01878 0.0126 47 640: 55% 30/55 [00:12<00:10, 2.42it/s]
with torch.cuda.amp.autocast(amp):
    14/49 4.48G 0.04132 0.01867 0.0123 33 640: 56% 31/55 [00:13<00:09, 2.49it/s]
with torch.cuda.amp.autocast(amp):
    14/49 4.48G 0.04184 0.01854 0.01208 38 640: 58% 32/55 [00:13<00:09, 2.43it/s]
with torch.cuda.amp.autocast(amp):
    14/49 4.48G 0.04175 0.01851 0.01369 41 640: 60% 33/55 [00:14<00:09, 2.42it/s]
with torch.cuda.amp.autocast(amp):
    14/49 4.48G 0.04165 0.01851 0.01341 43 640: 62% 34/55 [00:14<00:08, 2.39it/s]
with torch.cuda.amp.autocast(amp):
    14/49 4.48G 0.04106 0.01846 0.01325 46 640: 64% 35/55 [00:14<00:08, 2.42it/s]
with torch.cuda.amp.autocast(amp):
    14/49 4.48G 0.04085 0.01847 0.01306 43 640: 65% 36/55 [00:15<00:07, 2.39it/s]
with torch.cuda.amp.autocast(amp):
    14/49 4.48G 0.04147 0.01845 0.01288 38 640: 67% 37/55 [00:15<00:08, 2.20it/s]
with torch.cuda.amp.autocast(amp):
    14/49 4.48G 0.0414 0.01853 0.01278 52 640: 69% 38/55 [00:16<00:08, 1.98it/s]
with torch.cuda.amp.autocast(amp):
    14/49 4.48G 0.04166 0.01855 0.0127 49 640: 71% 39/55 [00:17<00:08, 1.85it/s]
with torch.cuda.amp.autocast(amp):
    14/49 4.48G 0.04208 0.01863 0.01252 51 640: 73% 40/55 [00:17<00:08, 1.78it/s]
with torch.cuda.amp.autocast(amp):
    14/49 4.48G 0.04191 0.0186 0.01238 43 640: 75% 41/55 [00:18<00:08, 1.70it/s]
with torch.cuda.amp.autocast(amp):
    14/49 4.48G 0.042 0.01876 0.01239 54 640: 76% 42/55 [00:18<00:07, 1.79it/s]
with torch.cuda.amp.autocast(amp):
    14/49 4.48G 0.04142 0.01865 0.01217 39 640: 78% 43/55 [00:19<00:06, 1.99it/s]

```

```

with torch.cuda.amp.autocast(amp):
    14/49    4.48G   0.04099   0.01867   0.01203   45      640: 80% 44/55 [00:19<00:05, 2.13it/s]
with torch.cuda.amp.autocast(amp):
    14/49    4.48G   0.04127   0.01867   0.01195   42      640: 82% 45/55 [00:20<00:04, 2.21it/s]
with torch.cuda.amp.autocast(amp):
    14/49    4.48G   0.04137   0.01879   0.01178   53      640: 84% 46/55 [00:20<00:04, 2.25it/s]
with torch.cuda.amp.autocast(amp):
    14/49    4.48G   0.04134   0.01881   0.01169   48      640: 85% 47/55 [00:20<00:03, 2.36it/s]
with torch.cuda.amp.autocast(amp):
    14/49    4.48G   0.04139   0.01883   Run cell (Ctrl+Enter)
                                cell has not been executed in this session
with torch.cuda.amp.autocast(amp):
    14/49    4.48G   0.04131   0.01883   Previous execution ended unsuccessfully
                                currently executing...
with torch.cuda.amp.autocast(amp):
    14/49    4.48G   0.04117   0.01883   0.01151   41      640: 91% 50/55 [00:22<00:02, 2.37it/s]
with torch.cuda.amp.autocast(amp):
    14/49    4.48G   0.04141   0.01882   0.01143   45      640: 93% 51/55 [00:22<00:01, 2.48it/s]
with torch.cuda.amp.autocast(amp):
    14/49    4.48G   0.04168   0.0188   0.01137   43      640: 95% 52/55 [00:22<00:01, 2.46it/s]
with torch.cuda.amp.autocast(amp):
    14/49    4.48G   0.04137   0.01876   0.01127   41      640: 96% 53/55 [00:23<00:00, 2.50it/s]
with torch.cuda.amp.autocast(amp):
    14/49    4.48G   0.04147   0.01879   0.0112   55      640: 98% 54/55 [00:23<00:00, 2.43it/s]
with torch.cuda.amp.autocast(amp):
    14/49    4.48G   0.04168   0.01882   0.01162   36      640: 100% 55/55 [00:23<00:00, 2.29it/s]
                                Class   Images   Instances   P
                                all     877     971     0.776   0.636
                                R
                                0.755   0.333

```

| Epoch                              | GPU_mem | box_loss         | obj_loss                                     | cls_loss                                    | Instances | Size                                   |
|------------------------------------|---------|------------------|--|---|-----------|--|
| 0%                                 | 0/55    | [00:00<?, ?it/s] | /content/yolov5_project/yolov5/train.py:412: | FutureWarning: `torch.cuda.amp.autocast(arg |           |  |
| with torch.cuda.amp.autocast(amp): |         |                  |  |   |           |  |
| 15/49                              | 4.49G   | 0.0657           | 0.0181                                       | 0.008754                                    | 44        | 640: 2% 1/55 [00:00<00:11, 4.87it/s]/  |
| with torch.cuda.amp.autocast(amp): |         |                  |  |   |           |  |
| 15/49                              | 4.5G    | 0.06167          | 0.02049                                      | 0.007756                                    | 55        | 640: 4% 2/55 [00:00<00:10, 4.88it/s]/  |
| with torch.cuda.amp.autocast(amp): |         |                  |  |   |           |  |
| 15/49                              | 4.5G    | 0.04967          | 0.0196                                       | 0.006303                                    | 46        | 640: 5% 3/55 [00:00<00:13, 3.86it/s]/  |
| with torch.cuda.amp.autocast(amp): |         |                  |  |   |           |  |
| 15/49                              | 4.5G    | 0.04301          | 0.01857                                      | 0.005941                                    | 38        | 640: 7% 4/55 [00:01<00:16, 3.18it/s]/  |
| with torch.cuda.amp.autocast(amp): |         |                  |  |   |           |  |
| 15/49                              | 4.5G    | 0.03887          | 0.01897                                      | 0.005729                                    | 46        | 640: 9% 5/55 [00:01<00:17, 2.87it/s]/  |
| with torch.cuda.amp.autocast(amp): |         |                  |  |   |           |  |
| 15/49                              | 4.5G    | 0.03579          | 0.01877                                      | 0.005298                                    | 47        | 640: 11% 6/55 [00:01<00:17, 2.74it/s]/ |
| with torch.cuda.amp.autocast(amp): |         |                  |  |   |           |  |
| 15/49                              | 4.5G    | 0.0339           | 0.01847                                      | 0.005117                                    | 43        | 640: 13% 7/55 [00:02<00:18, 2.58it/s]/ |
| with torch.cuda.amp.autocast(amp): |         |                  |  |   |           |  |
| 15/49                              | 4.5G    | 0.03511          | 0.01817                                      | 0.004779                                    | 39        | 640: 15% 8/55 [00:02<00:18, 2.58it/s]/ |
| with torch.cuda.amp.autocast(amp): |         |                  |  |   |           |  |
| 15/49                              | 4.5G    | 0.03599          | 0.01808                                      | 0.004892                                    | 42        | 640: 16% 9/55 [00:03<00:18, 2.53it/s]/ |
| with torch.cuda.amp.autocast(amp): |         |                  |  |   |           |  |
| 15/49                              | 4.5G    | 0.0369           | 0.01803                                      | 0.005123                                    | 47        | 640: 18% 10/55 [00:03<00:17, 2.51it/s] |
| with torch.cuda.amp.autocast(amp): |         |                  |  |   |           |  |
| 15/49                              | 4.5G    | 0.03778          | 0.01791                                      | 0.005084                                    | 45        | 640: 20% 11/55 [00:04<00:18, 2.41it/s] |
| with torch.cuda.amp.autocast(amp): |         |                  |  |   |           |  |
| 15/49                              | 4.5G    | 0.03821          | 0.01768                                      | 0.005212                                    | 38        | 640: 22% 12/55 [00:04<00:17, 2.46it/s] |
| with torch.cuda.amp.autocast(amp): |         |                  |  |   |           |  |
| 15/49                              | 4.5G    | 0.03933          | 0.01788                                      | 0.005228                                    | 51        | 640: 24% 13/55 [00:04<00:17, 2.43it/s] |
| with torch.cuda.amp.autocast(amp): |         |                  |  |   |           |  |
| 15/49                              | 4.5G    | 0.03956          | 0.01803                                      | 0.005548                                    | 44        | 640: 25% 14/55 [00:05<00:16, 2.45it/s] |
| with torch.cuda.amp.autocast(amp): |         |                  |  |   |           |  |
| 15/49                              | 4.5G    | 0.03847          | 0.0182                                       | 0.005448                                    | 42        | 640: 27% 15/55 [00:05<00:16, 2.38it/s] |
| with torch.cuda.amp.autocast(amp): |         |                  |  |   |           |  |
| 15/49                              | 4.5G    | 0.03763          | 0.0182                                       | 0.005496                                    | 46        | 640: 29% 16/55 [00:06<00:15, 2.47it/s] |
| with torch.cuda.amp.autocast(amp): |         |                  |  |   |           |  |
| 15/49                              | 4.5G    | 0.03788          | 0.01801                                      | 0.005529                                    | 37        | 640: 31% 17/55 [00:06<00:15, 2.43it/s] |
| with torch.cuda.amp.autocast(amp): |         |                  |  |   |           |  |
| 15/49                              | 4.5G    | 0.0388           | 0.01801                                      | 0.005679                                    | 46        | 640: 33% 18/55 [00:06<00:16, 2.28it/s] |
| with torch.cuda.amp.autocast(amp): |         |                  |  |   |           |  |
| 15/49                              | 4.5G    | 0.03876          | 0.01794                                      | 0.005769                                    | 38        | 640: 35% 19/55 [00:07<00:18, 1.99it/s] |
| with torch.cuda.amp.autocast(amp): |         |                  |  |   |           |  |
| 15/49                              | 4.5G    | 0.03875          | 0.0179                                       | 0.006053                                    | 41        | 640: 36% 20/55 [00:08<00:18, 1.90it/s] |
| with torch.cuda.amp.autocast(amp): |         |                  |  |   |           |  |
| 15/49                              | 4.5G    | 0.03798          | 0.01795                                      | 0.005925                                    | 44        | 640: 38% 21/55 [00:08<00:18, 1.80it/s] |
| with torch.cuda.amp.autocast(amp): |         |                  |  |   |           |  |

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15/49    4.5G   0.03854  0.01825  0.006226    46    640:  40% 22/55 [00:09<00:19,  1.73it/s]
with torch.cuda.amp.autocast(amp):
  15/49    4.5G   0.03784  0.01814  0.006253    41    640:  42% 23/55 [00:10<00:18,  1.76it/s]
with torch.cuda.amp.autocast(amp):
  15/49    4.5G   0.03719  0.01803  0.006472    36    640:  44% 24/55 [00:10<00:15,  1.96it/s]
with torch.cuda.amp.autocast(amp):
  15/49    4.5G   0.03715  0.01798  0.006403    43    640:  45% 25/55 [00:10<00:14,  2.10it/s]
with torch.cuda.amp.autocast(amp):
  15/49    4.5G   0.03671  0.          Run cell (Ctrl+Enter)
with torch.cuda.amp.autocast(amp):           cell has not been executed in this session
  15/49    4.5G   0.03673  0.          Previous execution ended unsuccessfully
with torch.cuda.amp.autocast(amp):
  15/49    4.5G   0.03716  0.          currently executing...
with torch.cuda.amp.autocast(amp):
  15/49    4.5G   0.03779  0.01801  0.006699    47    640:  53% 29/55 [00:12<00:10,  2.38it/s]
with torch.cuda.amp.autocast(amp):
  15/49    4.5G   0.0385  0.01807  0.006902    44    640:  55% 30/55 [00:12<00:10,  2.41it/s]
with torch.cuda.amp.autocast(amp):
  15/49    4.5G   0.03859  0.01806  0.006803    42    640:  56% 31/55 [00:13<00:09,  2.42it/s]
with torch.cuda.amp.autocast(amp):
  15/49    4.5G   0.03856  0.01811  0.00673   47    640:  58% 32/55 [00:13<00:09,  2.48it/s]
with torch.cuda.amp.autocast(amp):
  15/49    4.5G   0.03856  0.01804  0.006836    38    640:  60% 33/55 [00:14<00:09,  2.44it/s]
with torch.cuda.amp.autocast(amp):
  15/49    4.5G   0.03799  0.01817  0.006791    55    640:  62% 34/55 [00:14<00:08,  2.46it/s]
with torch.cuda.amp.autocast(amp):
  15/49    4.5G   0.03867  0.01813  0.006746    41    640:  64% 35/55 [00:14<00:08,  2.41it/s]
with torch.cuda.amp.autocast(amp):
  15/49    4.5G   0.03875  0.01828  0.006666    49    640:  65% 36/55 [00:15<00:07,  2.55it/s]
with torch.cuda.amp.autocast(amp):
  15/49    4.5G   0.03864  0.01822  0.006617    42    640:  67% 37/55 [00:15<00:07,  2.49it/s]
with torch.cuda.amp.autocast(amp):
  15/49    4.5G   0.03908  0.01824  0.006597    44    640:  69% 38/55 [00:16<00:06,  2.46it/s]
with torch.cuda.amp.autocast(amp):
  15/49    4.5G   0.03917  0.01833  0.006525    46    640:  71% 39/55 [00:16<00:06,  2.43it/s]
with torch.cuda.amp.autocast(amp):
  15/49    4.5G   0.03927  0.0183  0.006854   37    640:  73% 40/55 [00:16<00:06,  2.46it/s]
with torch.cuda.amp.autocast(amp):
  15/49    4.5G   0.03886  0.01827  0.006889    42    640:  75% 41/55 [00:17<00:05,  2.47it/s]
with torch.cuda.amp.autocast(amp):
  15/49    4.5G   0.03934  0.01823  0.006873    36    640:  76% 42/55 [00:17<00:05,  2.44it/s]
with torch.cuda.amp.autocast(amp):
  15/49    4.5G   0.03932  0.01817  0.006813    40    640:  78% 43/55 [00:18<00:05,  2.31it/s]
with torch.cuda.amp.autocast(amp):
  15/49    4.5G   0.03929  0.01816  0.006781    42    640:  80% 44/55 [00:18<00:04,  2.43it/s]
with torch.cuda.amp.autocast(amp):
  15/49    4.5G   0.03966  0.01813  0.006834    37    640:  82% 45/55 [00:18<00:04,  2.44it/s]
with torch.cuda.amp.autocast(amp):
  15/49    4.5G   0.03981  0.01815  0.007065    40    640:  84% 46/55 [00:19<00:03,  2.45it/s]
with torch.cuda.amp.autocast(amp):
  15/49    4.5G   0.04036  0.01805  0.007058    38    640:  85% 47/55 [00:19<00:03,  2.44it/s]
with torch.cuda.amp.autocast(amp):
  15/49    4.5G   0.04051  0.01811  0.007004    48    640:  87% 48/55 [00:20<00:03,  2.22it/s]
with torch.cuda.amp.autocast(amp):
  15/49    4.5G   0.04106  0.01819  0.006985    51    640:  89% 49/55 [00:20<00:02,  2.12it/s]
with torch.cuda.amp.autocast(amp):
  15/49    4.5G   0.04109  0.0182  0.00696   49    640:  91% 50/55 [00:21<00:02,  1.91it/s]
with torch.cuda.amp.autocast(amp):
  15/49    4.5G   0.04109  0.01827  0.006889    50    640:  93% 51/55 [00:22<00:02,  1.78it/s]
with torch.cuda.amp.autocast(amp):
  15/49    4.5G   0.04066  0.01817  0.006864    32    640:  95% 52/55 [00:22<00:01,  1.77it/s]
with torch.cuda.amp.autocast(amp):
  15/49    4.5G   0.04074  0.01818  0.006937    46    640:  96% 53/55 [00:23<00:01,  1.76it/s]
with torch.cuda.amp.autocast(amp):
  15/49    4.5G   0.04069  0.01819  0.006966    47    640:  98% 54/55 [00:23<00:00,  1.94it/s]
with torch.cuda.amp.autocast(amp):
  15/49    4.5G   0.04099  0.01823  0.006896    41    640: 100% 55/55 [00:23<00:00,  2.29it/s]
          Class   Images Instances P      R      mAP50  mAP50-95: 100% 28/28 [00:11<00:00,
          all     877     971     0.715    0.691    0.716     0.391

```

| Epoch | GPU_mem | box_loss  | obj_loss | cls_loss | Instances | Size           |
|-------|---------|-----------|----------|----------|-----------|----------------|
| 0%    | 0/55    | 0.00-0.00 | <?       | it/s     | 1/1       | content/volov5 |

FutureWarning: `torch.cuda.amp.autocast/amp`

```

with torch.cuda.amp.autocast(amp):
    16/49    4.51G   0.02313   0.01901   0.004721      43      640:  2% 1/55 [00:00<00:12,  4.30it/s]/
with torch.cuda.amp.autocast(amp):
    16/49    4.52G   0.02971   0.01863   0.004695      45      640:  4% 2/55 [00:00<00:13,  3.96it/s]/
with torch.cuda.amp.autocast(amp):
    16/49    4.52G   0.03339   0.01963   0.005214      50      640:  5% 3/55 [00:00<00:16,  3.09it/s]/
with torch.cuda.amp.autocast(amp):
    16/49    4.52G   0.03354   0.01881   0.005549      37      640:  7% 4/55 [00:01<00:18,  2.76it/s]/
with torch.cuda.amp.autocast(amp):
    16/49    4.52G   0.03527   0.01881   Run cell (Ctrl+Enter)
                                                cell has not been executed in this session
                                                Previous execution ended unsuccessfully
                                                currently executing...
                                                640:  9% 5/55 [00:01<00:19,  2.60it/s]/
with torch.cuda.amp.autocast(amp):
    16/49    4.52G   0.03325   0.01881   640: 11% 6/55 [00:02<00:19,  2.51it/s]/
with torch.cuda.amp.autocast(amp):
    16/49    4.52G   0.03706   0.0189    0.005694      52      640: 13% 7/55 [00:02<00:19,  2.45it/s]/
with torch.cuda.amp.autocast(amp):
    16/49    4.52G   0.04014   0.01904   0.005597      45      640: 15% 8/55 [00:03<00:19,  2.43it/s]/
with torch.cuda.amp.autocast(amp):
    16/49    4.52G   0.04272   0.01918   0.00534       47      640: 16% 9/55 [00:03<00:19,  2.41it/s]/
with torch.cuda.amp.autocast(amp):
    16/49    4.52G   0.04335   0.01887   0.005778      41      640: 18% 10/55 [00:03<00:18,  2.47it/s]/
with torch.cuda.amp.autocast(amp):
    16/49    4.52G   0.04544   0.01871   0.006018      42      640: 20% 11/55 [00:04<00:18,  2.43it/s]/
with torch.cuda.amp.autocast(amp):
    16/49    4.52G   0.04623   0.01864   0.005978      43      640: 22% 12/55 [00:04<00:18,  2.36it/s]/
with torch.cuda.amp.autocast(amp):
    16/49    4.52G   0.04603   0.01911   0.006094      54      640: 24% 13/55 [00:05<00:16,  2.47it/s]/
with torch.cuda.amp.autocast(amp):
    16/49    4.52G   0.04537   0.01919   0.006603      41      640: 25% 14/55 [00:05<00:16,  2.43it/s]/
with torch.cuda.amp.autocast(amp):
    16/49    4.52G   0.04597   0.01931   0.006516      49      640: 27% 15/55 [00:05<00:16,  2.46it/s]/
with torch.cuda.amp.autocast(amp):
    16/49    4.52G   0.04626   0.0195    0.006479      50      640: 29% 16/55 [00:06<00:16,  2.42it/s]/
with torch.cuda.amp.autocast(amp):
    16/49    4.52G   0.04484   0.01913   0.006648      32      640: 31% 17/55 [00:06<00:14,  2.54it/s]/
with torch.cuda.amp.autocast(amp):
    16/49    4.52G   0.04548   0.019    0.006463      37      640: 33% 18/55 [00:07<00:15,  2.45it/s]/
with torch.cuda.amp.autocast(amp):
    16/49    4.52G   0.04569   0.01903   0.006514      47      640: 35% 19/55 [00:07<00:14,  2.45it/s]/
with torch.cuda.amp.autocast(amp):
    16/49    4.52G   0.04451   0.01908   0.006514      48      640: 36% 20/55 [00:07<00:14,  2.45it/s]/
with torch.cuda.amp.autocast(amp):
    16/49    4.52G   0.04456   0.01908   0.006465      44      640: 38% 21/55 [00:08<00:13,  2.53it/s]/
with torch.cuda.amp.autocast(amp):
    16/49    4.52G   0.04449   0.01896   0.006392      36      640: 40% 22/55 [00:08<00:13,  2.49it/s]/
with torch.cuda.amp.autocast(amp):
    16/49    4.52G   0.04457   0.01895   0.006825      48      640: 42% 23/55 [00:09<00:12,  2.50it/s]/
with torch.cuda.amp.autocast(amp):
    16/49    4.52G   0.04503   0.01877   0.006918      36      640: 44% 24/55 [00:09<00:12,  2.43it/s]/
with torch.cuda.amp.autocast(amp):
    16/49    4.52G   0.04512   0.019    0.006941      53      640: 45% 25/55 [00:09<00:11,  2.56it/s]/
with torch.cuda.amp.autocast(amp):
    16/49    4.52G   0.04546   0.01888   0.0068       34      640: 47% 26/55 [00:10<00:11,  2.46it/s]/
with torch.cuda.amp.autocast(amp):
    16/49    4.52G   0.04524   0.01901   0.006771      54      640: 49% 27/55 [00:10<00:11,  2.39it/s]/
with torch.cuda.amp.autocast(amp):
    16/49    4.52G   0.04446   0.01896   0.006628      40      640: 51% 28/55 [00:11<00:12,  2.14it/s]/
with torch.cuda.amp.autocast(amp):
    16/49    4.52G   0.04404   0.01889   0.006589      38      640: 53% 29/55 [00:11<00:13,  1.97it/s]/
with torch.cuda.amp.autocast(amp):
    16/49    4.52G   0.04331   0.0188   0.006579      38      640: 55% 30/55 [00:12<00:12,  1.93it/s]/
with torch.cuda.amp.autocast(amp):
    16/49    4.52G   0.04339   0.01886   0.006489      46      640: 56% 31/55 [00:13<00:13,  1.85it/s]/
with torch.cuda.amp.autocast(amp):
    16/49    4.52G   0.04348   0.01893   0.006537      47      640: 58% 32/55 [00:13<00:13,  1.70it/s]/
with torch.cuda.amp.autocast(amp):
    16/49    4.52G   0.04384   0.01879   0.006456      37      640: 60% 33/55 [00:14<00:11,  1.85it/s]/
with torch.cuda.amp.autocast(amp):
    16/49    4.52G   0.04401   0.01876   0.00639       38      640: 62% 34/55 [00:14<00:10,  1.98it/s]/
with torch.cuda.amp.autocast(amp):
    16/49    4.52G   0.04421   0.0188   0.006314      49      640: 64% 35/55 [00:15<00:09,  2.10it/s]/
with torch.cuda.amp.autocast(amp):
    16/49    4.52G   0.04465   0.01885   0.006388      51      640: 65% 36/55 [00:15<00:08,  2.18it/s]

```

```

with torch.cuda.amp.autocast(amp):
    16/49    4.52G  0.04476  0.01883  0.006329      43    640:  67% 37/55 [00:15<00:07,  2.27it/s]
with torch.cuda.amp.autocast(amp):
    16/49    4.52G  0.04464  0.01879  0.006221      42    640:  69% 38/55 [00:16<00:07,  2.24it/s]
with torch.cuda.amp.autocast(amp):
    16/49    4.52G  0.04407  0.01885  0.006201      47    640:  71% 39/55 [00:16<00:06,  2.30it/s]
with torch.cuda.amp.autocast(amp):
    16/49    4.52G  0.04418  0.01889  0.006295      46    640:  73% 40/55 [00:17<00:06,  2.29it/s]
with torch.cuda.amp.autocast(amp): Run cell (Ctrl+Enter)
    16/49    4.52G  0.04429  0.          cell has not been executed in this session
with torch.cuda.amp.autocast(amp): Previous execution ended unsuccessfully
    16/49    4.52G  0.04417  0.          currently executing...
with torch.cuda.amp.autocast(amp):
    16/49    4.52G  0.04432  0.01869  0.006249      36    640:  78% 43/55 [00:18<00:04,  2.44it/s]
with torch.cuda.amp.autocast(amp):
    16/49    4.52G  0.04377  0.01863  0.006186      49    640:  80% 44/55 [00:18<00:04,  2.37it/s]
with torch.cuda.amp.autocast(amp):
    16/49    4.52G  0.04323  0.01863  0.006213      46    640:  82% 45/55 [00:19<00:04,  2.45it/s]
with torch.cuda.amp.autocast(amp):
    16/49    4.52G  0.04428  0.01856  0.006161      39    640:  84% 46/55 [00:19<00:03,  2.43it/s]
with torch.cuda.amp.autocast(amp):
    16/49    4.52G  0.04291  0.01846  0.006193      38    640:  85% 47/55 [00:20<00:03,  2.44it/s]
with torch.cuda.amp.autocast(amp):
    16/49    4.52G  0.04251  0.0184   0.006149      38    640:  87% 48/55 [00:20<00:02,  2.43it/s]
with torch.cuda.amp.autocast(amp):
    16/49    4.52G  0.04287  0.01837  0.006175      40    640:  89% 49/55 [00:20<00:02,  2.44it/s]
with torch.cuda.amp.autocast(amp):
    16/49    4.52G  0.04337  0.01831  0.006255      39    640:  91% 50/55 [00:21<00:02,  2.48it/s]
with torch.cuda.amp.autocast(amp):
    16/49    4.52G  0.04292  0.01823  0.00627      39    640:  93% 51/55 [00:21<00:01,  2.50it/s]
with torch.cuda.amp.autocast(amp):
    16/49    4.52G  0.04288  0.01827  0.006294      50    640:  95% 52/55 [00:22<00:01,  2.47it/s]
with torch.cuda.amp.autocast(amp):
    16/49    4.52G  0.04255  0.01828  0.006315      46    640:  96% 53/55 [00:22<00:00,  2.53it/s]
with torch.cuda.amp.autocast(amp):
    16/49    4.52G  0.04214  0.0182   0.006311      39    640:  98% 54/55 [00:22<00:00,  2.50it/s]
with torch.cuda.amp.autocast(amp):
    16/49    4.52G  0.04168  0.01813  0.00627      32    640: 100% 55/55 [00:23<00:00,  2.38it/s]
          Class   Images Instances      P      R
          all     877      971    0.793    0.745
                                         mAP50  mAP50-95: 100% 28/28 [00:11<00:00,
                                         0.785    0.452

```

| Epoch   | GPU_mem | box_loss | obj_loss | cls_loss | Instances | Size  |
|---|---------|----------|----------|----------|-----------|---|
| 0% 0/55 [00:00<?, ?it/s]  |         |          |          |          |           | FutureWarning: `torch.cuda.amp.autocast(arg |
| with torch.cuda.amp.autocast(amp):  |         |          |          |          |           |   |
| 17/49    4.52G  0.05099  0.01839  0.005261      46    640:  2% 1/55 [00:00<00:12,  4.39it/s]/ |         |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):  |         |          |          |          |           |   |
| 17/49    4.52G  0.05017  0.01812  0.005357      39    640:  4% 2/55 [00:00<00:11,  4.67it/s]/ |         |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):  |         |          |          |          |           |   |
| 17/49    4.52G  0.04723  0.01939  0.005359      46    640:  5% 3/55 [00:00<00:13,  3.92it/s]/ |         |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):  |         |          |          |          |           |   |
| 17/49    4.52G  0.04502  0.01902  0.005413      41    640:  7% 4/55 [00:01<00:15,  3.20it/s]/ |         |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):  |         |          |          |          |           |   |
| 17/49    4.52G  0.04059  0.01879  0.004921      39    640:  9% 5/55 [00:01<00:17,  2.90it/s]/ |         |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):  |         |          |          |          |           |   |
| 17/49    4.52G  0.04008  0.01785  0.004863      35    640: 11% 6/55 [00:01<00:18,  2.72it/s]/ |         |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):  |         |          |          |          |           |   |
| 17/49    4.52G  0.04132  0.01773  0.005413      44    640: 13% 7/55 [00:02<00:18,  2.56it/s]/ |         |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):  |         |          |          |          |           |   |
| 17/49    4.52G  0.04056  0.01819  0.005851      48    640: 15% 8/55 [00:03<00:21,  2.17it/s]/ |         |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):  |         |          |          |          |           |   |
| 17/49    4.52G  0.0407   0.01804  0.00944      41    640: 16% 9/55 [00:03<00:24,  1.90it/s]/  |         |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):  |         |          |          |          |           |   |
| 17/49    4.52G  0.03859  0.01773  0.008798      40    640: 18% 10/55 [00:04<00:23,  1.91it/s] |         |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):  |         |          |          |          |           |   |
| 17/49    4.52G  0.03877  0.01825  0.008264      49    640: 20% 11/55 [00:04<00:24,  1.78it/s] |         |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):  |         |          |          |          |           |   |
| 17/49    4.52G  0.03875  0.01799  0.008299      40    640: 22% 12/55 [00:05<00:24,  1.78it/s] |         |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):  |         |          |          |          |           |   |
| 17/49    4.52G  0.03969  0.01783  0.008213      41    640: 24% 13/55 [00:05<00:23,  1.80it/s] |         |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):  |         |          |          |          |           |   |
| 17/49    4.52G  0.04134  0.01808  0.008073      52    640: 25% 14/55 [00:06<00:20,  1.98it/s] |         |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):  |         |          |          |          |           |   |

```

17/49    4.52G  0.04192  0.01809  0.00792   43     640:  27% 15/55 [00:06<00:19,  2.05it/s]
with torch.cuda.amp.autocast(amp):
    17/49    4.52G  0.0407  0.01794  0.007934  34     640:  29% 16/55 [00:07<00:17,  2.18it/s]
with torch.cuda.amp.autocast(amp):
    17/49    4.52G  0.0397  0.01789  0.007666  40     640:  31% 17/55 [00:07<00:17,  2.22it/s]
with torch.cuda.amp.autocast(amp):
    17/49    4.52G  0.03864 0.01799  0.007535  49     640:  33% 18/55 [00:07<00:15,  2.38it/s]
with torch.cuda.amp.autocast(amp):
    17/49    4.52G  0.03789 0. Run cell (Ctrl+Enter)
with torch.cuda.amp.autocast(amp): cell has not been executed in this session
    17/49    4.52G  0.03708 0. Previous execution ended unsuccessfully
with torch.cuda.amp.autocast(amp):
    17/49    4.52G  0.03776 0. currently executing...
with torch.cuda.amp.autocast(amp):
    17/49    4.52G  0.03763 0.01772  0.007015  33     640:  40% 22/55 [00:09<00:13,  2.48it/s]
with torch.cuda.amp.autocast(amp):
    17/49    4.52G  0.03782 0.01799  0.007124  51     640:  42% 23/55 [00:09<00:13,  2.43it/s]
with torch.cuda.amp.autocast(amp):
    17/49    4.52G  0.03708 0.01793  0.007238  43     640:  44% 24/55 [00:10<00:12,  2.47it/s]
with torch.cuda.amp.autocast(amp):
    17/49    4.52G  0.03761 0.01795  0.007159  45     640:  45% 25/55 [00:10<00:12,  2.47it/s]
with torch.cuda.amp.autocast(amp):
    17/49    4.52G  0.03732 0.01786  0.007036  38     640:  47% 26/55 [00:11<00:11,  2.43it/s]
with torch.cuda.amp.autocast(amp):
    17/49    4.52G  0.03775 0.01778  0.006947  46     640:  49% 27/55 [00:11<00:11,  2.45it/s]
with torch.cuda.amp.autocast(amp):
    17/49    4.52G  0.03803 0.01792  0.006992  52     640:  51% 28/55 [00:12<00:11,  2.38it/s]
with torch.cuda.amp.autocast(amp):
    17/49    4.52G  0.03876 0.01779  0.006852  35     640:  53% 29/55 [00:12<00:10,  2.40it/s]
with torch.cuda.amp.autocast(amp):
    17/49    4.52G  0.03915 0.01786  0.00687   47     640:  55% 30/55 [00:12<00:10,  2.37it/s]
with torch.cuda.amp.autocast(amp):
    17/49    4.52G  0.03916 0.01792  0.006755  44     640:  56% 31/55 [00:13<00:09,  2.45it/s]
with torch.cuda.amp.autocast(amp):
    17/49    4.52G  0.03864 0.01796  0.006646  48     640:  58% 32/55 [00:13<00:09,  2.47it/s]
with torch.cuda.amp.autocast(amp):
    17/49    4.52G  0.03812 0.01798  0.006612  50     640:  60% 33/55 [00:14<00:09,  2.43it/s]
with torch.cuda.amp.autocast(amp):
    17/49    4.52G  0.03761 0.01792  0.006486  41     640:  62% 34/55 [00:14<00:08,  2.43it/s]
with torch.cuda.amp.autocast(amp):
    17/49    4.52G  0.03838 0.01784  0.006463  39     640:  64% 35/55 [00:14<00:08,  2.44it/s]
with torch.cuda.amp.autocast(amp):
    17/49    4.52G  0.03909 0.01797  0.006388  47     640:  65% 36/55 [00:15<00:07,  2.40it/s]
with torch.cuda.amp.autocast(amp):
    17/49    4.52G  0.03934 0.01792  0.006413  41     640:  67% 37/55 [00:15<00:07,  2.26it/s]
with torch.cuda.amp.autocast(amp):
    17/49    4.52G  0.03884 0.01787  0.006492  39     640:  69% 38/55 [00:16<00:07,  2.16it/s]
with torch.cuda.amp.autocast(amp):
    17/49    4.52G  0.0384  0.01771  0.00642   33     640:  71% 39/55 [00:16<00:08,  2.00it/s]
with torch.cuda.amp.autocast(amp):
    17/49    4.52G  0.03884 0.01772  0.006405  45     640:  73% 40/55 [00:17<00:07,  1.99it/s]
with torch.cuda.amp.autocast(amp):
    17/49    4.52G  0.0388  0.01764  0.006413  35     640:  75% 41/55 [00:18<00:07,  1.84it/s]
with torch.cuda.amp.autocast(amp):
    17/49    4.52G  0.03846 0.0177  0.006344  43     640:  76% 42/55 [00:18<00:07,  1.82it/s]
with torch.cuda.amp.autocast(amp):
    17/49    4.52G  0.03837 0.01765  0.006412  38     640:  78% 43/55 [00:19<00:06,  1.77it/s]
with torch.cuda.amp.autocast(amp):
    17/49    4.52G  0.03875 0.01763  0.006383  42     640:  80% 44/55 [00:19<00:05,  1.86it/s]
with torch.cuda.amp.autocast(amp):
    17/49    4.52G  0.0389  0.01762  0.006412  42     640:  82% 45/55 [00:20<00:05,  2.00it/s]
with torch.cuda.amp.autocast(amp):
    17/49    4.52G  0.03853 0.01754  0.006361  36     640:  84% 46/55 [00:20<00:04,  2.19it/s]
with torch.cuda.amp.autocast(amp):
    17/49    4.52G  0.0387  0.01752  0.006271  37     640:  85% 47/55 [00:20<00:03,  2.23it/s]
with torch.cuda.amp.autocast(amp):
    17/49    4.52G  0.03885 0.01752  0.006248  44     640:  87% 48/55 [00:21<00:03,  2.30it/s]
with torch.cuda.amp.autocast(amp):
    17/49    4.52G  0.03863 0.01747  0.006232  38     640:  89% 49/55 [00:21<00:02,  2.33it/s]
with torch.cuda.amp.autocast(amp):
    17/49    4.52G  0.03901 0.01743  0.006243  41     640:  91% 50/55 [00:22<00:02,  2.45it/s]
with torch.cuda.amp.autocast(amp):

```

```

    17/49  4.52G  0.03868  0.01741  0.006208   41      640:  93% 51/55 [00:22<00:01,  2.46it/s]
with torch.cuda.amp.autocast(amp):
    17/49  4.52G  0.03888  0.01744  0.006174   43      640:  95% 52/55 [00:22<00:01,  2.43it/s]
with torch.cuda.amp.autocast(amp):
    17/49  4.52G  0.03858  0.01746  0.006105   46      640:  96% 53/55 [00:23<00:00,  2.42it/s]
with torch.cuda.amp.autocast(amp):
    17/49  4.52G  0.03852  0.0175   0.00611    52      640:  98% 54/55 [00:23<00:00,  2.46it/s]
with torch.cuda.amp.autocast(amp):
    17/49  4.52G  0.03902  0. Run cell (Ctrl+Enter)
        Class   Images   Inst
        all     877
                                Run cell (Ctrl+Enter)
                                cell has not been executed in this session
                                Previous execution ended unsuccessfully
                                640: 100% 55/55 [00:24<00:00,  2.29it/s]
mAP50   mAP50-95: 100% 28/28 [00:11<00:00,
                                0.793   0.448

```

| Epoch   | GPU_mem               | box_loss                                     | obj | currently executing...                      | Size |
|---|-----------------------|--|-----|---|------|
| 0%  | 0/55 [00:00<?, ?it/s] | /content/yolov5_project/yolov5/train.py:412: |     | FutureWarning: `torch.cuda.amp.autocast(arg |      |
|   |                       |  |     |   |      |
| with torch.cuda.amp.autocast(amp):  |                       |  |     |   |      |
| 18/49  4.53G  0.04262  0.01789  0.01077   46      640:  2% 1/55 [00:00<00:11,  4.86it/s]/ |                       |  |     |   |      |
| with torch.cuda.amp.autocast(amp):  |                       |  |     |   |      |
| 18/49  4.53G  0.04937  0.01905  0.009311  45      640:  4% 2/55 [00:00<00:12,  4.33it/s]/ |                       |  |     |   |      |
| with torch.cuda.amp.autocast(amp):  |                       |  |     |   |      |
| 18/49  4.53G  0.05057  0.01985  0.009401  43      640:  5% 3/55 [00:00<00:13,  3.97it/s]/ |                       |  |     |   |      |
| with torch.cuda.amp.autocast(amp):  |                       |  |     |   |      |
| 18/49  4.53G  0.04376  0.019   0.009302   44      640:  7% 4/55 [00:01<00:16,  3.05it/s]/ |                       |  |     |   |      |
| with torch.cuda.amp.autocast(amp):  |                       |  |     |   |      |
| 18/49  4.53G  0.04316  0.01912  0.008368  45      640:  9% 5/55 [00:01<00:17,  2.85it/s]/ |                       |  |     |   |      |
| with torch.cuda.amp.autocast(amp):  |                       |  |     |   |      |
| 18/49  4.53G  0.04211  0.01899  0.007238  46      640: 15% 8/55 [00:02<00:18,  2.52it/s]/ |                       |  |     |   |      |
| with torch.cuda.amp.autocast(amp):  |                       |  |     |   |      |
| 18/49  4.53G  0.04136  0.01964  0.007044  54      640: 16% 9/55 [00:03<00:18,  2.49it/s]/ |                       |  |     |   |      |
| with torch.cuda.amp.autocast(amp):  |                       |  |     |   |      |
| 18/49  4.53G  0.04335  0.01934  0.006752  40      640: 18% 10/55 [00:03<00:18,  2.41it/s] |                       |  |     |   |      |
| with torch.cuda.amp.autocast(amp):  |                       |  |     |   |      |
| 18/49  4.53G  0.0424   0.01922  0.007822  45      640: 20% 11/55 [00:04<00:17,  2.48it/s] |                       |  |     |   |      |
| with torch.cuda.amp.autocast(amp):  |                       |  |     |   |      |
| 18/49  4.53G  0.04199  0.01933  0.008149  48      640: 22% 12/55 [00:04<00:17,  2.46it/s] |                       |  |     |   |      |
| with torch.cuda.amp.autocast(amp):  |                       |  |     |   |      |
| 18/49  4.53G  0.04304  0.01906  0.007758  38      640: 24% 13/55 [00:04<00:16,  2.50it/s] |                       |  |     |   |      |
| with torch.cuda.amp.autocast(amp):  |                       |  |     |   |      |
| 18/49  4.53G  0.04374  0.019   0.007822  48      640: 25% 14/55 [00:05<00:17,  2.40it/s]  |                       |  |     |   |      |
| with torch.cuda.amp.autocast(amp):  |                       |  |     |   |      |
| 18/49  4.53G  0.04217  0.01901  0.007625  44      640: 27% 15/55 [00:05<00:16,  2.50it/s] |                       |  |     |   |      |
| with torch.cuda.amp.autocast(amp):  |                       |  |     |   |      |
| 18/49  4.53G  0.04228  0.01867  0.007495  36      640: 29% 16/55 [00:06<00:15,  2.47it/s] |                       |  |     |   |      |
| with torch.cuda.amp.autocast(amp):  |                       |  |     |   |      |
| 18/49  4.53G  0.04201  0.01892  0.007393  49      640: 31% 17/55 [00:06<00:15,  2.45it/s] |                       |  |     |   |      |
| with torch.cuda.amp.autocast(amp):  |                       |  |     |   |      |
| 18/49  4.53G  0.0422   0.01877  0.007195  37      640: 33% 18/55 [00:07<00:16,  2.19it/s] |                       |  |     |   |      |
| with torch.cuda.amp.autocast(amp):  |                       |  |     |   |      |
| 18/49  4.53G  0.04133  0.01865  0.007155  43      640: 35% 19/55 [00:07<00:17,  2.09it/s] |                       |  |     |   |      |
| with torch.cuda.amp.autocast(amp):  |                       |  |     |   |      |
| 18/49  4.53G  0.04054  0.01878  0.006988  51      640: 36% 20/55 [00:08<00:18,  1.91it/s] |                       |  |     |   |      |
| with torch.cuda.amp.autocast(amp):  |                       |  |     |   |      |
| 18/49  4.53G  0.04105  0.01876  0.006889  46      640: 38% 21/55 [00:08<00:18,  1.87it/s] |                       |  |     |   |      |
| with torch.cuda.amp.autocast(amp):  |                       |  |     |   |      |
| 18/49  4.53G  0.0412   0.01866  0.006756  43      640: 40% 22/55 [00:09<00:18,  1.78it/s] |                       |  |     |   |      |
| with torch.cuda.amp.autocast(amp):  |                       |  |     |   |      |
| 18/49  4.53G  0.04191  0.0187   0.006651  46      640: 42% 23/55 [00:09<00:17,  1.81it/s] |                       |  |     |   |      |
| with torch.cuda.amp.autocast(amp):  |                       |  |     |   |      |
| 18/49  4.53G  0.04281  0.01857  0.0066   45      640: 44% 24/55 [00:10<00:15,  1.96it/s]  |                       |  |     |   |      |
| with torch.cuda.amp.autocast(amp):  |                       |  |     |   |      |
| 18/49  4.53G  0.04253  0.01848  0.006584  41      640: 45% 25/55 [00:10<00:14,  2.08it/s] |                       |  |     |   |      |
| with torch.cuda.amp.autocast(amp):  |                       |  |     |   |      |
| 18/49  4.53G  0.04272  0.01829  0.006627  31      640: 47% 26/55 [00:11<00:13,  2.11it/s] |                       |  |     |   |      |
| with torch.cuda.amp.autocast(amp):  |                       |  |     |   |      |
| 18/49  4.53G  0.04315  0.01829  0.006663  46      640: 49% 27/55 [00:11<00:12,  2.24it/s] |                       |  |     |   |      |
| with torch.cuda.amp.autocast(amp):  |                       |  |     |   |      |
| 18/49  4.53G  0.04234  0.01821  0.006498  36      640: 51% 28/55 [00:12<00:11,  2.32it/s] |                       |  |     |   |      |
| with torch.cuda.amp.autocast(amp):  |                       |  |     |   |      |
| 18/49  4.53G  0.04234  0.01811  0.006444  39      640: 53% 29/55 [00:12<00:10,  2.37it/s] |                       |  |     |   |      |

```

with torch.cuda.amp.autocast(amp):
    18/49    4.53G  0.04165  0.0181   0.006372    43    640: 55% 30/55 [00:12<00:10,  2.34it/s]
with torch.cuda.amp.autocast(amp):
    18/49    4.53G  0.04184  0.01806  0.006409    48    640: 56% 31/55 [00:13<00:10,  2.38it/s]
with torch.cuda.amp.autocast(amp):
    18/49    4.53G  0.04127  0.01814  0.006341    49    640: 58% 32/55 [00:13<00:09,  2.35it/s]
with torch.cuda.amp.autocast(amp):
    18/49    4.53G  0.04128  0.01816  0.006372    48    640: 60% 33/55 [00:14<00:09,  2.41it/s]
with torch.cuda.amp.autocast(amp):
    18/49    4.53G  0.04118  0.01817  Run cell (Ctrl+Enter)
                                0 cell has not been executed in this session
with torch.cuda.amp.autocast(amp):
    18/49    4.53G  0.04125  0.01818  Previous execution ended unsuccessfully
                                0 currently executing...
with torch.cuda.amp.autocast(amp):
    18/49    4.53G  0.04126  0.01825  0.006365    56    640: 65% 36/55 [00:15<00:07,  2.41it/s]
with torch.cuda.amp.autocast(amp):
    18/49    4.53G  0.04074  0.01818  0.006311    39    640: 67% 37/55 [00:15<00:07,  2.39it/s]
with torch.cuda.amp.autocast(amp):
    18/49    4.53G  0.04052  0.01815  0.006298    42    640: 69% 38/55 [00:16<00:07,  2.34it/s]
with torch.cuda.amp.autocast(amp):
    18/49    4.53G  0.03999  0.01805  0.006214    36    640: 71% 39/55 [00:16<00:06,  2.42it/s]
with torch.cuda.amp.autocast(amp):
    18/49    4.53G  0.04024  0.01801  0.006156    45    640: 73% 40/55 [00:17<00:06,  2.40it/s]
with torch.cuda.amp.autocast(amp):
    18/49    4.53G  0.04011  0.01793  0.006075    38    640: 75% 41/55 [00:17<00:05,  2.47it/s]
with torch.cuda.amp.autocast(amp):
    18/49    4.53G  0.04 0.01791  0.00605    42    640: 76% 42/55 [00:17<00:05,  2.39it/s]
with torch.cuda.amp.autocast(amp):
    18/49    4.53G  0.03957  0.01781  0.005956    38    640: 78% 43/55 [00:18<00:04,  2.50it/s]
with torch.cuda.amp.autocast(amp):
    18/49    4.53G  0.03986  0.01781  0.005946    46    640: 80% 44/55 [00:18<00:04,  2.44it/s]
with torch.cuda.amp.autocast(amp):
    18/49    4.53G  0.04002  0.01779  0.005938    43    640: 82% 45/55 [00:19<00:04,  2.41it/s]
with torch.cuda.amp.autocast(amp):
    18/49    4.53G  0.04003  0.01778  0.00688    45    640: 84% 46/55 [00:19<00:03,  2.36it/s]
with torch.cuda.amp.autocast(amp):
    18/49    4.53G  0.03962  0.01777  0.006863    41    640: 85% 47/55 [00:19<00:03,  2.41it/s]
with torch.cuda.amp.autocast(amp):
    18/49    4.53G  0.03952  0.01765  0.007007    41    640: 87% 48/55 [00:20<00:03,  2.12it/s]
with torch.cuda.amp.autocast(amp):
    18/49    4.53G  0.03912  0.01769  0.006924    50    640: 89% 49/55 [00:21<00:03,  1.93it/s]
with torch.cuda.amp.autocast(amp):
    18/49    4.53G  0.03922  0.01772  0.006996    46    640: 91% 50/55 [00:21<00:02,  1.76it/s]
with torch.cuda.amp.autocast(amp):
    18/49    4.53G  0.03887  0.01773  0.00702    45    640: 93% 51/55 [00:22<00:02,  1.74it/s]
with torch.cuda.amp.autocast(amp):
    18/49    4.53G  0.03908  0.01768  0.00695    37    640: 95% 52/55 [00:23<00:01,  1.68it/s]
with torch.cuda.amp.autocast(amp):
    18/49    4.53G  0.03871  0.01761  0.006935    41    640: 96% 53/55 [00:23<00:01,  1.84it/s]
with torch.cuda.amp.autocast(amp):
    18/49    4.53G  0.0387  0.01759  0.006885    35    640: 98% 54/55 [00:23<00:00,  1.95it/s]
with torch.cuda.amp.autocast(amp):
    18/49    4.53G  0.03837  0.01756  0.006917    32    640: 100% 55/55 [00:24<00:00,  2.27it/s]
    Class   Images Instances P
        all     877      971    0.806    0.786    mAP50
                                         R
                                         0.837    0.475    mAP50-95: 100% 28/28 [00:11<00:00,
                                         0.837    0.475

```

| Epoch | GPU_mem   | box_loss | obj_loss | cls_loss | Instances | Size  |
|-------|---|----------|----------|----------|-----------|---|
| 0%    | 0/55 [00:00<?, ?it/s]/content/yolov5_project/yolov5/train.py:412: |          |          |          |           | FutureWarning: `torch.cuda.amp.autocast(arg |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 19/49 | 4.54G   | 0.02942  | 0.01468  | 0.005624 | 36        | 640: 2% 1/55 [00:00<00:13,  3.96it/s]/      |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 19/49 | 4.55G   | 0.03433  | 0.01527  | 0.005537 | 39        | 640: 4% 2/55 [00:00<00:12,  4.24it/s]/      |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 19/49 | 4.55G   | 0.03682  | 0.01646  | 0.006866 | 49        | 640: 5% 3/55 [00:00<00:15,  3.34it/s]/      |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 19/49 | 4.55G   | 0.03704  | 0.01742  | 0.006006 | 50        | 640: 7% 4/55 [00:01<00:16,  3.09it/s]/      |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 19/49 | 4.55G   | 0.03674  | 0.01762  | 0.006452 | 44        | 640: 9% 5/55 [00:01<00:17,  2.80it/s]/      |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 19/49 | 4.55G   | 0.03835  | 0.01771  | 0.005911 | 43        | 640: 11% 6/55 [00:02<00:18,  2.64it/s]/     |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 19/49 | 4.55G   | 0.03582  | 0.01767  | 0.005392 | 45        | 640: 13% 7/55 [00:02<00:18,  2.54it/s]/     |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |

```

19/49    4.55G    0.0395    0.01775    0.005811    42    640: 15% 8/55 [00:02<00:18, 2.53it/s]/
with torch.cuda.amp.autocast(amp):
19/49    4.55G    0.03962   0.01753    0.005444    40    640: 16% 9/55 [00:03<00:18, 2.48it/s]/
with torch.cuda.amp.autocast(amp):
19/49    4.55G    0.03967   0.0174    0.005498    36    640: 18% 10/55 [00:03<00:18, 2.49it/s]/
with torch.cuda.amp.autocast(amp):
19/49    4.55G    0.03914   0.01747   0.005325    41    640: 20% 11/55 [00:04<00:18, 2.37it/s]/
with torch.cuda.amp.autocast(amp):
19/49    4.55G    0.03923   0.01748   0.005325    41    640: 22% 12/55 [00:04<00:17, 2.49it/s]/
Run cell (Ctrl+Enter)
with torch.cuda.amp.autocast(amp):
cell has not been executed in this session
19/49    4.55G    0.03918   0.01748   0.005325    41    640: 24% 13/55 [00:04<00:17, 2.41it/s]/
with torch.cuda.amp.autocast(amp):
19/49    4.55G    0.03917   0.01748   0.005325    41    640: 25% 14/55 [00:05<00:17, 2.35it/s]/
with torch.cuda.amp.autocast(amp):
19/49    4.55G    0.03873   0.01748   0.006209    35    640: 27% 15/55 [00:05<00:17, 2.35it/s]/
with torch.cuda.amp.autocast(amp):
19/49    4.55G    0.03916   0.01762   0.006299    44    640: 29% 16/55 [00:06<00:15, 2.44it/s]/
with torch.cuda.amp.autocast(amp):
19/49    4.55G    0.03931   0.01761   0.006068    43    640: 31% 17/55 [00:06<00:15, 2.39it/s]/
with torch.cuda.amp.autocast(amp):
19/49    4.55G    0.03933   0.01776   0.005901    48    640: 33% 18/55 [00:07<00:15, 2.43it/s]/
with torch.cuda.amp.autocast(amp):
19/49    4.55G    0.03846   0.01756   0.00613     37    640: 35% 19/55 [00:07<00:15, 2.39it/s]/
with torch.cuda.amp.autocast(amp):
19/49    4.55G    0.03842   0.01745   0.006098    42    640: 36% 20/55 [00:07<00:14, 2.44it/s]/
with torch.cuda.amp.autocast(amp):
19/49    4.55G    0.03762   0.01732   0.006118    39    640: 38% 21/55 [00:08<00:14, 2.41it/s]/
with torch.cuda.amp.autocast(amp):
19/49    4.55G    0.03741   0.0174    0.006258    48    640: 40% 22/55 [00:08<00:14, 2.33it/s]/
with torch.cuda.amp.autocast(amp):
19/49    4.55G    0.03728   0.01728   0.00636     37    640: 42% 23/55 [00:09<00:13, 2.33it/s]/
with torch.cuda.amp.autocast(amp):
19/49    4.55G    0.03659   0.01716   0.006401    43    640: 44% 24/55 [00:09<00:12, 2.45it/s]/
with torch.cuda.amp.autocast(amp):
19/49    4.55G    0.03659   0.01719   0.006425    46    640: 45% 25/55 [00:09<00:12, 2.44it/s]/
with torch.cuda.amp.autocast(amp):
19/49    4.55G    0.03684   0.01724   0.00676     43    640: 47% 26/55 [00:10<00:12, 2.35it/s]/
with torch.cuda.amp.autocast(amp):
19/49    4.55G    0.03631   0.01737   0.006674    49    640: 49% 27/55 [00:11<00:13, 2.07it/s]/
with torch.cuda.amp.autocast(amp):
19/49    4.55G    0.03612   0.01745   0.006559    52    640: 51% 28/55 [00:11<00:13, 1.97it/s]/
with torch.cuda.amp.autocast(amp):
19/49    4.55G    0.03645   0.01756   0.006502    48    640: 53% 29/55 [00:12<00:13, 1.93it/s]/
with torch.cuda.amp.autocast(amp):
19/49    4.55G    0.03685   0.01755   0.006376    48    640: 55% 30/55 [00:12<00:14, 1.78it/s]/
with torch.cuda.amp.autocast(amp):
19/49    4.55G    0.037    0.01751   0.006341    39    640: 56% 31/55 [00:13<00:14, 1.70it/s]/
with torch.cuda.amp.autocast(amp):
19/49    4.55G    0.03757   0.01748   0.006329    43    640: 58% 32/55 [00:13<00:12, 1.86it/s]/
with torch.cuda.amp.autocast(amp):
19/49    4.55G    0.03714   0.01748   0.006267    48    640: 60% 33/55 [00:14<00:10, 2.02it/s]/
with torch.cuda.amp.autocast(amp):
19/49    4.55G    0.03754   0.0174    0.006287    44    640: 62% 34/55 [00:14<00:10, 2.03it/s]/
with torch.cuda.amp.autocast(amp):
19/49    4.55G    0.03813   0.01734   0.006267    41    640: 64% 35/55 [00:15<00:09, 2.04it/s]/
with torch.cuda.amp.autocast(amp):
19/49    4.55G    0.03766   0.01723   0.006183    38    640: 65% 36/55 [00:15<00:08, 2.13it/s]/
with torch.cuda.amp.autocast(amp):
19/49    4.55G    0.03732   0.01724   0.006218    50    640: 67% 37/55 [00:16<00:08, 2.24it/s]/
with torch.cuda.amp.autocast(amp):
19/49    4.55G    0.03699   0.01725   0.006141    40    640: 69% 38/55 [00:16<00:07, 2.33it/s]/
with torch.cuda.amp.autocast(amp):
19/49    4.55G    0.03662   0.01726   0.006103    42    640: 71% 39/55 [00:16<00:07, 2.27it/s]/
with torch.cuda.amp.autocast(amp):
19/49    4.55G    0.03653   0.01727   0.006057    41    640: 73% 40/55 [00:17<00:06, 2.33it/s]/
with torch.cuda.amp.autocast(amp):
19/49    4.55G    0.03695   0.01727   0.006045    41    640: 75% 41/55 [00:17<00:05, 2.40it/s]/
with torch.cuda.amp.autocast(amp):
19/49    4.55G    0.0373    0.01728   0.006007    50    640: 76% 42/55 [00:18<00:05, 2.40it/s]/
with torch.cuda.amp.autocast(amp):
19/49    4.55G    0.0372    0.01731   0.00598     45    640: 78% 43/55 [00:18<00:05, 2.38it/s]/
with torch.cuda.amp.autocast(amp):

```

```

19/49    4.55G   0.0373   0.01737  0.006321    44      640:  80% 44/55 [00:18<00:04,  2.42it/s]
with torch.cuda.amp.autocast(amp):
  19/49    4.55G   0.03691  0.01732  0.006278    41      640:  82% 45/55 [00:19<00:04,  2.44it/s]
with torch.cuda.amp.autocast(amp):
  19/49    4.55G   0.03736  0.01732  0.006298    39      640:  84% 46/55 [00:19<00:03,  2.41it/s]
with torch.cuda.amp.autocast(amp):
  19/49    4.55G   0.03791  0.01727  0.006214    39      640:  85% 47/55 [00:20<00:03,  2.42it/s]
with torch.cuda.amp.autocast(amp):
  19/49    4.55G   0.03754  0.01725  0.006141    46      640:  87% 48/55 [00:20<00:02,  2.48it/s]
Run cell (Ctrl+Enter)
with torch.cuda.amp.autocast(amp):
  cell has not been executed in this session
  19/49    4.55G   0.03716  0.01725  0.00614     -       640:  89% 49/55 [00:20<00:02,  2.54it/s]
with torch.cuda.amp.autocast(amp):
  19/49    4.55G   0.03755  0.01725  0.00614     -       640:  91% 50/55 [00:21<00:01,  2.50it/s]
with torch.cuda.amp.autocast(amp):
  19/49    4.55G   0.03757  0.01725  0.006141    42      640:  93% 51/55 [00:21<00:01,  2.44it/s]
with torch.cuda.amp.autocast(amp):
  19/49    4.55G   0.03754  0.01725  0.00614     -       640:  95% 52/55 [00:22<00:01,  2.44it/s]
with torch.cuda.amp.autocast(amp):
  19/49    4.55G   0.03735  0.01729  0.00612     -       640:  96% 53/55 [00:22<00:00,  2.42it/s]
with torch.cuda.amp.autocast(amp):
  19/49    4.55G   0.03743  0.0173   0.006084    49      640:  98% 54/55 [00:23<00:00,  2.40it/s]
with torch.cuda.amp.autocast(amp):
  19/49    4.55G   0.03732  0.01741  0.006043    44      640: 100% 55/55 [00:23<00:00,  2.36it/s]
          Class   Images Instances P
          all      877      971      0.824      0.786
mAP50      mAP50-95: 100% 28/28 [00:11<00:00,
          0.831      0.491

```

| Epoch | GPU_mem   | box_loss | obj_loss | cls_loss | Instances | Size  |
|-------|---|----------|----------|----------|-----------|---|
| 0%    | 0/55 [00:00<?, ?it/s]/content/yolov5_project/yolov5/train.py:412: |          |          |          |           | FutureWarning: `torch.cuda.amp.autocast(arg |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 20/49 | 4.55G   | 0.01902  | 0.01433  | 0.002293 | 39        | 640: 2% 1/55 [00:00<00:10, 5.00it/s]/       |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 20/49 | 4.55G   | 0.02111  | 0.01673  | 0.00257  | 48        | 640: 4% 2/55 [00:00<00:10, 4.88it/s]/       |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 20/49 | 4.55G   | 0.02982  | 0.01652  | 0.003893 | 38        | 640: 5% 3/55 [00:00<00:12, 4.06it/s]/       |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 20/49 | 4.55G   | 0.02814  | 0.01694  | 0.004228 | 44        | 640: 7% 4/55 [00:01<00:18, 2.78it/s]/       |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 20/49 | 4.55G   | 0.02673  | 0.01658  | 0.004055 | 35        | 640: 9% 5/55 [00:01<00:22, 2.22it/s]/       |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 20/49 | 4.55G   | 0.02557  | 0.01624  | 0.003746 | 37        | 640: 11% 6/55 [00:02<00:24, 1.99it/s]/      |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 20/49 | 4.55G   | 0.0276   | 0.01621  | 0.00412  | 40        | 640: 13% 7/55 [00:03<00:24, 1.93it/s]/      |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 20/49 | 4.55G   | 0.02859  | 0.01675  | 0.004636 | 49        | 640: 15% 8/55 [00:03<00:27, 1.74it/s]/      |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 20/49 | 4.55G   | 0.02741  | 0.01652  | 0.004891 | 40        | 640: 16% 9/55 [00:04<00:26, 1.75it/s]/      |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 20/49 | 4.55G   | 0.02984  | 0.01683  | 0.005205 | 43        | 640: 18% 10/55 [00:04<00:24, 1.83it/s]      |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 20/49 | 4.55G   | 0.03108  | 0.01668  | 0.005184 | 43        | 640: 20% 11/55 [00:05<00:22, 1.95it/s]      |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 20/49 | 4.55G   | 0.03041  | 0.01652  | 0.005064 | 35        | 640: 22% 12/55 [00:05<00:20, 2.09it/s]      |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 20/49 | 4.55G   | 0.03045  | 0.01653  | 0.00511  | 39        | 640: 24% 13/55 [00:05<00:18, 2.26it/s]      |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 20/49 | 4.55G   | 0.03289  | 0.0167   | 0.00524  | 48        | 640: 25% 14/55 [00:06<00:17, 2.28it/s]      |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 20/49 | 4.55G   | 0.03334  | 0.01675  | 0.0055   | 38        | 640: 27% 15/55 [00:06<00:17, 2.31it/s]      |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 20/49 | 4.55G   | 0.03391  | 0.01663  | 0.005327 | 37        | 640: 29% 16/55 [00:07<00:16, 2.37it/s]      |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 20/49 | 4.55G   | 0.03492  | 0.0166   | 0.0052   | 43        | 640: 31% 17/55 [00:07<00:15, 2.39it/s]      |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 20/49 | 4.55G   | 0.03553  | 0.01683  | 0.005166 | 50        | 640: 33% 18/55 [00:07<00:15, 2.43it/s]      |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 20/49 | 4.55G   | 0.03564  | 0.01697  | 0.005275 | 47        | 640: 35% 19/55 [00:08<00:14, 2.44it/s]      |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 20/49 | 4.55G   | 0.03663  | 0.01696  | 0.005139 | 44        | 640: 36% 20/55 [00:08<00:14, 2.37it/s]      |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 20/49 | 4.55G   | 0.03672  | 0.01681  | 0.005254 | 33        | 640: 38% 21/55 [00:09<00:13, 2.45it/s]      |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 20/49 | 4.55G   | 0.03608  | 0.01683  | 0.005248 | 43        | 640: 40% 22/55 [00:09<00:14, 2.35it/s]      |

```

with torch.cuda.amp.autocast(amp):
    20/49 4.55G 0.03701 0.01701 0.005358 47 640: 42% 23/55 [00:10<00:13, 2.36it/s]
with torch.cuda.amp.autocast(amp):
    20/49 4.55G 0.03629 0.01698 0.005401 41 640: 44% 24/55 [00:10<00:12, 2.40it/s]
with torch.cuda.amp.autocast(amp):
    20/49 4.55G 0.0362 0.01697 0.005355 43 640: 45% 25/55 [00:10<00:12, 2.43it/s]
with torch.cuda.amp.autocast(amp):
    20/49 4.55G 0.03545 0.01689 0.005206 41 640: 47% 26/55 [00:11<00:11, 2.46it/s]
with torch.cuda.amp.autocast(amp):
    20/49 4.55G 0.03556 0. Run cell (Ctrl+Enter)
                                cell has not been executed in this session
                                Previous execution ended unsuccessfully
with torch.cuda.amp.autocast(amp):
    20/49 4.55G 0.03654 0. currently executing...
with torch.cuda.amp.autocast(amp):
    20/49 4.55G 0.03701 0.01679 0.005681 47 640: 53% 29/55 [00:12<00:10, 2.43it/s]
with torch.cuda.amp.autocast(amp):
    20/49 4.55G 0.03639 0.01676 0.005728 42 640: 55% 30/55 [00:12<00:10, 2.43it/s]
with torch.cuda.amp.autocast(amp):
    20/49 4.55G 0.03689 0.01673 0.005624 42 640: 56% 31/55 [00:13<00:09, 2.41it/s]
with torch.cuda.amp.autocast(amp):
    20/49 4.55G 0.03647 0.01679 0.005648 42 640: 58% 32/55 [00:13<00:09, 2.38it/s]
with torch.cuda.amp.autocast(amp):
    20/49 4.55G 0.03672 0.01677 0.005589 43 640: 60% 33/55 [00:14<00:09, 2.38it/s]
with torch.cuda.amp.autocast(amp):
    20/49 4.55G 0.03626 0.01671 0.005523 35 640: 62% 34/55 [00:14<00:08, 2.39it/s]
with torch.cuda.amp.autocast(amp):
    20/49 4.55G 0.03656 0.01665 0.005471 40 640: 64% 35/55 [00:15<00:09, 2.12it/s]
with torch.cuda.amp.autocast(amp):
    20/49 4.55G 0.03612 0.01657 0.005489 38 640: 65% 36/55 [00:15<00:09, 2.01it/s]
with torch.cuda.amp.autocast(amp):
    20/49 4.55G 0.03652 0.01668 0.005474 45 640: 67% 37/55 [00:16<00:09, 1.90it/s]
with torch.cuda.amp.autocast(amp):
    20/49 4.55G 0.0367 0.01663 0.005591 40 640: 69% 38/55 [00:17<00:09, 1.78it/s]
with torch.cuda.amp.autocast(amp):
    20/49 4.55G 0.03702 0.01677 0.005648 47 640: 71% 39/55 [00:17<00:09, 1.72it/s]
with torch.cuda.amp.autocast(amp):
    20/49 4.55G 0.03716 0.01693 0.005646 46 640: 73% 40/55 [00:18<00:08, 1.80it/s]
with torch.cuda.amp.autocast(amp):
    20/49 4.55G 0.03732 0.01689 0.005626 41 640: 75% 41/55 [00:18<00:06, 2.01it/s]
with torch.cuda.amp.autocast(amp):
    20/49 4.55G 0.03695 0.01691 0.005563 45 640: 76% 42/55 [00:18<00:06, 2.08it/s]
with torch.cuda.amp.autocast(amp):
    20/49 4.55G 0.03657 0.01689 0.005478 35 640: 78% 43/55 [00:19<00:05, 2.24it/s]
with torch.cuda.amp.autocast(amp):
    20/49 4.55G 0.0369 0.01694 0.005498 45 640: 80% 44/55 [00:19<00:04, 2.22it/s]
with torch.cuda.amp.autocast(amp):
    20/49 4.55G 0.0372 0.01697 0.005546 43 640: 82% 45/55 [00:20<00:04, 2.31it/s]
with torch.cuda.amp.autocast(amp):
    20/49 4.55G 0.03749 0.01704 0.005478 47 640: 84% 46/55 [00:20<00:03, 2.37it/s]
with torch.cuda.amp.autocast(amp):
    20/49 4.55G 0.03777 0.01704 0.005437 44 640: 85% 47/55 [00:21<00:03, 2.37it/s]
with torch.cuda.amp.autocast(amp):
    20/49 4.55G 0.03785 0.01706 0.005378 37 640: 87% 48/55 [00:21<00:02, 2.41it/s]
with torch.cuda.amp.autocast(amp):
    20/49 4.55G 0.03775 0.01702 0.00548 41 640: 89% 49/55 [00:21<00:02, 2.38it/s]
with torch.cuda.amp.autocast(amp):
    20/49 4.55G 0.03739 0.01703 0.005507 46 640: 91% 50/55 [00:22<00:02, 2.38it/s]
with torch.cuda.amp.autocast(amp):
    20/49 4.55G 0.03765 0.01696 0.005571 36 640: 93% 51/55 [00:22<00:01, 2.39it/s]
with torch.cuda.amp.autocast(amp):
    20/49 4.55G 0.03793 0.01691 0.005515 38 640: 95% 52/55 [00:23<00:01, 2.35it/s]
with torch.cuda.amp.autocast(amp):
    20/49 4.55G 0.03765 0.01683 0.005508 38 640: 96% 53/55 [00:23<00:00, 2.43it/s]
with torch.cuda.amp.autocast(amp):
    20/49 4.55G 0.03752 0.01688 0.005491 45 640: 98% 54/55 [00:23<00:00, 2.35it/s]
with torch.cuda.amp.autocast(amp):
    20/49 4.55G 0.0375 0.01687 0.005481 35 640: 100% 55/55 [00:24<00:00, 2.26it/s]
        Class Images Instances P R
        all     877      971   0.85  0.776  0.857  0.537
mAP50
mAP50-95: 100% 28/28 [00:11<00:00,
```

| Epoch | GPU_mem               | box_loss   | obj_loss | cls_loss | Instances | Size |
|-------|-----------------------|--|----------|----------|-----------|------|
| 0%    | 0/55 [00:00<?, ?it/s] | /content/yolov5_project/yolov5/train.py:412: FutureWarning: `torch.cuda.amp.autocast(arg with torch.cuda.amp.autocast(amp):` |          |          |           |      |

```

21/49    4.55G    0.03373    0.01299    0.01255    31      640:    2% 1/55 [00:00<00:12,  4.16it/s]/
with torch.cuda.amp.autocast(amp):
21/49    4.55G    0.0346    0.01507    0.007756    46      640:    4% 2/55 [00:00<00:11,  4.52it/s]/
with torch.cuda.amp.autocast(amp):
21/49    4.55G    0.02973    0.01624    0.007238    41      640:    5% 3/55 [00:00<00:13,  3.87it/s]/
with torch.cuda.amp.autocast(amp):
21/49    4.55G    0.03329    0.0163    0.006556    37      640:    7% 4/55 [00:01<00:16,  3.09it/s]/
with torch.cuda.amp.autocast(amp):
21/49    4.55G    0.03078    0.0163    0.006556    37      640:    9% 5/55 [00:01<00:18,  2.74it/s]/
Run cell (Ctrl+Enter)
with torch.cuda.amp.autocast(amp):
cell has not been executed in this session
21/49    4.55G    0.03527    0.0163    0.006556    37      640:    11% 6/55 [00:02<00:18,  2.62it/s]/
with torch.cuda.amp.autocast(amp):
21/49    4.55G    0.03593    0.0163    0.006556    37      640:    13% 7/55 [00:02<00:18,  2.58it/s]/
with torch.cuda.amp.autocast(amp):
21/49    4.55G    0.03643    0.01769    0.00604    41      640:    15% 8/55 [00:02<00:18,  2.51it/s]/
with torch.cuda.amp.autocast(amp):
21/49    4.55G    0.03869    0.01765    0.005858    45      640:    16% 9/55 [00:03<00:19,  2.36it/s]/
with torch.cuda.amp.autocast(amp):
21/49    4.55G    0.03839    0.01771    0.005752    44      640:    18% 10/55 [00:03<00:18,  2.39it/s]/
with torch.cuda.amp.autocast(amp):
21/49    4.55G    0.0387    0.01792    0.005554    50      640:    20% 11/55 [00:04<00:18,  2.44it/s]/
with torch.cuda.amp.autocast(amp):
21/49    4.55G    0.0383    0.01803    0.005363    42      640:    22% 12/55 [00:04<00:17,  2.42it/s]/
with torch.cuda.amp.autocast(amp):
21/49    4.55G    0.0378    0.01804    0.005376    45      640:    24% 13/55 [00:05<00:19,  2.18it/s]/
with torch.cuda.amp.autocast(amp):
21/49    4.55G    0.03741    0.01778    0.00559    37      640:    25% 14/55 [00:05<00:20,  1.97it/s]/
with torch.cuda.amp.autocast(amp):
21/49    4.55G    0.03822    0.01767    0.005579    43      640:    27% 15/55 [00:06<00:20,  1.93it/s]/
with torch.cuda.amp.autocast(amp):
21/49    4.55G    0.03809    0.01752    0.005503    37      640:    29% 16/55 [00:06<00:22,  1.76it/s]/
with torch.cuda.amp.autocast(amp):
21/49    4.55G    0.03716    0.01753    0.005587    38      640:    31% 17/55 [00:07<00:21,  1.75it/s]/
with torch.cuda.amp.autocast(amp):
21/49    4.55G    0.03765    0.01744    0.005506    42      640:    33% 18/55 [00:08<00:20,  1.77it/s]/
with torch.cuda.amp.autocast(amp):
21/49    4.55G    0.03683    0.0174    0.005401    39      640:    35% 19/55 [00:08<00:19,  1.87it/s]/
with torch.cuda.amp.autocast(amp):
21/49    4.55G    0.03604    0.01755    0.005574    48      640:    36% 20/55 [00:08<00:17,  2.02it/s]/
with torch.cuda.amp.autocast(amp):
21/49    4.55G    0.03535    0.01744    0.005474    43      640:    38% 21/55 [00:09<00:16,  2.11it/s]/
with torch.cuda.amp.autocast(amp):
21/49    4.55G    0.0357    0.01748    0.005523    49      640:    40% 22/55 [00:09<00:14,  2.25it/s]/
with torch.cuda.amp.autocast(amp):
21/49    4.55G    0.03613    0.01749    0.005404    42      640:    42% 23/55 [00:10<00:14,  2.27it/s]/
with torch.cuda.amp.autocast(amp):
21/49    4.55G    0.03698    0.01737    0.005347    38      640:    44% 24/55 [00:10<00:13,  2.34it/s]/
with torch.cuda.amp.autocast(amp):
21/49    4.55G    0.03649    0.01738    0.005431    41      640:    45% 25/55 [00:11<00:12,  2.34it/s]/
with torch.cuda.amp.autocast(amp):
21/49    4.55G    0.03686    0.01742    0.005415    39      640:    47% 26/55 [00:11<00:12,  2.37it/s]/
with torch.cuda.amp.autocast(amp):
21/49    4.55G    0.03632    0.01736    0.00536    42      640:    49% 27/55 [00:11<00:11,  2.40it/s]/
with torch.cuda.amp.autocast(amp):
21/49    4.55G    0.03585    0.01741    0.005323    44      640:    51% 28/55 [00:12<00:11,  2.41it/s]/
with torch.cuda.amp.autocast(amp):
21/49    4.55G    0.03523    0.0173    0.005336    38      640:    53% 29/55 [00:12<00:11,  2.34it/s]/
with torch.cuda.amp.autocast(amp):
21/49    4.55G    0.03577    0.01732    0.005325    42      640:    55% 30/55 [00:13<00:10,  2.48it/s]/
with torch.cuda.amp.autocast(amp):
21/49    4.55G    0.03531    0.01724    0.005217    39      640:    56% 31/55 [00:13<00:09,  2.45it/s]/
with torch.cuda.amp.autocast(amp):
21/49    4.55G    0.03531    0.01728    0.005278    42      640:    58% 32/55 [00:13<00:09,  2.44it/s]/
with torch.cuda.amp.autocast(amp):
21/49    4.55G    0.0349    0.01715    0.005551    39      640:    60% 33/55 [00:14<00:09,  2.38it/s]/
with torch.cuda.amp.autocast(amp):
21/49    4.55G    0.03526    0.01714    0.005573    41      640:    62% 34/55 [00:14<00:08,  2.45it/s]/
with torch.cuda.amp.autocast(amp):
21/49    4.55G    0.03598    0.017    0.005507    36      640:    64% 35/55 [00:15<00:08,  2.37it/s]/
with torch.cuda.amp.autocast(amp):
21/49    4.55G    0.03643    0.01702    0.005488    41      640:    65% 36/55 [00:15<00:07,  2.38it/s]/
with torch.cuda.amp.autocast(amp):

```

```

21/49    4.55G  0.03601  0.017  0.005459   42    640:  67% 37/55 [00:15<00:07,  2.40it/s]
with torch.cuda.amp.autocast(amp):
21/49    4.55G  0.03562  0.01689  0.005354   31    640:  69% 38/55 [00:16<00:06,  2.44it/s]
with torch.cuda.amp.autocast(amp):
21/49    4.55G  0.03598  0.01691  0.00538   43    640:  71% 39/55 [00:16<00:06,  2.37it/s]
with torch.cuda.amp.autocast(amp):
21/49    4.55G  0.03602  0.01694  0.005505   45    640:  73% 40/55 [00:17<00:06,  2.43it/s]
with torch.cuda.amp.autocast(amp):
21/49    4.55G  0.03561  0.01695  Run cell (Ctrl+Enter)
with torch.cuda.amp.autocast(amp):
21/49    4.55G  0.03569  0.01696  cell has not been executed in this session
with torch.cuda.amp.autocast(amp):
21/49    4.55G  0.03561  0.01696  Previous execution ended unsuccessfully
with torch.cuda.amp.autocast(amp):
21/49    4.55G  0.03561  0.01696  currently executing...
with torch.cuda.amp.autocast(amp):
21/49    4.55G  0.03593  0.01696  0.00607   48    640:  80% 44/55 [00:19<00:05,  2.05it/s]
with torch.cuda.amp.autocast(amp):
21/49    4.55G  0.03564  0.01686  0.006028   35    640:  82% 45/55 [00:19<00:05,  1.92it/s]
with torch.cuda.amp.autocast(amp):
21/49    4.55G  0.03531  0.01683  0.005976   40    640:  84% 46/55 [00:20<00:04,  2.02it/s]
with torch.cuda.amp.autocast(amp):
21/49    4.55G  0.03548  0.0168  0.006005   39    640:  85% 47/55 [00:20<00:04,  1.89it/s]
with torch.cuda.amp.autocast(amp):
21/49    4.55G  0.03522  0.01684  0.005984   40    640:  87% 48/55 [00:21<00:03,  1.79it/s]
with torch.cuda.amp.autocast(amp):
21/49    4.55G  0.03552  0.01691  0.006   49    640:  89% 49/55 [00:21<00:03,  1.78it/s]
with torch.cuda.amp.autocast(amp):
21/49    4.55G  0.03595  0.01694  0.00597   49    640:  91% 50/55 [00:22<00:02,  1.97it/s]
with torch.cuda.amp.autocast(amp):
21/49    4.55G  0.03636  0.01693  0.005965   41    640:  93% 51/55 [00:22<00:01,  2.08it/s]
with torch.cuda.amp.autocast(amp):
21/49    4.55G  0.03637  0.01687  0.005978   35    640:  95% 52/55 [00:23<00:01,  2.16it/s]
with torch.cuda.amp.autocast(amp):
21/49    4.55G  0.03609  0.01689  0.006007   46    640:  96% 53/55 [00:23<00:00,  2.20it/s]
with torch.cuda.amp.autocast(amp):
21/49    4.55G  0.03615  0.01684  0.005978   43    640:  98% 54/55 [00:24<00:00,  2.29it/s]
with torch.cuda.amp.autocast(amp):
21/49    4.55G  0.03643  0.01687  0.005939   27    640: 100% 55/55 [00:24<00:00,  2.26it/s]
          Class   Images Instances      P      R
          all     877      971    0.826   0.794   mAP50  mAP50-95: 100% 28/28 [00:11<00:00,
                                                0.854   0.474

```

| Epoch | GPU_mem   | box_loss | obj_loss | cls_loss | Instances | Size  |
|-------|---|----------|----------|----------|-----------|---|
| 0%    | 0/55 [00:00<?, ?it/s]/content/yolov5_project/yolov5/train.py:412: |          |          |          |           | FutureWarning: `torch.cuda.amp.autocast(arg |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 22/49 | 4.55G   | 0.05103  | 0.01284  | 0.001975 | 36        | 640: 2% 1/55 [00:00<00:10,  4.93it/s]/      |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 22/49 | 4.55G   | 0.03462  | 0.0122   | 0.001798 | 36        | 640: 4% 2/55 [00:00<00:11,  4.64it/s]/      |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 22/49 | 4.55G   | 0.03801  | 0.01529  | 0.002893 | 50        | 640: 5% 3/55 [00:00<00:14,  3.64it/s]/      |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 22/49 | 4.55G   | 0.04073  | 0.0149   | 0.002919 | 41        | 640: 7% 4/55 [00:01<00:17,  2.90it/s]/      |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 22/49 | 4.55G   | 0.04208  | 0.0154   | 0.004628 | 44        | 640: 9% 5/55 [00:01<00:18,  2.70it/s]/      |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 22/49 | 4.55G   | 0.04377  | 0.01663  | 0.004399 | 55        | 640: 11% 6/55 [00:02<00:19,  2.56it/s]/     |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 22/49 | 4.55G   | 0.04284  | 0.01688  | 0.004037 | 43        | 640: 13% 7/55 [00:02<00:18,  2.61it/s]/     |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 22/49 | 4.55G   | 0.04256  | 0.0174   | 0.004219 | 46        | 640: 15% 8/55 [00:02<00:18,  2.49it/s]/     |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 22/49 | 4.55G   | 0.04006  | 0.01702  | 0.003943 | 38        | 640: 16% 9/55 [00:03<00:18,  2.50it/s]/     |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 22/49 | 4.55G   | 0.04001  | 0.01718  | 0.004206 | 43        | 640: 18% 10/55 [00:03<00:19,  2.29it/s]     |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 22/49 | 4.55G   | 0.04101  | 0.0173   | 0.00452  | 53        | 640: 20% 11/55 [00:04<00:17,  2.46it/s]     |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 22/49 | 4.55G   | 0.04192  | 0.01731  | 0.004619 | 42        | 640: 22% 12/55 [00:04<00:17,  2.43it/s]     |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 22/49 | 4.55G   | 0.04184  | 0.01726  | 0.004663 | 46        | 640: 24% 13/55 [00:05<00:18,  2.29it/s]     |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 22/49 | 4.55G   | 0.04325  | 0.01711  | 0.004526 | 34        | 640: 25% 14/55 [00:05<00:18,  2.27it/s]     |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 22/49 | 4.55G   | 0.04332  | 0.01712  | 0.004505 | 44        | 640: 27% 15/55 [00:05<00:16,  2.41it/s]     |

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with torch.cuda.amp.autocast(amp):
    22/49  4.55G  0.04393  0.01715  0.004324    46    640: 29% 16/55 [00:06<00:16,  2.36it/s]
with torch.cuda.amp.autocast(amp):
    22/49  4.55G  0.04319  0.01703  0.004289    39    640: 31% 17/55 [00:06<00:15,  2.39it/s]
with torch.cuda.amp.autocast(amp):
    22/49  4.55G  0.04194  0.01699  0.004314    42    640: 33% 18/55 [00:07<00:15,  2.40it/s]
with torch.cuda.amp.autocast(amp):
    22/49  4.55G  0.04231  0.01683  0.00448     40    640: 35% 19/55 [00:07<00:15,  2.40it/s]
with torch.cuda.amp.autocast(amp):
    22/49  4.55G  0.04247  0.          Run cell (Ctrl+Enter)
                                         cell has not been executed in this session
                                         Previous execution ended unsuccessfully
with torch.cuda.amp.autocast(amp):
    22/49  4.55G  0.04133  0.          640: 36% 20/55 [00:07<00:14,  2.37it/s]
                                         currently executing...
with torch.cuda.amp.autocast(amp):
    22/49  4.55G  0.04171  0.01671  0.004427    44    640: 40% 22/55 [00:08<00:14,  2.32it/s]
with torch.cuda.amp.autocast(amp):
    22/49  4.55G  0.04173  0.01673  0.004514    45    640: 42% 23/55 [00:09<00:14,  2.18it/s]
with torch.cuda.amp.autocast(amp):
    22/49  4.55G  0.04154  0.01676  0.004516    46    640: 44% 24/55 [00:10<00:16,  1.93it/s]
with torch.cuda.amp.autocast(amp):
    22/49  4.55G  0.04146  0.01696  0.004925    47    640: 45% 25/55 [00:10<00:15,  1.88it/s]
with torch.cuda.amp.autocast(amp):
    22/49  4.55G  0.04068  0.01704  0.004917    47    640: 47% 26/55 [00:11<00:16,  1.76it/s]
with torch.cuda.amp.autocast(amp):
    22/49  4.55G  0.03993  0.01706  0.00484     46    640: 49% 27/55 [00:11<00:15,  1.78it/s]
with torch.cuda.amp.autocast(amp):
    22/49  4.55G  0.03922  0.01695  0.004846    29    640: 51% 28/55 [00:12<00:15,  1.71it/s]
with torch.cuda.amp.autocast(amp):
    22/49  4.55G  0.03914  0.017    0.004882     48    640: 53% 29/55 [00:12<00:13,  1.88it/s]
with torch.cuda.amp.autocast(amp):
    22/49  4.55G  0.03908  0.01701  0.004832    41    640: 55% 30/55 [00:13<00:13,  1.92it/s]
with torch.cuda.amp.autocast(amp):
    22/49  4.55G  0.03846  0.01695  0.005022    45    640: 56% 31/55 [00:13<00:11,  2.09it/s]
with torch.cuda.amp.autocast(amp):
    22/49  4.55G  0.03784  0.01696  0.005072    45    640: 58% 32/55 [00:14<00:10,  2.17it/s]
with torch.cuda.amp.autocast(amp):
    22/49  4.55G  0.03727  0.01686  0.00501     38    640: 60% 33/55 [00:14<00:09,  2.28it/s]
with torch.cuda.amp.autocast(amp):
    22/49  4.55G  0.03723  0.01691  0.005048    43    640: 62% 34/55 [00:14<00:09,  2.25it/s]
with torch.cuda.amp.autocast(amp):
    22/49  4.55G  0.03694  0.01689  0.004991    43    640: 64% 35/55 [00:15<00:08,  2.28it/s]
with torch.cuda.amp.autocast(amp):
    22/49  4.55G  0.03654  0.01687  0.005048    44    640: 65% 36/55 [00:15<00:08,  2.35it/s]
with torch.cuda.amp.autocast(amp):
    22/49  4.55G  0.03681  0.01692  0.00495     47    640: 67% 37/55 [00:16<00:07,  2.36it/s]
with torch.cuda.amp.autocast(amp):
    22/49  4.55G  0.03711  0.01698  0.004942    50    640: 69% 38/55 [00:16<00:07,  2.37it/s]
with torch.cuda.amp.autocast(amp):
    22/49  4.55G  0.03739  0.01691  0.004917    40    640: 71% 39/55 [00:17<00:06,  2.42it/s]
with torch.cuda.amp.autocast(amp):
    22/49  4.55G  0.03739  0.0169  0.004939     40    640: 73% 40/55 [00:17<00:06,  2.45it/s]
with torch.cuda.amp.autocast(amp):
    22/49  4.55G  0.03737  0.01687  0.00489     38    640: 75% 41/55 [00:17<00:05,  2.41it/s]
with torch.cuda.amp.autocast(amp):
    22/49  4.55G  0.03695  0.01687  0.004805    45    640: 76% 42/55 [00:18<00:05,  2.42it/s]
with torch.cuda.amp.autocast(amp):
    22/49  4.55G  0.03702  0.01682  0.004738    42    640: 78% 43/55 [00:18<00:04,  2.47it/s]
with torch.cuda.amp.autocast(amp):
    22/49  4.55G  0.03734  0.01683  0.004823    43    640: 80% 44/55 [00:19<00:04,  2.48it/s]
with torch.cuda.amp.autocast(amp):
    22/49  4.55G  0.03695  0.0168  0.00478     40    640: 82% 45/55 [00:19<00:04,  2.48it/s]
with torch.cuda.amp.autocast(amp):
    22/49  4.55G  0.03681  0.0168  0.004759     44    640: 84% 46/55 [00:19<00:03,  2.39it/s]
with torch.cuda.amp.autocast(amp):
    22/49  4.55G  0.03649  0.01678  0.004709    36    640: 85% 47/55 [00:20<00:03,  2.51it/s]
with torch.cuda.amp.autocast(amp):
    22/49  4.55G  0.03641  0.01677  0.004703    43    640: 87% 48/55 [00:20<00:02,  2.46it/s]
with torch.cuda.amp.autocast(amp):
    22/49  4.55G  0.03663  0.01672  0.005574    34    640: 89% 49/55 [00:21<00:02,  2.46it/s]
with torch.cuda.amp.autocast(amp):
    22/49  4.55G  0.03622  0.0166  0.005608     32    640: 91% 50/55 [00:21<00:02,  2.39it/s]
with torch.cuda.amp.autocast(amp):
    22/49  4.55G  0.03592  0.0166  0.005627     42    640: 93% 51/55 [00:21<00:01,  2.42it/s]

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with torch.cuda.amp.autocast(amp):
    22/49  4.55G  0.03604  0.01659  0.005588   36      640:  95% 52/55 [00:22<00:01,  2.42it/s]
with torch.cuda.amp.autocast(amp):
    22/49  4.55G  0.03642  0.01654  0.005526   32      640:  96% 53/55 [00:22<00:00,  2.18it/s]
with torch.cuda.amp.autocast(amp):
    22/49  4.55G  0.03658  0.01654  0.005479   44      640:  98% 54/55 [00:23<00:00,  1.81it/s]
with torch.cuda.amp.autocast(amp):
    22/49  4.55G  0.03656  0.01655  0.005422   35      640: 100% 55/55 [00:24<00:00,  2.29it/s]
    Class   Images   Inst   Run cell (Ctrl+Enter)
    all     877
                                         cell has not been executed in this session
                                         Previous execution ended unsuccessfully
                                         Size
                                         FutureWarning: `torch.cuda.amp.autocast(arg
Epoch   GPU_mem   box_loss   obj
0% 0/55 [00:00<?, ?it/s]/content/yolo currently executing...
with torch.cuda.amp.autocast(amp):
    23/49  4.55G  0.04049  0.01869  0.003038   49      640:  2% 1/55 [00:00<00:13,  4.02it/s]
with torch.cuda.amp.autocast(amp):
    23/49  4.55G  0.03845  0.01893  0.004519   49      640:  4% 2/55 [00:00<00:12,  4.13it/s]
with torch.cuda.amp.autocast(amp):
    23/49  4.55G  0.03338  0.01747  0.004089   39      640:  5% 3/55 [00:01<00:20,  2.50it/s]
with torch.cuda.amp.autocast(amp):
    23/49  4.55G  0.03874  0.01717  0.003505   41      640:  7% 4/55 [00:01<00:22,  2.30it/s]
with torch.cuda.amp.autocast(amp):
    23/49  4.55G  0.03563  0.01731  0.003997   44      640:  9% 5/55 [00:02<00:25,  1.96it/s]
with torch.cuda.amp.autocast(amp):
    23/49  4.55G  0.03857  0.0172   0.003849   46      640: 11% 6/55 [00:02<00:26,  1.88it/s]
with torch.cuda.amp.autocast(amp):
    23/49  4.55G  0.03726  0.01721  0.009326   41      640: 13% 7/55 [00:03<00:26,  1.78it/s]
with torch.cuda.amp.autocast(amp):
    23/49  4.55G  0.0351   0.01742  0.00899   42      640: 15% 8/55 [00:03<00:25,  1.86it/s]
with torch.cuda.amp.autocast(amp):
    23/49  4.55G  0.03343  0.01726  0.008328   42      640: 16% 9/55 [00:04<00:22,  2.02it/s]
with torch.cuda.amp.autocast(amp):
    23/49  4.55G  0.0345   0.01694  0.007773   38      640: 18% 10/55 [00:04<00:22,  2.04it/s]
with torch.cuda.amp.autocast(amp):
    23/49  4.55G  0.03498  0.0174   0.00749   56      640: 20% 11/55 [00:05<00:20,  2.13it/s]
with torch.cuda.amp.autocast(amp):
    23/49  4.55G  0.03691  0.01716  0.007089   46      640: 22% 12/55 [00:05<00:19,  2.18it/s]
with torch.cuda.amp.autocast(amp):
    23/49  4.55G  0.03549  0.01679  0.006827   34      640: 24% 13/55 [00:06<00:18,  2.30it/s]
with torch.cuda.amp.autocast(amp):
    23/49  4.55G  0.03576  0.01715  0.006654   51      640: 25% 14/55 [00:06<00:17,  2.33it/s]
with torch.cuda.amp.autocast(amp):
    23/49  4.55G  0.03658  0.01702  0.007568   35      640: 27% 15/55 [00:06<00:17,  2.30it/s]
with torch.cuda.amp.autocast(amp):
    23/49  4.55G  0.03636  0.0171   0.007435   43      640: 29% 16/55 [00:07<00:16,  2.43it/s]
with torch.cuda.amp.autocast(amp):
    23/49  4.55G  0.0362   0.01748  0.007388   55      640: 31% 17/55 [00:07<00:15,  2.38it/s]
with torch.cuda.amp.autocast(amp):
    23/49  4.55G  0.03684  0.01752  0.007288   44      640: 33% 18/55 [00:08<00:15,  2.43it/s]
with torch.cuda.amp.autocast(amp):
    23/49  4.55G  0.03646  0.01735  0.008651   32      640: 35% 19/55 [00:08<00:15,  2.38it/s]
with torch.cuda.amp.autocast(amp):
    23/49  4.55G  0.03548  0.01715  0.008522   39      640: 36% 20/55 [00:08<00:14,  2.37it/s]
with torch.cuda.amp.autocast(amp):
    23/49  4.55G  0.03539  0.0173   0.008459   52      640: 38% 21/55 [00:09<00:14,  2.42it/s]
with torch.cuda.amp.autocast(amp):
    23/49  4.55G  0.0348   0.01737  0.008176   45      640: 40% 22/55 [00:09<00:13,  2.47it/s]
with torch.cuda.amp.autocast(amp):
    23/49  4.55G  0.03571  0.01736  0.008022   43      640: 42% 23/55 [00:10<00:13,  2.39it/s]
with torch.cuda.amp.autocast(amp):
    23/49  4.55G  0.03574  0.01738  0.00783   43      640: 44% 24/55 [00:10<00:12,  2.42it/s]
with torch.cuda.amp.autocast(amp):
    23/49  4.55G  0.03607  0.0175   0.007723   48      640: 45% 25/55 [00:10<00:12,  2.42it/s]
with torch.cuda.amp.autocast(amp):
    23/49  4.55G  0.03529  0.01739  0.007755   40      640: 47% 26/55 [00:11<00:11,  2.48it/s]
with torch.cuda.amp.autocast(amp):
    23/49  4.55G  0.03483  0.01722  0.00774   38      640: 49% 27/55 [00:11<00:11,  2.38it/s]
with torch.cuda.amp.autocast(amp):
    23/49  4.55G  0.03514  0.01722  0.007615   40      640: 51% 28/55 [00:12<00:11,  2.45it/s]
with torch.cuda.amp.autocast(amp):
    23/49  4.55G  0.0359   0.01707  0.007654   32      640: 53% 29/55 [00:12<00:11,  2.36it/s]
with torch.cuda.amp.autocast(amp):

```

```

    23/49      4.55G   0.03608   0.01704   0.007519     48       640:  55% 30/55 [00:13<00:10,  2.35it/s]
with torch.cuda.amp.autocast(amp):
    23/49      4.55G   0.03607   0.01694   0.00743     38       640:  56% 31/55 [00:13<00:10,  2.32it/s]
with torch.cuda.amp.autocast(amp):
    23/49      4.55G   0.0365    0.01695   0.007326     48       640:  58% 32/55 [00:13<00:10,  2.28it/s]
with torch.cuda.amp.autocast(amp):
    23/49      4.55G   0.03663   0.01699   0.00728     41       640:  60% 33/55 [00:14<00:11,  1.97it/s]
with torch.cuda.amp.autocast(amp):
    23/49      4.55G   0.03667   0.01700   Run cell (Ctrl+Enter)
with torch.cuda.amp.autocast(amp):           cell has not been executed in this session
    23/49      4.55G   0.03728   0.01701   Previous execution ended unsuccessfully
with torch.cuda.amp.autocast(amp):
    23/49      4.55G   0.03762   0.01702   currently executing...
with torch.cuda.amp.autocast(amp):
    23/49      4.55G   0.03795   0.0169    0.007103     47       640:  67% 37/55 [00:17<00:10,  1.71it/s]
with torch.cuda.amp.autocast(amp):
    23/49      4.55G   0.03845   0.01687   0.007117     43       640:  69% 38/55 [00:17<00:09,  1.87it/s]
with torch.cuda.amp.autocast(amp):
    23/49      4.55G   0.03806   0.01677   0.006985     33       640:  71% 39/55 [00:17<00:08,  1.99it/s]
with torch.cuda.amp.autocast(amp):
    23/49      4.55G   0.03841   0.01672   0.006925     42       640:  73% 40/55 [00:18<00:06,  2.16it/s]
with torch.cuda.amp.autocast(amp):
    23/49      4.55G   0.0387    0.01676   0.006872     46       640:  75% 41/55 [00:18<00:06,  2.20it/s]
with torch.cuda.amp.autocast(amp):
    23/49      4.55G   0.03865   0.01674   0.006879     38       640:  76% 42/55 [00:19<00:05,  2.33it/s]
with torch.cuda.amp.autocast(amp):
    23/49      4.55G   0.03853   0.01683   0.006816     50       640:  78% 43/55 [00:19<00:05,  2.29it/s]
with torch.cuda.amp.autocast(amp):
    23/49      4.55G   0.03851   0.01682   0.006735     44       640:  80% 44/55 [00:19<00:04,  2.39it/s]
with torch.cuda.amp.autocast(amp):
    23/49      4.55G   0.03807   0.01683   0.00673     45       640:  82% 45/55 [00:20<00:04,  2.44it/s]
with torch.cuda.amp.autocast(amp):
    23/49      4.55G   0.03826   0.0169    0.006675     50       640:  84% 46/55 [00:20<00:03,  2.42it/s]
with torch.cuda.amp.autocast(amp):
    23/49      4.55G   0.0387    0.01688   0.006633     41       640:  85% 47/55 [00:21<00:03,  2.35it/s]
with torch.cuda.amp.autocast(amp):
    23/49      4.55G   0.03867   0.01692   0.006636     44       640:  87% 48/55 [00:21<00:02,  2.36it/s]
with torch.cuda.amp.autocast(amp):
    23/49      4.55G   0.03883   0.01695   0.006581     43       640:  89% 49/55 [00:22<00:02,  2.36it/s]
with torch.cuda.amp.autocast(amp):
    23/49      4.55G   0.03823   0.01699   0.006511     45       640:  91% 50/55 [00:22<00:02,  2.38it/s]
with torch.cuda.amp.autocast(amp):
    23/49      4.55G   0.0382    0.01702   0.006424     37       640:  93% 51/55 [00:22<00:01,  2.40it/s]
with torch.cuda.amp.autocast(amp):
    23/49      4.55G   0.03783   0.01698   0.006433     42       640:  95% 52/55 [00:23<00:01,  2.48it/s]
with torch.cuda.amp.autocast(amp):
    23/49      4.55G   0.03751   0.01697   0.00639     44       640:  96% 53/55 [00:23<00:00,  2.42it/s]
with torch.cuda.amp.autocast(amp):
    23/49      4.55G   0.03765   0.01703   0.006326     44       640:  98% 54/55 [00:24<00:00,  2.41it/s]
with torch.cuda.amp.autocast(amp):
    23/49      4.55G   0.03739   0.01704   0.006309     32       640: 100% 55/55 [00:24<00:00,  2.25it/s]
          Class   Images Instances      P      R
          all      877      971     0.854     0.827
                                         mAP50   mAP50-95: 100% 28/28 [00:11<00:00,
                                         0.865      0.538

```

| Epoch | GPU_mem   | box_loss | obj_loss | cls_loss | Instances | Size                               |
|-------|---|----------|----------|----------|-----------|------------------------------------|
| 0%    | 0/55 [00:00<?, ?it/s]/content/yolov5_project/yolov5/train.py:412: FutureWarning: `torch.cuda.amp.autocast(arg |          |          |          |           |                                    |
|       | with torch.cuda.amp.autocast(amp):  |          |          |          |           |                                    |
| 24/49 | 4.55G   0.04265   | 0.0183   | 0.005642 | 48       | 640:      | 2% 1/55 [00:00<00:11,  4.85it/s]/  |
|       | with torch.cuda.amp.autocast(amp):  |          |          |          |           |                                    |
| 24/49 | 4.55G   0.03629   | 0.01635  | 0.008023 | 36       | 640:      | 4% 2/55 [00:00<00:12,  4.40it/s]/  |
|       | with torch.cuda.amp.autocast(amp):  |          |          |          |           |                                    |
| 24/49 | 4.55G   0.03193   | 0.01667  | 0.007035 | 43       | 640:      | 5% 3/55 [00:00<00:12,  4.09it/s]/  |
|       | with torch.cuda.amp.autocast(amp):  |          |          |          |           |                                    |
| 24/49 | 4.55G   0.0316  | 0.01764  | 0.006433 | 47       | 640:      | 7% 4/55 [00:01<00:16,  3.04it/s]/  |
|       | with torch.cuda.amp.autocast(amp):  |          |          |          |           |                                    |
| 24/49 | 4.55G   0.02985   | 0.01746  | 0.005672 | 40       | 640:      | 9% 5/55 [00:01<00:17,  2.81it/s]/  |
|       | with torch.cuda.amp.autocast(amp):  |          |          |          |           |                                    |
| 24/49 | 4.55G   0.03452   | 0.01741  | 0.005586 | 42       | 640:      | 11% 6/55 [00:02<00:18,  2.60it/s]/ |
|       | with torch.cuda.amp.autocast(amp):  |          |          |          |           |                                    |
| 24/49 | 4.55G   0.03454   | 0.01761  | 0.007892 | 46       | 640:      | 13% 7/55 [00:02<00:18,  2.56it/s]/ |
|       | with torch.cuda.amp.autocast(amp):  |          |          |          |           |                                    |
| 24/49 | 4.55G   0.03777   | 0.0172   | 0.007576 | 39       | 640:      | 15% 8/55 [00:02<00:18,  2.51it/s]/ |

```

with torch.cuda.amp.autocast(amp):
    24/49  4.55G  0.03642  0.01682  0.007155      33      640:  16% 9/55 [00:03<00:18,  2.44it/s]
with torch.cuda.amp.autocast(amp):
    24/49  4.55G  0.03683  0.0167   0.007378      39      640:  18% 10/55 [00:03<00:18,  2.42it/s]
with torch.cuda.amp.autocast(amp):
    24/49  4.55G  0.03711  0.01682  0.00694       49      640:  20% 11/55 [00:04<00:18,  2.42it/s]
with torch.cuda.amp.autocast(amp):
    24/49  4.55G  0.03559  0.0167   0.006595      41      640:  22% 12/55 [00:04<00:20,  2.13it/s]
with torch.cuda.amp.autocast(amp):
    24/49  4.55G  0.03563  0.          Run cell (Ctrl+Enter)
                                         cell has not been executed in this session
                                         Previous execution ended unsuccessfully
with torch.cuda.amp.autocast(amp):
    24/49  4.55G  0.03688  0.          currently executing...
                                         Run cell (Ctrl+Enter)
                                         cell has not been executed in this session
                                         Previous execution ended unsuccessfully
                                         currently executing...
with torch.cuda.amp.autocast(amp):
    24/49  4.55G  0.03568  0.0175   0.006329      41      640:  27% 15/55 [00:06<00:22,  1.78it/s]
with torch.cuda.amp.autocast(amp):
    24/49  4.55G  0.03542  0.01741  0.006114      43      640:  29% 16/55 [00:07<00:22,  1.75it/s]
with torch.cuda.amp.autocast(amp):
    24/49  4.55G  0.0344   0.01729  0.006002      44      640:  31% 17/55 [00:07<00:21,  1.74it/s]
with torch.cuda.amp.autocast(amp):
    24/49  4.55G  0.03583  0.01721  0.005767      40      640:  33% 18/55 [00:08<00:19,  1.88it/s]
with torch.cuda.amp.autocast(amp):
    24/49  4.55G  0.03489  0.01709  0.005756      43      640:  35% 19/55 [00:08<00:17,  2.02it/s]
with torch.cuda.amp.autocast(amp):
    24/49  4.55G  0.03555  0.01713  0.005789      42      640:  36% 20/55 [00:08<00:17,  2.04it/s]
with torch.cuda.amp.autocast(amp):
    24/49  4.55G  0.03603  0.01688  0.005827      36      640:  38% 21/55 [00:09<00:15,  2.19it/s]
with torch.cuda.amp.autocast(amp):
    24/49  4.55G  0.03599  0.01675  0.005785      36      640:  40% 22/55 [00:09<00:14,  2.24it/s]
with torch.cuda.amp.autocast(amp):
    24/49  4.55G  0.03567  0.01684  0.005678      41      640:  42% 23/55 [00:10<00:14,  2.28it/s]
with torch.cuda.amp.autocast(amp):
    24/49  4.55G  0.03572  0.01672  0.005641      38      640:  44% 24/55 [00:10<00:13,  2.30it/s]
with torch.cuda.amp.autocast(amp):
    24/49  4.55G  0.03603  0.01669  0.005488      43      640:  45% 25/55 [00:11<00:12,  2.38it/s]
with torch.cuda.amp.autocast(amp):
    24/49  4.55G  0.03635  0.01669  0.005446      40      640:  47% 26/55 [00:11<00:12,  2.35it/s]
with torch.cuda.amp.autocast(amp):
    24/49  4.55G  0.03703  0.01666  0.005462      38      640:  49% 27/55 [00:11<00:11,  2.35it/s]
with torch.cuda.amp.autocast(amp):
    24/49  4.55G  0.03704  0.01676  0.005326      50      640:  51% 28/55 [00:12<00:11,  2.36it/s]
with torch.cuda.amp.autocast(amp):
    24/49  4.55G  0.03652  0.01684  0.005242      47      640:  53% 29/55 [00:12<00:10,  2.43it/s]
with torch.cuda.amp.autocast(amp):
    24/49  4.55G  0.03611  0.01678  0.005272      41      640:  55% 30/55 [00:13<00:10,  2.41it/s]
with torch.cuda.amp.autocast(amp):
    24/49  4.55G  0.0361   0.01675  0.005187      40      640:  56% 31/55 [00:13<00:09,  2.50it/s]
with torch.cuda.amp.autocast(amp):
    24/49  4.55G  0.03565  0.01677  0.005125      43      640:  58% 32/55 [00:13<00:09,  2.44it/s]
with torch.cuda.amp.autocast(amp):
    24/49  4.55G  0.03649  0.01672  0.005058      44      640:  60% 33/55 [00:14<00:09,  2.42it/s]
with torch.cuda.amp.autocast(amp):
    24/49  4.55G  0.03599  0.01661  0.005008      31      640:  62% 34/55 [00:14<00:08,  2.49it/s]
with torch.cuda.amp.autocast(amp):
    24/49  4.55G  0.03608  0.01677  0.004937      48      640:  64% 35/55 [00:15<00:08,  2.41it/s]
with torch.cuda.amp.autocast(amp):
    24/49  4.55G  0.0362   0.0169   0.00495       56      640:  65% 36/55 [00:15<00:08,  2.30it/s]
with torch.cuda.amp.autocast(amp):
    24/49  4.55G  0.03575  0.01682  0.005033      39      640:  67% 37/55 [00:16<00:07,  2.41it/s]
with torch.cuda.amp.autocast(amp):
    24/49  4.55G  0.03611  0.01695  0.005176      50      640:  69% 38/55 [00:16<00:07,  2.40it/s]
with torch.cuda.amp.autocast(amp):
    24/49  4.55G  0.03607  0.01694  0.005105      41      640:  71% 39/55 [00:16<00:06,  2.38it/s]
with torch.cuda.amp.autocast(amp):
    24/49  4.55G  0.0357   0.01688  0.005039      41      640:  73% 40/55 [00:17<00:06,  2.39it/s]
with torch.cuda.amp.autocast(amp):
    24/49  4.55G  0.03551  0.01681  0.005097      37      640:  75% 41/55 [00:17<00:05,  2.44it/s]
with torch.cuda.amp.autocast(amp):
    24/49  4.55G  0.03578  0.01678  0.00507       38      640:  76% 42/55 [00:18<00:05,  2.18it/s]
with torch.cuda.amp.autocast(amp):
    24/49  4.55G  0.03596  0.01682  0.005093      41      640:  78% 43/55 [00:18<00:05,  2.11it/s]
with torch.cuda.amp.autocast(amp):
    24/49  4.55G  0.03597  0.0168   0.005103      44      640:  80% 44/55 [00:19<00:05,  1.85it/s]

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with torch.cuda.amp.autocast(amp):
    24/49  4.55G  0.03589  0.01675  0.005196   39    640:  82% 45/55 [00:20<00:05,  1.76it/s]
with torch.cuda.amp.autocast(amp):
    24/49  4.55G  0.03573  0.01681  0.005163   54    640:  84% 46/55 [00:20<00:05,  1.75it/s]
with torch.cuda.amp.autocast(amp):
    24/49  4.55G  0.03565  0.01686  0.005121   47    640:  85% 47/55 [00:21<00:04,  1.75it/s]
with torch.cuda.amp.autocast(amp):
    24/49  4.55G  0.03554  0.01682  0.005067   40    640:  87% 48/55 [00:21<00:03,  1.87it/s]
with torch.cuda.amp.autocast(amp):
    24/49  4.55G  0.0358  0.          Run cell (Ctrl+Enter)
                                         cell has not been executed in this session
with torch.cuda.amp.autocast(amp):
    24/49  4.55G  0.0363  0.          Previous execution ended unsuccessfully
                                         currently executing...
with torch.cuda.amp.autocast(amp):
    24/49  4.55G  0.03636 0.01683  0.00504   43    640:  93% 51/55 [00:22<00:01,  2.10it/s]
with torch.cuda.amp.autocast(amp):
    24/49  4.55G  0.0364  0.01685  0.005064   49    640:  95% 52/55 [00:23<00:01,  2.20it/s]
with torch.cuda.amp.autocast(amp):
    24/49  4.55G  0.03612 0.01682  0.005007   40    640:  96% 53/55 [00:23<00:00,  2.29it/s]
with torch.cuda.amp.autocast(amp):
    24/49  4.55G  0.03613 0.01681  0.004964   44    640:  98% 54/55 [00:24<00:00,  2.34it/s]
with torch.cuda.amp.autocast(amp):
    24/49  4.55G  0.03632 0.01685  0.005015   38    640: 100% 55/55 [00:24<00:00,  2.25it/s]
                                         Class  Images Instances P      R
                                         all     877    971    0.864  0.815
                                         mAP50  mAP50-95: 100% 28/28 [00:11<00:00,
                                         0.88    0.562

```

| Epoch                              | GPU_mem   | box_loss | obj_loss | cls_loss | Instances | Size                                   |
|------------------------------------|---|----------|----------|----------|-----------|--|
| 0%                                 | 0/55 [00:00<?, ?it/s]/content/yolov5_project/yolov5/train.py:412: FutureWarning: `torch.cuda.amp.autocast(arg |          |          |          |           |  |
| with torch.cuda.amp.autocast(amp): |   |          |          |          |           |  |
| 25/49                              | 4.55G   | 0.02366  | 0.0197   | 0.005494 | 46        | 640: 2% 1/55 [00:00<00:12, 4.34it/s]/  |
| with torch.cuda.amp.autocast(amp): |   |          |          |          |           |  |
| 25/49                              | 4.55G   | 0.03364  | 0.01997  | 0.003729 | 46        | 640: 4% 2/55 [00:00<00:11, 4.59it/s]/  |
| with torch.cuda.amp.autocast(amp): |   |          |          |          |           |  |
| 25/49                              | 4.55G   | 0.03945  | 0.01982  | 0.004113 | 46        | 640: 5% 3/55 [00:00<00:12, 4.08it/s]/  |
| with torch.cuda.amp.autocast(amp): |   |          |          |          |           |  |
| 25/49                              | 4.55G   | 0.03379  | 0.01822  | 0.00373  | 39        | 640: 7% 4/55 [00:01<00:15, 3.23it/s]/  |
| with torch.cuda.amp.autocast(amp): |   |          |          |          |           |  |
| 25/49                              | 4.55G   | 0.03439  | 0.01812  | 0.003263 | 50        | 640: 9% 5/55 [00:01<00:18, 2.69it/s]/  |
| with torch.cuda.amp.autocast(amp): |   |          |          |          |           |  |
| 25/49                              | 4.55G   | 0.03246  | 0.01785  | 0.003563 | 46        | 640: 11% 6/55 [00:02<00:19, 2.57it/s]/ |
| with torch.cuda.amp.autocast(amp): |   |          |          |          |           |  |
| 25/49                              | 4.55G   | 0.03467  | 0.01732  | 0.00337  | 42        | 640: 13% 7/55 [00:02<00:18, 2.57it/s]/ |
| with torch.cuda.amp.autocast(amp): |   |          |          |          |           |  |
| 25/49                              | 4.55G   | 0.03532  | 0.01695  | 0.003455 | 34        | 640: 15% 8/55 [00:02<00:18, 2.51it/s]/ |
| with torch.cuda.amp.autocast(amp): |   |          |          |          |           |  |
| 25/49                              | 4.55G   | 0.0337   | 0.01654  | 0.003964 | 35        | 640: 16% 9/55 [00:03<00:18, 2.49it/s]/ |
| with torch.cuda.amp.autocast(amp): |   |          |          |          |           |  |
| 25/49                              | 4.55G   | 0.03213  | 0.01613  | 0.003746 | 34        | 640: 18% 10/55 [00:03<00:17, 2.51it/s] |
| with torch.cuda.amp.autocast(amp): |   |          |          |          |           |  |
| 25/49                              | 4.55G   | 0.03204  | 0.01621  | 0.003923 | 46        | 640: 20% 11/55 [00:04<00:17, 2.46it/s] |
| with torch.cuda.amp.autocast(amp): |   |          |          |          |           |  |
| 25/49                              | 4.55G   | 0.03099  | 0.01627  | 0.003958 | 43        | 640: 22% 12/55 [00:04<00:18, 2.35it/s] |
| with torch.cuda.amp.autocast(amp): |   |          |          |          |           |  |
| 25/49                              | 4.55G   | 0.03269  | 0.01705  | 0.003942 | 56        | 640: 24% 13/55 [00:04<00:18, 2.32it/s] |
| with torch.cuda.amp.autocast(amp): |   |          |          |          |           |  |
| 25/49                              | 4.55G   | 0.03379  | 0.01702  | 0.003907 | 40        | 640: 25% 14/55 [00:05<00:16, 2.41it/s] |
| with torch.cuda.amp.autocast(amp): |   |          |          |          |           |  |
| 25/49                              | 4.55G   | 0.03533  | 0.01694  | 0.004118 | 41        | 640: 27% 15/55 [00:05<00:16, 2.43it/s] |
| with torch.cuda.amp.autocast(amp): |   |          |          |          |           |  |
| 25/49                              | 4.55G   | 0.03435  | 0.01688  | 0.004032 | 43        | 640: 29% 16/55 [00:06<00:15, 2.45it/s] |
| with torch.cuda.amp.autocast(amp): |   |          |          |          |           |  |
| 25/49                              | 4.55G   | 0.03408  | 0.0168   | 0.004039 | 40        | 640: 31% 17/55 [00:06<00:16, 2.31it/s] |
| with torch.cuda.amp.autocast(amp): |   |          |          |          |           |  |
| 25/49                              | 4.55G   | 0.03324  | 0.01674  | 0.003967 | 48        | 640: 33% 18/55 [00:07<00:15, 2.36it/s] |
| with torch.cuda.amp.autocast(amp): |   |          |          |          |           |  |
| 25/49                              | 4.55G   | 0.03299  | 0.01666  | 0.003877 | 37        | 640: 35% 19/55 [00:07<00:14, 2.44it/s] |
| with torch.cuda.amp.autocast(amp): |   |          |          |          |           |  |
| 25/49                              | 4.55G   | 0.03397  | 0.0165   | 0.003805 | 39        | 640: 36% 20/55 [00:07<00:14, 2.38it/s] |
| with torch.cuda.amp.autocast(amp): |   |          |          |          |           |  |
| 25/49                              | 4.55G   | 0.03325  | 0.01643  | 0.003841 | 42        | 640: 38% 21/55 [00:08<00:15, 2.25it/s] |
| with torch.cuda.amp.autocast(amp): |   |          |          |          |           |  |
| 25/49                              | 4.55G   | 0.03272  | 0.01657  | 0.003785 | 43        | 640: 40% 22/55 [00:08<00:15, 2.16it/s] |
| with torch.cuda.amp.autocast(amp): |   |          |          |          |           |  |

```

    25/49      4.55G     0.0331    0.01645  0.003762        41      640:  42% 23/55 [00:09<00:17,  1.85it/s]
with torch.cuda.amp.autocast(amp):
    25/49      4.55G     0.03417   0.01644  0.003685        41      640:  44% 24/55 [00:10<00:17,  1.79it/s]
with torch.cuda.amp.autocast(amp):
    25/49      4.55G     0.03475   0.01648  0.003774        42      640:  45% 25/55 [00:10<00:17,  1.73it/s]
with torch.cuda.amp.autocast(amp):
    25/49      4.55G     0.03546   0.01648  0.003843        45      640:  47% 26/55 [00:11<00:16,  1.74it/s]
with torch.cuda.amp.autocast(amp):
    25/49      4.55G     0.03491   0.----- Run cell (Ctrl+Enter)
                                                cell has not been executed in this session
with torch.cuda.amp.autocast(amp):
    25/49      4.55G     0.03526   0.----- Previous execution ended unsuccessfully
with torch.cuda.amp.autocast(amp):
    25/49      4.55G     0.03562   0.----- currently executing...
with torch.cuda.amp.autocast(amp):
    25/49      4.55G     0.0357    0.01632  0.004098        39      640:  55% 30/55 [00:13<00:11,  2.17it/s]
with torch.cuda.amp.autocast(amp):
    25/49      4.55G     0.0352    0.01634  0.004021        44      640:  56% 31/55 [00:13<00:10,  2.21it/s]
with torch.cuda.amp.autocast(amp):
    25/49      4.55G     0.0358    0.01633  0.003963        41      640:  58% 32/55 [00:14<00:10,  2.16it/s]
with torch.cuda.amp.autocast(amp):
    25/49      4.55G     0.03667   0.01623  0.004028        36      640:  60% 33/55 [00:14<00:10,  2.19it/s]
with torch.cuda.amp.autocast(amp):
    25/49      4.55G     0.03624   0.0161   0.003976        32      640:  62% 34/55 [00:14<00:08,  2.38it/s]
with torch.cuda.amp.autocast(amp):
    25/49      4.55G     0.03614   0.01607  0.004023        39      640:  64% 35/55 [00:15<00:08,  2.30it/s]
with torch.cuda.amp.autocast(amp):
    25/49      4.55G     0.0366    0.01601  0.003977        35      640:  65% 36/55 [00:15<00:08,  2.33it/s]
with torch.cuda.amp.autocast(amp):
    25/49      4.55G     0.03615   0.01609  0.003956        48      640:  67% 37/55 [00:16<00:07,  2.29it/s]
with torch.cuda.amp.autocast(amp):
    25/49      4.55G     0.03562   0.01604  0.003985        35      640:  69% 38/55 [00:16<00:07,  2.37it/s]
with torch.cuda.amp.autocast(amp):
    25/49      4.55G     0.03523   0.01604  0.003968        44      640:  71% 39/55 [00:16<00:06,  2.41it/s]
with torch.cuda.amp.autocast(amp):
    25/49      4.55G     0.0353    0.01596  0.003992        37      640:  73% 40/55 [00:17<00:06,  2.35it/s]
with torch.cuda.amp.autocast(amp):
    25/49      4.55G     0.03569   0.01599  0.004046        40      640:  75% 41/55 [00:17<00:06,  2.33it/s]
with torch.cuda.amp.autocast(amp):
    25/49      4.55G     0.03533   0.01597  0.004029        42      640:  76% 42/55 [00:18<00:05,  2.45it/s]
with torch.cuda.amp.autocast(amp):
    25/49      4.55G     0.0357    0.01599  0.004088        50      640:  78% 43/55 [00:18<00:04,  2.48it/s]
with torch.cuda.amp.autocast(amp):
    25/49      4.55G     0.03632   0.01594  0.004078        37      640:  80% 44/55 [00:19<00:04,  2.44it/s]
with torch.cuda.amp.autocast(amp):
    25/49      4.55G     0.03593   0.01596  0.004108        43      640:  82% 45/55 [00:19<00:04,  2.44it/s]
with torch.cuda.amp.autocast(amp):
    25/49      4.55G     0.03638   0.016    0.004123        49      640:  84% 46/55 [00:19<00:03,  2.34it/s]
with torch.cuda.amp.autocast(amp):
    25/49      4.55G     0.03639   0.016    0.004158        45      640:  85% 47/55 [00:20<00:03,  2.44it/s]
with torch.cuda.amp.autocast(amp):
    25/49      4.55G     0.03614   0.01596  0.004166        37      640:  87% 48/55 [00:20<00:02,  2.40it/s]
with torch.cuda.amp.autocast(amp):
    25/49      4.55G     0.03612   0.016    0.004145        43      640:  89% 49/55 [00:21<00:02,  2.37it/s]
with torch.cuda.amp.autocast(amp):
    25/49      4.55G     0.03611   0.016    0.004095        44      640:  91% 50/55 [00:21<00:02,  2.42it/s]
with torch.cuda.amp.autocast(amp):
    25/49      4.55G     0.03637   0.01603  0.004059        43      640:  93% 51/55 [00:22<00:01,  2.31it/s]
with torch.cuda.amp.autocast(amp):
    25/49      4.55G     0.03687   0.01608  0.004038        43      640:  95% 52/55 [00:22<00:01,  2.15it/s]
with torch.cuda.amp.autocast(amp):
    25/49      4.55G     0.03714   0.01601  0.004009        35      640:  96% 53/55 [00:23<00:01,  1.85it/s]
with torch.cuda.amp.autocast(amp):
    25/49      4.55G     0.03729   0.01602  0.003992        42      640:  98% 54/55 [00:23<00:00,  1.86it/s]
with torch.cuda.amp.autocast(amp):
    25/49      4.55G     0.0374    0.01597  0.004002        27      640: 100% 55/55 [00:24<00:00,  2.27it/s]
          Class   Images Instances          P          R
          all       877      971      0.867      0.852
          mAP50      0.906      0.583

    Epoch      GPU_mem   box_loss   obj_loss   cls_loss Instances      Size
    0% 0/55 [00:00<?, ?it/s]/content/yolov5_project/yolov5/train.py:412: FutureWarning: `torch.cuda.amp.autocast(arg
with torch.cuda.amp.autocast(amp):
    26/49      4.55G     0.06068   0.01507  0.008456        48      640:  2% 1/55 [00:00<00:11,  4.86it/s]

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with torch.cuda.amp.autocast(amp):
    26/49  4.55G  0.04035  0.01634  0.00793   41      640:  4% 2/55 [00:00<00:13,  3.93it/s]/
with torch.cuda.amp.autocast(amp):
    26/49  4.55G  0.04121  0.01524  0.006307  37      640:  5% 3/55 [00:01<00:19,  2.66it/s]/
with torch.cuda.amp.autocast(amp):
    26/49  4.55G  0.04484  0.01492  0.005159  34      640:  7% 4/55 [00:01<00:25,  2.01it/s]/
with torch.cuda.amp.autocast(amp):
    26/49  4.55G  0.04582  0.01583  0.005486  49      640:  9% 5/55 [00:02<00:25,  1.98it/s]/
with torch.cuda.amp.autocast(amp):
    26/49  4.55G  0.04655  0.          Run cell (Ctrl+Enter)
                                         cell has not been executed in this session
                                         Previous execution ended unsuccessfully
                                         currently executing...
                                         640: 11% 6/55 [00:02<00:26,  1.83it/s]/
with torch.cuda.amp.autocast(amp):
    26/49  4.55G  0.04583  0.          640: 13% 7/55 [00:03<00:24,  1.98it/s]/
with torch.cuda.amp.autocast(amp):
    26/49  4.55G  0.04396  0.01743  0.00479   41      640: 15% 8/55 [00:03<00:23,  2.04it/s]/
with torch.cuda.amp.autocast(amp):
    26/49  4.55G  0.04329  0.01738  0.005546  42      640: 16% 9/55 [00:04<00:20,  2.22it/s]/
with torch.cuda.amp.autocast(amp):
    26/49  4.55G  0.04332  0.01719  0.005717  42      640: 18% 10/55 [00:04<00:20,  2.19it/s]/
with torch.cuda.amp.autocast(amp):
    26/49  4.55G  0.04403  0.01711  0.005429  46      640: 20% 11/55 [00:04<00:18,  2.35it/s]/
with torch.cuda.amp.autocast(amp):
    26/49  4.55G  0.04215  0.01678  0.005492  31      640: 22% 12/55 [00:05<00:19,  2.24it/s]/
with torch.cuda.amp.autocast(amp):
    26/49  4.55G  0.04275  0.01692  0.006149  48      640: 24% 13/55 [00:05<00:18,  2.31it/s]/
with torch.cuda.amp.autocast(amp):
    26/49  4.55G  0.04378  0.0171  0.006133   45      640: 25% 14/55 [00:06<00:17,  2.29it/s]/
with torch.cuda.amp.autocast(amp):
    26/49  4.55G  0.04376  0.01692  0.006118  40      640: 27% 15/55 [00:06<00:16,  2.40it/s]/
with torch.cuda.amp.autocast(amp):
    26/49  4.55G  0.04441  0.01715  0.00595   46      640: 29% 16/55 [00:07<00:16,  2.32it/s]/
with torch.cuda.amp.autocast(amp):
    26/49  4.55G  0.04443  0.01729  0.005904  47      640: 31% 17/55 [00:07<00:16,  2.37it/s]/
with torch.cuda.amp.autocast(amp):
    26/49  4.55G  0.04475  0.01729  0.005831  41      640: 33% 18/55 [00:07<00:16,  2.29it/s]/
with torch.cuda.amp.autocast(amp):
    26/49  4.55G  0.0452  0.01724  0.005673  42      640: 35% 19/55 [00:08<00:15,  2.36it/s]/
with torch.cuda.amp.autocast(amp):
    26/49  4.55G  0.04499  0.01712  0.00558   42      640: 36% 20/55 [00:08<00:14,  2.41it/s]/
with torch.cuda.amp.autocast(amp):
    26/49  4.55G  0.0444  0.01706  0.005389  39      640: 38% 21/55 [00:09<00:14,  2.38it/s]/
with torch.cuda.amp.autocast(amp):
    26/49  4.55G  0.04329  0.01706  0.00531   48      640: 40% 22/55 [00:09<00:14,  2.30it/s]/
with torch.cuda.amp.autocast(amp):
    26/49  4.55G  0.04365  0.01706  0.005286  43      640: 42% 23/55 [00:09<00:13,  2.44it/s]/
with torch.cuda.amp.autocast(amp):
    26/49  4.55G  0.04263  0.01705  0.005196  42      640: 44% 24/55 [00:10<00:13,  2.38it/s]/
with torch.cuda.amp.autocast(amp):
    26/49  4.55G  0.04282  0.01699  0.005125  35      640: 45% 25/55 [00:10<00:12,  2.33it/s]/
with torch.cuda.amp.autocast(amp):
    26/49  4.55G  0.0433  0.017  0.005297   43      640: 47% 26/55 [00:11<00:12,  2.24it/s]/
with torch.cuda.amp.autocast(amp):
    26/49  4.55G  0.04328  0.01699  0.005345  39      640: 49% 27/55 [00:11<00:11,  2.35it/s]/
with torch.cuda.amp.autocast(amp):
    26/49  4.55G  0.04325  0.01693  0.005241  42      640: 51% 28/55 [00:12<00:11,  2.37it/s]/
with torch.cuda.amp.autocast(amp):
    26/49  4.55G  0.04379  0.01721  0.005201  52      640: 53% 29/55 [00:12<00:11,  2.34it/s]/
with torch.cuda.amp.autocast(amp):
    26/49  4.55G  0.04299  0.01709  0.005194  38      640: 55% 30/55 [00:13<00:11,  2.16it/s]/
with torch.cuda.amp.autocast(amp):
    26/49  4.55G  0.04312  0.01737  0.005173  58      640: 56% 31/55 [00:13<00:11,  2.01it/s]/
with torch.cuda.amp.autocast(amp):
    26/49  4.55G  0.0431  0.01726  0.005054  37      640: 58% 32/55 [00:14<00:12,  1.84it/s]/
with torch.cuda.amp.autocast(amp):
    26/49  4.55G  0.04424  0.01724  0.005066  49      640: 60% 33/55 [00:14<00:12,  1.81it/s]/
with torch.cuda.amp.autocast(amp):
    26/49  4.55G  0.04229  0.0172  0.004979  37      640: 62% 34/55 [00:15<00:12,  1.72it/s]/
with torch.cuda.amp.autocast(amp):
    26/49  4.55G  0.04234  0.01725  0.004893  47      640: 64% 35/55 [00:16<00:11,  1.76it/s]/
with torch.cuda.amp.autocast(amp):
    26/49  4.55G  0.04172  0.01722  0.00484   39      640: 65% 36/55 [00:16<00:09,  1.91it/s]/
with torch.cuda.amp.autocast(amp):
    26/49  4.55G  0.04104  0.01712  0.004796  39      640: 67% 37/55 [00:16<00:08,  2.05it/s]

```

```

with torch.cuda.amp.autocast(amp):
    26/49  4.55G  0.04039  0.01711  0.00484   43    640:  69% 38/55 [00:17<00:08,  2.10it/s]
with torch.cuda.amp.autocast(amp):
    26/49  4.55G  0.04064  0.01716  0.004937  48    640:  71% 39/55 [00:17<00:07,  2.23it/s]
with torch.cuda.amp.autocast(amp):
    26/49  4.55G  0.0408   0.01718  0.004897  46    640:  73% 40/55 [00:18<00:06,  2.23it/s]
with torch.cuda.amp.autocast(amp):
    26/49  4.55G  0.04099  0.01718  0.00493   40    640:  75% 41/55 [00:18<00:06,  2.27it/s]
with torch.cuda.amp.autocast(amp):
    26/49  4.55G  0.04047  0.          Run cell (Ctrl+Enter)
                                         cell has not been executed in this session
                                         Previous execution ended unsuccessfully
with torch.cuda.amp.autocast(amp):
    26/49  4.55G  0.04087  0.          640:  76% 42/55 [00:19<00:05,  2.25it/s]
with torch.cuda.amp.autocast(amp):
    26/49  4.55G  0.04128  0.01699  0.004756  36    640:  80% 44/55 [00:19<00:04,  2.29it/s]
with torch.cuda.amp.autocast(amp):
    26/49  4.55G  0.04155  0.01695  0.004727  42    640:  82% 45/55 [00:20<00:04,  2.32it/s]
with torch.cuda.amp.autocast(amp):
    26/49  4.55G  0.04139  0.01694  0.004671  45    640:  84% 46/55 [00:20<00:03,  2.32it/s]
with torch.cuda.amp.autocast(amp):
    26/49  4.55G  0.04099  0.01687  0.004677  38    640:  85% 47/55 [00:21<00:03,  2.42it/s]
with torch.cuda.amp.autocast(amp):
    26/49  4.55G  0.04097  0.01687  0.004653  47    640:  87% 48/55 [00:21<00:02,  2.39it/s]
with torch.cuda.amp.autocast(amp):
    26/49  4.55G  0.04049  0.01689  0.00462   46    640:  89% 49/55 [00:21<00:02,  2.51it/s]
with torch.cuda.amp.autocast(amp):
    26/49  4.55G  0.0401   0.01677  0.004626  30    640:  91% 50/55 [00:22<00:02,  2.41it/s]
with torch.cuda.amp.autocast(amp):
    26/49  4.55G  0.04021  0.01674  0.004568  44    640:  93% 51/55 [00:22<00:01,  2.42it/s]
with torch.cuda.amp.autocast(amp):
    26/49  4.55G  0.0399   0.01675  0.004633  44    640:  95% 52/55 [00:23<00:01,  2.44it/s]
with torch.cuda.amp.autocast(amp):
    26/49  4.55G  0.03955  0.01675  0.004595  45    640:  96% 53/55 [00:23<00:00,  2.47it/s]
with torch.cuda.amp.autocast(amp):
    26/49  4.55G  0.03968  0.01677  0.004619  45    640:  98% 54/55 [00:24<00:00,  2.41it/s]
with torch.cuda.amp.autocast(amp):
    26/49  4.55G  0.03976  0.01687  0.004568  44    640: 100% 55/55 [00:24<00:00,  2.26it/s]
        Class   Images Instances P
            all     877      971   0.872   0.872
                                         mAP50      mAP50-95: 100% 28/28 [00:12<00:00,
                                         0.92           0.61

```

```

Epoch GPU_mem box_loss obj_loss cls_loss Instances Size
0% 0/55 [00:00<?, ?it/s]/content/yolov5_project/yolov5/train.py:412: FutureWarning: `torch.cuda.amp.autocast(arg
with torch.cuda.amp.autocast(amp):
    27/49  4.55G  0.04093  0.01753  0.002019  48    640:  2% 1/55 [00:00<00:11,  4.89it/s]/
with torch.cuda.amp.autocast(amp):
    27/49  4.55G  0.04158  0.01772  0.002882  45    640:  4% 2/55 [00:00<00:12,  4.37it/s]/
with torch.cuda.amp.autocast(amp):
    27/49  4.55G  0.0467   0.01797  0.003599  45    640:  5% 3/55 [00:00<00:13,  3.91it/s]/
with torch.cuda.amp.autocast(amp):
    27/49  4.55G  0.05002  0.01737  0.003471  41    640:  7% 4/55 [00:01<00:16,  3.06it/s]/
with torch.cuda.amp.autocast(amp):
    27/49  4.55G  0.0474   0.01653  0.003184  36    640:  9% 5/55 [00:01<00:17,  2.86it/s]/
with torch.cuda.amp.autocast(amp):
    27/49  4.55G  0.04704  0.01669  0.003188  39    640: 11% 6/55 [00:02<00:18,  2.63it/s]/
with torch.cuda.amp.autocast(amp):
    27/49  4.55G  0.04812  0.01675  0.004048  43    640: 13% 7/55 [00:02<00:19,  2.50it/s]/
with torch.cuda.amp.autocast(amp):
    27/49  4.55G  0.04779  0.01694  0.003936  38    640: 15% 8/55 [00:02<00:19,  2.36it/s]/
with torch.cuda.amp.autocast(amp):
    27/49  4.55G  0.04459  0.01677  0.004112  38    640: 16% 9/55 [00:03<00:22,  2.07it/s]/
with torch.cuda.amp.autocast(amp):
    27/49  4.55G  0.04397  0.01672  0.003998  46    640: 18% 10/55 [00:04<00:23,  1.89it/s]/
with torch.cuda.amp.autocast(amp):
    27/49  4.55G  0.04341  0.01694  0.003865  56    640: 20% 11/55 [00:04<00:24,  1.77it/s]/
with torch.cuda.amp.autocast(amp):
    27/49  4.55G  0.04151  0.01666  0.004154  39    640: 22% 12/55 [00:05<00:23,  1.81it/s]/
with torch.cuda.amp.autocast(amp):
    27/49  4.55G  0.04084  0.01673  0.004069  41    640: 24% 13/55 [00:06<00:25,  1.67it/s]/
with torch.cuda.amp.autocast(amp):
    27/49  4.55G  0.0393   0.01671  0.004696  44    640: 25% 14/55 [00:06<00:22,  1.85it/s]/
with torch.cuda.amp.autocast(amp):
    27/49  4.55G  0.03872  0.01679  0.004735  44    640: 27% 15/55 [00:06<00:20,  1.93it/s]/
with torch.cuda.amp.autocast(amp):

```

```

    27/49      4.55G   0.03752  0.01673  0.004633    42     640: 29% 16/55 [00:07<00:19,  2.05it/s]
with torch.cuda.amp.autocast(amp):
    27/49      4.55G   0.03631  0.01658  0.004624    42     640: 31% 17/55 [00:07<00:17,  2.18it/s]
with torch.cuda.amp.autocast(amp):
    27/49      4.55G   0.03571  0.01647  0.004509    38     640: 33% 18/55 [00:08<00:16,  2.19it/s]
with torch.cuda.amp.autocast(amp):
    27/49      4.55G   0.03614  0.01646  0.004375    40     640: 35% 19/55 [00:08<00:15,  2.26it/s]
with torch.cuda.amp.autocast(amp):
    27/49      4.55G   0.03629  0.----- Run cell (Ctrl+Enter)
with torch.cuda.amp.autocast(amp):           cell has not been executed in this session
    27/49      4.55G   0.03619  0.----- Previous execution ended unsuccessfully
with torch.cuda.amp.autocast(amp):
    27/49      4.55G   0.03674  0.----- currently executing...
with torch.cuda.amp.autocast(amp):
    27/49      4.55G   0.03732  0.01641  0.004419    45     640: 42% 23/55 [00:10<00:14,  2.27it/s]
with torch.cuda.amp.autocast(amp):
    27/49      4.55G   0.03696  0.01646  0.004381    44     640: 44% 24/55 [00:10<00:13,  2.34it/s]
with torch.cuda.amp.autocast(amp):
    27/49      4.55G   0.0369   0.01654  0.004952    47     640: 45% 25/55 [00:11<00:13,  2.29it/s]
with torch.cuda.amp.autocast(amp):
    27/49      4.55G   0.03701  0.01662  0.005011    45     640: 47% 26/55 [00:11<00:12,  2.36it/s]
with torch.cuda.amp.autocast(amp):
    27/49      4.55G   0.03743  0.01655  0.004912    42     640: 49% 27/55 [00:12<00:12,  2.23it/s]
with torch.cuda.amp.autocast(amp):
    27/49      4.55G   0.03804  0.01656  0.004806    42     640: 51% 28/55 [00:12<00:11,  2.35it/s]
with torch.cuda.amp.autocast(amp):
    27/49      4.55G   0.03746  0.0164   0.004716    37     640: 53% 29/55 [00:12<00:11,  2.31it/s]
with torch.cuda.amp.autocast(amp):
    27/49      4.55G   0.03691  0.01634  0.00474    41     640: 55% 30/55 [00:13<00:10,  2.35it/s]
with torch.cuda.amp.autocast(amp):
    27/49      4.55G   0.03685  0.01645  0.004704    43     640: 56% 31/55 [00:13<00:10,  2.31it/s]
with torch.cuda.amp.autocast(amp):
    27/49      4.55G   0.03687  0.01633  0.00481    39     640: 58% 32/55 [00:14<00:09,  2.36it/s]
with torch.cuda.amp.autocast(amp):
    27/49      4.55G   0.03681  0.01628  0.004722    41     640: 60% 33/55 [00:14<00:09,  2.37it/s]
with torch.cuda.amp.autocast(amp):
    27/49      4.55G   0.03703  0.01625  0.004719    42     640: 62% 34/55 [00:14<00:08,  2.39it/s]
with torch.cuda.amp.autocast(amp):
    27/49      4.55G   0.037   0.01635  0.004976    50     640: 64% 35/55 [00:15<00:08,  2.28it/s]
with torch.cuda.amp.autocast(amp):
    27/49      4.55G   0.03722  0.01636  0.004987    44     640: 65% 36/55 [00:15<00:07,  2.44it/s]
with torch.cuda.amp.autocast(amp):
    27/49      4.55G   0.03712  0.01635  0.004969    43     640: 67% 37/55 [00:16<00:07,  2.29it/s]
with torch.cuda.amp.autocast(amp):
    27/49      4.55G   0.03707  0.01634  0.004917    42     640: 69% 38/55 [00:16<00:08,  2.06it/s]
with torch.cuda.amp.autocast(amp):
    27/49      4.55G   0.03742  0.01629  0.00499    40     640: 71% 39/55 [00:17<00:08,  1.79it/s]
with torch.cuda.amp.autocast(amp):
    27/49      4.55G   0.03697  0.01631  0.004946    47     640: 73% 40/55 [00:18<00:08,  1.81it/s]
with torch.cuda.amp.autocast(amp):
    27/49      4.55G   0.0369   0.01648  0.005326    52     640: 75% 41/55 [00:18<00:07,  1.77it/s]
with torch.cuda.amp.autocast(amp):
    27/49      4.55G   0.03652  0.01641  0.005296    41     640: 76% 42/55 [00:19<00:07,  1.65it/s]
with torch.cuda.amp.autocast(amp):
    27/49      4.55G   0.03604  0.01631  0.005381    33     640: 78% 43/55 [00:19<00:06,  1.82it/s]
with torch.cuda.amp.autocast(amp):
    27/49      4.55G   0.03617  0.01635  0.005373    49     640: 80% 44/55 [00:20<00:05,  1.90it/s]
with torch.cuda.amp.autocast(amp):
    27/49      4.55G   0.03642  0.01642  0.005364    49     640: 82% 45/55 [00:20<00:04,  2.04it/s]
with torch.cuda.amp.autocast(amp):
    27/49      4.55G   0.03603  0.01638  0.005273    43     640: 84% 46/55 [00:21<00:04,  2.12it/s]
with torch.cuda.amp.autocast(amp):
    27/49      4.55G   0.03594  0.01648  0.005218    47     640: 85% 47/55 [00:21<00:03,  2.16it/s]
with torch.cuda.amp.autocast(amp):
    27/49      4.55G   0.03588  0.01654  0.005153    40     640: 87% 48/55 [00:22<00:03,  2.25it/s]
with torch.cuda.amp.autocast(amp):
    27/49      4.55G   0.03623  0.01657  0.005163    48     640: 89% 49/55 [00:22<00:02,  2.27it/s]
with torch.cuda.amp.autocast(amp):
    27/49      4.55G   0.03586  0.01655  0.00512    44     640: 91% 50/55 [00:22<00:02,  2.38it/s]
with torch.cuda.amp.autocast(amp):
    27/49      4.55G   0.03554  0.01656  0.005158    44     640: 93% 51/55 [00:23<00:01,  2.33it/s]
with torch.cuda.amp.autocast(amp):

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    27/49      4.55G   0.03543   0.01654   0.005091    42     640: 95% 52/55 [00:23<00:01,  2.46it/s]
with torch.cuda.amp.autocast(amp):
    27/49      4.55G   0.03567   0.01661   0.005046    49     640: 96% 53/55 [00:24<00:00,  2.39it/s]
with torch.cuda.amp.autocast(amp):
    27/49      4.55G   0.03607   0.01667   0.005108    45     640: 98% 54/55 [00:24<00:00,  2.39it/s]
with torch.cuda.amp.autocast(amp):
    27/49      4.55G   0.0362    0.01664   0.005055    33     640: 100% 55/55 [00:24<00:00,  2.22it/s]
        Class   Images Instances   P       R
        all      877      ---      ---      ---      ---      Run cell (Ctrl+Enter)
Epoch      GPU_mem  box_loss   obj      Size
0% 0/55 [00:00<?, ?it/s]/content/yolo
with torch.cuda.amp.autocast(amp): currently executing...
    28/49      4.55G   0.04109   0.01706   0.002725    46     640: 2% 1/55 [00:00<00:11,  4.90it/s]/
with torch.cuda.amp.autocast(amp):
    28/49      4.55G   0.04211   0.01785   0.003507    49     640: 4% 2/55 [00:00<00:11,  4.67it/s]/
with torch.cuda.amp.autocast(amp):
    28/49      4.55G   0.0405    0.01763   0.002943    45     640: 5% 3/55 [00:00<00:12,  4.05it/s]/
with torch.cuda.amp.autocast(amp):
    28/49      4.55G   0.03955   0.01721   0.002899    45     640: 7% 4/55 [00:01<00:16,  3.09it/s]/
with torch.cuda.amp.autocast(amp):
    28/49      4.55G   0.04072   0.01712   0.002754    40     640: 9% 5/55 [00:01<00:18,  2.77it/s]/
with torch.cuda.amp.autocast(amp):
    28/49      4.55G   0.03973   0.01707   0.003025    49     640: 11% 6/55 [00:01<00:18,  2.66it/s]/
with torch.cuda.amp.autocast(amp):
    28/49      4.55G   0.03855   0.01721   0.003005    47     640: 13% 7/55 [00:02<00:19,  2.48it/s]/
with torch.cuda.amp.autocast(amp):
    28/49      4.55G   0.03611   0.01743   0.003139    50     640: 15% 8/55 [00:02<00:18,  2.48it/s]/
with torch.cuda.amp.autocast(amp):
    28/49      4.55G   0.03704   0.01749   0.005062    43     640: 16% 9/55 [00:03<00:18,  2.47it/s]/
with torch.cuda.amp.autocast(amp):
    28/49      4.55G   0.03668   0.01727   0.005325    41     640: 18% 10/55 [00:03<00:18,  2.43it/s]/
with torch.cuda.amp.autocast(amp):
    28/49      4.55G   0.03776   0.01754   0.005056    46     640: 20% 11/55 [00:04<00:18,  2.43it/s]/
with torch.cuda.amp.autocast(amp):
    28/49      4.55G   0.03625   0.01724   0.005734    29     640: 22% 12/55 [00:04<00:18,  2.37it/s]/
with torch.cuda.amp.autocast(amp):
    28/49      4.55G   0.03837   0.0174    0.005492    46     640: 24% 13/55 [00:04<00:17,  2.36it/s]/
with torch.cuda.amp.autocast(amp):
    28/49      4.55G   0.03695   0.01728   0.005277    36     640: 25% 14/55 [00:05<00:16,  2.46it/s]/
with torch.cuda.amp.autocast(amp):
    28/49      4.55G   0.03696   0.01747   0.005168    53     640: 27% 15/55 [00:05<00:16,  2.44it/s]/
with torch.cuda.amp.autocast(amp):
    28/49      4.55G   0.03758   0.01727   0.005109    39     640: 29% 16/55 [00:06<00:18,  2.07it/s]/
with torch.cuda.amp.autocast(amp):
    28/49      4.55G   0.03763   0.01714   0.005039    38     640: 31% 17/55 [00:06<00:18,  2.03it/s]/
with torch.cuda.amp.autocast(amp):
    28/49      4.55G   0.03673   0.01689   0.004919    33     640: 33% 18/55 [00:07<00:19,  1.89it/s]/
with torch.cuda.amp.autocast(amp):
    28/49      4.55G   0.03691   0.01691   0.005007    41     640: 35% 19/55 [00:08<00:20,  1.75it/s]/
with torch.cuda.amp.autocast(amp):
    28/49      4.55G   0.03591   0.01666   0.00494     34     640: 36% 20/55 [00:08<00:20,  1.72it/s]/
with torch.cuda.amp.autocast(amp):
    28/49      4.55G   0.03649   0.01698   0.004824    51     640: 38% 21/55 [00:09<00:19,  1.74it/s]/
with torch.cuda.amp.autocast(amp):
    28/49      4.55G   0.03644   0.01683   0.004807    39     640: 40% 22/55 [00:09<00:17,  1.87it/s]/
with torch.cuda.amp.autocast(amp):
    28/49      4.55G   0.03577   0.01683   0.004778    42     640: 42% 23/55 [00:10<00:15,  2.04it/s]/
with torch.cuda.amp.autocast(amp):
    28/49      4.55G   0.03573   0.0168    0.004721    46     640: 44% 24/55 [00:10<00:14,  2.09it/s]/
with torch.cuda.amp.autocast(amp):
    28/49      4.55G   0.03622   0.01686   0.004632    46     640: 45% 25/55 [00:11<00:13,  2.20it/s]/
with torch.cuda.amp.autocast(amp):
    28/49      4.55G   0.03672   0.01704   0.004643    48     640: 47% 26/55 [00:11<00:13,  2.17it/s]/
with torch.cuda.amp.autocast(amp):
    28/49      4.55G   0.03643   0.01715   0.004593    49     640: 49% 27/55 [00:11<00:12,  2.32it/s]/
with torch.cuda.amp.autocast(amp):
    28/49      4.55G   0.03685   0.01714   0.004508    42     640: 51% 28/55 [00:12<00:11,  2.25it/s]/
with torch.cuda.amp.autocast(amp):
    28/49      4.55G   0.03677   0.01695   0.004428    33     640: 53% 29/55 [00:12<00:11,  2.36it/s]/
with torch.cuda.amp.autocast(amp):
    28/49      4.55G   0.03674   0.01691   0.004366    38     640: 55% 30/55 [00:13<00:10,  2.37it/s]

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with torch.cuda.amp.autocast(amp):
    28/49  4.55G  0.0362  0.01697  0.004337   48    640:  56% 31/55 [00:13<00:10,  2.40it/s]
with torch.cuda.amp.autocast(amp):
    28/49  4.55G  0.0361  0.0171   0.004278   50    640:  58% 32/55 [00:14<00:10,  2.27it/s]
with torch.cuda.amp.autocast(amp):
    28/49  4.55G  0.03557 0.01787  0.004198   44    640:  60% 33/55 [00:14<00:09,  2.37it/s]
with torch.cuda.amp.autocast(amp):
    28/49  4.55G  0.03557 0.01703  0.004273   42    640:  62% 34/55 [00:14<00:09,  2.30it/s]
with torch.cuda.amp.autocast(amp):
    28/49  4.55G  0.03514 0. Run cell (Ctrl+Enter)
                                cell has not been executed in this session
                                Previous execution ended unsuccessfully
with torch.cuda.amp.autocast(amp):
    28/49  4.55G  0.03521 0. currently executing...
with torch.cuda.amp.autocast(amp):
    28/49  4.55G  0.0356  0.01687  0.004139   38    640:  67% 37/55 [00:16<00:07,  2.26it/s]
with torch.cuda.amp.autocast(amp):
    28/49  4.55G  0.03533 0.01678  0.004077   41    640:  69% 38/55 [00:16<00:07,  2.28it/s]
with torch.cuda.amp.autocast(amp):
    28/49  4.55G  0.03546 0.01684  0.004002   53    640:  71% 39/55 [00:17<00:06,  2.36it/s]
with torch.cuda.amp.autocast(amp):
    28/49  4.55G  0.03592 0.01682  0.003972   39    640:  73% 40/55 [00:17<00:06,  2.26it/s]
with torch.cuda.amp.autocast(amp):
    28/49  4.55G  0.03551 0.01677  0.003949   42    640:  75% 41/55 [00:17<00:05,  2.40it/s]
with torch.cuda.amp.autocast(amp):
    28/49  4.55G  0.03581 0.0168  0.003995   45    640:  76% 42/55 [00:18<00:05,  2.27it/s]
with torch.cuda.amp.autocast(amp):
    28/49  4.55G  0.03589 0.01684  0.003995   46    640:  78% 43/55 [00:18<00:05,  2.35it/s]
with torch.cuda.amp.autocast(amp):
    28/49  4.55G  0.0355  0.01675  0.00398   42    640:  80% 44/55 [00:19<00:04,  2.39it/s]
with torch.cuda.amp.autocast(amp):
    28/49  4.55G  0.03534 0.01672  0.004016   45    640:  82% 45/55 [00:19<00:04,  2.27it/s]
with torch.cuda.amp.autocast(amp):
    28/49  4.55G  0.03562 0.01682  0.004014   57    640:  84% 46/55 [00:20<00:04,  2.00it/s]
with torch.cuda.amp.autocast(amp):
    28/49  4.55G  0.03569 0.01685  0.004023   39    640:  85% 47/55 [00:20<00:04,  1.81it/s]
with torch.cuda.amp.autocast(amp):
    28/49  4.55G  0.03545 0.01673  0.003962   35    640:  87% 48/55 [00:21<00:04,  1.66it/s]
with torch.cuda.amp.autocast(amp):
    28/49  4.55G  0.0353  0.01679  0.00394   43    640:  89% 49/55 [00:22<00:03,  1.70it/s]
with torch.cuda.amp.autocast(amp):
    28/49  4.55G  0.03506 0.01674  0.004085   33    640:  91% 50/55 [00:22<00:02,  1.68it/s]
with torch.cuda.amp.autocast(amp):
    28/49  4.55G  0.03506 0.01668  0.004045   39    640:  93% 51/55 [00:23<00:02,  1.78it/s]
with torch.cuda.amp.autocast(amp):
    28/49  4.55G  0.0351  0.01669  0.004052   45    640:  95% 52/55 [00:23<00:01,  1.87it/s]
with torch.cuda.amp.autocast(amp):
    28/49  4.55G  0.0348  0.01662  0.004052   37    640:  96% 53/55 [00:24<00:01,  2.00it/s]
with torch.cuda.amp.autocast(amp):
    28/49  4.55G  0.03477 0.01663  0.004026   48    640:  98% 54/55 [00:24<00:00,  2.13it/s]
with torch.cuda.amp.autocast(amp):
    28/49  4.55G  0.03453 0.01651  0.004003   28    640: 100% 55/55 [00:24<00:00,  2.20it/s]
          Class  Images Instances P      R      mAP50  mAP50-95: 100% 28/28 [00:12<00:00,
          all     877     971      0.9     0.869     0.909     0.598

```

| Epoch  | GPU_mem | box_loss | obj_loss | cls_loss | Instances | Size  |
|--|---------|----------|----------|----------|-----------|---|
| 0% 0/55 [00:00<?, ?it/s]/content/yolov5_project/yolov5/train.py:412: |         |          |          |          |           | FutureWarning: `torch.cuda.amp.autocast(arg |
| with torch.cuda.amp.autocast(amp):                                   |         |          |          |          |           |   |
| 29/49  4.55G  0.05198 0.01708  0.002234                              |         |          |          |          | 44        | 640:  2% 1/55 [00:00<00:12,  4.33it/s]/     |
| with torch.cuda.amp.autocast(amp):                                   |         |          |          |          |           |   |
| 29/49  4.55G  0.04521 0.01616  0.00253                               |         |          |          |          | 42        | 640:  4% 2/55 [00:00<00:11,  4.56it/s]/     |
| with torch.cuda.amp.autocast(amp):                                   |         |          |          |          |           |   |
| 29/49  4.55G  0.03552 0.01494  0.002935                              |         |          |          |          | 35        | 640:  5% 3/55 [00:00<00:13,  3.82it/s]/     |
| with torch.cuda.amp.autocast(amp):                                   |         |          |          |          |           |   |
| 29/49  4.55G  0.03081 0.01473  0.003662                              |         |          |          |          | 39        | 640:  7% 4/55 [00:01<00:16,  3.14it/s]/     |
| with torch.cuda.amp.autocast(amp):                                   |         |          |          |          |           |   |
| 29/49  4.55G  0.03146 0.01452  0.00448                               |         |          |          |          | 33        | 640:  9% 5/55 [00:01<00:17,  2.81it/s]/     |
| with torch.cuda.amp.autocast(amp):                                   |         |          |          |          |           |   |
| 29/49  4.55G  0.03034 0.01493  0.004099                              |         |          |          |          | 45        | 640: 11% 6/55 [00:01<00:17,  2.73it/s]/     |
| with torch.cuda.amp.autocast(amp):                                   |         |          |          |          |           |   |
| 29/49  4.55G  0.03104 0.0154   0.003969                              |         |          |          |          | 44        | 640: 13% 7/55 [00:02<00:19,  2.45it/s]/     |
| with torch.cuda.amp.autocast(amp):                                   |         |          |          |          |           |   |
| 29/49  4.55G  0.03273 0.01515  0.003758                              |         |          |          |          | 35        | 640: 15% 8/55 [00:02<00:19,  2.43it/s]/     |
| with torch.cuda.amp.autocast(amp):                                   |         |          |          |          |           |   |

```

    29/49      4.55G   0.03351   0.01501   0.003754   41   640: 16% 9/55 [00:03<00:19, 2.31it/s]/
with torch.cuda.amp.autocast(amp):
    29/49      4.55G   0.03209   0.01518   0.003922   39   640: 18% 10/55 [00:03<00:18, 2.46it/s]
with torch.cuda.amp.autocast(amp):
    29/49      4.55G   0.03047   0.01507   0.00375   45   640: 20% 11/55 [00:04<00:18, 2.43it/s]
with torch.cuda.amp.autocast(amp):
    29/49      4.55G   0.03183   0.01511   0.003602   44   640: 22% 12/55 [00:04<00:17, 2.48it/s]
with torch.cuda.amp.autocast(amp):
    29/49      4.55G   0.03158   0.01511   0.003602   --   640: 24% 13/55 [00:04<00:17, 2.46it/s]
with torch.cuda.amp.autocast(amp): Run cell (Ctrl+Enter)
    29/49      4.55G   0.03077   0.01511   0.003602   cell has not been executed in this session
with torch.cuda.amp.autocast(amp): Previous execution ended unsuccessfully
    29/49      4.55G   0.03124   0.01511   0.003602   640: 25% 14/55 [00:05<00:17, 2.30it/s]
with torch.cuda.amp.autocast(amp):
    29/49      4.55G   0.03232   0.01577   0.003411   52   640: 29% 16/55 [00:06<00:16, 2.40it/s]
with torch.cuda.amp.autocast(amp):
    29/49      4.55G   0.03162   0.01566   0.003351   43   640: 31% 17/55 [00:06<00:16, 2.36it/s]
with torch.cuda.amp.autocast(amp):
    29/49      4.55G   0.0324    0.01574   0.003436   46   640: 33% 18/55 [00:07<00:15, 2.41it/s]
with torch.cuda.amp.autocast(amp):
    29/49      4.55G   0.03179   0.01574   0.00332   41   640: 35% 19/55 [00:07<00:15, 2.36it/s]
with torch.cuda.amp.autocast(amp):
    29/49      4.55G   0.0311    0.01568   0.003237   41   640: 36% 20/55 [00:07<00:14, 2.39it/s]
with torch.cuda.amp.autocast(amp):
    29/49      4.55G   0.03067   0.01575   0.003182   47   640: 38% 21/55 [00:08<00:14, 2.37it/s]
with torch.cuda.amp.autocast(amp):
    29/49      4.55G   0.03145   0.01579   0.003125   41   640: 40% 22/55 [00:08<00:13, 2.41it/s]
with torch.cuda.amp.autocast(amp):
    29/49      4.55G   0.03166   0.01586   0.003247   48   640: 42% 23/55 [00:09<00:13, 2.43it/s]
with torch.cuda.amp.autocast(amp):
    29/49      4.55G   0.03105   0.01587   0.003217   42   640: 44% 24/55 [00:09<00:13, 2.23it/s]
with torch.cuda.amp.autocast(amp):
    29/49      4.55G   0.03077   0.01575   0.003125   29   640: 45% 25/55 [00:10<00:15, 1.95it/s]
with torch.cuda.amp.autocast(amp):
    29/49      4.55G   0.03096   0.0158    0.003184   49   640: 47% 26/55 [00:10<00:15, 1.88it/s]
with torch.cuda.amp.autocast(amp):
    29/49      4.55G   0.03055   0.01585   0.00312   39   640: 49% 27/55 [00:11<00:15, 1.80it/s]
with torch.cuda.amp.autocast(amp):
    29/49      4.55G   0.0313    0.01586   0.003079   41   640: 51% 28/55 [00:12<00:15, 1.69it/s]
with torch.cuda.amp.autocast(amp):
    29/49      4.55G   0.03093   0.01578   0.003042   38   640: 53% 29/55 [00:12<00:15, 1.71it/s]
with torch.cuda.amp.autocast(amp):
    29/49      4.55G   0.03103   0.01579   0.003027   41   640: 55% 30/55 [00:13<00:13, 1.83it/s]
with torch.cuda.amp.autocast(amp):
    29/49      4.55G   0.03053   0.01574   0.003143   41   640: 56% 31/55 [00:13<00:12, 1.92it/s]
with torch.cuda.amp.autocast(amp):
    29/49      4.55G   0.03056   0.0157    0.003166   35   640: 58% 32/55 [00:14<00:11, 2.08it/s]
with torch.cuda.amp.autocast(amp):
    29/49      4.55G   0.03012   0.0156    0.00333   38   640: 60% 33/55 [00:14<00:10, 2.14it/s]
with torch.cuda.amp.autocast(amp):
    29/49      4.55G   0.02977   0.01558   0.003284   46   640: 62% 34/55 [00:14<00:09, 2.31it/s]
with torch.cuda.amp.autocast(amp):
    29/49      4.55G   0.02968   0.01555   0.003259   41   640: 64% 35/55 [00:15<00:08, 2.30it/s]
with torch.cuda.amp.autocast(amp):
    29/49      4.55G   0.03007   0.01561   0.003266   43   640: 65% 36/55 [00:15<00:07, 2.42it/s]
with torch.cuda.amp.autocast(amp):
    29/49      4.55G   0.03021   0.01556   0.003247   40   640: 67% 37/55 [00:16<00:07, 2.30it/s]
with torch.cuda.amp.autocast(amp):
    29/49      4.55G   0.03036   0.01549   0.003181   37   640: 69% 38/55 [00:16<00:07, 2.43it/s]
with torch.cuda.amp.autocast(amp):
    29/49      4.55G   0.03077   0.01547   0.003169   42   640: 71% 39/55 [00:16<00:06, 2.30it/s]
with torch.cuda.amp.autocast(amp):
    29/49      4.55G   0.03109   0.01558   0.003172   48   640: 73% 40/55 [00:17<00:06, 2.40it/s]
with torch.cuda.amp.autocast(amp):
    29/49      4.55G   0.03144   0.01555   0.003204   40   640: 75% 41/55 [00:17<00:06, 2.33it/s]
with torch.cuda.amp.autocast(amp):
    29/49      4.55G   0.03171   0.01573   0.003227   57   640: 76% 42/55 [00:18<00:05, 2.34it/s]
with torch.cuda.amp.autocast(amp):
    29/49      4.55G   0.03198   0.01578   0.003255   44   640: 78% 43/55 [00:18<00:04, 2.43it/s]
with torch.cuda.amp.autocast(amp):
    29/49      4.55G   0.03203   0.01577   0.003222   45   640: 80% 44/55 [00:19<00:04, 2.42it/s]
with torch.cuda.amp.autocast(amp):

```

```

    29/49      4.55G   0.03208   0.01585   0.003214     53     640:  82% 45/55 [00:19<00:04,  2.30it/s]
with torch.cuda.amp.autocast(amp):
    29/49      4.55G   0.0324   0.01593   0.003235     52     640:  84% 46/55 [00:19<00:03,  2.36it/s]
with torch.cuda.amp.autocast(amp):
    29/49      4.55G   0.0324   0.01599   0.003249     50     640:  85% 47/55 [00:20<00:03,  2.33it/s]
with torch.cuda.amp.autocast(amp):
    29/49      4.55G   0.0322   0.01597   0.003218     39     640:  87% 48/55 [00:20<00:02,  2.35it/s]
with torch.cuda.amp.autocast(amp):
    29/49      4.55G   0.03236  0.01597  Run cell (Ctrl+Enter)
                                                ^--^ 0.00321800
                                                cell has not been executed in this session
                                                Previous execution ended unsuccessfully
with torch.cuda.amp.autocast(amp):
    29/49      4.55G   0.0326   0.01596  currently executing...
with torch.cuda.amp.autocast(amp):
    29/49      4.55G   0.03233  currently executing...
with torch.cuda.amp.autocast(amp):
    29/49      4.55G   0.03265  0.01601   0.003745     44     640:  95% 52/55 [00:22<00:01,  2.29it/s]
with torch.cuda.amp.autocast(amp):
    29/49      4.55G   0.03297  0.01596   0.003793     33     640:  96% 53/55 [00:23<00:00,  2.23it/s]
with torch.cuda.amp.autocast(amp):
    29/49      4.55G   0.03273  0.01596   0.003763     41     640:  98% 54/55 [00:23<00:00,  2.06it/s]
with torch.cuda.amp.autocast(amp):
    29/49      4.55G   0.03247  0.01591   0.003751     29     640: 100% 55/55 [00:24<00:00,  2.28it/s]
                                                Class   Images Instances P
                                                all       877      971      0.861      0.839
                                                R
                                                mAP50      0.878      0.551
                                                mAP50-95: 100% 28/28 [00:11<00:00,
```

| Epoch  | GPU_mem | box_loss | obj_loss | cls_loss | Instances | Size  |
|--|---------|----------|----------|----------|-----------|---|
| 0% 0/55 [00:00<?, ?it/s]/content/yolov5_project/yolov5/train.py:412:                               |         |          |          |          |           | FutureWarning: `torch.cuda.amp.autocast(arg |
| with torch.cuda.amp.autocast(amp):   |         |          |          |          |           |   |
| 30/49      4.55G   0.04426   0.0164   0.00299     44     640:  2% 1/55 [00:00<00:12,  4.48it/s]/   |         |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |         |          |          |          |           |   |
| 30/49      4.55G   0.04773   0.01669  0.003669     41     640:  4% 2/55 [00:00<00:14,  3.72it/s]/  |         |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |         |          |          |          |           |   |
| 30/49      4.55G   0.03808   0.01734   0.003179     47     640:  5% 3/55 [00:00<00:18,  2.85it/s]/ |         |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |         |          |          |          |           |   |
| 30/49      4.55G   0.03656   0.01661   0.004267     32     640:  7% 4/55 [00:01<00:24,  2.07it/s]/ |         |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |         |          |          |          |           |   |
| 30/49      4.55G   0.03619   0.01576   0.003958     43     640:  9% 5/55 [00:02<00:24,  2.02it/s]/ |         |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |         |          |          |          |           |   |
| 30/49      4.55G   0.03575   0.0163   0.004214     39     640: 11% 6/55 [00:02<00:28,  1.71it/s]/  |         |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |         |          |          |          |           |   |
| 30/49      4.55G   0.03334   0.01594   0.004275     39     640: 13% 7/55 [00:03<00:27,  1.73it/s]/ |         |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |         |          |          |          |           |   |
| 30/49      4.55G   0.03461   0.01583   0.00447     46     640: 15% 8/55 [00:03<00:25,  1.85it/s]/  |         |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |         |          |          |          |           |   |
| 30/49      4.55G   0.03405   0.01602   0.004341     45     640: 16% 9/55 [00:04<00:22,  2.02it/s]/ |         |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |         |          |          |          |           |   |
| 30/49      4.55G   0.03579   0.01628   0.004765     46     640: 18% 10/55 [00:04<00:22,  2.01it/s] |         |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |         |          |          |          |           |   |
| 30/49      4.55G   0.03603   0.01639   0.004924     46     640: 20% 11/55 [00:05<00:19,  2.22it/s] |         |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |         |          |          |          |           |   |
| 30/49      4.55G   0.03615   0.01637   0.004677     40     640: 22% 12/55 [00:05<00:19,  2.19it/s] |         |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |         |          |          |          |           |   |
| 30/49      4.55G   0.03596   0.01635   0.00444     47     640: 24% 13/55 [00:06<00:18,  2.26it/s]  |         |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |         |          |          |          |           |   |
| 30/49      4.55G   0.03574   0.01636   0.004243     40     640: 25% 14/55 [00:06<00:18,  2.22it/s] |         |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |         |          |          |          |           |   |
| 30/49      4.55G   0.03653   0.01613   0.004222     37     640: 27% 15/55 [00:06<00:17,  2.34it/s] |         |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |         |          |          |          |           |   |
| 30/49      4.55G   0.03636   0.01591   0.004106     36     640: 29% 16/55 [00:07<00:17,  2.23it/s] |         |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |         |          |          |          |           |   |
| 30/49      4.55G   0.0365   0.01582   0.006974     40     640: 31% 17/55 [00:07<00:16,  2.24it/s]  |         |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |         |          |          |          |           |   |
| 30/49      4.55G   0.03735   0.01594   0.006735     48     640: 33% 18/55 [00:08<00:16,  2.27it/s] |         |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |         |          |          |          |           |   |
| 30/49      4.55G   0.03798   0.01624   0.006497     53     640: 35% 19/55 [00:08<00:15,  2.28it/s] |         |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |         |          |          |          |           |   |
| 30/49      4.55G   0.03808   0.0163   0.006449     42     640: 36% 20/55 [00:09<00:15,  2.32it/s]  |         |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |         |          |          |          |           |   |
| 30/49      4.55G   0.03818   0.01643   0.006318     54     640: 38% 21/55 [00:09<00:14,  2.37it/s] |         |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |         |          |          |          |           |   |
| 30/49      4.55G   0.0387   0.01643   0.006146     39     640: 40% 22/55 [00:09<00:14,  2.31it/s]  |         |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |         |          |          |          |           |   |
| 30/49      4.55G   0.03844   0.01623   0.006006     30     640: 42% 23/55 [00:10<00:13,  2.37it/s] |         |          |          |          |           |   |

```

with torch.cuda.amp.autocast(amp):
    30/49    4.55G   0.03768   0.0162   0.0059      38       640: 44% 24/55 [00:10<00:13,  2.35it/s]
with torch.cuda.amp.autocast(amp):
    30/49    4.55G   0.03706   0.01622  0.005723     44       640: 45% 25/55 [00:11<00:12,  2.40it/s]
with torch.cuda.amp.autocast(amp):
    30/49    4.55G   0.03711   0.01622  0.005569     44       640: 47% 26/55 [00:11<00:12,  2.39it/s]
with torch.cuda.amp.autocast(amp):
    30/49    4.55G   0.03647   0.01619  0.005535     38       640: 49% 27/55 [00:12<00:11,  2.41it/s]
with torch.cuda.amp.autocast(amp):
    30/49    4.55G   0.03582   0.          Run cell (Ctrl+Enter)
                                         cell has not been executed in this session
                                         Previous execution ended unsuccessfully
with torch.cuda.amp.autocast(amp):
    30/49    4.55G   0.0356   0.          currently executing...
                                         Run cell (Ctrl+Enter)
                                         cell has not been executed in this session
                                         Previous execution ended unsuccessfully
                                         currently executing...
with torch.cuda.amp.autocast(amp):
    30/49    4.55G   0.03589   0.01642  0.005362     50       640: 55% 30/55 [00:13<00:10,  2.31it/s]
with torch.cuda.amp.autocast(amp):
    30/49    4.55G   0.03542   0.01638  0.005311     40       640: 56% 31/55 [00:13<00:10,  2.30it/s]
with torch.cuda.amp.autocast(amp):
    30/49    4.55G   0.03574   0.01633  0.005189     39       640: 58% 32/55 [00:14<00:10,  2.15it/s]
with torch.cuda.amp.autocast(amp):
    30/49    4.55G   0.03599   0.01643  0.00511      52       640: 60% 33/55 [00:14<00:10,  2.00it/s]
with torch.cuda.amp.autocast(amp):
    30/49    4.55G   0.03626   0.01649  0.00512      40       640: 62% 34/55 [00:15<00:11,  1.89it/s]
with torch.cuda.amp.autocast(amp):
    30/49    4.55G   0.03627   0.01658  0.005019     50       640: 64% 35/55 [00:16<00:11,  1.78it/s]
with torch.cuda.amp.autocast(amp):
    30/49    4.55G   0.03615   0.01658  0.004952     41       640: 65% 36/55 [00:16<00:11,  1.71it/s]
with torch.cuda.amp.autocast(amp):
    30/49    4.55G   0.03661   0.01658  0.004898     44       640: 67% 37/55 [00:17<00:10,  1.72it/s]
with torch.cuda.amp.autocast(amp):
    30/49    4.55G   0.03642   0.01654  0.004858     33       640: 69% 38/55 [00:17<00:09,  1.87it/s]
with torch.cuda.amp.autocast(amp):
    30/49    4.55G   0.03594   0.0165   0.00483      41       640: 71% 39/55 [00:18<00:07,  2.00it/s]
with torch.cuda.amp.autocast(amp):
    30/49    4.55G   0.0362   0.01647  0.004787     40       640: 73% 40/55 [00:18<00:07,  2.08it/s]
with torch.cuda.amp.autocast(amp):
    30/49    4.55G   0.03599   0.01647  0.004743     41       640: 75% 41/55 [00:19<00:06,  2.21it/s]
with torch.cuda.amp.autocast(amp):
    30/49    4.55G   0.03657   0.01642  0.004903     45       640: 76% 42/55 [00:19<00:05,  2.21it/s]
with torch.cuda.amp.autocast(amp):
    30/49    4.55G   0.03675   0.01646  0.004858     39       640: 78% 43/55 [00:19<00:05,  2.28it/s]
with torch.cuda.amp.autocast(amp):
    30/49    4.55G   0.03675   0.01643  0.004854     45       640: 80% 44/55 [00:20<00:04,  2.26it/s]
with torch.cuda.amp.autocast(amp):
    30/49    4.55G   0.03729   0.01645  0.004902     44       640: 82% 45/55 [00:20<00:04,  2.28it/s]
with torch.cuda.amp.autocast(amp):
    30/49    4.55G   0.03733   0.01643  0.004837     44       640: 84% 46/55 [00:21<00:03,  2.38it/s]
with torch.cuda.amp.autocast(amp):
    30/49    4.55G   0.03767   0.01641  0.004776     37       640: 85% 47/55 [00:21<00:03,  2.38it/s]
with torch.cuda.amp.autocast(amp):
    30/49    4.55G   0.03804   0.01637  0.004841     40       640: 87% 48/55 [00:22<00:03,  2.30it/s]
with torch.cuda.amp.autocast(amp):
    30/49    4.55G   0.03763   0.01629  0.004798     35       640: 89% 49/55 [00:22<00:02,  2.36it/s]
with torch.cuda.amp.autocast(amp):
    30/49    4.55G   0.03764   0.01634  0.004781     55       640: 91% 50/55 [00:22<00:02,  2.30it/s]
with torch.cuda.amp.autocast(amp):
    30/49    4.55G   0.0375   0.01635  0.004764     38       640: 93% 51/55 [00:23<00:01,  2.43it/s]
with torch.cuda.amp.autocast(amp):
    30/49    4.55G   0.03717   0.01632  0.004766     46       640: 95% 52/55 [00:23<00:01,  2.35it/s]
with torch.cuda.amp.autocast(amp):
    30/49    4.55G   0.03678   0.01635  0.004712     49       640: 96% 53/55 [00:24<00:00,  2.35it/s]
with torch.cuda.amp.autocast(amp):
    30/49    4.55G   0.03678   0.01633  0.004691     42       640: 98% 54/55 [00:24<00:00,  2.29it/s]
with torch.cuda.amp.autocast(amp):
    30/49    4.55G   0.03647   0.01633  0.004681     39       640: 100% 55/55 [00:24<00:00,  2.21it/s]
                                         Class   Images Instances P      R
                                         all     877      971     0.783   0.741
                                         mAP50   mAP50-95: 100% 28/28 [00:11<00:00,  0.786   0.46

    Epoch    GPU_mem   box_loss   obj_loss   cls_loss Instances      Size
0% 0/55 [00:00<?, ?it/s]/content/yolov5_project/yolov5/train.py:412: FutureWarning: `torch.cuda.amp.autocast(arg
with torch.cuda.amp.autocast(amp):
    31/49    4.55G   0.03825   0.01815  0.003756     47       640: 2% 1/55 [00:00<00:11,  4.86it/s]/
with torch.cuda.amp.autocast(amp):

```

```

    31/49      4.55G     0.0355    0.01827  0.003113    49      640:   4% 2/55 [00:00<00:11,  4.53it/s]/
with torch.cuda.amp.autocast(amp):
    31/49      4.55G     0.03363   0.01784  0.004356    44      640:   5% 3/55 [00:00<00:14,  3.57it/s]/
with torch.cuda.amp.autocast(amp):
    31/49      4.55G     0.03543   0.01748  0.004188    40      640:   7% 4/55 [00:01<00:16,  3.05it/s]/
with torch.cuda.amp.autocast(amp):
    31/49      4.55G     0.03662   0.0171   0.004224    42      640:   9% 5/55 [00:01<00:18,  2.66it/s]/
with torch.cuda.amp.autocast(amp):
    31/49      4.55G     0.04039   0.0171   Run cell (Ctrl+Enter)
                                         0.004224
                                         cell has not been executed in this session
                                         Previous execution ended unsuccessfully
with torch.cuda.amp.autocast(amp):
    31/49      4.55G     0.03975   0.0171   currently executing...
                                         0.004224
                                         Run cell (Ctrl+Enter)
                                         cell has not been executed in this session
                                         Previous execution ended unsuccessfully
with torch.cuda.amp.autocast(amp):
    31/49      4.55G     0.03716   0.0171   currently executing...
                                         0.004224
                                         Run cell (Ctrl+Enter)
                                         cell has not been executed in this session
                                         Previous execution ended unsuccessfully
with torch.cuda.amp.autocast(amp):
    31/49      4.55G     0.03499   0.01695  0.004119    42      640:   16% 9/55 [00:03<00:18,  2.47it/s]/
with torch.cuda.amp.autocast(amp):
    31/49      4.55G     0.03461   0.01692  0.003962    44      640:   18% 10/55 [00:03<00:18,  2.45it/s]/
with torch.cuda.amp.autocast(amp):
    31/49      4.55G     0.03612   0.01685  0.003939    44      640:   20% 11/55 [00:04<00:19,  2.23it/s]/
with torch.cuda.amp.autocast(amp):
    31/49      4.55G     0.03793   0.01676  0.003792    42      640:   22% 12/55 [00:04<00:20,  2.05it/s]/
with torch.cuda.amp.autocast(amp):
    31/49      4.55G     0.03743   0.01692  0.003889    45      640:   24% 13/55 [00:05<00:22,  1.89it/s]/
with torch.cuda.amp.autocast(amp):
    31/49      4.55G     0.03757   0.01711  0.003789    49      640:   25% 14/55 [00:06<00:22,  1.80it/s]/
with torch.cuda.amp.autocast(amp):
    31/49      4.55G     0.03765   0.01691  0.003988    40      640:   27% 15/55 [00:06<00:23,  1.68it/s]/
with torch.cuda.amp.autocast(amp):
    31/49      4.55G     0.03807   0.0168   0.003877    43      640:   29% 16/55 [00:07<00:22,  1.72it/s]/
with torch.cuda.amp.autocast(amp):
    31/49      4.55G     0.03859   0.01689  0.004199    48      640:   31% 17/55 [00:07<00:20,  1.83it/s]/
with torch.cuda.amp.autocast(amp):
    31/49      4.55G     0.03753   0.01685  0.004032    46      640:   33% 18/55 [00:08<00:18,  1.98it/s]/
with torch.cuda.amp.autocast(amp):
    31/49      4.55G     0.03797   0.01663  0.003933    33      640:   35% 19/55 [00:08<00:17,  2.07it/s]/
with torch.cuda.amp.autocast(amp):
    31/49      4.55G     0.03795   0.01669  0.003955    51      640:   36% 20/55 [00:09<00:15,  2.19it/s]/
with torch.cuda.amp.autocast(amp):
    31/49      4.55G     0.03715   0.01677  0.003936    45      640:   38% 21/55 [00:09<00:15,  2.25it/s]/
with torch.cuda.amp.autocast(amp):
    31/49      4.55G     0.03726   0.01699  0.004266    43      640:   40% 22/55 [00:09<00:14,  2.28it/s]/
with torch.cuda.amp.autocast(amp):
    31/49      4.55G     0.03749   0.0169   0.004216    38      640:   42% 23/55 [00:10<00:14,  2.29it/s]/
with torch.cuda.amp.autocast(amp):
    31/49      4.55G     0.03672   0.01694  0.004313    50      640:   44% 24/55 [00:10<00:13,  2.37it/s]/
with torch.cuda.amp.autocast(amp):
    31/49      4.55G     0.03746   0.01677  0.004223    36      640:   45% 25/55 [00:11<00:12,  2.36it/s]/
with torch.cuda.amp.autocast(amp):
    31/49      4.55G     0.03692   0.01667  0.004202    36      640:   47% 26/55 [00:11<00:12,  2.37it/s]/
with torch.cuda.amp.autocast(amp):
    31/49      4.55G     0.03702   0.01669  0.004114    46      640:   49% 27/55 [00:11<00:11,  2.38it/s]/
with torch.cuda.amp.autocast(amp):
    31/49      4.55G     0.03686   0.01672  0.004111    44      640:   51% 28/55 [00:12<00:11,  2.35it/s]/
with torch.cuda.amp.autocast(amp):
    31/49      4.55G     0.03731   0.01673  0.004628    46      640:   53% 29/55 [00:12<00:10,  2.41it/s]/
with torch.cuda.amp.autocast(amp):
    31/49      4.55G     0.03774   0.01668  0.004607    44      640:   55% 30/55 [00:13<00:10,  2.33it/s]/
with torch.cuda.amp.autocast(amp):
    31/49      4.55G     0.03774   0.01666  0.00454     44      640:   56% 31/55 [00:13<00:10,  2.36it/s]/
with torch.cuda.amp.autocast(amp):
    31/49      4.55G     0.03769   0.01661  0.004459    37      640:   58% 32/55 [00:14<00:09,  2.37it/s]/
with torch.cuda.amp.autocast(amp):
    31/49      4.55G     0.03811   0.01658  0.004424    46      640:   60% 33/55 [00:14<00:09,  2.27it/s]/
with torch.cuda.amp.autocast(amp):
    31/49      4.55G     0.03827   0.01658  0.004441    42      640:   62% 34/55 [00:15<00:09,  2.25it/s]/
with torch.cuda.amp.autocast(amp):
    31/49      4.55G     0.03844   0.01669  0.004367    51      640:   64% 35/55 [00:15<00:08,  2.30it/s]/
with torch.cuda.amp.autocast(amp):
    31/49      4.55G     0.03788   0.01683  0.004404    47      640:   65% 36/55 [00:15<00:07,  2.38it/s]/
with torch.cuda.amp.autocast(amp):
    31/49      4.55G     0.03732   0.01682  0.004325    43      640:   67% 37/55 [00:16<00:07,  2.27it/s]/
with torch.cuda.amp.autocast(amp):

```

```

    31/49      4.55G   0.03727   0.01676   0.004251     37     640:  69% 38/55 [00:16<00:07,  2.33it/s]
with torch.cuda.amp.autocast(amp):
    31/49      4.55G   0.0373   0.01684   0.004198     52     640:  71% 39/55 [00:17<00:06,  2.35it/s]
with torch.cuda.amp.autocast(amp):
    31/49      4.55G   0.03742   0.01681   0.004114     47     640:  73% 40/55 [00:17<00:06,  2.20it/s]
with torch.cuda.amp.autocast(amp):
    31/49      4.55G   0.0375   0.01682   0.00407     45     640:  75% 41/55 [00:18<00:06,  2.01it/s]
with torch.cuda.amp.autocast(amp):
    31/49      4.55G   0.03783   0.~100~0.~100~ Run cell (Ctrl+Enter)
with torch.cuda.amp.autocast(amp):           cell has not been executed in this session
    31/49      4.55G   0.03745   0.~100~0.~100~ Previous execution ended unsuccessfully
with torch.cuda.amp.autocast(amp):
    31/49      4.55G   0.03719   0.~100~0.~100~ currently executing...
with torch.cuda.amp.autocast(amp):
    31/49      4.55G   0.0371   0.01686   0.004049     43     640:  82% 45/55 [00:20<00:05,  1.69it/s]
with torch.cuda.amp.autocast(amp):
    31/49      4.55G   0.03732   0.01692   0.004008     41     640:  84% 46/55 [00:21<00:05,  1.73it/s]
with torch.cuda.amp.autocast(amp):
    31/49      4.55G   0.03764   0.0169   0.003986     38     640:  85% 47/55 [00:21<00:04,  1.86it/s]
with torch.cuda.amp.autocast(amp):
    31/49      4.55G   0.03723   0.0169   0.003953     45     640:  87% 48/55 [00:22<00:03,  2.06it/s]
with torch.cuda.amp.autocast(amp):
    31/49      4.55G   0.03724   0.01693  0.003911     48     640:  89% 49/55 [00:22<00:02,  2.09it/s]
with torch.cuda.amp.autocast(amp):
    31/49      4.55G   0.03686   0.01693  0.003883     43     640:  91% 50/55 [00:22<00:02,  2.26it/s]
with torch.cuda.amp.autocast(amp):
    31/49      4.55G   0.03713   0.01687  0.003902     43     640:  93% 51/55 [00:23<00:01,  2.17it/s]
with torch.cuda.amp.autocast(amp):
    31/49      4.55G   0.03697   0.01687  0.003879     43     640:  95% 52/55 [00:23<00:01,  2.28it/s]
with torch.cuda.amp.autocast(amp):
    31/49      4.55G   0.03694   0.01681  0.004756     31     640:  96% 53/55 [00:24<00:00,  2.31it/s]
with torch.cuda.amp.autocast(amp):
    31/49      4.55G   0.03654   0.01681  0.004822     50     640:  98% 54/55 [00:24<00:00,  2.36it/s]
with torch.cuda.amp.autocast(amp):
    31/49      4.55G   0.03672   0.01687  0.004771     42     640: 100% 55/55 [00:24<00:00,  2.21it/s]
          Class   Images Instances      P      R
          all      877     971     0.878     0.876
                                         mAP50  mAP50-95: 100% 28/28 [00:12<00:00,
                                         0.915     0.601

```

| Epoch  | GPU_mem | box_loss | obj_loss | cls_loss | Instances | Size |
|--|---------|----------|----------|----------|-----------|------|
| 0% 0/55 [00:00<?, ?it/s]/content/yolov5_project/yolov5/train.py:412: FutureWarning: `torch.cuda.amp.autocast(arg |         |          |          |          |           |      |
| with torch.cuda.amp.autocast(amp):   |         |          |          |          |           |      |
| 32/49      4.55G   0.01785   0.01417   0.004392     35     640:  2% 1/55 [00:00<00:10,  5.03it/s]/               |         |          |          |          |           |      |
| with torch.cuda.amp.autocast(amp):   |         |          |          |          |           |      |
| 32/49      4.55G   0.02574   0.0136   0.004828     38     640:  4% 2/55 [00:00<00:11,  4.47it/s]/                |         |          |          |          |           |      |
| with torch.cuda.amp.autocast(amp):   |         |          |          |          |           |      |
| 32/49      4.55G   0.0314   0.01472  0.003978     47     640:  5% 3/55 [00:00<00:12,  4.09it/s]/                 |         |          |          |          |           |      |
| with torch.cuda.amp.autocast(amp):   |         |          |          |          |           |      |
| 32/49      4.55G   0.03229   0.01572   0.00472     47     640:  7% 4/55 [00:01<00:16,  3.09it/s]/                |         |          |          |          |           |      |
| with torch.cuda.amp.autocast(amp):   |         |          |          |          |           |      |
| 32/49      4.55G   0.03606   0.0155   0.004645     39     640:  9% 5/55 [00:01<00:18,  2.67it/s]/                |         |          |          |          |           |      |
| with torch.cuda.amp.autocast(amp):   |         |          |          |          |           |      |
| 32/49      4.55G   0.03453   0.01534  0.004632     42     640: 11% 6/55 [00:01<00:18,  2.68it/s]/                |         |          |          |          |           |      |
| with torch.cuda.amp.autocast(amp):   |         |          |          |          |           |      |
| 32/49      4.55G   0.03621   0.01522  0.004834     38     640: 13% 7/55 [00:02<00:19,  2.48it/s]/                |         |          |          |          |           |      |
| with torch.cuda.amp.autocast(amp):   |         |          |          |          |           |      |
| 32/49      4.55G   0.03624   0.01496  0.004916     40     640: 15% 8/55 [00:02<00:19,  2.40it/s]/                |         |          |          |          |           |      |
| with torch.cuda.amp.autocast(amp):   |         |          |          |          |           |      |
| 32/49      4.55G   0.03442   0.01465  0.004668     35     640: 16% 9/55 [00:03<00:18,  2.47it/s]/                |         |          |          |          |           |      |
| with torch.cuda.amp.autocast(amp):   |         |          |          |          |           |      |
| 32/49      4.55G   0.03284   0.01479  0.004445     42     640: 18% 10/55 [00:03<00:18,  2.46it/s]                |         |          |          |          |           |      |
| with torch.cuda.amp.autocast(amp):   |         |          |          |          |           |      |
| 32/49      4.55G   0.0326   0.01484  0.004192     47     640: 20% 11/55 [00:04<00:18,  2.33it/s]                 |         |          |          |          |           |      |
| with torch.cuda.amp.autocast(amp):   |         |          |          |          |           |      |
| 32/49      4.55G   0.03119   0.01458  0.003914     35     640: 22% 12/55 [00:04<00:17,  2.41it/s]                |         |          |          |          |           |      |
| with torch.cuda.amp.autocast(amp):   |         |          |          |          |           |      |
| 32/49      4.55G   0.03306   0.01465  0.00384     42     640: 24% 13/55 [00:04<00:16,  2.48it/s]                 |         |          |          |          |           |      |
| with torch.cuda.amp.autocast(amp):   |         |          |          |          |           |      |
| 32/49      4.55G   0.03429   0.01475  0.003958     39     640: 25% 14/55 [00:05<00:17,  2.37it/s]                |         |          |          |          |           |      |
| with torch.cuda.amp.autocast(amp):   |         |          |          |          |           |      |
| 32/49      4.55G   0.03482   0.01484  0.004012     36     640: 27% 15/55 [00:05<00:16,  2.41it/s]                |         |          |          |          |           |      |
| with torch.cuda.amp.autocast(amp):   |         |          |          |          |           |      |
| 32/49      4.55G   0.03487   0.01493  0.003928     43     640: 29% 16/55 [00:06<00:16,  2.30it/s]                |         |          |          |          |           |      |

```

with torch.cuda.amp.autocast(amp):
    32/49    4.55G   0.03501  0.01488  0.003827    41      640: 31% 17/55 [00:06<00:15,  2.45it/s]
with torch.cuda.amp.autocast(amp):
    32/49    4.55G   0.03503  0.01515  0.003853    48      640: 33% 18/55 [00:07<00:15,  2.38it/s]
with torch.cuda.amp.autocast(amp):
    32/49    4.55G   0.03546  0.0152   0.003823    44      640: 35% 19/55 [00:07<00:16,  2.25it/s]
with torch.cuda.amp.autocast(amp):
    32/49    4.55G   0.03597  0.01566  0.00378    57      640: 36% 20/55 [00:08<00:17,  1.97it/s]
with torch.cuda.amp.autocast(amp):
    32/49    4.55G   0.03596  0.          Run cell (Ctrl+Enter)
                                         cell has not been executed in this session
                                         Previous execution ended unsuccessfully
with torch.cuda.amp.autocast(amp):
    32/49    4.55G   0.03583  0.          currently executing...
                                         Run cell (Ctrl+Enter)
                                         cell has not been executed in this session
                                         Previous execution ended unsuccessfully
                                         currently executing...
with torch.cuda.amp.autocast(amp):
    32/49    4.55G   0.03637  0.01565  0.003743    39      640: 42% 23/55 [00:09<00:18,  1.76it/s]
with torch.cuda.amp.autocast(amp):
    32/49    4.55G   0.03724  0.01551  0.003681    39      640: 44% 24/55 [00:10<00:18,  1.70it/s]
with torch.cuda.amp.autocast(amp):
    32/49    4.55G   0.03704  0.01569  0.003623    46      640: 45% 25/55 [00:11<00:16,  1.78it/s]
with torch.cuda.amp.autocast(amp):
    32/49    4.55G   0.03676  0.01576  0.003548    46      640: 47% 26/55 [00:11<00:15,  1.92it/s]
with torch.cuda.amp.autocast(amp):
    32/49    4.55G   0.03699  0.01592  0.003545    47      640: 49% 27/55 [00:11<00:13,  2.06it/s]
with torch.cuda.amp.autocast(amp):
    32/49    4.55G   0.03672  0.01592  0.003542    41      640: 51% 28/55 [00:12<00:13,  2.07it/s]
with torch.cuda.amp.autocast(amp):
    32/49    4.55G   0.03604  0.01581  0.003645    38      640: 53% 29/55 [00:12<00:11,  2.26it/s]
with torch.cuda.amp.autocast(amp):
    32/49    4.55G   0.03685  0.01596  0.003667    52      640: 55% 30/55 [00:13<00:11,  2.25it/s]
with torch.cuda.amp.autocast(amp):
    32/49    4.55G   0.03658  0.01595  0.003632    35      640: 56% 31/55 [00:13<00:10,  2.25it/s]
with torch.cuda.amp.autocast(amp):
    32/49    4.55G   0.0365   0.01585  0.003655    35      640: 58% 32/55 [00:14<00:10,  2.20it/s]
with torch.cuda.amp.autocast(amp):
    32/49    4.55G   0.03692  0.01589  0.003724    39      640: 60% 33/55 [00:14<00:09,  2.37it/s]
with torch.cuda.amp.autocast(amp):
    32/49    4.55G   0.03705  0.01593  0.003763    46      640: 62% 34/55 [00:14<00:09,  2.32it/s]
with torch.cuda.amp.autocast(amp):
    32/49    4.55G   0.03653  0.01592  0.003794    44      640: 64% 35/55 [00:15<00:08,  2.42it/s]
with torch.cuda.amp.autocast(amp):
    32/49    4.55G   0.03612  0.01594  0.003777    43      640: 65% 36/55 [00:15<00:07,  2.42it/s]
with torch.cuda.amp.autocast(amp):
    32/49    4.55G   0.03655  0.0161   0.003827    46      640: 67% 37/55 [00:16<00:07,  2.30it/s]
with torch.cuda.amp.autocast(amp):
    32/49    4.55G   0.03599  0.01601  0.003776    42      640: 69% 38/55 [00:16<00:07,  2.36it/s]
with torch.cuda.amp.autocast(amp):
    32/49    4.55G   0.03644  0.01605  0.003777    41      640: 71% 39/55 [00:17<00:06,  2.41it/s]
with torch.cuda.amp.autocast(amp):
    32/49    4.55G   0.03601  0.01601  0.00376    42      640: 73% 40/55 [00:17<00:06,  2.41it/s]
with torch.cuda.amp.autocast(amp):
    32/49    4.55G   0.0361   0.01599  0.003727    42      640: 75% 41/55 [00:17<00:05,  2.36it/s]
with torch.cuda.amp.autocast(amp):
    32/49    4.55G   0.03598  0.01591  0.00373    36      640: 76% 42/55 [00:18<00:05,  2.37it/s]
with torch.cuda.amp.autocast(amp):
    32/49    4.55G   0.03559  0.0159   0.003717    41      640: 78% 43/55 [00:18<00:05,  2.38it/s]
with torch.cuda.amp.autocast(amp):
    32/49    4.55G   0.03558  0.01586  0.003713    42      640: 80% 44/55 [00:19<00:04,  2.39it/s]
with torch.cuda.amp.autocast(amp):
    32/49    4.55G   0.0358   0.01584  0.003696    47      640: 82% 45/55 [00:19<00:04,  2.34it/s]
with torch.cuda.amp.autocast(amp):
    32/49    4.55G   0.03608  0.01574  0.00371    30      640: 84% 46/55 [00:19<00:03,  2.34it/s]
with torch.cuda.amp.autocast(amp):
    32/49    4.55G   0.03576  0.01576  0.003719    35      640: 85% 47/55 [00:20<00:03,  2.45it/s]
with torch.cuda.amp.autocast(amp):
    32/49    4.55G   0.0356   0.01582  0.003753    45      640: 87% 48/55 [00:20<00:03,  2.20it/s]
with torch.cuda.amp.autocast(amp):
    32/49    4.55G   0.03529  0.01585  0.003759    35      640: 89% 49/55 [00:21<00:02,  2.22it/s]
with torch.cuda.amp.autocast(amp):
    32/49    4.55G   0.03516  0.01584  0.003735    39      640: 91% 50/55 [00:22<00:02,  1.90it/s]
with torch.cuda.amp.autocast(amp):
    32/49    4.55G   0.03509  0.01575  0.003741    30      640: 93% 51/55 [00:22<00:02,  1.91it/s]
with torch.cuda.amp.autocast(amp):
    32/49    4.55G   0.03538  0.01576  0.00378    51      640: 95% 52/55 [00:23<00:01,  1.78it/s]

```

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with torch.cuda.amp.autocast(amp):
    32/49    4.55G   0.03542   0.01577   0.003766   44      640: 96% 53/55 [00:23<00:01,  1.71it/s]
with torch.cuda.amp.autocast(amp):
    32/49    4.55G   0.03562   0.01579   0.003966   50      640: 98% 54/55 [00:24<00:00,  1.67it/s]
with torch.cuda.amp.autocast(amp):
    32/49    4.55G   0.03573   0.01575   0.003967   33      640: 100% 55/55 [00:24<00:00,  2.21it/s]
                    Class   Images   Instances   P       R
                    all     877      971      0.874     0.883
                                         mAP50      mAP50-95: 100% 28/28 [00:11<00:00,
                                         0.926      0.593

Epoch    GPU_mem   box_loss   obj   Run cell (Ctrl+Enter)
0% 0/55 [00:00<?, ?it/s]/content/yolo   cell has not been executed in this session
                                           Previous execution ended unsuccessfully
with torch.cuda.amp.autocast(amp):
    33/49    4.55G   0.01791   0 currently executing...
with torch.cuda.amp.autocast(amp):
    33/49    4.55G   0.02594   0.01383   0.002812   39      640: 2% 1/55 [00:00<00:13,  4.09it/s]
with torch.cuda.amp.autocast(amp):
    33/49    4.55G   0.02398   0.01437   0.003034   44      640: 4% 2/55 [00:00<00:13,  3.99it/s]
with torch.cuda.amp.autocast(amp):
    33/49    4.55G   0.02233   0.0134    0.003119   30      640: 5% 3/55 [00:00<00:18,  2.75it/s]
with torch.cuda.amp.autocast(amp):
    33/49    4.55G   0.02713   0.01464   0.003699   45      640: 7% 4/55 [00:01<00:19,  2.58it/s]
with torch.cuda.amp.autocast(amp):
    33/49    4.55G   0.0313    0.0151    0.003983   43      640: 9% 5/55 [00:01<00:20,  2.45it/s]
with torch.cuda.amp.autocast(amp):
    33/49    4.55G   0.0315    0.0152    0.004663   47      640: 11% 6/55 [00:02<00:20,  2.45it/s]
with torch.cuda.amp.autocast(amp):
    33/49    4.55G   0.0293    0.01485   0.004667   37      640: 13% 7/55 [00:02<00:19,  2.41it/s]
with torch.cuda.amp.autocast(amp):
    33/49    4.55G   0.03209   0.01555   0.004897   51      640: 16% 9/55 [00:03<00:19,  2.37it/s]
with torch.cuda.amp.autocast(amp):
    33/49    4.55G   0.03247   0.01568   0.004736   47      640: 18% 10/55 [00:03<00:18,  2.45it/s]
with torch.cuda.amp.autocast(amp):
    33/49    4.55G   0.03213   0.01568   0.004677   45      640: 20% 11/55 [00:04<00:19,  2.29it/s]
with torch.cuda.amp.autocast(amp):
    33/49    4.55G   0.03101   0.01559   0.004553   39      640: 22% 12/55 [00:04<00:17,  2.43it/s]
with torch.cuda.amp.autocast(amp):
    33/49    4.55G   0.03187   0.01555   0.004386   47      640: 24% 13/55 [00:05<00:18,  2.24it/s]
with torch.cuda.amp.autocast(amp):
    33/49    4.55G   0.03261   0.01545   0.004205   38      640: 25% 14/55 [00:05<00:18,  2.26it/s]
with torch.cuda.amp.autocast(amp):
    33/49    4.55G   0.03201   0.01558   0.004145   51      640: 27% 15/55 [00:06<00:16,  2.36it/s]
with torch.cuda.amp.autocast(amp):
    33/49    4.55G   0.03171   0.01552   0.004592   43      640: 29% 16/55 [00:06<00:16,  2.31it/s]
with torch.cuda.amp.autocast(amp):
    33/49    4.55G   0.03095   0.01541   0.004475   38      640: 31% 17/55 [00:07<00:16,  2.30it/s]
with torch.cuda.amp.autocast(amp):
    33/49    4.55G   0.03136   0.01532   0.004524   39      640: 33% 18/55 [00:07<00:15,  2.35it/s]
with torch.cuda.amp.autocast(amp):
    33/49    4.55G   0.03155   0.01546   0.004517   46      640: 35% 19/55 [00:07<00:15,  2.36it/s]
with torch.cuda.amp.autocast(amp):
    33/49    4.55G   0.03238   0.01573   0.004481   51      640: 36% 20/55 [00:08<00:14,  2.40it/s]
with torch.cuda.amp.autocast(amp):
    33/49    4.55G   0.03179   0.01584   0.004385   43      640: 38% 21/55 [00:08<00:14,  2.30it/s]
with torch.cuda.amp.autocast(amp):
    33/49    4.55G   0.03242   0.01581   0.0043   41      640: 40% 22/55 [00:09<00:14,  2.34it/s]
with torch.cuda.amp.autocast(amp):
    33/49    4.55G   0.03171   0.01586   0.004243   46      640: 42% 23/55 [00:09<00:13,  2.36it/s]
with torch.cuda.amp.autocast(amp):
    33/49    4.55G   0.0317    0.01589   0.004187   46      640: 44% 24/55 [00:09<00:13,  2.35it/s]
with torch.cuda.amp.autocast(amp):
    33/49    4.55G   0.03221   0.01599   0.004182   47      640: 45% 25/55 [00:10<00:12,  2.37it/s]
with torch.cuda.amp.autocast(amp):
    33/49    4.55G   0.03268   0.01611   0.004118   50      640: 47% 26/55 [00:10<00:12,  2.35it/s]
with torch.cuda.amp.autocast(amp):
    33/49    4.55G   0.03279   0.01607   0.004147   39      640: 49% 27/55 [00:11<00:12,  2.16it/s]
with torch.cuda.amp.autocast(amp):
    33/49    4.55G   0.03319   0.01608   0.004099   44      640: 51% 28/55 [00:12<00:14,  1.88it/s]
with torch.cuda.amp.autocast(amp):
    33/49    4.55G   0.03273   0.01605   0.004014   43      640: 53% 29/55 [00:12<00:13,  1.95it/s]
with torch.cuda.amp.autocast(amp):
    33/49    4.55G   0.03267   0.01606   0.003944   47      640: 55% 30/55 [00:13<00:14,  1.76it/s]
with torch.cuda.amp.autocast(amp):

```

```

    33/49      4.55G   0.03305   0.01615   0.003895     43     640:  56% 31/55 [00:13<00:13,  1.74it/s]
with torch.cuda.amp.autocast(amp):
    33/49      4.55G   0.03322   0.01626   0.003885     46     640:  58% 32/55 [00:14<00:13,  1.68it/s]
with torch.cuda.amp.autocast(amp):
    33/49      4.55G   0.03369   0.01618   0.003828     42     640:  60% 33/55 [00:14<00:11,  1.84it/s]
with torch.cuda.amp.autocast(amp):
    33/49      4.55G   0.0341    0.01621   0.003841     38     640:  62% 34/55 [00:15<00:10,  1.96it/s]
with torch.cuda.amp.autocast(amp):
    33/49      4.55G   0.03402   0.~^~~~~~^~^~~~~~^~ Run cell (Ctrl+Enter)
with torch.cuda.amp.autocast(amp):
    33/49      4.55G   0.03395   0.~^~~~~~^~^~~~~~^~ cell has not been executed in this session
with torch.cuda.amp.autocast(amp):
    33/49      4.55G   0.03359   0.~^~~~~~^~^~~~~~^~ Previous execution ended unsuccessfully
with torch.cuda.amp.autocast(amp):
    33/49      4.55G   0.03359   0.~^~~~~~^~^~~~~~^~ currently executing...
with torch.cuda.amp.autocast(amp):
    33/49      4.55G   0.03356   0.01601   0.003801     38     640:  69% 38/55 [00:17<00:07,  2.28it/s]
with torch.cuda.amp.autocast(amp):
    33/49      4.55G   0.03379   0.01607   0.00385     50     640:  71% 39/55 [00:17<00:07,  2.27it/s]
with torch.cuda.amp.autocast(amp):
    33/49      4.55G   0.03384   0.0161    0.00383     46     640:  73% 40/55 [00:17<00:06,  2.23it/s]
with torch.cuda.amp.autocast(amp):
    33/49      4.55G   0.03403   0.01605   0.003787     41     640:  75% 41/55 [00:18<00:06,  2.22it/s]
with torch.cuda.amp.autocast(amp):
    33/49      4.55G   0.03412   0.01606   0.003779     41     640:  76% 42/55 [00:18<00:05,  2.31it/s]
with torch.cuda.amp.autocast(amp):
    33/49      4.55G   0.03463   0.01607   0.003759     49     640:  78% 43/55 [00:19<00:05,  2.28it/s]
with torch.cuda.amp.autocast(amp):
    33/49      4.55G   0.03458   0.01602   0.003719     42     640:  80% 44/55 [00:19<00:04,  2.32it/s]
with torch.cuda.amp.autocast(amp):
    33/49      4.55G   0.035     0.01601   0.003714     45     640:  82% 45/55 [00:20<00:04,  2.26it/s]
with torch.cuda.amp.autocast(amp):
    33/49      4.55G   0.03503   0.016     0.003675     42     640:  84% 46/55 [00:20<00:03,  2.29it/s]
with torch.cuda.amp.autocast(amp):
    33/49      4.55G   0.0349     0.01598   0.004129     45     640:  85% 47/55 [00:20<00:03,  2.36it/s]
with torch.cuda.amp.autocast(amp):
    33/49      4.55G   0.03491   0.01603   0.004083     47     640:  87% 48/55 [00:21<00:03,  2.28it/s]
with torch.cuda.amp.autocast(amp):
    33/49      4.55G   0.03458   0.01591   0.004045     34     640:  89% 49/55 [00:21<00:02,  2.34it/s]
with torch.cuda.amp.autocast(amp):
    33/49      4.55G   0.03426   0.01598   0.00405     51     640:  91% 50/55 [00:22<00:02,  2.39it/s]
with torch.cuda.amp.autocast(amp):
    33/49      4.55G   0.03428   0.01605   0.00405     56     640:  93% 51/55 [00:22<00:01,  2.43it/s]
with torch.cuda.amp.autocast(amp):
    33/49      4.55G   0.0342     0.01603   0.004041     44     640:  95% 52/55 [00:23<00:01,  2.34it/s]
with torch.cuda.amp.autocast(amp):
    33/49      4.55G   0.03428   0.01613   0.003998     52     640:  96% 53/55 [00:23<00:00,  2.30it/s]
with torch.cuda.amp.autocast(amp):
    33/49      4.55G   0.0344     0.01617   0.003964     46     640:  98% 54/55 [00:23<00:00,  2.34it/s]
with torch.cuda.amp.autocast(amp):
    33/49      4.55G   0.03448   0.01616   0.00397     36     640: 100% 55/55 [00:24<00:00,  2.27it/s]
          Class   Images Instances P
          all       877      971     0.891     0.895
                                         mAP50: 0.941
                                         mAP50-95: 100% 28/28 [00:12<00:00,
                                         0.612

```

| Epoch | GPU_mem   | box_loss | obj_loss | cls_loss | Instances | Size  |
|-------|---|----------|----------|----------|-----------|---|
| 0%    | 0/55 [00:00<?, ?it/s]/content/yolov5_project/yolov5/train.py:412: |          |          |          |           | FutureWarning: `torch.cuda.amp.autocast(arg |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 34/49 | 4.55G   | 0.01787  | 0.01349  | 0.004806 | 40        | 640: 2% 1/55 [00:00<00:10, 5.07it/s]/       |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 34/49 | 4.55G   | 0.02312  | 0.01589  | 0.003951 | 43        | 640: 4% 2/55 [00:00<00:12, 4.28it/s]/       |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 34/49 | 4.55G   | 0.02705  | 0.01508  | 0.003209 | 39        | 640: 5% 3/55 [00:00<00:14, 3.67it/s]/       |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 34/49 | 4.55G   | 0.03002  | 0.01592  | 0.003149 | 48        | 640: 7% 4/55 [00:01<00:17, 2.84it/s]/       |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 34/49 | 4.55G   | 0.03197  | 0.01564  | 0.003779 | 37        | 640: 9% 5/55 [00:01<00:22, 2.21it/s]/       |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 34/49 | 4.55G   | 0.03658  | 0.0151   | 0.003468 | 36        | 640: 11% 6/55 [00:02<00:24, 1.97it/s]/      |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 34/49 | 4.55G   | 0.03585  | 0.0151   | 0.003171 | 44        | 640: 13% 7/55 [00:03<00:26, 1.78it/s]/      |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 34/49 | 4.55G   | 0.03581  | 0.01487  | 0.003516 | 42        | 640: 15% 8/55 [00:03<00:27, 1.70it/s]/      |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 34/49 | 4.55G   | 0.0347   | 0.01492  | 0.003595 | 44        | 640: 16% 9/55 [00:04<00:27, 1.67it/s]/      |

```

with torch.cuda.amp.autocast(amp):
    34/49    4.55G  0.03425  0.01515  0.003673      50      640: 18% 10/55 [00:05<00:26,  1.70it/s]
with torch.cuda.amp.autocast(amp):
    34/49    4.55G  0.03281  0.01481  0.003711      35      640: 20% 11/55 [00:05<00:23,  1.88it/s]
with torch.cuda.amp.autocast(amp):
    34/49    4.55G  0.03419  0.01522  0.003594      50      640: 22% 12/55 [00:05<00:21,  1.97it/s]
with torch.cuda.amp.autocast(amp):
    34/49    4.55G  0.03407  0.01505  0.003762      40      640: 24% 13/55 [00:06<00:20,  2.09it/s]
with torch.cuda.amp.autocast(amp):
    34/49    4.55G  0.03285  0. Run cell (Ctrl+Enter)
                                cell has not been executed in this session
                                Previous execution ended unsuccessfully
with torch.cuda.amp.autocast(amp):
    34/49    4.55G  0.03341  0. currently executing...
with torch.cuda.amp.autocast(amp):
    34/49    4.55G  0.03423  0.01545  0.004165      50      640: 29% 16/55 [00:07<00:17,  2.27it/s]
with torch.cuda.amp.autocast(amp):
    34/49    4.55G  0.03423  0.01534  0.003954      37      640: 31% 17/55 [00:07<00:16,  2.26it/s]
with torch.cuda.amp.autocast(amp):
    34/49    4.55G  0.0343   0.01543  0.003884      43      640: 33% 18/55 [00:08<00:16,  2.26it/s]
with torch.cuda.amp.autocast(amp):
    34/49    4.55G  0.03509  0.01581  0.003878      55      640: 35% 19/55 [00:08<00:15,  2.34it/s]
with torch.cuda.amp.autocast(amp):
    34/49    4.55G  0.03549  0.01601  0.003778      45      640: 36% 20/55 [00:09<00:15,  2.32it/s]
with torch.cuda.amp.autocast(amp):
    34/49    4.55G  0.03472  0.01605  0.003893      45      640: 38% 21/55 [00:09<00:14,  2.41it/s]
with torch.cuda.amp.autocast(amp):
    34/49    4.55G  0.03504  0.01617  0.003794      54      640: 40% 22/55 [00:10<00:14,  2.30it/s]
with torch.cuda.amp.autocast(amp):
    34/49    4.55G  0.0349   0.01607  0.003778      43      640: 42% 23/55 [00:10<00:13,  2.34it/s]
with torch.cuda.amp.autocast(amp):
    34/49    4.55G  0.03565  0.01601  0.00376       39      640: 44% 24/55 [00:10<00:13,  2.29it/s]
with torch.cuda.amp.autocast(amp):
    34/49    4.55G  0.03567  0.01596  0.0038       38      640: 45% 25/55 [00:11<00:13,  2.21it/s]
with torch.cuda.amp.autocast(amp):
    34/49    4.55G  0.03537  0.01588  0.003708      41      640: 47% 26/55 [00:11<00:12,  2.23it/s]
with torch.cuda.amp.autocast(amp):
    34/49    4.55G  0.0355   0.01598  0.003625      52      640: 49% 27/55 [00:12<00:12,  2.28it/s]
with torch.cuda.amp.autocast(amp):
    34/49    4.55G  0.03543  0.01606  0.003587      51      640: 51% 28/55 [00:12<00:11,  2.31it/s]
with torch.cuda.amp.autocast(amp):
    34/49    4.55G  0.03478  0.01595  0.003625      39      640: 53% 29/55 [00:13<00:10,  2.39it/s]
with torch.cuda.amp.autocast(amp):
    34/49    4.55G  0.0347   0.01604  0.003616      48      640: 55% 30/55 [00:13<00:10,  2.27it/s]
with torch.cuda.amp.autocast(amp):
    34/49    4.55G  0.03422  0.0162   0.003675      53      640: 56% 31/55 [00:13<00:09,  2.44it/s]
with torch.cuda.amp.autocast(amp):
    34/49    4.55G  0.03408  0.01613  0.003672      37      640: 58% 32/55 [00:14<00:09,  2.35it/s]
with torch.cuda.amp.autocast(amp):
    34/49    4.55G  0.0336   0.0161   0.003629      47      640: 60% 33/55 [00:14<00:09,  2.35it/s]
with torch.cuda.amp.autocast(amp):
    34/49    4.55G  0.03362  0.01612  0.003678      43      640: 62% 34/55 [00:15<00:10,  2.01it/s]
with torch.cuda.amp.autocast(amp):
    34/49    4.55G  0.03379  0.01606  0.00366       41      640: 64% 35/55 [00:15<00:09,  2.07it/s]
with torch.cuda.amp.autocast(amp):
    34/49    4.55G  0.0342   0.01598  0.003725      40      640: 65% 36/55 [00:16<00:09,  1.94it/s]
with torch.cuda.amp.autocast(amp):
    34/49    4.55G  0.0342   0.0159   0.003734      36      640: 67% 37/55 [00:17<00:09,  1.82it/s]
with torch.cuda.amp.autocast(amp):
    34/49    4.55G  0.03415  0.01589  0.003733      46      640: 69% 38/55 [00:17<00:09,  1.71it/s]
with torch.cuda.amp.autocast(amp):
    34/49    4.55G  0.03431  0.01584  0.003823      38      640: 71% 39/55 [00:18<00:09,  1.69it/s]
with torch.cuda.amp.autocast(amp):
    34/49    4.55G  0.03427  0.01592  0.003811      51      640: 73% 40/55 [00:18<00:08,  1.85it/s]
with torch.cuda.amp.autocast(amp):
    34/49    4.55G  0.03477  0.016   0.003832      51      640: 75% 41/55 [00:19<00:07,  1.95it/s]
with torch.cuda.amp.autocast(amp):
    34/49    4.55G  0.03435  0.01584  0.003801      25      640: 76% 42/55 [00:19<00:06,  2.09it/s]
with torch.cuda.amp.autocast(amp):
    34/49    4.55G  0.03466  0.01577  0.003817      33      640: 78% 43/55 [00:20<00:05,  2.19it/s]
with torch.cuda.amp.autocast(amp):
    34/49    4.55G  0.03441  0.01575  0.004858      44      640: 80% 44/55 [00:20<00:05,  2.14it/s]
with torch.cuda.amp.autocast(amp):
    34/49    4.55G  0.03472  0.01572  0.004813      39      640: 82% 45/55 [00:20<00:04,  2.30it/s]

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with torch.cuda.amp.autocast(amp):
    34/49    4.55G  0.03479  0.01581  0.004792      48      640:  84% 46/55 [00:21<00:04,  2.23it/s]
with torch.cuda.amp.autocast(amp):
    34/49    4.55G  0.03492  0.01583  0.004771      41      640:  85% 47/55 [00:21<00:03,  2.37it/s]
with torch.cuda.amp.autocast(amp):
    34/49    4.55G  0.03458  0.01585  0.004762      41      640:  87% 48/55 [00:22<00:02,  2.36it/s]
with torch.cuda.amp.autocast(amp):
    34/49    4.55G  0.03425  0.01579  0.004782      36      640:  89% 49/55 [00:22<00:02,  2.31it/s]
with torch.cuda.amp.autocast(amp):
    34/49    4.55G  0.03418  0.          Run cell (Ctrl+Enter)
                                         cell has not been executed in this session
                                         Previous execution ended unsuccessfully
with torch.cuda.amp.autocast(amp):
    34/49    4.55G  0.03415  0.          currently executing...
                                         P
                                         Class   Images Instances
                                         all     877    971     0.897  0.86
                                         R
                                         mAP50  mAP50-95: 100% 28/28 [00:12<00:00,
                                         0.914   0.577

                                         Size
                                         Epoch GPU_mem box_loss obj_loss cls_loss Instances
                                         0% 0/55 [00:00<?, ?it/s]/content/yolov5_project/yolov5/train.py:412: FutureWarning: `torch.cuda.amp.autocast(arg
with torch.cuda.amp.autocast(amp):
    35/49    4.55G  0.03309  0.01957  0.002094      53      640:  2% 1/55 [00:00<00:10,  4.91it/s]
with torch.cuda.amp.autocast(amp):
    35/49    4.55G  0.02685  0.01747  0.002159      43      640:  4% 2/55 [00:00<00:10,  4.96it/s]
with torch.cuda.amp.autocast(amp):
    35/49    4.55G  0.02743  0.01708  0.002123      50      640:  5% 3/55 [00:00<00:15,  3.35it/s]
with torch.cuda.amp.autocast(amp):
    35/49    4.55G  0.02721  0.01639  0.002198      36      640:  7% 4/55 [00:01<00:17,  2.89it/s]
with torch.cuda.amp.autocast(amp):
    35/49    4.55G  0.029    0.01668  0.002109      44      640:  9% 5/55 [00:01<00:18,  2.77it/s]
with torch.cuda.amp.autocast(amp):
    35/49    4.55G  0.02725  0.01608  0.002215      39      640: 11% 6/55 [00:02<00:18,  2.59it/s]
with torch.cuda.amp.autocast(amp):
    35/49    4.55G  0.0313   0.01613  0.002672      44      640: 13% 7/55 [00:02<00:20,  2.33it/s]
with torch.cuda.amp.autocast(amp):
    35/49    4.55G  0.02966  0.0158   0.002654      40      640: 15% 8/55 [00:02<00:18,  2.49it/s]
with torch.cuda.amp.autocast(amp):
    35/49    4.55G  0.02855  0.01561  0.002551      37      640: 16% 9/55 [00:03<00:19,  2.36it/s]
with torch.cuda.amp.autocast(amp):
    35/49    4.55G  0.02744  0.01572  0.002843      43      640: 18% 10/55 [00:03<00:19,  2.29it/s]
with torch.cuda.amp.autocast(amp):
    35/49    4.55G  0.02927  0.0159   0.003967      43      640: 20% 11/55 [00:04<00:18,  2.33it/s]
with torch.cuda.amp.autocast(amp):
    35/49    4.55G  0.02822  0.01575  0.00391      35      640: 22% 12/55 [00:04<00:20,  2.12it/s]
with torch.cuda.amp.autocast(amp):
    35/49    4.55G  0.02927  0.01576  0.003797      39      640: 24% 13/55 [00:05<00:20,  2.02it/s]
with torch.cuda.amp.autocast(amp):
    35/49    4.55G  0.03006  0.01581  0.00401      41      640: 25% 14/55 [00:06<00:23,  1.76it/s]
with torch.cuda.amp.autocast(amp):
    35/49    4.55G  0.03128  0.01585  0.003987      50      640: 27% 15/55 [00:06<00:22,  1.75it/s]
with torch.cuda.amp.autocast(amp):
    35/49    4.55G  0.03048  0.01588  0.003866      43      640: 29% 16/55 [00:07<00:22,  1.72it/s]
with torch.cuda.amp.autocast(amp):
    35/49    4.55G  0.0304   0.01566  0.003702      34      640: 31% 17/55 [00:07<00:22,  1.69it/s]
with torch.cuda.amp.autocast(amp):
    35/49    4.55G  0.03063  0.01572  0.003724      49      640: 33% 18/55 [00:08<00:20,  1.83it/s]
with torch.cuda.amp.autocast(amp):
    35/49    4.55G  0.03036  0.01568  0.00364      45      640: 35% 19/55 [00:08<00:18,  1.93it/s]
with torch.cuda.amp.autocast(amp):
    35/49    4.55G  0.0311   0.01557  0.003593      38      640: 36% 20/55 [00:09<00:17,  2.05it/s]
with torch.cuda.amp.autocast(amp):
    35/49    4.55G  0.03127  0.01567  0.003611      48      640: 38% 21/55 [00:09<00:16,  2.10it/s]
with torch.cuda.amp.autocast(amp):
    35/49    4.55G  0.03115  0.01571  0.003723      44      640: 40% 22/55 [00:10<00:14,  2.23it/s]
with torch.cuda.amp.autocast(amp):
    35/49    4.55G  0.03133  0.01575  0.003678      51      640: 42% 23/55 [00:10<00:14,  2.17it/s]
with torch.cuda.amp.autocast(amp):

```

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    35/49    4.55G   0.03175   0.01556   0.003579    35     640:  44% 24/55 [00:11<00:14,  2.17it/s]
with torch.cuda.amp.autocast(amp):
    35/49    4.55G   0.03227   0.01555   0.003679    39     640:  45% 25/55 [00:11<00:13,  2.30it/s]
with torch.cuda.amp.autocast(amp):
    35/49    4.55G   0.0325   0.01555   0.003583    45     640:  47% 26/55 [00:11<00:12,  2.27it/s]
with torch.cuda.amp.autocast(amp):
    35/49    4.55G   0.0323   0.01566   0.00371    49     640:  49% 27/55 [00:12<00:11,  2.34it/s]
with torch.cuda.amp.autocast(amp):
    35/49    4.55G   0.03265   0.01567   0.00371    49     640:  51% 28/55 [00:12<00:11,  2.30it/s]
Run cell (Ctrl+Enter)
with torch.cuda.amp.autocast(amp):
    35/49    4.55G   0.03251   0.01567   0.00371    49     640:  53% 29/55 [00:13<00:11,  2.30it/s]
cell has not been executed in this session
Previous execution ended unsuccessfully
with torch.cuda.amp.autocast(amp):
    35/49    4.55G   0.03273   0.01567   0.00371    49     640:  55% 30/55 [00:13<00:10,  2.40it/s]
with torch.cuda.amp.autocast(amp):
    35/49    4.55G   0.03217   0.01559   0.00358    39     640:  56% 31/55 [00:13<00:10,  2.35it/s]
with torch.cuda.amp.autocast(amp):
    35/49    4.55G   0.03177   0.01555   0.003605    40     640:  58% 32/55 [00:14<00:09,  2.39it/s]
with torch.cuda.amp.autocast(amp):
    35/49    4.55G   0.032   0.01555   0.003565    43     640:  60% 33/55 [00:14<00:09,  2.39it/s]
with torch.cuda.amp.autocast(amp):
    35/49    4.55G   0.03222   0.01556   0.003563    41     640:  62% 34/55 [00:15<00:09,  2.33it/s]
with torch.cuda.amp.autocast(amp):
    35/49    4.55G   0.03221   0.01563   0.003562    48     640:  64% 35/55 [00:15<00:08,  2.29it/s]
with torch.cuda.amp.autocast(amp):
    35/49    4.55G   0.03182   0.01558   0.003528    38     640:  65% 36/55 [00:16<00:08,  2.24it/s]
with torch.cuda.amp.autocast(amp):
    35/49    4.55G   0.03193   0.01567   0.003455    48     640:  67% 37/55 [00:16<00:07,  2.36it/s]
with torch.cuda.amp.autocast(amp):
    35/49    4.55G   0.03215   0.01568   0.00354    48     640:  69% 38/55 [00:16<00:07,  2.32it/s]
with torch.cuda.amp.autocast(amp):
    35/49    4.55G   0.03243   0.01569   0.003591    43     640:  71% 39/55 [00:17<00:06,  2.31it/s]
with torch.cuda.amp.autocast(amp):
    35/49    4.55G   0.03296   0.0156   0.003531    35     640:  73% 40/55 [00:17<00:06,  2.28it/s]
with torch.cuda.amp.autocast(amp):
    35/49    4.55G   0.03307   0.01555   0.003632    38     640:  75% 41/55 [00:18<00:06,  2.05it/s]
with torch.cuda.amp.autocast(amp):
    35/49    4.55G   0.03301   0.01565   0.00358    49     640:  76% 42/55 [00:19<00:06,  1.87it/s]
with torch.cuda.amp.autocast(amp):
    35/49    4.55G   0.03306   0.0156   0.003591    39     640:  78% 43/55 [00:19<00:06,  1.75it/s]
with torch.cuda.amp.autocast(amp):
    35/49    4.55G   0.03306   0.01561   0.003588    42     640:  80% 44/55 [00:20<00:06,  1.79it/s]
with torch.cuda.amp.autocast(amp):
    35/49    4.55G   0.03273   0.01558   0.003575    45     640:  82% 45/55 [00:20<00:05,  1.77it/s]
with torch.cuda.amp.autocast(amp):
    35/49    4.55G   0.03299   0.01559   0.003593    45     640:  84% 46/55 [00:21<00:05,  1.71it/s]
with torch.cuda.amp.autocast(amp):
    35/49    4.55G   0.03323   0.01565   0.003571    52     640:  85% 47/55 [00:21<00:04,  1.83it/s]
with torch.cuda.amp.autocast(amp):
    35/49    4.55G   0.03316   0.0157   0.003568    40     640:  87% 48/55 [00:22<00:03,  1.92it/s]
with torch.cuda.amp.autocast(amp):
    35/49    4.55G   0.03315   0.01567   0.003561    39     640:  89% 49/55 [00:22<00:02,  2.07it/s]
with torch.cuda.amp.autocast(amp):
    35/49    4.55G   0.03281   0.0156   0.003512    33     640:  91% 50/55 [00:23<00:02,  2.07it/s]
with torch.cuda.amp.autocast(amp):
    35/49    4.55G   0.0325   0.01558   0.003477    37     640:  93% 51/55 [00:23<00:01,  2.15it/s]
with torch.cuda.amp.autocast(amp):
    35/49    4.55G   0.03222   0.01553   0.003466    32     640:  95% 52/55 [00:24<00:01,  2.31it/s]
with torch.cuda.amp.autocast(amp):
    35/49    4.55G   0.03241   0.0155   0.003489    38     640:  96% 53/55 [00:24<00:00,  2.32it/s]
with torch.cuda.amp.autocast(amp):
    35/49    4.55G   0.03278   0.01554   0.003538    47     640:  98% 54/55 [00:24<00:00,  2.28it/s]
with torch.cuda.amp.autocast(amp):
    35/49    4.55G   0.03256   0.01552   0.003514    35     640: 100% 55/55 [00:25<00:00,  2.18it/s]
        Class   Images Instances      P      R
        all      877      971     0.892     0.895
                                         mAP50   mAP50-95: 100% 28/28 [00:12<00:00,
                                         0.929     0.632

    Epoch   GPU_mem   box_loss   obj_loss   cls_loss Instances      Size
    0% 0/55 [00:00<?, ?it/s]/content/yolov5_project/yolov5/train.py:412: FutureWarning: `torch.cuda.amp.autocast(arg
with torch.cuda.amp.autocast(amp):
    36/49    4.55G   0.031   0.01259   0.002286    40     640:  2% 1/55 [00:00<00:11,  4.81it/s]/
with torch.cuda.amp.autocast(amp):
    36/49    4.55G   0.02391   0.01277   0.00217    41     640:  4% 2/55 [00:00<00:11,  4.53it/s]/

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with torch.cuda.amp.autocast(amp):
    36/49    4.55G  0.02576  0.01381  0.002033    39    640:  5% 3/55 [00:00<00:13,  3.74it/s]
with torch.cuda.amp.autocast(amp):
    36/49    4.55G  0.03187  0.01489  0.002605    44    640:  7% 4/55 [00:01<00:17,  2.91it/s]
with torch.cuda.amp.autocast(amp):
    36/49    4.55G  0.02907  0.01463  0.002676    37    640:  9% 5/55 [00:01<00:17,  2.81it/s]
with torch.cuda.amp.autocast(amp):
    36/49    4.55G  0.03056  0.01446  0.002882    41    640: 11% 6/55 [00:02<00:19,  2.51it/s]
with torch.cuda.amp.autocast(amp):
    36/49    4.55G  0.03052  0 Run cell (Ctrl+Enter)
                                cell has not been executed in this session
                                Previous execution ended unsuccessfully
with torch.cuda.amp.autocast(amp):
    36/49    4.55G  0.03142  0 currently executing...
                                currently executing...
with torch.cuda.amp.autocast(amp):
    36/49    4.55G  0.03141  0.01422  0.002921    41    640: 16% 9/55 [00:03<00:18,  2.45it/s]
with torch.cuda.amp.autocast(amp):
    36/49    4.55G  0.03104  0.01437  0.002911    41    640: 18% 10/55 [00:03<00:18,  2.38it/s]
with torch.cuda.amp.autocast(amp):
    36/49    4.55G  0.02936  0.01423  0.003      39    640: 20% 11/55 [00:04<00:18,  2.40it/s]
with torch.cuda.amp.autocast(amp):
    36/49    4.55G  0.03117  0.01425  0.002868    44    640: 22% 12/55 [00:04<00:18,  2.34it/s]
with torch.cuda.amp.autocast(amp):
    36/49    4.55G  0.03015  0.01416  0.002828    45    640: 24% 13/55 [00:04<00:16,  2.48it/s]
with torch.cuda.amp.autocast(amp):
    36/49    4.55G  0.03127  0.01454  0.002864    53    640: 25% 14/55 [00:05<00:17,  2.37it/s]
with torch.cuda.amp.autocast(amp):
    36/49    4.55G  0.03119  0.01455  0.004202    45    640: 27% 15/55 [00:05<00:16,  2.36it/s]
with torch.cuda.amp.autocast(amp):
    36/49    4.55G  0.03032  0.01427  0.004307    35    640: 29% 16/55 [00:06<00:17,  2.29it/s]
with torch.cuda.amp.autocast(amp):
    36/49    4.55G  0.03103  0.01469  0.004319    51    640: 31% 17/55 [00:06<00:15,  2.41it/s]
with torch.cuda.amp.autocast(amp):
    36/49    4.55G  0.03164  0.01476  0.004155    44    640: 33% 18/55 [00:07<00:17,  2.12it/s]
with torch.cuda.amp.autocast(amp):
    36/49    4.55G  0.03307  0.01492  0.003996    47    640: 35% 19/55 [00:07<00:18,  1.97it/s]
with torch.cuda.amp.autocast(amp):
    36/49    4.55G  0.03397  0.01504  0.004003    47    640: 36% 20/55 [00:08<00:19,  1.81it/s]
with torch.cuda.amp.autocast(amp):
    36/49    4.55G  0.03408  0.01512  0.003917    48    640: 38% 21/55 [00:09<00:19,  1.74it/s]
with torch.cuda.amp.autocast(amp):
    36/49    4.55G  0.03332  0.01522  0.003971    50    640: 40% 22/55 [00:09<00:19,  1.70it/s]
with torch.cuda.amp.autocast(amp):
    36/49    4.55G  0.03427  0.01519  0.003916    47    640: 42% 23/55 [00:10<00:18,  1.74it/s]
with torch.cuda.amp.autocast(amp):
    36/49    4.55G  0.03445  0.01534  0.003919    51    640: 44% 24/55 [00:10<00:16,  1.90it/s]
with torch.cuda.amp.autocast(amp):
    36/49    4.55G  0.03437  0.01538  0.003876    47    640: 45% 25/55 [00:11<00:14,  2.00it/s]
with torch.cuda.amp.autocast(amp):
    36/49    4.55G  0.0344  0.01536  0.003871    41    640: 47% 26/55 [00:11<00:13,  2.08it/s]
with torch.cuda.amp.autocast(amp):
    36/49    4.55G  0.03423  0.01536  0.003827    43    640: 49% 27/55 [00:12<00:13,  2.10it/s]
with torch.cuda.amp.autocast(amp):
    36/49    4.55G  0.03357  0.01542  0.00374      54    640: 51% 28/55 [00:12<00:12,  2.10it/s]
with torch.cuda.amp.autocast(amp):
    36/49    4.55G  0.03358  0.01532  0.003718    36    640: 53% 29/55 [00:12<00:11,  2.25it/s]
with torch.cuda.amp.autocast(amp):
    36/49    4.55G  0.03348  0.01522  0.003693    35    640: 55% 30/55 [00:13<00:11,  2.24it/s]
with torch.cuda.amp.autocast(amp):
    36/49    4.55G  0.03343  0.01533  0.003612    50    640: 56% 31/55 [00:13<00:10,  2.24it/s]
with torch.cuda.amp.autocast(amp):
    36/49    4.55G  0.03286  0.01525  0.003565    38    640: 58% 32/55 [00:14<00:10,  2.23it/s]
with torch.cuda.amp.autocast(amp):
    36/49    4.55G  0.03292  0.01526  0.003508    39    640: 60% 33/55 [00:14<00:09,  2.35it/s]
with torch.cuda.amp.autocast(amp):
    36/49    4.55G  0.03297  0.01524  0.003573    32    640: 62% 34/55 [00:15<00:09,  2.31it/s]
with torch.cuda.amp.autocast(amp):
    36/49    4.55G  0.03252  0.01517  0.003552    42    640: 64% 35/55 [00:15<00:08,  2.28it/s]
with torch.cuda.amp.autocast(amp):
    36/49    4.55G  0.0325  0.0152  0.003595     41    640: 65% 36/55 [00:16<00:08,  2.23it/s]
with torch.cuda.amp.autocast(amp):
    36/49    4.55G  0.03218  0.01505  0.00359      27    640: 67% 37/55 [00:16<00:07,  2.30it/s]
with torch.cuda.amp.autocast(amp):
    36/49    4.55G  0.03268  0.01501  0.003538    43    640: 69% 38/55 [00:16<00:07,  2.32it/s]

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with torch.cuda.amp.autocast(amp):
    36/49    4.55G   0.03257  0.01512  0.003533    49      640: 71% 39/55 [00:17<00:06, 2.33it/s]
with torch.cuda.amp.autocast(amp):
    36/49    4.55G   0.03242  0.01508  0.003642    39      640: 73% 40/55 [00:17<00:06, 2.30it/s]
with torch.cuda.amp.autocast(amp):
    36/49    4.55G   0.03294  0.01516  0.003652    42      640: 75% 41/55 [00:18<00:05, 2.34it/s]
with torch.cuda.amp.autocast(amp):
    36/49    4.55G   0.03277  0.01509  0.003609    37      640: 76% 42/55 [00:18<00:05, 2.23it/s]
with torch.cuda.amp.autocast(amp):
    36/49    4.55G   0.03295  0. Run cell (Ctrl+Enter)
                                cell has not been executed in this session
                                Previous execution ended unsuccessfully
with torch.cuda.amp.autocast(amp):
    36/49    4.55G   0.03309  0. currently executing...
                                Run cell (Ctrl+Enter)
                                cell has not been executed in this session
                                Previous execution ended unsuccessfully
with torch.cuda.amp.autocast(amp):
    36/49    4.55G   0.03307  0.01526  0.003592    47      640: 82% 45/55 [00:19<00:04, 2.28it/s]
with torch.cuda.amp.autocast(amp):
    36/49    4.55G   0.03335  0.0153   0.003572    49      640: 84% 46/55 [00:20<00:04, 2.23it/s]
with torch.cuda.amp.autocast(amp):
    36/49    4.55G   0.03348  0.01529  0.003619    46      640: 85% 47/55 [00:21<00:03, 2.03it/s]
with torch.cuda.amp.autocast(amp):
    36/49    4.55G   0.03348  0.01526  0.003613    40      640: 87% 48/55 [00:21<00:03, 1.80it/s]
with torch.cuda.amp.autocast(amp):
    36/49    4.55G   0.03323  0.01526  0.003552    42      640: 89% 49/55 [00:22<00:03, 1.77it/s]
with torch.cuda.amp.autocast(amp):
    36/49    4.55G   0.03327  0.01533  0.003522    49      640: 91% 50/55 [00:23<00:03, 1.66it/s]
with torch.cuda.amp.autocast(amp):
    36/49    4.55G   0.03294  0.01533  0.003485    45      640: 93% 51/55 [00:23<00:02, 1.67it/s]
with torch.cuda.amp.autocast(amp):
    36/49    4.55G   0.03262  0.01527  0.003491    36      640: 95% 52/55 [00:24<00:01, 1.80it/s]
with torch.cuda.amp.autocast(amp):
    36/49    4.55G   0.0323   0.01519  0.003453    33      640: 96% 53/55 [00:24<00:01, 1.94it/s]
with torch.cuda.amp.autocast(amp):
    36/49    4.55G   0.03265  0.01516  0.003419    47      640: 98% 54/55 [00:24<00:00, 2.04it/s]
with torch.cuda.amp.autocast(amp):
    36/49    4.55G   0.03281  0.01523  0.003388    41      640: 100% 55/55 [00:25<00:00, 2.18it/s]
                                Class   Images Instances P
                                all     877      971      0.912    0.885
                                R
                                mAP50   0.934    0.652

```

| Epoch                              | GPU_mem               | box_loss  | obj_loss | cls_loss | Instances | Size                                   |
|------------------------------------|-----------------------|---|----------|----------|-----------|--|
| 0%                                 | 0/55 [00:00<?, ?it/s] | content/yolov5_project/yolov5/train.py:412: FutureWarning: `torch.cuda.amp.autocast(arg |          |          |           |  |
| with torch.cuda.amp.autocast(amp): |                       |   |          |          |           |  |
| 37/49                              | 4.55G                 | 0.036   | 0.01509  | 0.001744 | 43        | 640: 2% 1/55 [00:00<00:12, 4.41it/s]/  |
| with torch.cuda.amp.autocast(amp): |                       |   |          |          |           |  |
| 37/49                              | 4.55G                 | 0.04156   | 0.01467  | 0.002196 | 44        | 640: 4% 2/55 [00:00<00:12, 4.37it/s]/  |
| with torch.cuda.amp.autocast(amp): |                       |   |          |          |           |  |
| 37/49                              | 4.55G                 | 0.0356  | 0.01436  | 0.00214  | 43        | 640: 5% 3/55 [00:00<00:14, 3.71it/s]/  |
| with torch.cuda.amp.autocast(amp): |                       |   |          |          |           |  |
| 37/49                              | 4.55G                 | 0.03019   | 0.01348  | 0.00187  | 34        | 640: 7% 4/55 [00:01<00:17, 2.95it/s]/  |
| with torch.cuda.amp.autocast(amp): |                       |   |          |          |           |  |
| 37/49                              | 4.55G                 | 0.03282   | 0.01322  | 0.001761 | 36        | 640: 9% 5/55 [00:01<00:18, 2.77it/s]/  |
| with torch.cuda.amp.autocast(amp): |                       |   |          |          |           |  |
| 37/49                              | 4.55G                 | 0.03333   | 0.01432  | 0.001812 | 55        | 640: 11% 6/55 [00:02<00:18, 2.71it/s]/ |
| with torch.cuda.amp.autocast(amp): |                       |   |          |          |           |  |
| 37/49                              | 4.55G                 | 0.03061   | 0.01396  | 0.001724 | 39        | 640: 13% 7/55 [00:02<00:18, 2.58it/s]/ |
| with torch.cuda.amp.autocast(amp): |                       |   |          |          |           |  |
| 37/49                              | 4.55G                 | 0.03159   | 0.01429  | 0.001723 | 48        | 640: 15% 8/55 [00:02<00:18, 2.58it/s]/ |
| with torch.cuda.amp.autocast(amp): |                       |   |          |          |           |  |
| 37/49                              | 4.55G                 | 0.032   | 0.01415  | 0.002375 | 41        | 640: 16% 9/55 [00:03<00:19, 2.36it/s]/ |
| with torch.cuda.amp.autocast(amp): |                       |   |          |          |           |  |
| 37/49                              | 4.55G                 | 0.03271   | 0.01453  | 0.002609 | 46        | 640: 18% 10/55 [00:03<00:19, 2.36it/s] |
| with torch.cuda.amp.autocast(amp): |                       |   |          |          |           |  |
| 37/49                              | 4.55G                 | 0.03124   | 0.01445  | 0.002772 | 43        | 640: 20% 11/55 [00:04<00:18, 2.44it/s] |
| with torch.cuda.amp.autocast(amp): |                       |   |          |          |           |  |
| 37/49                              | 4.55G                 | 0.03192   | 0.01476  | 0.002787 | 52        | 640: 22% 12/55 [00:04<00:18, 2.37it/s] |
| with torch.cuda.amp.autocast(amp): |                       |   |          |          |           |  |
| 37/49                              | 4.55G                 | 0.0308  | 0.01498  | 0.002726 | 53        | 640: 24% 13/55 [00:05<00:18, 2.24it/s] |
| with torch.cuda.amp.autocast(amp): |                       |   |          |          |           |  |
| 37/49                              | 4.55G                 | 0.03173   | 0.01488  | 0.002699 | 42        | 640: 25% 14/55 [00:05<00:18, 2.26it/s] |
| with torch.cuda.amp.autocast(amp): |                       |   |          |          |           |  |
| 37/49                              | 4.55G                 | 0.03179   | 0.01471  | 0.002594 | 32        | 640: 27% 15/55 [00:05<00:17, 2.24it/s] |
| with torch.cuda.amp.autocast(amp): |                       |   |          |          |           |  |
| 37/49                              | 4.55G                 | 0.03174   | 0.01476  | 0.002926 | 39        | 640: 29% 16/55 [00:06<00:16, 2.31it/s] |
| with torch.cuda.amp.autocast(amp): |                       |   |          |          |           |  |

```

    37/49      4.55G   0.03234   0.01491   0.002863   45       640: 31% 17/55 [00:06<00:16, 2.30it/s]
with torch.cuda.amp.autocast(amp):
    37/49      4.55G   0.03288   0.01476   0.002969   43       640: 33% 18/55 [00:07<00:16, 2.30it/s]
with torch.cuda.amp.autocast(amp):
    37/49      4.55G   0.03325   0.01469   0.003109   41       640: 35% 19/55 [00:07<00:15, 2.30it/s]
with torch.cuda.amp.autocast(amp):
    37/49      4.55G   0.03241   0.0146   0.003107   41       640: 36% 20/55 [00:08<00:14, 2.37it/s]
with torch.cuda.amp.autocast(amp):
    37/49      4.55G   0.03328   0.0146116 0.003107100   41       640: 38% 21/55 [00:08<00:15, 2.24it/s]
with torch.cuda.amp.autocast(amp):
    37/49      4.55G   0.03252   0.0146116 0.003107100   41       640: 40% 22/55 [00:08<00:14, 2.34it/s]
with torch.cuda.amp.autocast(amp):
    37/49      4.55G   0.03291   0.0146116 0.003107100   41       640: 42% 23/55 [00:09<00:15, 2.09it/s]
with torch.cuda.amp.autocast(amp):
    37/49      4.55G   0.0329   0.01476   0.00297   43       640: 44% 24/55 [00:10<00:15, 1.99it/s]
with torch.cuda.amp.autocast(amp):
    37/49      4.55G   0.03279   0.01478   0.002883   42       640: 45% 25/55 [00:10<00:16, 1.78it/s]
with torch.cuda.amp.autocast(amp):
    37/49      4.55G   0.03305   0.01469   0.002959   38       640: 47% 26/55 [00:11<00:16, 1.77it/s]
with torch.cuda.amp.autocast(amp):
    37/49      4.55G   0.0329   0.01489   0.0029   49       640: 49% 27/55 [00:12<00:16, 1.69it/s]
with torch.cuda.amp.autocast(amp):
    37/49      4.55G   0.03299   0.0149   0.00288   44       640: 51% 28/55 [00:12<00:15, 1.73it/s]
with torch.cuda.amp.autocast(amp):
    37/49      4.55G   0.03344   0.01489   0.002892   35       640: 53% 29/55 [00:13<00:13, 1.86it/s]
with torch.cuda.amp.autocast(amp):
    37/49      4.55G   0.03371   0.01495   0.002889   42       640: 55% 30/55 [00:13<00:12, 2.04it/s]
with torch.cuda.amp.autocast(amp):
    37/49      4.55G   0.03379   0.015   0.002886   41       640: 56% 31/55 [00:13<00:11, 2.08it/s]
with torch.cuda.amp.autocast(amp):
    37/49      4.55G   0.03366   0.01506   0.002875   49       640: 58% 32/55 [00:14<00:10, 2.15it/s]
with torch.cuda.amp.autocast(amp):
    37/49      4.55G   0.03364   0.015   0.00286   37       640: 60% 33/55 [00:14<00:09, 2.21it/s]
with torch.cuda.amp.autocast(amp):
    37/49      4.55G   0.03385   0.01494   0.002895   42       640: 62% 34/55 [00:15<00:09, 2.25it/s]
with torch.cuda.amp.autocast(amp):
    37/49      4.55G   0.03347   0.01493   0.002888   35       640: 64% 35/55 [00:15<00:08, 2.34it/s]
with torch.cuda.amp.autocast(amp):
    37/49      4.55G   0.03391   0.01501   0.002929   45       640: 65% 36/55 [00:15<00:08, 2.34it/s]
with torch.cuda.amp.autocast(amp):
    37/49      4.55G   0.03385   0.01498   0.002902   43       640: 67% 37/55 [00:16<00:08, 2.23it/s]
with torch.cuda.amp.autocast(amp):
    37/49      4.55G   0.03343   0.01496   0.002875   41       640: 69% 38/55 [00:16<00:07, 2.42it/s]
with torch.cuda.amp.autocast(amp):
    37/49      4.55G   0.03384   0.01491   0.003088   39       640: 71% 39/55 [00:17<00:06, 2.39it/s]
with torch.cuda.amp.autocast(amp):
    37/49      4.55G   0.03338   0.01491   0.003222   43       640: 73% 40/55 [00:17<00:06, 2.43it/s]
with torch.cuda.amp.autocast(amp):
    37/49      4.55G   0.03363   0.01519   0.003212   54       640: 75% 41/55 [00:18<00:06, 2.23it/s]
with torch.cuda.amp.autocast(amp):
    37/49      4.55G   0.03364   0.01518   0.003169   41       640: 76% 42/55 [00:18<00:05, 2.30it/s]
with torch.cuda.amp.autocast(amp):
    37/49      4.55G   0.03384   0.01525   0.003209   54       640: 78% 43/55 [00:18<00:05, 2.35it/s]
with torch.cuda.amp.autocast(amp):
    37/49      4.55G   0.03396   0.01526   0.00317   38       640: 80% 44/55 [00:19<00:04, 2.24it/s]
with torch.cuda.amp.autocast(amp):
    37/49      4.55G   0.0341   0.01527   0.003127   49       640: 82% 45/55 [00:19<00:04, 2.27it/s]
with torch.cuda.amp.autocast(amp):
    37/49      4.55G   0.03415   0.01533   0.003092   55       640: 84% 46/55 [00:20<00:03, 2.37it/s]
with torch.cuda.amp.autocast(amp):
    37/49      4.55G   0.03445   0.0154   0.003378   53       640: 85% 47/55 [00:20<00:03, 2.43it/s]
with torch.cuda.amp.autocast(amp):
    37/49      4.55G   0.0344   0.01532   0.003337   41       640: 87% 48/55 [00:21<00:03, 2.30it/s]
with torch.cuda.amp.autocast(amp):
    37/49      4.55G   0.03448   0.01532   0.003296   43       640: 89% 49/55 [00:21<00:02, 2.28it/s]
with torch.cuda.amp.autocast(amp):
    37/49      4.55G   0.03466   0.01525   0.003309   39       640: 91% 50/55 [00:21<00:02, 2.40it/s]
with torch.cuda.amp.autocast(amp):
    37/49      4.55G   0.03457   0.0153   0.003276   50       640: 93% 51/55 [00:22<00:01, 2.30it/s]
with torch.cuda.amp.autocast(amp):
    37/49      4.55G   0.03497   0.01531   0.003291   44       640: 95% 52/55 [00:22<00:01, 2.18it/s]
with torch.cuda.amp.autocast(amp):

```

yolo fire smoke.ipynb - Colab

| Epoch                              | GPU_mem | box_loss         | obj           | Class                                      | Images | Instances | P     | R    | mAP50 | mAP50-95:     | Size  |
|------------------------------------|---------|------------------|---------------|--|--------|-----------|-------|------|-------|---------------|---|
| 0%                                 | 0/55    | [00:00<?, ?it/s] | /content/yolo | Run cell (Ctrl+Enter)                      |        |           |       |      |       |               | FutureWarning: `torch.cuda.amp.autocast(arg |
| with torch.cuda.amp.autocast(amp): |         |                  |               | cell has not been executed in this session |        |           |       |      |       |               |   |
| 37/49                              | 4.55G   | 0.03497          | 0.01538       | 0.003253                                   | 46     |           | 640:  | 96%  | 53/55 | [00:23<00:00, | 2.03it/s]                                   |
| with torch.cuda.amp.autocast(amp): |         |                  |               |  | 49     |           | 640:  | 98%  | 54/55 | [00:24<00:00, | 1.89it/s]                                   |
| 37/49                              | 4.55G   | 0.03463          | 0.01541       | 0.003237                                   | 39     |           | 640:  | 100% | 55/55 | [00:24<00:00, | 2.24it/s]                                   |
| with torch.cuda.amp.autocast(amp): |         |                  |               |  | 0.892  | 0.889     | 0.921 |      |       |               | mAP50: 0.644                                |
| 37/49                              | 4.55G   | 0.03476          | 0.01548       | 0.003236                                   |        |           |       |      |       |               |   |
| with torch.cuda.amp.autocast(amp): |         |                  |               |  |        |           |       |      |       |               |   |
| 38/49                              | 4.55G   | 0.03207          | 0.            | currently executing...                     |        |           |       |      |       |               |   |
| with torch.cuda.amp.autocast(amp): |         |                  |               |  |        |           |       |      |       |               |   |
| 38/49                              | 4.55G   | 0.03971          | 0.01739       | 0.004526                                   | 41     |           | 640:  | 4%   | 2/55  | [00:00<00:13, | 4.02it/s]                                   |
| with torch.cuda.amp.autocast(amp): |         |                  |               |  |        |           | 640:  | 5%   | 3/55  | [00:01<00:19, | 2.63it/s]                                   |
| 38/49                              | 4.55G   | 0.03741          | 0.01592       | 0.003615                                   | 35     |           | 640:  | 7%   | 4/55  | [00:01<00:24, | 2.11it/s]                                   |
| with torch.cuda.amp.autocast(amp): |         |                  |               |  |        |           | 640:  | 9%   | 5/55  | [00:02<00:27, | 1.81it/s]                                   |
| 38/49                              | 4.55G   | 0.0321           | 0.01554       | 0.003146                                   | 39     |           | 640:  | 11%  | 6/55  | [00:02<00:27, | 1.79it/s]                                   |
| with torch.cuda.amp.autocast(amp): |         |                  |               |  |        |           | 640:  | 13%  | 7/55  | [00:03<00:26, | 1.84it/s]                                   |
| 38/49                              | 4.55G   | 0.02965          | 0.01528       | 0.003485                                   | 34     |           | 640:  | 15%  | 8/55  | [00:03<00:23, | 2.01it/s]                                   |
| with torch.cuda.amp.autocast(amp): |         |                  |               |  |        |           | 640:  | 16%  | 9/55  | [00:04<00:21, | 2.13it/s]                                   |
| 38/49                              | 4.55G   | 0.03068          | 0.01552       | 0.003484                                   | 45     |           | 640:  | 18%  | 10/55 | [00:04<00:21, | 2.11it/s]                                   |
| with torch.cuda.amp.autocast(amp): |         |                  |               |  |        |           | 640:  | 20%  | 11/55 | [00:05<00:19, | 2.30it/s]                                   |
| 38/49                              | 4.55G   | 0.0329           | 0.01636       | 0.003575                                   | 48     |           | 640:  | 22%  | 12/55 | [00:05<00:18, | 2.28it/s]                                   |
| with torch.cuda.amp.autocast(amp): |         |                  |               |  |        |           | 640:  | 24%  | 13/55 | [00:05<00:18, | 2.30it/s]                                   |
| 38/49                              | 4.55G   | 0.0325           | 0.01637       | 0.003429                                   | 50     |           | 640:  | 25%  | 14/55 | [00:06<00:17, | 2.32it/s]                                   |
| with torch.cuda.amp.autocast(amp): |         |                  |               |  |        |           | 640:  | 27%  | 15/55 | [00:06<00:17, | 2.27it/s]                                   |
| 38/49                              | 4.55G   | 0.03397          | 0.01644       | 0.003377                                   | 45     |           | 640:  | 29%  | 16/55 | [00:07<00:16, | 2.38it/s]                                   |
| with torch.cuda.amp.autocast(amp): |         |                  |               |  |        |           | 640:  | 31%  | 17/55 | [00:07<00:16, | 2.35it/s]                                   |
| 38/49                              | 4.55G   | 0.03341          | 0.01599       | 0.003098                                   | 42     |           | 640:  | 33%  | 18/55 | [00:08<00:16, | 2.30it/s]                                   |
| with torch.cuda.amp.autocast(amp): |         |                  |               |  |        |           | 640:  | 35%  | 19/55 | [00:08<00:15, | 2.31it/s]                                   |
| 38/49                              | 4.55G   | 0.03205          | 0.01586       | 0.003233                                   | 42     |           | 640:  | 36%  | 20/55 | [00:08<00:15, | 2.23it/s]                                   |
| with torch.cuda.amp.autocast(amp): |         |                  |               |  |        |           | 640:  | 38%  | 21/55 | [00:09<00:15, | 2.27it/s]                                   |
| 38/49                              | 4.55G   | 0.0316           | 0.01584       | 0.003233                                   | 47     |           | 640:  | 40%  | 22/55 | [00:09<00:14, | 2.27it/s]                                   |
| with torch.cuda.amp.autocast(amp): |         |                  |               |  |        |           | 640:  | 42%  | 23/55 | [00:10<00:13, | 2.38it/s]                                   |
| 38/49                              | 4.55G   | 0.03169          | 0.01598       | 0.003198                                   | 53     |           | 640:  | 44%  | 24/55 | [00:10<00:13, | 2.30it/s]                                   |
| with torch.cuda.amp.autocast(amp): |         |                  |               |  |        |           | 640:  | 45%  | 25/55 | [00:11<00:12, | 2.36it/s]                                   |
| 38/49                              | 4.55G   | 0.03308          | 0.01587       | 0.003638                                   | 46     |           | 640:  | 47%  | 26/55 | [00:11<00:13, | 2.14it/s]                                   |
| with torch.cuda.amp.autocast(amp): |         |                  |               |  |        |           | 640:  | 49%  | 27/55 | [00:12<00:12, | 2.29it/s]                                   |
| 38/49                              | 4.55G   | 0.03347          | 0.01598       | 0.005218                                   | 40     |           | 640:  | 51%  | 28/55 | [00:12<00:11, | 2.27it/s]                                   |
| with torch.cuda.amp.autocast(amp): |         |                  |               |  |        |           | 640:  | 53%  | 29/55 | [00:12<00:11, | 2.28it/s]                                   |
| 38/49                              | 4.55G   | 0.0332           | 0.01593       | 0.004957                                   | 45     |           | 640:  | 55%  | 30/55 | [00:13<00:11, | 2.17it/s]                                   |
| with torch.cuda.amp.autocast(amp): |         |                  |               |  |        |           | 640:  | 56%  | 31/55 | [00:13<00:11, | 2.06it/s]                                   |
| 38/49                              | 4.55G   | 0.03222          | 0.01583       | 0.005412                                   | 34     |           |       |      |       |               |   |
| with torch.cuda.amp.autocast(amp): |         |                  |               |  |        |           |       |      |       |               |   |
| 38/49                              | 4.55G   | 0.03199          | 0.01564       | 0.005245                                   | 31     |           |       |      |       |               |   |
| with torch.cuda.amp.autocast(amp): |         |                  |               |  |        |           |       |      |       |               |   |
| 38/49                              | 4.55G   | 0.0312           | 0.01548       | 0.005038                                   | 40     |           |       |      |       |               |   |
| with torch.cuda.amp.autocast(amp): |         |                  |               |  |        |           |       |      |       |               |   |
| 38/49                              | 4.55G   | 0.03191          | 0.01557       | 0.004944                                   | 44     |           |       |      |       |               |   |
| with torch.cuda.amp.autocast(amp): |         |                  |               |  |        |           |       |      |       |               |   |
| 38/49                              | 4.55G   | 0.03203          | 0.01563       | 0.004832                                   | 43     |           |       |      |       |               |   |
| with torch.cuda.amp.autocast(amp): |         |                  |               |  |        |           |       |      |       |               |   |
| 38/49                              | 4.55G   | 0.03144          | 0.01556       | 0.004675                                   | 42     |           |       |      |       |               |   |
| with torch.cuda.amp.autocast(amp): |         |                  |               |  |        |           |       |      |       |               |   |
| 38/49                              | 4.55G   | 0.0317           | 0.01562       | 0.004666                                   | 49     |           |       |      |       |               |   |
| with torch.cuda.amp.autocast(amp): |         |                  |               |  |        |           |       |      |       |               |   |
| 38/49                              | 4.55G   | 0.03099          | 0.01555       | 0.004719                                   | 40     |           |       |      |       |               |   |
| with torch.cuda.amp.autocast(amp): |         |                  |               |  |        |           |       |      |       |               |   |
| 38/49                              | 4.55G   | 0.03057          | 0.0156        | 0.004598                                   | 53     |           |       |      |       |               |   |
| with torch.cuda.amp.autocast(amp): |         |                  |               |  |        |           |       |      |       |               |   |
| 38/49                              | 4.55G   | 0.03011          | 0.01547       | 0.0046                                     | 36     |           |       |      |       |               |   |
| with torch.cuda.amp.autocast(amp): |         |                  |               |  |        |           |       |      |       |               |   |
| 38/49                              | 4.55G   | 0.03028          | 0.01546       | 0.004492                                   | 43     |           |       |      |       |               |   |
| with torch.cuda.amp.autocast(amp): |         |                  |               |  |        |           |       |      |       |               |   |
| 38/49                              | 4.55G   | 0.02988          | 0.01532       | 0.004437                                   | 37     |           |       |      |       |               |   |
| with torch.cuda.amp.autocast(amp): |         |                  |               |  |        |           |       |      |       |               |   |
| 38/49                              | 4.55G   | 0.02941          | 0.01519       | 0.00451                                    | 36     |           |       |      |       |               |   |
| with torch.cuda.amp.autocast(amp): |         |                  |               |  |        |           |       |      |       |               |   |
| 38/49                              | 4.55G   | 0.02943          | 0.01531       | 0.004524                                   | 42     |           |       |      |       |               |   |

```

with torch.cuda.amp.autocast(amp):
    38/49    4.55G   0.02984   0.01531   0.00451      42      640:  58% 32/55 [00:14<00:11,  1.98it/s]
with torch.cuda.amp.autocast(amp):
    38/49    4.55G   0.03019   0.01537   0.004479     39      640:  60% 33/55 [00:15<00:11,  1.84it/s]
with torch.cuda.amp.autocast(amp):
    38/49    4.55G   0.02972   0.01526   0.00441      41      640:  62% 34/55 [00:15<00:12,  1.71it/s]
with torch.cuda.amp.autocast(amp):
    38/49    4.55G   0.0297   0.01528   0.004311     45      640:  64% 35/55 [00:16<00:11,  1.73it/s]
with torch.cuda.amp.autocast(amp):
    38/49    4.55G   0.03015   0.          Run cell (Ctrl+Enter)
                                         cell has not been executed in this session
                                         Previous execution ended unsuccessfully
with torch.cuda.amp.autocast(amp):
    38/49    4.55G   0.02983   0.          currently executing...
                                         Run cell (Ctrl+Enter)
                                         cell has not been executed in this session
                                         Previous execution ended unsuccessfully
with torch.cuda.amp.autocast(amp):
    38/49    4.55G   0.03009   0.01538   0.004364     48      640:  69% 38/55 [00:17<00:08,  1.98it/s]
with torch.cuda.amp.autocast(amp):
    38/49    4.55G   0.03016   0.01541   0.004301     42      640:  71% 39/55 [00:18<00:07,  2.11it/s]
with torch.cuda.amp.autocast(amp):
    38/49    4.55G   0.03046   0.01549   0.004313     47      640:  73% 40/55 [00:18<00:07,  2.13it/s]
with torch.cuda.amp.autocast(amp):
    38/49    4.55G   0.03011   0.01545   0.004248     42      640:  75% 41/55 [00:19<00:06,  2.32it/s]
with torch.cuda.amp.autocast(amp):
    38/49    4.55G   0.03028   0.01539   0.004251     38      640:  76% 42/55 [00:19<00:05,  2.27it/s]
with torch.cuda.amp.autocast(amp):
    38/49    4.55G   0.02997   0.01537   0.004185     42      640:  78% 43/55 [00:19<00:05,  2.33it/s]
with torch.cuda.amp.autocast(amp):
    38/49    4.55G   0.03015   0.01538   0.004188     38      640:  80% 44/55 [00:20<00:04,  2.40it/s]
with torch.cuda.amp.autocast(amp):
    38/49    4.55G   0.03034   0.01536   0.004165     42      640:  82% 45/55 [00:20<00:04,  2.38it/s]
with torch.cuda.amp.autocast(amp):
    38/49    4.55G   0.03057   0.01543   0.004129     49      640:  84% 46/55 [00:21<00:03,  2.32it/s]
with torch.cuda.amp.autocast(amp):
    38/49    4.55G   0.03069   0.01545   0.004056     45      640:  85% 47/55 [00:21<00:03,  2.39it/s]
with torch.cuda.amp.autocast(amp):
    38/49    4.55G   0.03093   0.01544   0.004038     40      640:  87% 48/55 [00:22<00:02,  2.33it/s]
with torch.cuda.amp.autocast(amp):
    38/49    4.55G   0.03129   0.01539   0.004012     39      640:  89% 49/55 [00:22<00:02,  2.31it/s]
with torch.cuda.amp.autocast(amp):
    38/49    4.55G   0.03097   0.01535   0.004043     43      640:  91% 50/55 [00:22<00:02,  2.33it/s]
with torch.cuda.amp.autocast(amp):
    38/49    4.55G   0.03088   0.01536   0.004008     44      640:  93% 51/55 [00:23<00:01,  2.32it/s]
with torch.cuda.amp.autocast(amp):
    38/49    4.55G   0.03086   0.01529   0.004036     36      640:  95% 52/55 [00:23<00:01,  2.37it/s]
with torch.cuda.amp.autocast(amp):
    38/49    4.55G   0.03058   0.01529   0.003985     49      640:  96% 53/55 [00:24<00:00,  2.32it/s]
with torch.cuda.amp.autocast(amp):
    38/49    4.55G   0.03089   0.01524   0.003938     38      640:  98% 54/55 [00:24<00:00,  2.25it/s]
with torch.cuda.amp.autocast(amp):
    38/49    4.55G   0.03067   0.01534   0.003933     40      640: 100% 55/55 [00:24<00:00,  2.21it/s]
          Class   Images Instances   P      R
          all     877      971     0.907     0.904
                                         mAP50: 0.941
                                         mAP50-95: 100% 28/28 [00:12<00:00,
                                         0.606

```

| Epoch | GPU_mem   | box_loss | obj_loss | cls_loss | Instances | Size  |
|-------|---|----------|----------|----------|-----------|---|
| 0%    | 0/55 [00:00<?, ?it/s]/content/yolov5_project/yolov5/train.py:412: |          |          |          |           | FutureWarning: `torch.cuda.amp.autocast(arg |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 39/49 | 4.55G   | 0.04462  | 0.01414  | 0.002148 | 41        | 640: 2% 1/55 [00:00<00:11,  4.91it/s]/      |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 39/49 | 4.55G   | 0.03028  | 0.01308  | 0.002187 | 34        | 640: 4% 2/55 [00:00<00:10,  4.98it/s]/      |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 39/49 | 4.55G   | 0.03406  | 0.01413  | 0.002139 | 48        | 640: 5% 3/55 [00:00<00:14,  3.62it/s]/      |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 39/49 | 4.55G   | 0.03325  | 0.01462  | 0.002046 | 45        | 640: 7% 4/55 [00:01<00:17,  2.88it/s]/      |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 39/49 | 4.55G   | 0.03279  | 0.01521  | 0.001979 | 49        | 640: 9% 5/55 [00:01<00:17,  2.87it/s]/      |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 39/49 | 4.55G   | 0.03559  | 0.01495  | 0.002083 | 41        | 640: 11% 6/55 [00:02<00:19,  2.50it/s]/     |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 39/49 | 4.55G   | 0.03293  | 0.01468  | 0.00226  | 40        | 640: 13% 7/55 [00:02<00:19,  2.42it/s]/     |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 39/49 | 4.55G   | 0.03078  | 0.01471  | 0.002153 | 44        | 640: 15% 8/55 [00:02<00:19,  2.43it/s]/     |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 39/49 | 4.55G   | 0.02917  | 0.0145   | 0.002079 | 42        | 640: 16% 9/55 [00:03<00:19,  2.33it/s]/     |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |

```

39/49      4.55G   0.03166  0.01498  0.002393    46     640: 18% 10/55 [00:03<00:21,  2.09it/s]
with torch.cuda.amp.autocast(amp):
  39/49      4.55G   0.03028  0.01492  0.002377    41     640: 20% 11/55 [00:04<00:23,  1.85it/s]
with torch.cuda.amp.autocast(amp):
  39/49      4.55G   0.02914  0.01502  0.002406    46     640: 22% 12/55 [00:05<00:24,  1.77it/s]
with torch.cuda.amp.autocast(amp):
  39/49      4.55G   0.03013  0.01513  0.002414    48     640: 24% 13/55 [00:05<00:24,  1.72it/s]
with torch.cuda.amp.autocast(amp):
  39/49      4.55G   0.03088  0.01527  0.002472    46     640: 25% 14/55 [00:06<00:25,  1.63it/s]
Run cell (Ctrl+Enter)
with torch.cuda.amp.autocast(amp):
  39/49      4.55G   0.03102  0.01537  0.002472    46     640: 27% 15/55 [00:07<00:23,  1.72it/s]
cell has not been executed in this session
Previous execution ended unsuccessfully
with torch.cuda.amp.autocast(amp):
  39/49      4.55G   0.02998  0.01547  0.002472    46     640: 29% 16/55 [00:07<00:19,  1.95it/s]
with torch.cuda.amp.autocast(amp):
  39/49      4.55G   0.0299  0.01466  0.002567    44     640: 31% 17/55 [00:07<00:18,  2.07it/s]
with torch.cuda.amp.autocast(amp):
  39/49      4.55G   0.03081  0.01469  0.0025    41     640: 33% 18/55 [00:08<00:17,  2.14it/s]
with torch.cuda.amp.autocast(amp):
  39/49      4.55G   0.03134  0.01486  0.002422    44     640: 35% 19/55 [00:08<00:17,  2.09it/s]
with torch.cuda.amp.autocast(amp):
  39/49      4.55G   0.03188  0.01519  0.002378    49     640: 36% 20/55 [00:09<00:15,  2.25it/s]
with torch.cuda.amp.autocast(amp):
  39/49      4.55G   0.03107  0.01528  0.002427    49     640: 38% 21/55 [00:09<00:15,  2.25it/s]
with torch.cuda.amp.autocast(amp):
  39/49      4.55G   0.03044  0.01518  0.002441    37     640: 40% 22/55 [00:09<00:14,  2.33it/s]
with torch.cuda.amp.autocast(amp):
  39/49      4.55G   0.02993  0.01535  0.002528    48     640: 42% 23/55 [00:10<00:14,  2.20it/s]
with torch.cuda.amp.autocast(amp):
  39/49      4.55G   0.03026  0.01535  0.002792    44     640: 44% 24/55 [00:10<00:13,  2.37it/s]
with torch.cuda.amp.autocast(amp):
  39/49      4.55G   0.03048  0.0153  0.002794    41     640: 45% 25/55 [00:11<00:12,  2.33it/s]
with torch.cuda.amp.autocast(amp):
  39/49      4.55G   0.03059  0.01532  0.002771    44     640: 47% 26/55 [00:11<00:12,  2.35it/s]
with torch.cuda.amp.autocast(amp):
  39/49      4.55G   0.03009  0.01527  0.002751    46     640: 49% 27/55 [00:12<00:12,  2.29it/s]
with torch.cuda.amp.autocast(amp):
  39/49      4.55G   0.03064  0.01523  0.002734    44     640: 51% 28/55 [00:12<00:11,  2.33it/s]
with torch.cuda.amp.autocast(amp):
  39/49      4.55G   0.03073  0.01531  0.002744    50     640: 53% 29/55 [00:13<00:11,  2.34it/s]
with torch.cuda.amp.autocast(amp):
  39/49      4.55G   0.03073  0.01548  0.002727    48     640: 55% 30/55 [00:13<00:10,  2.37it/s]
with torch.cuda.amp.autocast(amp):
  39/49      4.55G   0.03073  0.01565  0.002817    53     640: 56% 31/55 [00:13<00:10,  2.32it/s]
with torch.cuda.amp.autocast(amp):
  39/49      4.55G   0.03077  0.01565  0.002766    46     640: 58% 32/55 [00:14<00:09,  2.39it/s]
with torch.cuda.amp.autocast(amp):
  39/49      4.55G   0.03102  0.01559  0.002735    44     640: 60% 33/55 [00:14<00:09,  2.27it/s]
with torch.cuda.amp.autocast(amp):
  39/49      4.55G   0.03148  0.01563  0.00282    49     640: 62% 34/55 [00:15<00:09,  2.29it/s]
with torch.cuda.amp.autocast(amp):
  39/49      4.55G   0.0318   0.0156  0.002787    47     640: 64% 35/55 [00:15<00:08,  2.24it/s]
with torch.cuda.amp.autocast(amp):
  39/49      4.55G   0.03221  0.01559  0.002794    38     640: 65% 36/55 [00:16<00:08,  2.33it/s]
with torch.cuda.amp.autocast(amp):
  39/49      4.55G   0.03252  0.01554  0.002755    41     640: 67% 37/55 [00:16<00:08,  2.24it/s]
with torch.cuda.amp.autocast(amp):
  39/49      4.55G   0.03251  0.01556  0.002891    41     640: 69% 38/55 [00:16<00:07,  2.29it/s]
with torch.cuda.amp.autocast(amp):
  39/49      4.55G   0.03208  0.01557  0.002907    48     640: 71% 39/55 [00:17<00:08,  2.00it/s]
with torch.cuda.amp.autocast(amp):
  39/49      4.55G   0.03212  0.01556  0.002902    38     640: 73% 40/55 [00:18<00:07,  1.91it/s]
with torch.cuda.amp.autocast(amp):
  39/49      4.55G   0.03175  0.01554  0.002892    44     640: 75% 41/55 [00:18<00:07,  1.81it/s]
with torch.cuda.amp.autocast(amp):
  39/49      4.55G   0.03189  0.01563  0.00284    50     640: 76% 42/55 [00:19<00:07,  1.75it/s]
with torch.cuda.amp.autocast(amp):
  39/49      4.55G   0.03193  0.01563  0.002799    46     640: 78% 43/55 [00:20<00:07,  1.66it/s]
with torch.cuda.amp.autocast(amp):
  39/49      4.55G   0.03158  0.01557  0.002868    38     640: 80% 44/55 [00:20<00:06,  1.72it/s]
with torch.cuda.amp.autocast(amp):
  39/49      4.55G   0.03131  0.01556  0.002822    43     640: 82% 45/55 [00:21<00:05,  1.90it/s]
with torch.cuda.amp.autocast(amp):

```

```

    39/49      4.55G   0.03144   0.0156   0.002796     52     640:  84% 46/55 [00:21<00:04,  1.95it/s]
with torch.cuda.amp.autocast(amp):
    39/49      4.55G   0.03154   0.01555   0.002808     40     640:  85% 47/55 [00:21<00:04,  1.99it/s]
with torch.cuda.amp.autocast(amp):
    39/49      4.55G   0.03123   0.01551   0.002843     38     640:  87% 48/55 [00:22<00:03,  2.16it/s]
with torch.cuda.amp.autocast(amp):
    39/49      4.55G   0.03128   0.01545   0.003068     41     640:  89% 49/55 [00:22<00:02,  2.13it/s]
with torch.cuda.amp.autocast(amp):
    39/49      4.55G   0.03144   0.01545   0.003068     20     640:  91% 50/55 [00:23<00:02,  2.16it/s]
Run cell (Ctrl+Enter)
with torch.cuda.amp.autocast(amp):
    39/49      4.55G   0.03153   0.01556   0.002994     46     640:  93% 51/55 [00:23<00:01,  2.20it/s]
with torch.cuda.amp.autocast(amp):
    39/49      4.55G   0.03173   0.01561   0.002977     36     640:  95% 52/55 [00:24<00:01,  2.35it/s]
with torch.cuda.amp.autocast(amp):
    39/49      4.55G   0.03145   0.01552   0.003006     42     640:  96% 53/55 [00:24<00:00,  2.27it/s]
with torch.cuda.amp.autocast(amp):
    39/49      4.55G   0.0314   0.01556   0.002994     46     640:  98% 54/55 [00:24<00:00,  2.35it/s]
with torch.cuda.amp.autocast(amp):
    39/49      4.55G   0.03137   0.01561   0.002977     36     640: 100% 55/55 [00:25<00:00,  2.17it/s]
Class      Images Instances P R
all        877       971     0.916   0.886
mAP50      mAP50-95: 100% 28/28 [00:12<00:00, 0.948   0.627

```

| Epoch  | GPU_mem   | box_loss | obj_loss | cls_loss | Instances | Size  |
|--|---|----------|----------|----------|-----------|---|
| 0%   | 0/55 [00:00<?, ?it/s]/content/yolov5_project/yolov5/train.py:412: |          |          |          |           | FutureWarning: `torch.cuda.amp.autocast(arg |
| with torch.cuda.amp.autocast(amp):   |   |          |          |          |           |   |
| 40/49      4.55G   0.04155   0.01532   0.002076     43     640:  2% 1/55 [00:00<00:11,  4.88it/s]/ |   |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |   |          |          |          |           |   |
| 40/49      4.55G   0.03804   0.01399   0.001814     35     640:  4% 2/55 [00:00<00:12,  4.34it/s]/ |   |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |   |          |          |          |           |   |
| 40/49      4.55G   0.03527   0.01438   0.001985     40     640:  5% 3/55 [00:00<00:13,  3.86it/s]/ |   |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |   |          |          |          |           |   |
| 40/49      4.55G   0.03411   0.01476   0.002241     45     640:  7% 4/55 [00:01<00:17,  2.87it/s]/ |   |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |   |          |          |          |           |   |
| 40/49      4.55G   0.03051   0.01432   0.002099     42     640:  9% 5/55 [00:01<00:18,  2.70it/s]/ |   |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |   |          |          |          |           |   |
| 40/49      4.55G   0.03107   0.01572   0.00247     58     640: 11% 6/55 [00:02<00:19,  2.56it/s]/  |   |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |   |          |          |          |           |   |
| 40/49      4.55G   0.03449   0.01529   0.002654     38     640: 13% 7/55 [00:02<00:18,  2.57it/s]/ |   |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |   |          |          |          |           |   |
| 40/49      4.55G   0.03596   0.01499   0.0025     45     640: 15% 8/55 [00:02<00:19,  2.37it/s]/   |   |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |   |          |          |          |           |   |
| 40/49      4.55G   0.03661   0.01499   0.002436     43     640: 16% 9/55 [00:03<00:18,  2.43it/s]/ |   |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |   |          |          |          |           |   |
| 40/49      4.55G   0.03688   0.01574   0.002305     61     640: 18% 10/55 [00:03<00:18,  2.41it/s] |   |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |   |          |          |          |           |   |
| 40/49      4.55G   0.03645   0.01588   0.002338     48     640: 20% 11/55 [00:04<00:18,  2.42it/s] |   |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |   |          |          |          |           |   |
| 40/49      4.55G   0.03583   0.01605   0.00231     49     640: 22% 12/55 [00:04<00:18,  2.36it/s]  |   |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |   |          |          |          |           |   |
| 40/49      4.55G   0.03601   0.01609   0.002305     50     640: 24% 13/55 [00:05<00:17,  2.40it/s] |   |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |   |          |          |          |           |   |
| 40/49      4.55G   0.0346   0.01594   0.002203     47     640: 25% 14/55 [00:05<00:16,  2.47it/s]  |   |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |   |          |          |          |           |   |
| 40/49      4.55G   0.03427   0.01583   0.002259     44     640: 27% 15/55 [00:05<00:16,  2.38it/s] |   |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |   |          |          |          |           |   |
| 40/49      4.55G   0.03473   0.01607   0.002363     50     640: 29% 16/55 [00:06<00:18,  2.14it/s] |   |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |   |          |          |          |           |   |
| 40/49      4.55G   0.03404   0.01605   0.002414     45     640: 31% 17/55 [00:06<00:18,  2.07it/s] |   |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |   |          |          |          |           |   |
| 40/49      4.55G   0.03505   0.01625   0.00241     50     640: 33% 18/55 [00:07<00:19,  1.87it/s]  |   |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |   |          |          |          |           |   |
| 40/49      4.55G   0.03501   0.01626   0.002335     48     640: 35% 19/55 [00:08<00:19,  1.85it/s] |   |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |   |          |          |          |           |   |
| 40/49      4.55G   0.03436   0.0161   0.002304     38     640: 36% 20/55 [00:08<00:20,  1.72it/s]  |   |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |   |          |          |          |           |   |
| 40/49      4.55G   0.03421   0.01615   0.00227     42     640: 38% 21/55 [00:09<00:19,  1.71it/s]  |   |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |   |          |          |          |           |   |
| 40/49      4.55G   0.03337   0.01598   0.002639     31     640: 40% 22/55 [00:09<00:18,  1.79it/s] |   |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |   |          |          |          |           |   |
| 40/49      4.55G   0.03331   0.01589   0.002831     33     640: 42% 23/55 [00:10<00:16,  1.93it/s] |   |          |          |          |           |   |
| with torch.cuda.amp.autocast(amp):   |   |          |          |          |           |   |
| 40/49      4.55G   0.03321   0.01578   0.002772     44     640: 44% 24/55 [00:10<00:15,  1.95it/s] |   |          |          |          |           |   |

```

with torch.cuda.amp.autocast(amp):
    40/49    4.55G   0.03304   0.01572   0.00273      42       640: 45% 25/55 [00:11<00:13, 2.15it/s]
with torch.cuda.amp.autocast(amp):
    40/49    4.55G   0.03299   0.01577   0.003278     46       640: 47% 26/55 [00:11<00:13, 2.13it/s]
with torch.cuda.amp.autocast(amp):
    40/49    4.55G   0.0332    0.0157    0.00323      41       640: 49% 27/55 [00:12<00:12, 2.20it/s]
with torch.cuda.amp.autocast(amp):
    40/49    4.55G   0.03325   0.01568   0.003215     39       640: 51% 28/55 [00:12<00:12, 2.22it/s]
with torch.cuda.amp.autocast(amp):
    40/49    4.55G   0.03337   0.          Run cell (Ctrl+Enter)
                                         cell has not been executed in this session
                                         Previous execution ended unsuccessfully
                                         currently executing...
    40/49    4.55G   0.03337   0.          Run cell (Ctrl+Enter)
                                         cell has not been executed in this session
                                         Previous execution ended unsuccessfully
                                         currently executing...
    40/49    4.55G   0.03302   0.01556   0.003163     48       640: 56% 31/55 [00:13<00:10, 2.35it/s]
with torch.cuda.amp.autocast(amp):
    40/49    4.55G   0.03257   0.01551   0.003121     41       640: 58% 32/55 [00:14<00:09, 2.30it/s]
with torch.cuda.amp.autocast(amp):
    40/49    4.55G   0.03323   0.01545   0.003074     40       640: 60% 33/55 [00:14<00:09, 2.31it/s]
with torch.cuda.amp.autocast(amp):
    40/49    4.55G   0.03328   0.01543   0.003126     41       640: 62% 34/55 [00:15<00:08, 2.41it/s]
with torch.cuda.amp.autocast(amp):
    40/49    4.55G   0.03309   0.01536   0.003189     39       640: 64% 35/55 [00:15<00:08, 2.34it/s]
with torch.cuda.amp.autocast(amp):
    40/49    4.55G   0.03337   0.01531   0.003163     43       640: 65% 36/55 [00:15<00:08, 2.27it/s]
with torch.cuda.amp.autocast(amp):
    40/49    4.55G   0.03357   0.01536   0.003093     44       640: 67% 37/55 [00:16<00:07, 2.41it/s]
with torch.cuda.amp.autocast(amp):
    40/49    4.55G   0.03365   0.01528   0.003029     47       640: 69% 38/55 [00:16<00:07, 2.34it/s]
with torch.cuda.amp.autocast(amp):
    40/49    4.55G   0.03363   0.01525   0.002986     38       640: 71% 39/55 [00:17<00:06, 2.43it/s]
with torch.cuda.amp.autocast(amp):
    40/49    4.55G   0.03313   0.01527   0.002976     47       640: 73% 40/55 [00:17<00:06, 2.33it/s]
with torch.cuda.amp.autocast(amp):
    40/49    4.55G   0.03304   0.01529   0.00293      37       640: 75% 41/55 [00:18<00:05, 2.34it/s]
with torch.cuda.amp.autocast(amp):
    40/49    4.55G   0.03319   0.01531   0.002929     49       640: 76% 42/55 [00:18<00:05, 2.29it/s]
with torch.cuda.amp.autocast(amp):
    40/49    4.55G   0.03371   0.01528   0.002891     44       640: 78% 43/55 [00:18<00:04, 2.44it/s]
with torch.cuda.amp.autocast(amp):
    40/49    4.55G   0.03335   0.01526   0.002853     40       640: 80% 44/55 [00:19<00:04, 2.36it/s]
with torch.cuda.amp.autocast(amp):
    40/49    4.55G   0.03362   0.01525   0.002941     50       640: 82% 45/55 [00:19<00:04, 2.29it/s]
with torch.cuda.amp.autocast(amp):
    40/49    4.55G   0.03364   0.01525   0.002899     43       640: 84% 46/55 [00:20<00:04, 2.06it/s]
with torch.cuda.amp.autocast(amp):
    40/49    4.55G   0.03359   0.01533   0.002872     50       640: 85% 47/55 [00:20<00:04, 1.93it/s]
with torch.cuda.amp.autocast(amp):
    40/49    4.55G   0.03384   0.01535   0.002924     41       640: 87% 48/55 [00:21<00:03, 1.90it/s]
with torch.cuda.amp.autocast(amp):
    40/49    4.55G   0.03388   0.0154    0.002916     46       640: 89% 49/55 [00:22<00:03, 1.80it/s]
with torch.cuda.amp.autocast(amp):
    40/49    4.55G   0.03445   0.01541   0.002955     39       640: 91% 50/55 [00:22<00:02, 1.77it/s]
with torch.cuda.amp.autocast(amp):
    40/49    4.55G   0.03409   0.01542   0.002939     43       640: 93% 51/55 [00:23<00:02, 1.76it/s]
with torch.cuda.amp.autocast(amp):
    40/49    4.55G   0.03393   0.01546   0.002948     44       640: 95% 52/55 [00:23<00:01, 1.82it/s]
with torch.cuda.amp.autocast(amp):
    40/49    4.55G   0.03416   0.01552   0.002944     49       640: 96% 53/55 [00:24<00:01, 1.98it/s]
with torch.cuda.amp.autocast(amp):
    40/49    4.55G   0.0339    0.01548   0.002917     39       640: 98% 54/55 [00:24<00:00, 2.09it/s]
with torch.cuda.amp.autocast(amp):
    40/49    4.55G   0.03409   0.01545   0.002921     30       640: 100% 55/55 [00:24<00:00, 2.20it/s]
                                         Class   Images Instances      P      R
                                         all     877      971    0.919   0.901      0.937   0.634
                                         mAP50   mAP50-95: 100% 28/28 [00:12<00:00,
                                         Size
                                         FutureWarning: `torch.cuda.amp.autocast(arg
                                         with torch.cuda.amp.autocast(amp):
                                             41/49    4.55G   0.03266   0.01435   0.003142     43       640: 2% 1/55 [00:00<00:12, 4.38it/s]
                                         with torch.cuda.amp.autocast(amp):
                                             41/49    4.55G   0.03052   0.01372   0.002269     37       640: 4% 2/55 [00:00<00:12, 4.11it/s]
                                         with torch.cuda.amp.autocast(amp):

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    41/49    4.55G   0.03254   0.01249   0.001696   34      640:   5% 3/55 [00:00<00:12,  4.19it/s]/  

with torch.cuda.amp.autocast(amp):  

    41/49    4.55G   0.02869   0.01212   0.001702   36      640:   7% 4/55 [00:01<00:17,  2.98it/s]/  

with torch.cuda.amp.autocast(amp):  

    41/49    4.55G   0.02899   0.01292   0.001569   42      640:   9% 5/55 [00:01<00:18,  2.77it/s]/  

with torch.cuda.amp.autocast(amp):  

    41/49    4.55G   0.02843   0.01321   0.001461   38      640:  11% 6/55 [00:02<00:18,  2.61it/s]/  

with torch.cuda.amp.autocast(amp):  

    41/49    4.55G   0.02911   0.01112   0.001570   45      640:  13% 7/55 [00:02<00:19,  2.48it/s]/  

with torch.cuda.amp.autocast(amp):  

    41/49    4.55G   0.02743   0.01112   Run cell (Ctrl+Enter)  
                                cell has not been executed in this session  
                                Previous execution ended unsuccessfully  
with torch.cuda.amp.autocast(amp):  

    41/49    4.55G   0.02925   0.01112   currently executing...  
with torch.cuda.amp.autocast(amp):  

    41/49    4.55G   0.02766   0.01395   0.002434   35      640:  18% 10/55 [00:03<00:18,  2.45it/s]  

with torch.cuda.amp.autocast(amp):  

    41/49    4.55G   0.02767   0.01431   0.002474   57      640:  20% 11/55 [00:04<00:19,  2.29it/s]  

with torch.cuda.amp.autocast(amp):  

    41/49    4.55G   0.02665   0.01428   0.002654   40      640:  22% 12/55 [00:04<00:18,  2.32it/s]  

with torch.cuda.amp.autocast(amp):  

    41/49    4.55G   0.02616   0.01415   0.002576   38      640:  24% 13/55 [00:05<00:17,  2.33it/s]  

with torch.cuda.amp.autocast(amp):  

    41/49    4.55G   0.02538   0.01399   0.002731   36      640:  25% 14/55 [00:05<00:17,  2.28it/s]  

with torch.cuda.amp.autocast(amp):  

    41/49    4.55G   0.02465   0.01389   0.002657   39      640:  27% 15/55 [00:05<00:17,  2.31it/s]  

with torch.cuda.amp.autocast(amp):  

    41/49    4.55G   0.02482   0.01389   0.002772   34      640:  29% 16/55 [00:06<00:16,  2.32it/s]  

with torch.cuda.amp.autocast(amp):  

    41/49    4.55G   0.02524   0.01427   0.00297   51      640:  31% 17/55 [00:06<00:16,  2.24it/s]  

with torch.cuda.amp.autocast(amp):  

    41/49    4.55G   0.02558   0.01428   0.002822   36      640:  33% 18/55 [00:07<00:16,  2.26it/s]  

with torch.cuda.amp.autocast(amp):  

    41/49    4.55G   0.02606   0.01449   0.002852   50      640:  35% 19/55 [00:07<00:15,  2.35it/s]  

with torch.cuda.amp.autocast(amp):  

    41/49    4.55G   0.0259   0.01434   0.002914   37      640:  36% 20/55 [00:08<00:15,  2.26it/s]  

with torch.cuda.amp.autocast(amp):  

    41/49    4.55G   0.02611   0.01455   0.002851   49      640:  38% 21/55 [00:08<00:15,  2.24it/s]  

with torch.cuda.amp.autocast(amp):  

    41/49    4.55G   0.02729   0.01476   0.003031   45      640:  40% 22/55 [00:08<00:14,  2.32it/s]  

with torch.cuda.amp.autocast(amp):  

    41/49    4.55G   0.02682   0.0147   0.002942   46      640:  42% 23/55 [00:09<00:13,  2.34it/s]  

with torch.cuda.amp.autocast(amp):  

    41/49    4.55G   0.02774   0.01476   0.00291   48      640:  44% 24/55 [00:09<00:14,  2.21it/s]  

with torch.cuda.amp.autocast(amp):  

    41/49    4.55G   0.0284   0.01477   0.002875   47      640:  45% 25/55 [00:10<00:15,  1.97it/s]  

with torch.cuda.amp.autocast(amp):  

    41/49    4.55G   0.02865   0.01463   0.002794   33      640:  47% 26/55 [00:11<00:15,  1.89it/s]  

with torch.cuda.amp.autocast(amp):  

    41/49    4.55G   0.02924   0.01469   0.002781   49      640:  49% 27/55 [00:11<00:15,  1.84it/s]  

with torch.cuda.amp.autocast(amp):  

    41/49    4.55G   0.02927   0.01481   0.002798   48      640:  51% 28/55 [00:12<00:15,  1.73it/s]  

with torch.cuda.amp.autocast(amp):  

    41/49    4.55G   0.02934   0.01474   0.002805   40      640:  53% 29/55 [00:12<00:15,  1.72it/s]  

with torch.cuda.amp.autocast(amp):  

    41/49    4.55G   0.02966   0.01472   0.002832   45      640:  55% 30/55 [00:13<00:14,  1.75it/s]  

with torch.cuda.amp.autocast(amp):  

    41/49    4.55G   0.02931   0.01477   0.002822   44      640:  56% 31/55 [00:13<00:12,  1.88it/s]  

with torch.cuda.amp.autocast(amp):  

    41/49    4.55G   0.02961   0.01478   0.002836   41      640:  58% 32/55 [00:14<00:11,  1.97it/s]  

with torch.cuda.amp.autocast(amp):  

    41/49    4.55G   0.02977   0.01468   0.002797   37      640:  60% 33/55 [00:14<00:10,  2.05it/s]  

with torch.cuda.amp.autocast(amp):  

    41/49    4.55G   0.02997   0.01457   0.002751   31      640:  62% 34/55 [00:15<00:09,  2.13it/s]  

with torch.cuda.amp.autocast(amp):  

    41/49    4.55G   0.03017   0.01459   0.00272   43      640:  64% 35/55 [00:15<00:09,  2.20it/s]  

with torch.cuda.amp.autocast(amp):  

    41/49    4.55G   0.03076   0.01459   0.002715   46      640:  65% 36/55 [00:16<00:08,  2.26it/s]  

with torch.cuda.amp.autocast(amp):  

    41/49    4.55G   0.03063   0.01465   0.002739   48      640:  67% 37/55 [00:16<00:07,  2.25it/s]  

with torch.cuda.amp.autocast(amp):  

    41/49    4.55G   0.03028   0.0146   0.002777   40      640:  69% 38/55 [00:16<00:07,  2.26it/s]  

with torch.cuda.amp.autocast(amp):

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    41/49      4.55G   0.03042   0.01465   0.00275     41      640:  71% 39/55 [00:17<00:06,  2.36it/s]
with torch.cuda.amp.autocast(amp):
    41/49      4.55G   0.03005   0.01455   0.002824    34      640:  73% 40/55 [00:17<00:06,  2.22it/s]
with torch.cuda.amp.autocast(amp):
    41/49      4.55G   0.02998   0.01446   0.002773    34      640:  75% 41/55 [00:18<00:06,  2.24it/s]
with torch.cuda.amp.autocast(amp):
    41/49      4.55G   0.03037   0.01451   0.002776    44      640:  76% 42/55 [00:18<00:05,  2.34it/s]
with torch.cuda.amp.autocast(amp):
    41/49      4.55G   0.03002   0.01446   0.002776    ??      640:  78% 43/55 [00:19<00:04,  2.42it/s]
with torch.cuda.amp.autocast(amp): Run cell (Ctrl+Enter)
    41/49      4.55G   0.03003   0.01446   0.002776    ??      cell has not been executed in this session
with torch.cuda.amp.autocast(amp): Previous execution ended unsuccessfully
    41/49      4.55G   0.02996   0.01446   0.002776    ??      640:  80% 44/55 [00:19<00:04,  2.40it/s]
with torch.cuda.amp.autocast(amp):
    41/49      4.55G   0.02997   0.01449   0.002779    47      640:  82% 45/55 [00:19<00:04,  2.34it/s]
with torch.cuda.amp.autocast(amp):
    41/49      4.55G   0.03007   0.01452   0.002746    46      640:  85% 47/55 [00:20<00:03,  2.27it/s]
with torch.cuda.amp.autocast(amp):
    41/49      4.55G   0.03051   0.01455   0.002783    48      640:  87% 48/55 [00:21<00:03,  2.31it/s]
with torch.cuda.amp.autocast(amp):
    41/49      4.55G   0.03069   0.01466   0.002777    52      640:  89% 49/55 [00:21<00:02,  2.28it/s]
with torch.cuda.amp.autocast(amp):
    41/49      4.55G   0.03086   0.01476   0.002771    50      640:  91% 50/55 [00:22<00:02,  2.37it/s]
with torch.cuda.amp.autocast(amp):
    41/49      4.55G   0.03056   0.01469   0.002748    35      640:  93% 51/55 [00:22<00:01,  2.33it/s]
with torch.cuda.amp.autocast(amp):
    41/49      4.55G   0.03028   0.01469   0.002796    38      640:  95% 52/55 [00:23<00:01,  2.32it/s]
with torch.cuda.amp.autocast(amp):
    41/49      4.55G   0.03053   0.01474   0.002798    46      640:  96% 53/55 [00:23<00:00,  2.22it/s]
with torch.cuda.amp.autocast(amp):
    41/49      4.55G   0.03088   0.01477   0.002782    32      640:  98% 54/55 [00:24<00:00,  2.08it/s]
with torch.cuda.amp.autocast(amp):
    41/49      4.55G   0.03089   0.01467   0.002784    30      640: 100% 55/55 [00:24<00:00,  2.24it/s]
        Class   Images Instances P
            all     877      971    0.923    0.91      mAP50      mAP50-95: 100% 28/28 [00:11<00:00,
                                         0.95      0.659

```

```

Epoch GPU_mem box_loss obj_loss cls_loss Instances Size
0% 0/55 [00:00<?, ?it/s]/content/yolov5_project/yolov5/train.py:412: FutureWarning: `torch.cuda.amp.autocast(arg
with torch.cuda.amp.autocast(amp):
    42/49      4.55G   0.03465   0.01481   0.001925    49      640:  2% 1/55 [00:00<00:11,  4.87it/s]/
with torch.cuda.amp.autocast(amp):
    42/49      4.55G   0.03282   0.01296   0.005515    36      640:  4% 2/55 [00:00<00:13,  3.87it/s]/
with torch.cuda.amp.autocast(amp):
    42/49      4.55G   0.02779   0.01234   0.004212    30      640:  5% 3/55 [00:00<00:17,  2.95it/s]/
with torch.cuda.amp.autocast(amp):
    42/49      4.55G   0.03       0.01294   0.005691    45      640:  7% 4/55 [00:01<00:23,  2.20it/s]/
with torch.cuda.amp.autocast(amp):
    42/49      4.55G   0.03162   0.01339   0.004928    41      640:  9% 5/55 [00:02<00:24,  2.04it/s]/
with torch.cuda.amp.autocast(amp):
    42/49      4.55G   0.0336    0.01336   0.004304    39      640: 11% 6/55 [00:02<00:26,  1.85it/s]/
with torch.cuda.amp.autocast(amp):
    42/49      4.55G   0.03249   0.01366   0.004255    47      640: 13% 7/55 [00:03<00:27,  1.73it/s]/
with torch.cuda.amp.autocast(amp):
    42/49      4.55G   0.03168   0.0138    0.00392    43      640: 15% 8/55 [00:03<00:27,  1.73it/s]/
with torch.cuda.amp.autocast(amp):
    42/49      4.55G   0.03127   0.01427   0.00418     53      640: 16% 9/55 [00:04<00:24,  1.88it/s]/
with torch.cuda.amp.autocast(amp):
    42/49      4.55G   0.02986   0.01411   0.003899    41      640: 18% 10/55 [00:04<00:22,  2.01it/s]/
with torch.cuda.amp.autocast(amp):
    42/49      4.55G   0.03026   0.01374   0.003731    38      640: 20% 11/55 [00:05<00:20,  2.11it/s]/
with torch.cuda.amp.autocast(amp):
    42/49      4.55G   0.03014   0.01405   0.003624    41      640: 22% 12/55 [00:05<00:20,  2.11it/s]/
with torch.cuda.amp.autocast(amp):
    42/49      4.55G   0.03148   0.01431   0.003503    47      640: 24% 13/55 [00:06<00:18,  2.25it/s]/
with torch.cuda.amp.autocast(amp):
    42/49      4.55G   0.03115   0.01431   0.003717    41      640: 25% 14/55 [00:06<00:18,  2.26it/s]/
with torch.cuda.amp.autocast(amp):
    42/49      4.55G   0.0311    0.01417   0.003527    43      640: 27% 15/55 [00:06<00:17,  2.29it/s]/
with torch.cuda.amp.autocast(amp):
    42/49      4.55G   0.03027   0.01402   0.003543    35      640: 29% 16/55 [00:07<00:17,  2.27it/s]/
with torch.cuda.amp.autocast(amp):
    42/49      4.55G   0.03014   0.01404   0.003382    42      640: 31% 17/55 [00:07<00:16,  2.28it/s]

```

```

with torch.cuda.amp.autocast(amp):
    42/49    4.55G   0.02923  0.01402  0.003359    41      640: 33% 18/55 [00:08<00:16, 2.28it/s]
with torch.cuda.amp.autocast(amp):
    42/49    4.55G   0.02952  0.01411  0.003385    38      640: 35% 19/55 [00:08<00:15, 2.33it/s]
with torch.cuda.amp.autocast(amp):
    42/49    4.55G   0.03078  0.0141  0.003376    44      640: 36% 20/55 [00:09<00:15, 2.33it/s]
with torch.cuda.amp.autocast(amp):
    42/49    4.55G   0.0301   0.01401  0.00342     34      640: 38% 21/55 [00:09<00:14, 2.32it/s]
with torch.cuda.amp.autocast(amp):
    42/49    4.55G   0.03082  0. Run cell (Ctrl+Enter)
                                cell has not been executed in this session
                                Previous execution ended unsuccessfully
                                currently executing...
    42/49    4.55G   0.0302   0.0142  0.003232    43      640: 40% 22/55 [00:10<00:14, 2.26it/s]
with torch.cuda.amp.autocast(amp):
    42/49    4.55G   0.0302   0.0143  0.003209    45      640: 42% 23/55 [00:10<00:13, 2.30it/s]
with torch.cuda.amp.autocast(amp):
    42/49    4.55G   0.03105  0.01437 0.00315     46      640: 47% 26/55 [00:11<00:12, 2.31it/s]
with torch.cuda.amp.autocast(amp):
    42/49    4.55G   0.03059  0.01433 0.003118    42      640: 49% 27/55 [00:12<00:12, 2.31it/s]
with torch.cuda.amp.autocast(amp):
    42/49    4.55G   0.03086  0.01437 0.003072    48      640: 51% 28/55 [00:12<00:11, 2.40it/s]
with torch.cuda.amp.autocast(amp):
    42/49    4.55G   0.0306   0.01435 0.003003    39      640: 53% 29/55 [00:12<00:11, 2.34it/s]
with torch.cuda.amp.autocast(amp):
    42/49    4.55G   0.03085  0.01437 0.00295     45      640: 55% 30/55 [00:13<00:10, 2.27it/s]
with torch.cuda.amp.autocast(amp):
    42/49    4.55G   0.03105  0.01429 0.002914    37      640: 56% 31/55 [00:13<00:10, 2.24it/s]
with torch.cuda.amp.autocast(amp):
    42/49    4.55G   0.03094  0.01427 0.002849    44      640: 58% 32/55 [00:14<00:11, 1.99it/s]
with torch.cuda.amp.autocast(amp):
    42/49    4.55G   0.03101  0.01427 0.002807    45      640: 60% 33/55 [00:15<00:11, 1.88it/s]
with torch.cuda.amp.autocast(amp):
    42/49    4.55G   0.03083  0.01429 0.00282     47      640: 62% 34/55 [00:15<00:11, 1.83it/s]
with torch.cuda.amp.autocast(amp):
    42/49    4.55G   0.03047  0.01437 0.002801    48      640: 64% 35/55 [00:16<00:11, 1.82it/s]
with torch.cuda.amp.autocast(amp):
    42/49    4.55G   0.03081  0.01455 0.002823    54      640: 65% 36/55 [00:16<00:10, 1.75it/s]
with torch.cuda.amp.autocast(amp):
    42/49    4.55G   0.0313   0.01458 0.002923    39      640: 67% 37/55 [00:17<00:10, 1.73it/s]
with torch.cuda.amp.autocast(amp):
    42/49    4.55G   0.03133  0.0146  0.002946    51      640: 69% 38/55 [00:17<00:09, 1.84it/s]
with torch.cuda.amp.autocast(amp):
    42/49    4.55G   0.03098  0.01466 0.002919    47      640: 71% 39/55 [00:18<00:08, 1.94it/s]
with torch.cuda.amp.autocast(amp):
    42/49    4.55G   0.03105  0.0147  0.002931    41      640: 73% 40/55 [00:18<00:07, 2.12it/s]
with torch.cuda.amp.autocast(amp):
    42/49    4.55G   0.03075  0.01469 0.002895    36      640: 75% 41/55 [00:19<00:06, 2.15it/s]
with torch.cuda.amp.autocast(amp):
    42/49    4.55G   0.03061  0.01472 0.002867    49      640: 76% 42/55 [00:19<00:06, 2.12it/s]
with torch.cuda.amp.autocast(amp):
    42/49    4.55G   0.03087  0.01475 0.002855    41      640: 78% 43/55 [00:20<00:05, 2.27it/s]
with torch.cuda.amp.autocast(amp):
    42/49    4.55G   0.03061  0.01476 0.002888    46      640: 80% 44/55 [00:20<00:04, 2.29it/s]
with torch.cuda.amp.autocast(amp):
    42/49    4.55G   0.03021  0.01462 0.002917    31      640: 82% 45/55 [00:20<00:04, 2.30it/s]
with torch.cuda.amp.autocast(amp):
    42/49    4.55G   0.03034  0.01473 0.003001    52      640: 84% 46/55 [00:21<00:04, 2.18it/s]
with torch.cuda.amp.autocast(amp):
    42/49    4.55G   0.03006  0.01468 0.002978    37      640: 85% 47/55 [00:21<00:03, 2.37it/s]
with torch.cuda.amp.autocast(amp):
    42/49    4.55G   0.03017  0.01465 0.002936    37      640: 87% 48/55 [00:22<00:03, 2.29it/s]
with torch.cuda.amp.autocast(amp):
    42/49    4.55G   0.03027  0.01466 0.002895    44      640: 89% 49/55 [00:22<00:02, 2.37it/s]
with torch.cuda.amp.autocast(amp):
    42/49    4.55G   0.03035  0.01473 0.002886    50      640: 91% 50/55 [00:23<00:02, 2.19it/s]
with torch.cuda.amp.autocast(amp):
    42/49    4.55G   0.03038  0.01449 0.002906    53      640: 93% 51/55 [00:23<00:01, 2.33it/s]
with torch.cuda.amp.autocast(amp):
    42/49    4.55G   0.03023  0.01488 0.002865    43      640: 95% 52/55 [00:24<00:01, 2.25it/s]
with torch.cuda.amp.autocast(amp):
    42/49    4.55G   0.03018  0.0149  0.002863    44      640: 96% 53/55 [00:24<00:00, 2.30it/s]

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```

with torch.cuda.amp.autocast(amp):
    42/49    4.55G   0.02996   0.01484   0.0029      34      640: 98% 54/55 [00:24<00:00,  2.23it/s]
with torch.cuda.amp.autocast(amp):
    42/49    4.55G   0.02971   0.01483   0.002861     33      640: 100% 55/55 [00:25<00:00,  2.18it/s]
        Class   Images   Instances      P       R
        all      877      971      0.917      0.907      0.952      0.684
mAP50   mAP50-95: 100% 28/28 [00:12<00:00,
Epoch   GPU_mem   box_loss   obj_loss   cls_loss   Instances      Size
0% 0/55 [00:00<?, ?it/s]/content/yolo... FutureWarning: `torch.cuda.amp.autocast(arg
with torch.cuda.amp.autocast(amp): Run cell (Ctrl+Enter)
    43/49    4.55G   0.03094   0.          cell has not been executed in this session
with torch.cuda.amp.autocast(amp): Previous execution ended unsuccessfully
    43/49    4.55G   0.03822   0.          currently executing...
with torch.cuda.amp.autocast(amp):
    43/49    4.55G   0.03045   0.01419   0.003976     40      640: 2% 1/55 [00:00<00:11,  4.86it/s]/
with torch.cuda.amp.autocast(amp):
    43/49    4.55G   0.03583   0.01428   0.004828     41      640: 7% 4/55 [00:01<00:12,  4.41it/s]/
with torch.cuda.amp.autocast(amp):
    43/49    4.55G   0.03374   0.01362   0.004523     39      640: 9% 5/55 [00:01<00:18,  2.70it/s]/
with torch.cuda.amp.autocast(amp):
    43/49    4.55G   0.03312   0.01418   0.004539     44      640: 11% 6/55 [00:02<00:19,  2.53it/s]/
with torch.cuda.amp.autocast(amp):
    43/49    4.55G   0.03319   0.01474   0.005548     46      640: 13% 7/55 [00:02<00:20,  2.34it/s]/
with torch.cuda.amp.autocast(amp):
    43/49    4.55G   0.03116   0.01482   0.005767     38      640: 15% 8/55 [00:03<00:19,  2.35it/s]/
with torch.cuda.amp.autocast(amp):
    43/49    4.55G   0.02958   0.01451   0.005308     37      640: 16% 9/55 [00:03<00:21,  2.15it/s]/
with torch.cuda.amp.autocast(amp):
    43/49    4.55G   0.02974   0.01429   0.004857     36      640: 18% 10/55 [00:04<00:21,  2.09it/s]/
with torch.cuda.amp.autocast(amp):
    43/49    4.55G   0.02847   0.01438   0.004709     40      640: 20% 11/55 [00:04<00:23,  1.88it/s]/
with torch.cuda.amp.autocast(amp):
    43/49    4.55G   0.02879   0.01443   0.004385     43      640: 22% 12/55 [00:05<00:23,  1.84it/s]/
with torch.cuda.amp.autocast(amp):
    43/49    4.55G   0.02942   0.01473   0.004125     52      640: 24% 13/55 [00:05<00:24,  1.73it/s]/
with torch.cuda.amp.autocast(amp):
    43/49    4.55G   0.02957   0.01491   0.004116     46      640: 25% 14/55 [00:06<00:23,  1.71it/s]/
with torch.cuda.amp.autocast(amp):
    43/49    4.55G   0.0299    0.01548   0.003952     59      640: 27% 15/55 [00:07<00:23,  1.71it/s]/
with torch.cuda.amp.autocast(amp):
    43/49    4.55G   0.03065   0.01527   0.003799     39      640: 29% 16/55 [00:07<00:20,  1.87it/s]/
with torch.cuda.amp.autocast(amp):
    43/49    4.55G   0.03165   0.01528   0.004422     39      640: 31% 17/55 [00:07<00:18,  2.00it/s]/
with torch.cuda.amp.autocast(amp):
    43/49    4.55G   0.03186   0.01534   0.004237     43      640: 33% 18/55 [00:08<00:17,  2.09it/s]/
with torch.cuda.amp.autocast(amp):
    43/49    4.55G   0.03318   0.01538   0.004087     39      640: 35% 19/55 [00:08<00:16,  2.15it/s]/
with torch.cuda.amp.autocast(amp):
    43/49    4.55G   0.0333    0.01559   0.003957     53      640: 36% 20/55 [00:09<00:15,  2.23it/s]/
with torch.cuda.amp.autocast(amp):
    43/49    4.55G   0.03312   0.01563   0.003818     43      640: 38% 21/55 [00:09<00:15,  2.21it/s]/
with torch.cuda.amp.autocast(amp):
    43/49    4.55G   0.03298   0.01568   0.003821     44      640: 40% 22/55 [00:10<00:14,  2.29it/s]/
with torch.cuda.amp.autocast(amp):
    43/49    4.55G   0.0322    0.0155    0.003764     43      640: 42% 23/55 [00:10<00:14,  2.27it/s]/
with torch.cuda.amp.autocast(amp):
    43/49    4.55G   0.03222   0.01533   0.003807     36      640: 44% 24/55 [00:10<00:13,  2.34it/s]/
with torch.cuda.amp.autocast(amp):
    43/49    4.55G   0.03268   0.01521   0.003687     39      640: 45% 25/55 [00:11<00:12,  2.34it/s]/
with torch.cuda.amp.autocast(amp):
    43/49    4.55G   0.03311   0.01534   0.003603     47      640: 47% 26/55 [00:11<00:12,  2.35it/s]/
with torch.cuda.amp.autocast(amp):
    43/49    4.55G   0.03344   0.01538   0.003589     48      640: 49% 27/55 [00:12<00:11,  2.35it/s]/
with torch.cuda.amp.autocast(amp):
    43/49    4.55G   0.03331   0.01534   0.003552     43      640: 51% 28/55 [00:12<00:11,  2.33it/s]/
with torch.cuda.amp.autocast(amp):
    43/49    4.55G   0.03281   0.01551   0.003514     48      640: 53% 29/55 [00:13<00:11,  2.28it/s]/
with torch.cuda.amp.autocast(amp):
    43/49    4.55G   0.03306   0.01556   0.003462     43      640: 55% 30/55 [00:13<00:10,  2.28it/s]/
with torch.cuda.amp.autocast(amp):
    43/49    4.55G   0.03275   0.01552   0.00337      47      640: 56% 31/55 [00:14<00:10,  2.25it/s]/
with torch.cuda.amp.autocast(amp):

```

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    43/49      4.55G   0.03327   0.01545   0.003302   33     640:  58% 32/55 [00:14<00:09,  2.32it/s]
with torch.cuda.amp.autocast(amp):
    43/49      4.55G   0.03282   0.01546   0.003242   39     640:  60% 33/55 [00:14<00:09,  2.35it/s]
with torch.cuda.amp.autocast(amp):
    43/49      4.55G   0.03303   0.01537   0.003439   33     640:  62% 34/55 [00:15<00:09,  2.33it/s]
with torch.cuda.amp.autocast(amp):
    43/49      4.55G   0.03281   0.01534   0.003377   41     640:  64% 35/55 [00:15<00:08,  2.30it/s]
with torch.cuda.amp.autocast(amp):
    43/49      4.55G   0.0331    0.01544   0.003261   47     640:  65% 36/55 [00:16<00:08,  2.35it/s]
Run cell (Ctrl+Enter)
with torch.cuda.amp.autocast(amp):
    43/49      4.55G   0.03289   0.01533   0.003418   41     640:  67% 37/55 [00:16<00:07,  2.33it/s]
cell has not been executed in this session
Previous execution ended unsuccessfully
with torch.cuda.amp.autocast(amp):
    43/49      4.55G   0.03291   0.01532   0.003444   46     640:  69% 38/55 [00:17<00:07,  2.30it/s]
with torch.cuda.amp.autocast(amp):
    43/49      4.55G   0.03275   0.0154    0.003357   41     640:  71% 39/55 [00:17<00:07,  2.03it/s]
with torch.cuda.amp.autocast(amp):
    43/49      4.55G   0.03237   0.01533   0.003418   41     640:  73% 40/55 [00:18<00:07,  1.92it/s]
with torch.cuda.amp.autocast(amp):
    43/49      4.55G   0.03277   0.01532   0.003437   38     640:  75% 41/55 [00:18<00:07,  1.85it/s]
with torch.cuda.amp.autocast(amp):
    43/49      4.55G   0.03257   0.01527   0.003444   46     640:  76% 42/55 [00:19<00:07,  1.74it/s]
with torch.cuda.amp.autocast(amp):
    43/49      4.55G   0.03219   0.01521   0.003461   40     640:  78% 43/55 [00:20<00:06,  1.72it/s]
with torch.cuda.amp.autocast(amp):
    43/49      4.55G   0.03199   0.0152    0.003421   46     640:  80% 44/55 [00:20<00:06,  1.73it/s]
with torch.cuda.amp.autocast(amp):
    43/49      4.55G   0.03231   0.01513   0.003388   39     640:  82% 45/55 [00:21<00:05,  1.86it/s]
with torch.cuda.amp.autocast(amp):
    43/49      4.55G   0.03249   0.01511   0.003343   46     640:  84% 46/55 [00:21<00:04,  1.99it/s]
with torch.cuda.amp.autocast(amp):
    43/49      4.55G   0.03235   0.0151    0.003314   42     640:  85% 47/55 [00:21<00:03,  2.08it/s]
with torch.cuda.amp.autocast(amp):
    43/49      4.55G   0.03236   0.01513   0.003325   42     640:  87% 48/55 [00:22<00:03,  2.16it/s]
with torch.cuda.amp.autocast(amp):
    43/49      4.55G   0.03238   0.01512   0.003288   45     640:  89% 49/55 [00:22<00:02,  2.21it/s]
with torch.cuda.amp.autocast(amp):
    43/49      4.55G   0.03258   0.01509   0.003268   43     640:  91% 50/55 [00:23<00:02,  2.23it/s]
with torch.cuda.amp.autocast(amp):
    43/49      4.55G   0.03246   0.01507   0.003296   42     640:  93% 51/55 [00:23<00:01,  2.23it/s]
with torch.cuda.amp.autocast(amp):
    43/49      4.55G   0.03246   0.01506   0.003283   48     640:  95% 52/55 [00:24<00:01,  2.29it/s]
with torch.cuda.amp.autocast(amp):
    43/49      4.55G   0.03226   0.015    0.003258   39     640:  96% 53/55 [00:24<00:00,  2.32it/s]
with torch.cuda.amp.autocast(amp):
    43/49      4.55G   0.03227   0.01505   0.003228   47     640:  98% 54/55 [00:24<00:00,  2.32it/s]
with torch.cuda.amp.autocast(amp):
    43/49      4.55G   0.03198   0.01501   0.003186   37     640: 100% 55/55 [00:25<00:00,  2.18it/s]
          Class   Images Instances      P      R
          all      877     971    0.928   0.888
mAP50: 0.943 mAP50-95: 100% 28/28 [00:12<00:00, 0.65]


```

| Epoch | GPU_mem   | box_loss | obj_loss | cls_loss | Instances | Size                                   |
|-------|---|----------|----------|----------|-----------|--|
| 0%    | 0/55 [00:00<?, ?it/s]/content/yolov5_project/yolov5/train.py:412: FutureWarning: `torch.cuda.amp.autocast(arg |          |          |          |           |  |
|       | with torch.cuda.amp.autocast(amp):  |          |          |          |           |  |
| 44/49 | 4.55G   | 0.03577  | 0.01444  | 0.001182 | 46        | 640: 2% 1/55 [00:00<00:11, 4.90it/s]/  |
|       | with torch.cuda.amp.autocast(amp):  |          |          |          |           |  |
| 44/49 | 4.55G   | 0.02577  | 0.01404  | 0.001844 | 37        | 640: 4% 2/55 [00:00<00:10, 4.87it/s]/  |
|       | with torch.cuda.amp.autocast(amp):  |          |          |          |           |  |
| 44/49 | 4.55G   | 0.02266  | 0.01337  | 0.001795 | 36        | 640: 5% 3/55 [00:00<00:13, 3.77it/s]/  |
|       | with torch.cuda.amp.autocast(amp):  |          |          |          |           |  |
| 44/49 | 4.55G   | 0.02603  | 0.01409  | 0.002469 | 39        | 640: 7% 4/55 [00:01<00:17, 2.85it/s]/  |
|       | with torch.cuda.amp.autocast(amp):  |          |          |          |           |  |
| 44/49 | 4.55G   | 0.02791  | 0.01378  | 0.002199 | 42        | 640: 9% 5/55 [00:01<00:19, 2.62it/s]/  |
|       | with torch.cuda.amp.autocast(amp):  |          |          |          |           |  |
| 44/49 | 4.55G   | 0.02531  | 0.01344  | 0.00235  | 42        | 640: 11% 6/55 [00:02<00:20, 2.40it/s]/ |
|       | with torch.cuda.amp.autocast(amp):  |          |          |          |           |  |
| 44/49 | 4.55G   | 0.02632  | 0.01318  | 0.00643  | 36        | 640: 13% 7/55 [00:02<00:20, 2.35it/s]/ |
|       | with torch.cuda.amp.autocast(amp):  |          |          |          |           |  |
| 44/49 | 4.55G   | 0.02675  | 0.01338  | 0.006095 | 42        | 640: 15% 8/55 [00:03<00:19, 2.35it/s]/ |
|       | with torch.cuda.amp.autocast(amp):  |          |          |          |           |  |
| 44/49 | 4.55G   | 0.02668  | 0.01408  | 0.00604  | 48        | 640: 16% 9/55 [00:03<00:19, 2.39it/s]/ |
|       | with torch.cuda.amp.autocast(amp):  |          |          |          |           |  |
| 44/49 | 4.55G   | 0.02761  | 0.01401  | 0.005678 | 44        | 640: 18% 10/55 [00:03<00:19, 2.27it/s] |

```

with torch.cuda.amp.autocast(amp):
    44/49 4.55G 0.02925 0.0139 0.005433 41 640: 20% 11/55 [00:04<00:18, 2.37it/s]
with torch.cuda.amp.autocast(amp):
    44/49 4.55G 0.02909 0.01372 0.005058 38 640: 22% 12/55 [00:04<00:18, 2.32it/s]
with torch.cuda.amp.autocast(amp):
    44/49 4.55G 0.02895 0.01362 0.004781 37 640: 24% 13/55 [00:05<00:18, 2.28it/s]
with torch.cuda.amp.autocast(amp):
    44/49 4.55G 0.0296 0.01359 0.004556 44 640: 25% 14/55 [00:05<00:17, 2.32it/s]
with torch.cuda.amp.autocast(amp):
    44/49 4.55G 0.03046 0. Run cell (Ctrl+Enter)
                                cell has not been executed in this session
                                Previous execution ended unsuccessfully
                                currently executing...
    44/49 4.55G 0.03122 0. 640: 27% 15/55 [00:06<00:17, 2.29it/s]
with torch.cuda.amp.autocast(amp):
    44/49 4.55G 0.03122 0. 640: 29% 16/55 [00:06<00:17, 2.26it/s]
with torch.cuda.amp.autocast(amp):
    44/49 4.55G 0.03129 0.01398 0.004231 40 640: 31% 17/55 [00:07<00:18, 2.10it/s]
with torch.cuda.amp.autocast(amp):
    44/49 4.55G 0.03054 0.01395 0.004049 42 640: 33% 18/55 [00:07<00:18, 2.01it/s]
with torch.cuda.amp.autocast(amp):
    44/49 4.55G 0.02992 0.01397 0.003938 43 640: 35% 19/55 [00:08<00:19, 1.81it/s]
with torch.cuda.amp.autocast(amp):
    44/49 4.55G 0.03022 0.01419 0.003832 42 640: 36% 20/55 [00:08<00:20, 1.72it/s]
with torch.cuda.amp.autocast(amp):
    44/49 4.55G 0.03058 0.0141 0.003683 36 640: 38% 21/55 [00:09<00:19, 1.72it/s]
with torch.cuda.amp.autocast(amp):
    44/49 4.55G 0.02991 0.01401 0.00361 38 640: 40% 22/55 [00:10<00:19, 1.72it/s]
with torch.cuda.amp.autocast(amp):
    44/49 4.55G 0.03007 0.01418 0.003486 49 640: 42% 23/55 [00:10<00:17, 1.81it/s]
with torch.cuda.amp.autocast(amp):
    44/49 4.55G 0.02942 0.01412 0.003453 36 640: 44% 24/55 [00:10<00:15, 2.02it/s]
with torch.cuda.amp.autocast(amp):
    44/49 4.55G 0.0295 0.01425 0.003494 42 640: 45% 25/55 [00:11<00:14, 2.04it/s]
with torch.cuda.amp.autocast(amp):
    44/49 4.55G 0.02944 0.01427 0.003541 43 640: 47% 26/55 [00:11<00:13, 2.09it/s]
with torch.cuda.amp.autocast(amp):
    44/49 4.55G 0.03027 0.01441 0.003488 48 640: 49% 27/55 [00:12<00:12, 2.25it/s]
with torch.cuda.amp.autocast(amp):
    44/49 4.55G 0.02964 0.0143 0.003459 37 640: 51% 28/55 [00:12<00:12, 2.25it/s]
with torch.cuda.amp.autocast(amp):
    44/49 4.55G 0.02968 0.01424 0.003432 40 640: 53% 29/55 [00:13<00:11, 2.31it/s]
with torch.cuda.amp.autocast(amp):
    44/49 4.55G 0.03021 0.01443 0.003362 53 640: 55% 30/55 [00:13<00:10, 2.28it/s]
with torch.cuda.amp.autocast(amp):
    44/49 4.55G 0.03034 0.01459 0.003285 49 640: 56% 31/55 [00:13<00:10, 2.33it/s]
with torch.cuda.amp.autocast(amp):
    44/49 4.55G 0.03035 0.01463 0.003251 52 640: 58% 32/55 [00:14<00:09, 2.41it/s]
with torch.cuda.amp.autocast(amp):
    44/49 4.55G 0.03007 0.01464 0.003247 43 640: 60% 33/55 [00:14<00:09, 2.37it/s]
with torch.cuda.amp.autocast(amp):
    44/49 4.55G 0.02995 0.0146 0.003167 40 640: 62% 34/55 [00:15<00:08, 2.38it/s]
with torch.cuda.amp.autocast(amp):
    44/49 4.55G 0.02955 0.0146 0.00315 41 640: 64% 35/55 [00:15<00:08, 2.35it/s]
with torch.cuda.amp.autocast(amp):
    44/49 4.55G 0.02955 0.01461 0.003087 46 640: 65% 36/55 [00:16<00:08, 2.27it/s]
with torch.cuda.amp.autocast(amp):
    44/49 4.55G 0.02917 0.01463 0.003113 40 640: 67% 37/55 [00:16<00:07, 2.41it/s]
with torch.cuda.amp.autocast(amp):
    44/49 4.55G 0.02948 0.01463 0.003156 38 640: 69% 38/55 [00:16<00:07, 2.35it/s]
with torch.cuda.amp.autocast(amp):
    44/49 4.55G 0.0298 0.01475 0.003097 53 640: 71% 39/55 [00:17<00:06, 2.43it/s]
with torch.cuda.amp.autocast(amp):
    44/49 4.55G 0.02984 0.0147 0.003057 46 640: 73% 40/55 [00:17<00:06, 2.31it/s]
with torch.cuda.amp.autocast(amp):
    44/49 4.55G 0.02972 0.01466 0.003192 36 640: 75% 41/55 [00:18<00:06, 2.32it/s]
with torch.cuda.amp.autocast(amp):
    44/49 4.55G 0.02954 0.01462 0.003198 42 640: 76% 42/55 [00:18<00:05, 2.35it/s]
with torch.cuda.amp.autocast(amp):
    44/49 4.55G 0.02967 0.01461 0.003179 48 640: 78% 43/55 [00:19<00:05, 2.38it/s]
with torch.cuda.amp.autocast(amp):
    44/49 4.55G 0.02946 0.01454 0.003136 35 640: 80% 44/55 [00:19<00:04, 2.28it/s]
with torch.cuda.amp.autocast(amp):
    44/49 4.55G 0.02917 0.01451 0.003171 39 640: 82% 45/55 [00:19<00:04, 2.30it/s]
with torch.cuda.amp.autocast(amp):
    44/49 4.55G 0.02937 0.01454 0.003166 43 640: 84% 46/55 [00:20<00:04, 2.13it/s]

```

```

with torch.cuda.amp.autocast(amp):
    44/49    4.55G   0.02935   0.0145   0.003183      36       640:  85% 47/55 [00:21<00:04,  1.92it/s]
with torch.cuda.amp.autocast(amp):
    44/49    4.55G   0.02933   0.01455  0.003246      44       640:  87% 48/55 [00:21<00:03,  1.76it/s]
with torch.cuda.amp.autocast(amp):
    44/49    4.55G   0.02944   0.01462  0.003208      45       640:  89% 49/55 [00:22<00:03,  1.87it/s]
with torch.cuda.amp.autocast(amp):
    44/49    4.55G   0.02954   0.01469  0.003245      53       640:  91% 50/55 [00:22<00:02,  1.80it/s]
with torch.cuda.amp.autocast(amp):
    44/49    4.55G   0.02958   0.          Run cell (Ctrl+Enter)
                                         cell has not been executed in this session
                                         Previous execution ended unsuccessfully
with torch.cuda.amp.autocast(amp):
    44/49    4.55G   0.02993   0.          currently executing...
                                         P
                                         R
                                         mAP50
                                         mAP50-95: 100% 28/28 [00:12<00:00,
                                         0.96      0.657
                                         Size
                                         Instances
                                         P
                                         R
                                         mAP50
                                         mAP50-95: 100% 28/28 [00:12<00:00,
                                         0.96      0.657

Epoch   GPU_mem   box_loss   obj_loss   cls_loss   Instances   Size
0% 0/55 [00:00<?, ?it/s]/content/yolov5_project/yolov5/train.py:412: FutureWarning: `torch.cuda.amp.autocast(arg
with torch.cuda.amp.autocast(amp):
    45/49    4.55G   0.03253   0.01616  0.00263      46       640:  2% 1/55 [00:00<00:12,  4.41it/s]
with torch.cuda.amp.autocast(amp):
    45/49    4.55G   0.03512   0.01695  0.004653      53       640:  4% 2/55 [00:00<00:11,  4.70it/s]
with torch.cuda.amp.autocast(amp):
    45/49    4.55G   0.03229   0.01703  0.003485      51       640:  5% 3/55 [00:00<00:13,  3.87it/s]
with torch.cuda.amp.autocast(amp):
    45/49    4.55G   0.03099   0.0165   0.003251      46       640:  7% 4/55 [00:01<00:16,  3.04it/s]
with torch.cuda.amp.autocast(amp):
    45/49    4.55G   0.02826   0.01565  0.002954      38       640:  9% 5/55 [00:01<00:18,  2.69it/s]
with torch.cuda.amp.autocast(amp):
    45/49    4.55G   0.02783   0.01537  0.002811      41       640: 11% 6/55 [00:02<00:18,  2.67it/s]
with torch.cuda.amp.autocast(amp):
    45/49    4.55G   0.02921   0.01508  0.002983      37       640: 13% 7/55 [00:02<00:19,  2.47it/s]
with torch.cuda.amp.autocast(amp):
    45/49    4.55G   0.03089   0.01507  0.002761      42       640: 15% 8/55 [00:02<00:20,  2.33it/s]
with torch.cuda.amp.autocast(amp):
    45/49    4.55G   0.03039   0.01496  0.002542      40       640: 16% 9/55 [00:03<00:20,  2.21it/s]
with torch.cuda.amp.autocast(amp):
    45/49    4.55G   0.03107   0.01514  0.002362      41       640: 18% 10/55 [00:03<00:18,  2.38it/s]
with torch.cuda.amp.autocast(amp):
    45/49    4.55G   0.03067   0.01491  0.002254      38       640: 20% 11/55 [00:04<00:18,  2.33it/s]
with torch.cuda.amp.autocast(amp):
    45/49    4.55G   0.0306   0.01518  0.002207      51       640: 22% 12/55 [00:04<00:18,  2.30it/s]
with torch.cuda.amp.autocast(amp):
    45/49    4.55G   0.03068   0.01521  0.003236      44       640: 24% 13/55 [00:05<00:18,  2.29it/s]
with torch.cuda.amp.autocast(amp):
    45/49    4.55G   0.02974   0.01497  0.003411      39       640: 25% 14/55 [00:05<00:18,  2.25it/s]
with torch.cuda.amp.autocast(amp):
    45/49    4.55G   0.02956   0.01485  0.003265      41       640: 27% 15/55 [00:06<00:18,  2.22it/s]
with torch.cuda.amp.autocast(amp):
    45/49    4.55G   0.03049   0.01482  0.003235      44       640: 29% 16/55 [00:06<00:16,  2.40it/s]
with torch.cuda.amp.autocast(amp):
    45/49    4.55G   0.03031   0.01489  0.003514      39       640: 31% 17/55 [00:06<00:16,  2.28it/s]
with torch.cuda.amp.autocast(amp):
    45/49    4.55G   0.02948   0.01487  0.003473      41       640: 33% 18/55 [00:07<00:15,  2.34it/s]
with torch.cuda.amp.autocast(amp):
    45/49    4.55G   0.03025   0.0147   0.003387      41       640: 35% 19/55 [00:07<00:15,  2.32it/s]
with torch.cuda.amp.autocast(amp):
    45/49    4.55G   0.02962   0.01454  0.003259      35       640: 36% 20/55 [00:08<00:15,  2.32it/s]
with torch.cuda.amp.autocast(amp):
    45/49    4.55G   0.02986   0.01441  0.003216      36       640: 38% 21/55 [00:08<00:15,  2.21it/s]
with torch.cuda.amp.autocast(amp):
    45/49    4.55G   0.02992   0.01448  0.003125      45       640: 40% 22/55 [00:09<00:13,  2.37it/s]
with torch.cuda.amp.autocast(amp):
    45/49    4.55G   0.02938   0.01455  0.003017      45       640: 42% 23/55 [00:09<00:13,  2.34it/s]
with torch.cuda.amp.autocast(amp):
    45/49    4.55G   0.02896   0.01446  0.002976      33       640: 44% 24/55 [00:09<00:13,  2.34it/s]
with torch.cuda.amp.autocast(amp):

```

```

    45/49      4.55G   0.02946   0.01466   0.002903    47     640:  45% 25/55 [00:10<00:14,  2.02it/s]
with torch.cuda.amp.autocast(amp):
    45/49      4.55G   0.02975   0.01464   0.002833    42     640:  47% 26/55 [00:11<00:15,  1.92it/s]
with torch.cuda.amp.autocast(amp):
    45/49      4.55G   0.02955   0.01464   0.002747    48     640:  49% 27/55 [00:11<00:15,  1.82it/s]
with torch.cuda.amp.autocast(amp):
    45/49      4.55G   0.02947   0.01458   0.002756    41     640:  51% 28/55 [00:12<00:14,  1.83it/s]
with torch.cuda.amp.autocast(amp):
    45/49      4.55G   0.02939   0.01457   0.002706    41     640:  53% 29/55 [00:12<00:15,  1.72it/s]
with torch.cuda.amp.autocast(amp): Run cell (Ctrl+Enter)
    45/49      4.55G   0.02937   0.01456   0.002706    41     640:  55% 30/55 [00:13<00:14,  1.72it/s]
cell has not been executed in this session
with torch.cuda.amp.autocast(amp):
    45/49      4.55G   0.02899   0.01456   0.002706    41     640:  56% 31/55 [00:14<00:13,  1.82it/s]
with torch.cuda.amp.autocast(amp):
    45/49      4.55G   0.02963   0.01477   0.002652    44     640:  58% 32/55 [00:14<00:11,  2.01it/s]
with torch.cuda.amp.autocast(amp):
    45/49      4.55G   0.03029   0.01474   0.002654    37     640:  60% 33/55 [00:14<00:10,  2.09it/s]
with torch.cuda.amp.autocast(amp):
    45/49      4.55G   0.03052   0.01478   0.002669    42     640:  62% 34/55 [00:15<00:09,  2.14it/s]
with torch.cuda.amp.autocast(amp):
    45/49      4.55G   0.03069   0.01477   0.002655    45     640:  64% 35/55 [00:15<00:09,  2.19it/s]
with torch.cuda.amp.autocast(amp):
    45/49      4.55G   0.0306   0.01478   0.00259     52     640:  65% 36/55 [00:16<00:08,  2.24it/s]
with torch.cuda.amp.autocast(amp):
    45/49      4.55G   0.0311   0.01473   0.002606    41     640:  67% 37/55 [00:16<00:08,  2.22it/s]
with torch.cuda.amp.autocast(amp):
    45/49      4.55G   0.03101  0.01477   0.002586    48     640:  69% 38/55 [00:16<00:07,  2.28it/s]
with torch.cuda.amp.autocast(amp):
    45/49      4.55G   0.03117  0.01475   0.002562    39     640:  71% 39/55 [00:17<00:06,  2.36it/s]
with torch.cuda.amp.autocast(amp):
    45/49      4.55G   0.03109  0.01478   0.002542    42     640:  73% 40/55 [00:17<00:06,  2.34it/s]
with torch.cuda.amp.autocast(amp):
    45/49      4.55G   0.03074  0.0147   0.002553    41     640:  75% 41/55 [00:18<00:06,  2.32it/s]
with torch.cuda.amp.autocast(amp):
    45/49      4.55G   0.03037  0.0147   0.002545    40     640:  76% 42/55 [00:18<00:05,  2.43it/s]
with torch.cuda.amp.autocast(amp):
    45/49      4.55G   0.0304   0.01474   0.002517    49     640:  78% 43/55 [00:19<00:05,  2.24it/s]
with torch.cuda.amp.autocast(amp):
    45/49      4.55G   0.03068  0.01474   0.002507    47     640:  80% 44/55 [00:19<00:04,  2.39it/s]
with torch.cuda.amp.autocast(amp):
    45/49      4.55G   0.03035  0.01472   0.002514    41     640:  82% 45/55 [00:19<00:04,  2.35it/s]
with torch.cuda.amp.autocast(amp):
    45/49      4.55G   0.03065  0.01469   0.002493    45     640:  84% 46/55 [00:20<00:03,  2.41it/s]
with torch.cuda.amp.autocast(amp):
    45/49      4.55G   0.03035  0.01466   0.002459    37     640:  85% 47/55 [00:20<00:03,  2.39it/s]
with torch.cuda.amp.autocast(amp):
    45/49      4.55G   0.03034  0.0146   0.003261    38     640:  87% 48/55 [00:21<00:02,  2.46it/s]
with torch.cuda.amp.autocast(amp):
    45/49      4.55G   0.03025  0.01461   0.003247    42     640:  89% 49/55 [00:21<00:02,  2.34it/s]
with torch.cuda.amp.autocast(amp):
    45/49      4.55G   0.03027  0.01461   0.003242    40     640:  91% 50/55 [00:21<00:02,  2.43it/s]
with torch.cuda.amp.autocast(amp):
    45/49      4.55G   0.03018  0.01451   0.003195    33     640:  93% 51/55 [00:22<00:01,  2.24it/s]
with torch.cuda.amp.autocast(amp):
    45/49      4.55G   0.03021  0.01454   0.003181    46     640:  95% 52/55 [00:22<00:01,  2.34it/s]
with torch.cuda.amp.autocast(amp):
    45/49      4.55G   0.02993  0.01458   0.003146    42     640:  96% 53/55 [00:23<00:00,  2.31it/s]
with torch.cuda.amp.autocast(amp):
    45/49      4.55G   0.02969  0.01459   0.003133    43     640:  98% 54/55 [00:23<00:00,  2.26it/s]
with torch.cuda.amp.autocast(amp):
    45/49      4.55G   0.02941  0.0146   0.003095    40     640: 100% 55/55 [00:24<00:00,  2.27it/s]
        Class   Images Instances P
        all      877       971    0.929   0.906   mAP50      mAP50-95: 100% 28/28 [00:12<00:00,
                                                0.956      0.679

```

| Epoch | GPU_mem   | box_loss | obj_loss | cls_loss | Instances | Size  |
|-------|---|----------|----------|----------|-----------|---|
| 0%    | 0/55 [00:00<?, ?it/s]/content/yolov5_project/yolov5/train.py:412: |          |          |          |           | FutureWarning: `torch.cuda.amp.autocast(arg |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 46/49 | 4.55G   | 0.0145   | 0.0115   | 0.00454  | 36        | 640: 2% 1/55 [00:00<00:10, 5.10it/s]/       |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 46/49 | 4.55G   | 0.02637  | 0.01233  | 0.002928 | 40        | 640: 4% 2/55 [00:00<00:11, 4.45it/s]/       |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 46/49 | 4.55G   | 0.03275  | 0.01231  | 0.003117 | 37        | 640: 5% 3/55 [00:00<00:15, 3.26it/s]/       |

```

with torch.cuda.amp.autocast(amp):
    46/49    4.55G  0.03102   0.01246  0.003115      34      640:  7% 4/55 [00:01<00:22,  2.26it/s]/
with torch.cuda.amp.autocast(amp):
    46/49    4.55G  0.03164   0.01267  0.003104      43      640:  9% 5/55 [00:02<00:23,  2.11it/s]/
with torch.cuda.amp.autocast(amp):
    46/49    4.55G  0.03191   0.0135   0.00292       51      640: 11% 6/55 [00:02<00:28,  1.74it/s]/
with torch.cuda.amp.autocast(amp):
    46/49    4.55G  0.03353   0.01333  0.002812      40      640: 13% 7/55 [00:03<00:26,  1.80it/s]/
with torch.cuda.amp.autocast(amp):
    46/49    4.55G  0.03293   0. Run cell (Ctrl+Enter)
                                cell has not been executed in this session
                                Previous execution ended unsuccessfully
                                currently executing...
    46/49    4.55G  0.03191   0.0137   0.002428      45      640: 15% 8/55 [00:03<00:26,  1.74it/s]/
with torch.cuda.amp.autocast(amp):
    46/49    4.55G  0.03132   0.0137
                                Run cell (Ctrl+Enter)
                                cell has not been executed in this session
                                Previous execution ended unsuccessfully
                                currently executing...
    46/49    4.55G  0.03191   0.0137   0.002428      45      640: 16% 9/55 [00:04<00:25,  1.77it/s]/
with torch.cuda.amp.autocast(amp):
    46/49    4.55G  0.03182   0.0137   0.002365      42      640: 20% 11/55 [00:05<00:21,  2.06it/s]/
with torch.cuda.amp.autocast(amp):
    46/49    4.55G  0.03064   0.0138   0.002341      45      640: 22% 12/55 [00:05<00:20,  2.11it/s]/
with torch.cuda.amp.autocast(amp):
    46/49    4.55G  0.03029   0.01391  0.002358      47      640: 24% 13/55 [00:06<00:19,  2.16it/s]/
with torch.cuda.amp.autocast(amp):
    46/49    4.55G  0.03052   0.01416  0.002396      43      640: 25% 14/55 [00:06<00:17,  2.28it/s]/
with torch.cuda.amp.autocast(amp):
    46/49    4.55G  0.0307    0.01418  0.002291      47      640: 27% 15/55 [00:07<00:17,  2.26it/s]/
with torch.cuda.amp.autocast(amp):
    46/49    4.55G  0.03069   0.0145   0.002378      51      640: 29% 16/55 [00:07<00:17,  2.28it/s]/
with torch.cuda.amp.autocast(amp):
    46/49    4.55G  0.03097   0.015    0.002279      54      640: 31% 17/55 [00:07<00:16,  2.26it/s]/
with torch.cuda.amp.autocast(amp):
    46/49    4.55G  0.03096   0.01505  0.002282      49      640: 33% 18/55 [00:08<00:16,  2.24it/s]/
with torch.cuda.amp.autocast(amp):
    46/49    4.55G  0.03046   0.01512  0.002221      44      640: 35% 19/55 [00:08<00:15,  2.32it/s]/
with torch.cuda.amp.autocast(amp):
    46/49    4.55G  0.03079   0.01519  0.002154      44      640: 36% 20/55 [00:09<00:15,  2.32it/s]/
with torch.cuda.amp.autocast(amp):
    46/49    4.55G  0.03131   0.01507  0.002129      43      640: 38% 21/55 [00:09<00:14,  2.34it/s]/
with torch.cuda.amp.autocast(amp):
    46/49    4.55G  0.0318    0.01513  0.002081      51      640: 40% 22/55 [00:10<00:14,  2.30it/s]/
with torch.cuda.amp.autocast(amp):
    46/49    4.55G  0.03181   0.0151   0.002023      42      640: 42% 23/55 [00:10<00:13,  2.35it/s]/
with torch.cuda.amp.autocast(amp):
    46/49    4.55G  0.03239   0.01504  0.00216       43      640: 44% 24/55 [00:10<00:13,  2.32it/s]/
with torch.cuda.amp.autocast(amp):
    46/49    4.55G  0.03251   0.015    0.002141      36      640: 45% 25/55 [00:11<00:13,  2.31it/s]/
with torch.cuda.amp.autocast(amp):
    46/49    4.55G  0.03262   0.01509  0.002115      50      640: 47% 26/55 [00:11<00:12,  2.29it/s]/
with torch.cuda.amp.autocast(amp):
    46/49    4.55G  0.03296   0.01508  0.002062      49      640: 49% 27/55 [00:12<00:11,  2.33it/s]/
with torch.cuda.amp.autocast(amp):
    46/49    4.55G  0.03324   0.01502  0.002169      39      640: 51% 28/55 [00:12<00:11,  2.35it/s]/
with torch.cuda.amp.autocast(amp):
    46/49    4.55G  0.03347   0.01514  0.002136      48      640: 53% 29/55 [00:13<00:11,  2.30it/s]/
with torch.cuda.amp.autocast(amp):
    46/49    4.55G  0.03428   0.01512  0.002182      42      640: 55% 30/55 [00:13<00:10,  2.36it/s]/
with torch.cuda.amp.autocast(amp):
    46/49    4.55G  0.0337   0.01497  0.002135      36      640: 56% 31/55 [00:13<00:10,  2.32it/s]/
with torch.cuda.amp.autocast(amp):
    46/49    4.55G  0.03318   0.01496  0.002099      41      640: 58% 32/55 [00:14<00:10,  2.21it/s]/
with torch.cuda.amp.autocast(amp):
    46/49    4.55G  0.03336   0.01488  0.002083      41      640: 60% 33/55 [00:15<00:10,  2.02it/s]/
with torch.cuda.amp.autocast(amp):
    46/49    4.55G  0.03339   0.01487  0.002041      43      640: 62% 34/55 [00:15<00:11,  1.82it/s]/
with torch.cuda.amp.autocast(amp):
    46/49    4.55G  0.03356   0.01475  0.002008      40      640: 64% 35/55 [00:16<00:10,  1.85it/s]/
with torch.cuda.amp.autocast(amp):
    46/49    4.55G  0.03356   0.01473  0.002021      42      640: 65% 36/55 [00:16<00:11,  1.71it/s]/
with torch.cuda.amp.autocast(amp):
    46/49    4.55G  0.03312   0.01471  0.00199       36      640: 67% 37/55 [00:17<00:10,  1.64it/s]/
with torch.cuda.amp.autocast(amp):
    46/49    4.55G  0.03319   0.01469  0.001993      47      640: 69% 38/55 [00:18<00:10,  1.64it/s]/
with torch.cuda.amp.autocast(amp):
    46/49    4.55G  0.03337   0.01466  0.002063      38      640: 71% 39/55 [00:18<00:09,  1.75it/s]

```

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with torch.cuda.amp.autocast(amp):
    46/49    4.55G   0.03346   0.01471   0.002049      46       640: 73% 40/55 [00:19<00:07,  1.88it/s]
with torch.cuda.amp.autocast(amp):
    46/49    4.55G   0.03299   0.01469   0.002085      40       640: 75% 41/55 [00:19<00:06,  2.03it/s]
with torch.cuda.amp.autocast(amp):
    46/49    4.55G   0.03324   0.01463   0.002056      37       640: 76% 42/55 [00:19<00:06,  2.05it/s]
with torch.cuda.amp.autocast(amp):
    46/49    4.55G   0.03312   0.01463   0.002037      44       640: 78% 43/55 [00:20<00:05,  2.19it/s]
with torch.cuda.amp.autocast(amp):
    46/49    4.55G   0.03328   0. Run cell (Ctrl+Enter)
                                cell has not been executed in this session
                                Previous execution ended unsuccessfully
                                currently executing...
    46/49    4.55G   0.033        0.01459   0.00206      46       640: 80% 44/55 [00:20<00:05,  2.12it/s]
with torch.cuda.amp.autocast(amp):
    46/49    4.55G   0.03286   0.          0.002042      37       640: 82% 45/55 [00:21<00:04,  2.25it/s]
with torch.cuda.amp.autocast(amp):
    46/49    4.55G   0.033        0.01452   0.002042      37       640: 84% 46/55 [00:21<00:04,  2.21it/s]
with torch.cuda.amp.autocast(amp):
    46/49    4.55G   0.03244   0.01453   0.002016      39       640: 85% 47/55 [00:22<00:03,  2.34it/s]
with torch.cuda.amp.autocast(amp):
    46/49    4.55G   0.03213   0.01451   0.00198      44       640: 87% 48/55 [00:22<00:03,  2.24it/s]
with torch.cuda.amp.autocast(amp):
    46/49    4.55G   0.03228   0.01453   0.001954      46       640: 89% 49/55 [00:22<00:02,  2.32it/s]
with torch.cuda.amp.autocast(amp):
    46/49    4.55G   0.03193   0.01447   0.001931      42       640: 91% 50/55 [00:23<00:02,  2.27it/s]
with torch.cuda.amp.autocast(amp):
    46/49    4.55G   0.03182   0.01445   0.001903      43       640: 93% 51/55 [00:23<00:01,  2.28it/s]
with torch.cuda.amp.autocast(amp):
    46/49    4.55G   0.03181   0.01453   0.001878      48       640: 96% 53/55 [00:24<00:00,  2.31it/s]
with torch.cuda.amp.autocast(amp):
    46/49    4.55G   0.03172   0.01459   0.001919      49       640: 98% 54/55 [00:25<00:00,  2.18it/s]
with torch.cuda.amp.autocast(amp):
    46/49    4.55G   0.03171   0.01463   0.001902      40       640: 100% 55/55 [00:25<00:00,  2.16it/s]
                    Class   Images Instances      P          R
                        all     877      971    0.924    0.913
                                         mAP50  mAP50-95: 100% 28/28 [00:12<00:00, 0.954    0.685

```

```

Epoch GPU_mem box_loss obj_loss cls_loss Instances Size
0% 0/55 [00:00<?, ?it/s]/content/yolov5_project/yolov5/train.py:412: FutureWarning: `torch.cuda.amp.autocast(arg
with torch.cuda.amp.autocast(amp):
    47/49    4.55G   0.01672   0.01321   0.002259      43       640: 2% 1/55 [00:00<00:10,  4.98it/s]/
with torch.cuda.amp.autocast(amp):
    47/49    4.55G   0.02286   0.01368   0.001815      42       640: 4% 2/55 [00:00<00:10,  4.91it/s]/
with torch.cuda.amp.autocast(amp):
    47/49    4.55G   0.02505   0.01371   0.002884      39       640: 5% 3/55 [00:00<00:15,  3.39it/s]/
with torch.cuda.amp.autocast(amp):
    47/49    4.55G   0.02838   0.01366   0.002612      42       640: 7% 4/55 [00:01<00:17,  2.98it/s]/
with torch.cuda.amp.autocast(amp):
    47/49    4.55G   0.02873   0.0136    0.002408      38       640: 9% 5/55 [00:01<00:18,  2.72it/s]/
with torch.cuda.amp.autocast(amp):
    47/49    4.55G   0.02626   0.01341   0.002384      41       640: 11% 6/55 [00:02<00:18,  2.67it/s]/
with torch.cuda.amp.autocast(amp):
    47/49    4.55G   0.02473   0.01333   0.002633      40       640: 13% 7/55 [00:02<00:19,  2.46it/s]/
with torch.cuda.amp.autocast(amp):
    47/49    4.55G   0.0249    0.0132    0.002407      40       640: 15% 8/55 [00:02<00:19,  2.40it/s]/
with torch.cuda.amp.autocast(amp):
    47/49    4.55G   0.02571   0.01337   0.00247      42       640: 16% 9/55 [00:03<00:19,  2.36it/s]/
with torch.cuda.amp.autocast(amp):
    47/49    4.55G   0.02495   0.01343   0.002292      41       640: 18% 10/55 [00:03<00:20,  2.21it/s]/
with torch.cuda.amp.autocast(amp):
    47/49    4.55G   0.0261    0.0136    0.002288      41       640: 20% 11/55 [00:04<00:22,  1.97it/s]/
with torch.cuda.amp.autocast(amp):
    47/49    4.55G   0.02728   0.0137    0.002217      47       640: 22% 12/55 [00:05<00:23,  1.83it/s]/
with torch.cuda.amp.autocast(amp):
    47/49    4.55G   0.0262    0.0137    0.002262      42       640: 24% 13/55 [00:05<00:24,  1.72it/s]/
with torch.cuda.amp.autocast(amp):
    47/49    4.55G   0.0264    0.01392   0.002144      48       640: 25% 14/55 [00:06<00:24,  1.66it/s]/
with torch.cuda.amp.autocast(amp):
    47/49    4.55G   0.02558   0.01389   0.002271      42       640: 27% 15/55 [00:07<00:24,  1.65it/s]/
with torch.cuda.amp.autocast(amp):
    47/49    4.55G   0.02597   0.01401   0.002282      38       640: 29% 16/55 [00:07<00:21,  1.81it/s]/
with torch.cuda.amp.autocast(amp):
    47/49    4.55G   0.02547   0.01408   0.002196      46       640: 31% 17/55 [00:08<00:20,  1.86it/s]/
with torch.cuda.amp.autocast(amp):

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    47/49      4.55G   0.0261   0.01414   0.002271   45       640: 33% 18/55 [00:08<00:18, 1.96it/s]
with torch.cuda.amp.autocast(amp):
    47/49      4.55G   0.02622  0.01423   0.002219   43       640: 35% 19/55 [00:08<00:17, 2.04it/s]
with torch.cuda.amp.autocast(amp):
    47/49      4.55G   0.0257   0.01411   0.002158   37       640: 36% 20/55 [00:09<00:16, 2.15it/s]
with torch.cuda.amp.autocast(amp):
    47/49      4.55G   0.02518  0.01403   0.002193   43       640: 38% 21/55 [00:09<00:15, 2.22it/s]
with torch.cuda.amp.autocast(amp):
    47/49      4.55G   0.02522  0.014110  Run cell (Ctrl+Enter)
                                                0.002155
                                                cell has not been executed in this session
                                                Previous execution ended unsuccessfully
with torch.cuda.amp.autocast(amp):
    47/49      4.55G   0.02552   0.01417   0.002135   43       640: 42% 23/55 [00:10<00:14, 2.23it/s]
with torch.cuda.amp.autocast(amp):
    47/49      4.55G   0.0263   0.01426   0.002155  currently executing...
with torch.cuda.amp.autocast(amp):
    47/49      4.55G   0.02715  0.01415   0.002194   41       640: 45% 25/55 [00:11<00:12, 2.31it/s]
with torch.cuda.amp.autocast(amp):
    47/49      4.55G   0.0279   0.01417   0.002135   43       640: 47% 26/55 [00:11<00:12, 2.34it/s]
with torch.cuda.amp.autocast(amp):
    47/49      4.55G   0.02807  0.01426   0.002393   42       640: 49% 27/55 [00:12<00:12, 2.30it/s]
with torch.cuda.amp.autocast(amp):
    47/49      4.55G   0.02827  0.01442   0.002344   45       640: 51% 28/55 [00:12<00:11, 2.37it/s]
with torch.cuda.amp.autocast(amp):
    47/49      4.55G   0.02825  0.01432   0.002356   40       640: 53% 29/55 [00:13<00:11, 2.34it/s]
with torch.cuda.amp.autocast(amp):
    47/49      4.55G   0.02826  0.01434   0.002354   45       640: 55% 30/55 [00:13<00:10, 2.31it/s]
with torch.cuda.amp.autocast(amp):
    47/49      4.55G   0.02835  0.0143   0.002327   38       640: 56% 31/55 [00:14<00:10, 2.31it/s]
with torch.cuda.amp.autocast(amp):
    47/49      4.55G   0.0285   0.01421   0.00228   36       640: 58% 32/55 [00:14<00:09, 2.36it/s]
with torch.cuda.amp.autocast(amp):
    47/49      4.55G   0.02857  0.01416   0.00218   45       640: 64% 35/55 [00:15<00:08, 2.31it/s]
with torch.cuda.amp.autocast(amp):
    47/49      4.55G   0.02822  0.01417   0.002172  45       640: 65% 36/55 [00:16<00:08, 2.37it/s]
with torch.cuda.amp.autocast(amp):
    47/49      4.55G   0.02845  0.01413   0.002277  46       640: 67% 37/55 [00:16<00:07, 2.32it/s]
with torch.cuda.amp.autocast(amp):
    47/49      4.55G   0.02913  0.01407   0.002272  38       640: 69% 38/55 [00:17<00:07, 2.32it/s]
with torch.cuda.amp.autocast(amp):
    47/49      4.55G   0.02949  0.01405   0.002271  36       640: 71% 39/55 [00:17<00:07, 2.01it/s]
with torch.cuda.amp.autocast(amp):
    47/49      4.55G   0.02959  0.01418   0.002236  48       640: 73% 40/55 [00:18<00:07, 2.01it/s]
with torch.cuda.amp.autocast(amp):
    47/49      4.55G   0.02974  0.01417   0.002203  36       640: 75% 41/55 [00:18<00:07, 1.85it/s]
with torch.cuda.amp.autocast(amp):
    47/49      4.55G   0.02984  0.0142   0.00217   46       640: 76% 42/55 [00:19<00:07, 1.71it/s]
with torch.cuda.amp.autocast(amp):
    47/49      4.55G   0.03021  0.0143   0.002163  49       640: 78% 43/55 [00:20<00:07, 1.60it/s]
with torch.cuda.amp.autocast(amp):
    47/49      4.55G   0.03077  0.01438   0.002312  46       640: 80% 44/55 [00:20<00:06, 1.67it/s]
with torch.cuda.amp.autocast(amp):
    47/49      4.55G   0.03101  0.0143   0.002288  33       640: 82% 45/55 [00:21<00:05, 1.85it/s]
with torch.cuda.amp.autocast(amp):
    47/49      4.55G   0.03108  0.01428   0.002384  47       640: 84% 46/55 [00:21<00:04, 2.01it/s]
with torch.cuda.amp.autocast(amp):
    47/49      4.55G   0.03106  0.01421   0.002386  35       640: 85% 47/55 [00:22<00:04, 2.00it/s]
with torch.cuda.amp.autocast(amp):
    47/49      4.55G   0.0307   0.0142   0.002427  42       640: 87% 48/55 [00:22<00:03, 2.09it/s]
with torch.cuda.amp.autocast(amp):
    47/49      4.55G   0.03035  0.01421   0.002502  41       640: 89% 49/55 [00:22<00:02, 2.11it/s]
with torch.cuda.amp.autocast(amp):
    47/49      4.55G   0.03032  0.01426   0.0025   43       640: 91% 50/55 [00:23<00:02, 2.28it/s]
with torch.cuda.amp.autocast(amp):
    47/49      4.55G   0.03047  0.01426   0.002491  44       640: 93% 51/55 [00:23<00:01, 2.13it/s]
with torch.cuda.amp.autocast(amp):
    47/49      4.55G   0.03041  0.01422   0.00245   36       640: 95% 52/55 [00:24<00:01, 2.30it/s]
with torch.cuda.amp.autocast(amp):
    47/49      4.55G   0.03055  0.01419   0.002455  41       640: 96% 53/55 [00:24<00:00, 2.28it/s]
with torch.cuda.amp.autocast(amp):

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    47/49   4.55G   0.03061   0.01419   0.002461   41      640: 98% 54/55 [00:25<00:00,  2.25it/s]
with torch.cuda.amp.autocast(amp):
    47/49   4.55G   0.03064   0.01424   0.002441   39      640: 100% 55/55 [00:25<00:00,  2.16it/s]
        Class   Images   Instances   P       R       mAP50   mAP50-95: 100% 28/28 [00:12<00:00,
          all     877      971      0.928     0.93     0.957    0.698

    Epoch   GPU_mem   box_loss   obj_loss   cls_loss   Instances   Size
0% 0/55 [00:00<?, ?it/s]/content/yolov5_project/yolov5/train.py:412: FutureWarning: `torch.cuda.amp.autocast(arg
with torch.cuda.amp.autocast(amp):
    48/49   4.55G   0.01389   0. Run cell (Ctrl+Enter)
        cell has not been executed in this session
        Previous execution ended unsuccessfully
with torch.cuda.amp.autocast(amp):
    48/49   4.55G   0.01491   0. currently executing...
with torch.cuda.amp.autocast(amp):
    48/49   4.55G   0.01863   0.01316  0.001918   42      640: 5% 3/55 [00:00<00:14,  3.67it/s]/
with torch.cuda.amp.autocast(amp):
    48/49   4.55G   0.0198    0.01302   0.001576   36      640: 7% 4/55 [00:01<00:16,  3.00it/s]/
with torch.cuda.amp.autocast(amp):
    48/49   4.55G   0.02605   0.01399   0.00262   40      640: 9% 5/55 [00:01<00:18,  2.71it/s]/
with torch.cuda.amp.autocast(amp):
    48/49   4.55G   0.02457   0.01359   0.002507   41      640: 11% 6/55 [00:02<00:18,  2.58it/s]/
with torch.cuda.amp.autocast(amp):
    48/49   4.55G   0.02482   0.01421   0.00247   53      640: 13% 7/55 [00:02<00:19,  2.42it/s]/
with torch.cuda.amp.autocast(amp):
    48/49   4.55G   0.02471   0.01436   0.002246   43      640: 15% 8/55 [00:02<00:19,  2.41it/s]/
with torch.cuda.amp.autocast(amp):
    48/49   4.55G   0.0268    0.01426   0.002444   38      640: 16% 9/55 [00:03<00:19,  2.31it/s]/
with torch.cuda.amp.autocast(amp):
    48/49   4.55G   0.02621   0.01425   0.002453   48      640: 18% 10/55 [00:03<00:18,  2.44it/s]/
with torch.cuda.amp.autocast(amp):
    48/49   4.55G   0.02618   0.01414   0.002596   41      640: 20% 11/55 [00:04<00:18,  2.35it/s]/
with torch.cuda.amp.autocast(amp):
    48/49   4.55G   0.0272    0.01452   0.002512   51      640: 22% 12/55 [00:04<00:19,  2.25it/s]/
with torch.cuda.amp.autocast(amp):
    48/49   4.55G   0.02772   0.01444   0.002403   42      640: 24% 13/55 [00:05<00:17,  2.37it/s]/
with torch.cuda.amp.autocast(amp):
    48/49   4.55G   0.02673   0.01471   0.002416   55      640: 25% 14/55 [00:05<00:17,  2.35it/s]/
with torch.cuda.amp.autocast(amp):
    48/49   4.55G   0.02697   0.01472   0.002309   43      640: 27% 15/55 [00:05<00:17,  2.26it/s]/
with torch.cuda.amp.autocast(amp):
    48/49   4.55G   0.02738   0.01479   0.002251   53      640: 29% 16/55 [00:06<00:20,  1.91it/s]/
with torch.cuda.amp.autocast(amp):
    48/49   4.55G   0.02853   0.01478   0.00232   44      640: 31% 17/55 [00:07<00:19,  1.94it/s]/
with torch.cuda.amp.autocast(amp):
    48/49   4.55G   0.02789   0.01452   0.002235   34      640: 33% 18/55 [00:07<00:20,  1.77it/s]/
with torch.cuda.amp.autocast(amp):
    48/49   4.55G   0.02806   0.01441   0.002316   39      640: 35% 19/55 [00:08<00:21,  1.70it/s]/
with torch.cuda.amp.autocast(amp):
    48/49   4.55G   0.02894   0.0143   0.00236   41      640: 36% 20/55 [00:09<00:20,  1.69it/s]/
with torch.cuda.amp.autocast(amp):
    48/49   4.55G   0.02829   0.01418   0.002329   35      640: 38% 21/55 [00:09<00:19,  1.77it/s]/
with torch.cuda.amp.autocast(amp):
    48/49   4.55G   0.02811   0.01434   0.002303   50      640: 40% 22/55 [00:10<00:17,  1.90it/s]/
with torch.cuda.amp.autocast(amp):
    48/49   4.55G   0.02802   0.01418   0.00228   37      640: 42% 23/55 [00:10<00:16,  2.00it/s]/
with torch.cuda.amp.autocast(amp):
    48/49   4.55G   0.02745   0.01416   0.002269   42      640: 44% 24/55 [00:10<00:15,  2.04it/s]/
with torch.cuda.amp.autocast(amp):
    48/49   4.55G   0.02807   0.01432   0.002241   42      640: 45% 25/55 [00:11<00:14,  2.14it/s]/
with torch.cuda.amp.autocast(amp):
    48/49   4.55G   0.02759   0.01432   0.002173   35      640: 47% 26/55 [00:11<00:13,  2.22it/s]/
with torch.cuda.amp.autocast(amp):
    48/49   4.55G   0.02723   0.01436   0.002231   44      640: 49% 27/55 [00:12<00:12,  2.23it/s]/
with torch.cuda.amp.autocast(amp):
    48/49   4.55G   0.02767   0.0144   0.002171   43      640: 51% 28/55 [00:12<00:12,  2.14it/s]/
with torch.cuda.amp.autocast(amp):
    48/49   4.55G   0.02722   0.01436   0.002139   41      640: 53% 29/55 [00:13<00:11,  2.26it/s]/
with torch.cuda.amp.autocast(amp):
    48/49   4.55G   0.02751   0.01447   0.002216   50      640: 55% 30/55 [00:13<00:11,  2.25it/s]/
with torch.cuda.amp.autocast(amp):
    48/49   4.55G   0.0277   0.01439   0.002193   35      640: 56% 31/55 [00:14<00:10,  2.24it/s]/
with torch.cuda.amp.autocast(amp):
    48/49   4.55G   0.02812   0.01432   0.002163   33      640: 58% 32/55 [00:14<00:10,  2.22it/s]

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with torch.cuda.amp.autocast(amp):
    48/49    4.55G   0.02796  0.01424  0.002123      39      640:  60% 33/55 [00:14<00:09,  2.31it/s]
with torch.cuda.amp.autocast(amp):
    48/49    4.55G   0.02757  0.01422  0.002174      38      640:  62% 34/55 [00:15<00:09,  2.33it/s]
with torch.cuda.amp.autocast(amp):
    48/49    4.55G   0.02756  0.01427  0.002164      51      640:  64% 35/55 [00:15<00:08,  2.33it/s]
with torch.cuda.amp.autocast(amp):
    48/49    4.55G   0.0276   0.01421  0.002128      42      640:  65% 36/55 [00:16<00:08,  2.25it/s]
with torch.cuda.amp.autocast(amp):
    48/49    4.55G   0.0277   0. Run cell (Ctrl+Enter)
                                cell has not been executed in this session
                                Previous execution ended unsuccessfully
                                currently executing...
    48/49    4.55G   0.02767  0.01419  0.00215      41      640:  67% 37/55 [00:16<00:08,  2.22it/s]
with torch.cuda.amp.autocast(amp):
    48/49    4.55G   0.02797  0.01424  0.002117      43      640:  73% 40/55 [00:17<00:06,  2.29it/s]
with torch.cuda.amp.autocast(amp):
    48/49    4.55G   0.02848  0.01437  0.002143      51      640:  75% 41/55 [00:18<00:06,  2.27it/s]
with torch.cuda.amp.autocast(amp):
    48/49    4.55G   0.02831  0.01434  0.002124      43      640:  76% 42/55 [00:18<00:05,  2.36it/s]
with torch.cuda.amp.autocast(amp):
    48/49    4.55G   0.02792  0.01428  0.002102      40      640:  78% 43/55 [00:19<00:05,  2.38it/s]
with torch.cuda.amp.autocast(amp):
    48/49    4.55G   0.0279   0.01428  0.002171      47      640:  80% 44/55 [00:19<00:05,  2.03it/s]
with torch.cuda.amp.autocast(amp):
    48/49    4.55G   0.02808  0.01431  0.002255      49      640:  82% 45/55 [00:20<00:05,  1.93it/s]
with torch.cuda.amp.autocast(amp):
    48/49    4.55G   0.02847  0.01431  0.002336      48      640:  84% 46/55 [00:21<00:05,  1.79it/s]
with torch.cuda.amp.autocast(amp):
    48/49    4.55G   0.02855  0.01429  0.002306      43      640:  85% 47/55 [00:21<00:04,  1.70it/s]
with torch.cuda.amp.autocast(amp):
    48/49    4.55G   0.02888  0.01427  0.002299      42      640:  87% 48/55 [00:22<00:04,  1.60it/s]
with torch.cuda.amp.autocast(amp):
    48/49    4.55G   0.02886  0.01428  0.002277      47      640:  89% 49/55 [00:23<00:03,  1.67it/s]
with torch.cuda.amp.autocast(amp):
    48/49    4.55G   0.0289   0.01425  0.002275      38      640:  91% 50/55 [00:23<00:02,  1.78it/s]
with torch.cuda.amp.autocast(amp):
    48/49    4.55G   0.0289   0.0143   0.002313      49      640:  93% 51/55 [00:23<00:02,  1.97it/s]
with torch.cuda.amp.autocast(amp):
    48/49    4.55G   0.02903  0.01437  0.002409      48      640:  95% 52/55 [00:24<00:01,  1.97it/s]
with torch.cuda.amp.autocast(amp):
    48/49    4.55G   0.02895  0.01436  0.0024   46      640:  96% 53/55 [00:24<00:00,  2.04it/s]
with torch.cuda.amp.autocast(amp):
    48/49    4.55G   0.0292   0.01444  0.002379      52      640:  98% 54/55 [00:25<00:00,  2.13it/s]
with torch.cuda.amp.autocast(amp):
    48/49    4.55G   0.02898  0.01447  0.002348      31      640: 100% 55/55 [00:25<00:00,  2.15it/s]
                                Class   Images Instances P
                                all     877      971      0.927  0.923
                                mAP50   mAP50-95: 100% 28/28 [00:12<00:00,
                                                0.958   0.688

```

| Epoch | GPU_mem   | box_loss | obj_loss | cls_loss | Instances | Size  |
|-------|---|----------|----------|----------|-----------|---|
| 0%    | 0/55 [00:00<?, ?it/s]/content/yolov5_project/yolov5/train.py:412: |          |          |          |           | FutureWarning: `torch.cuda.amp.autocast(arg |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 49/49 | 4.55G   | 0.03931  | 0.01291  | 0.001427 | 38        | 640: 2% 1/55 [00:00<00:12,  4.27it/s]/      |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 49/49 | 4.55G   | 0.02875  | 0.01286  | 0.001092 | 44        | 640: 4% 2/55 [00:00<00:12,  4.28it/s]/      |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 49/49 | 4.55G   | 0.0247   | 0.01257  | 0.001164 | 43        | 640: 5% 3/55 [00:00<00:13,  3.98it/s]/      |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 49/49 | 4.55G   | 0.02449  | 0.01336  | 0.002312 | 44        | 640: 7% 4/55 [00:01<00:16,  3.08it/s]/      |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 49/49 | 4.55G   | 0.02494  | 0.0134   | 0.002198 | 41        | 640: 9% 5/55 [00:01<00:20,  2.44it/s]/      |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 49/49 | 4.55G   | 0.02284  | 0.01279  | 0.002028 | 42        | 640: 11% 6/55 [00:02<00:19,  2.56it/s]/     |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 49/49 | 4.55G   | 0.02362  | 0.01292  | 0.001917 | 45        | 640: 13% 7/55 [00:02<00:19,  2.41it/s]/     |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 49/49 | 4.55G   | 0.02547  | 0.01303  | 0.001895 | 40        | 640: 15% 8/55 [00:02<00:19,  2.45it/s]/     |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 49/49 | 4.55G   | 0.02769  | 0.01282  | 0.001863 | 33        | 640: 16% 9/55 [00:03<00:19,  2.32it/s]/     |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |
| 49/49 | 4.55G   | 0.02787  | 0.01342  | 0.001893 | 48        | 640: 18% 10/55 [00:03<00:19,  2.26it/s]     |
|       | with torch.cuda.amp.autocast(amp):                                |          |          |          |           |   |

```

49/49    4.55G   0.02728   0.01378   0.006032   46     640: 20% 11/55 [00:04<00:19, 2.27it/s]
with torch.cuda.amp.autocast(amp):
  49/49    4.55G   0.02824   0.01352   0.005567   33     640: 22% 12/55 [00:04<00:18, 2.28it/s]
with torch.cuda.amp.autocast(amp):
  49/49    4.55G   0.02918   0.01359   0.005396   42     640: 24% 13/55 [00:05<00:18, 2.25it/s]
with torch.cuda.amp.autocast(amp):
  49/49    4.55G   0.02933   0.01355   0.005138   44     640: 25% 14/55 [00:05<00:17, 2.29it/s]
with torch.cuda.amp.autocast(amp):
  49/49    4.55G   0.02838   0.01271   a aa1a
Run cell (Ctrl+Enter)
cell has not been executed in this session
Previous execution ended unsuccessfully
with torch.cuda.amp.autocast(amp):
  49/49    4.55G   0.02767   0.01350   a aa1a
with torch.cuda.amp.autocast(amp):
  49/49    4.55G   0.02865   0.01350   currently executing...
with torch.cuda.amp.autocast(amp):
  49/49    4.55G   0.02901   0.01393   0.004319   44     640: 33% 18/55 [00:07<00:15, 2.37it/s]
with torch.cuda.amp.autocast(amp):
  49/49    4.55G   0.02885   0.01422   0.004166   52     640: 35% 19/55 [00:07<00:16, 2.20it/s]
with torch.cuda.amp.autocast(amp):
  49/49    4.55G   0.02911   0.0142   0.004026   44     640: 36% 20/55 [00:08<00:16, 2.19it/s]
with torch.cuda.amp.autocast(amp):
  49/49    4.55G   0.02946   0.01417   0.003859   38     640: 38% 21/55 [00:09<00:17, 1.91it/s]
with torch.cuda.amp.autocast(amp):
  49/49    4.55G   0.02971   0.01423   0.003746   44     640: 40% 22/55 [00:09<00:17, 1.90it/s]
with torch.cuda.amp.autocast(amp):
  49/49    4.55G   0.02964   0.01435   0.003706   42     640: 42% 23/55 [00:10<00:18, 1.75it/s]
with torch.cuda.amp.autocast(amp):
  49/49    4.55G   0.02909   0.01438   0.003609   47     640: 44% 24/55 [00:10<00:17, 1.79it/s]
with torch.cuda.amp.autocast(amp):
  49/49    4.55G   0.02904   0.01446   0.003523   48     640: 45% 25/55 [00:11<00:17, 1.71it/s]
with torch.cuda.amp.autocast(amp):
  49/49    4.55G   0.02877   0.01446   0.00342   43     640: 47% 26/55 [00:11<00:16, 1.74it/s]
with torch.cuda.amp.autocast(amp):
  49/49    4.55G   0.02858   0.01427   0.003335   29     640: 49% 27/55 [00:12<00:15, 1.86it/s]
with torch.cuda.amp.autocast(amp):
  49/49    4.55G   0.02881   0.01423   0.003397   39     640: 51% 28/55 [00:12<00:13, 2.03it/s]
with torch.cuda.amp.autocast(amp):
  49/49    4.55G   0.02834   0.01419   0.003306   41     640: 53% 29/55 [00:13<00:12, 2.05it/s]
with torch.cuda.amp.autocast(amp):
  49/49    4.55G   0.02825   0.01418   0.003316   48     640: 55% 30/55 [00:13<00:11, 2.10it/s]
with torch.cuda.amp.autocast(amp):
  49/49    4.55G   0.02893   0.01419   0.003498   48     640: 56% 31/55 [00:14<00:11, 2.17it/s]
with torch.cuda.amp.autocast(amp):
  49/49    4.55G   0.02872   0.01413   0.00349   40     640: 58% 32/55 [00:14<00:10, 2.18it/s]
with torch.cuda.amp.autocast(amp):
  49/49    4.55G   0.02889   0.01397   0.00342   36     640: 60% 33/55 [00:15<00:10, 2.18it/s]
with torch.cuda.amp.autocast(amp):
  49/49    4.55G   0.02878   0.01387   0.003357   38     640: 62% 34/55 [00:15<00:09, 2.31it/s]
with torch.cuda.amp.autocast(amp):
  49/49    4.55G   0.02901   0.01392   0.003306   44     640: 64% 35/55 [00:15<00:08, 2.31it/s]
with torch.cuda.amp.autocast(amp):
  49/49    4.55G   0.0292   0.01394   0.00328   43     640: 65% 36/55 [00:16<00:08, 2.30it/s]
with torch.cuda.amp.autocast(amp):
  49/49    4.55G   0.029   0.01395   0.003225   48     640: 67% 37/55 [00:16<00:07, 2.30it/s]
with torch.cuda.amp.autocast(amp):
  49/49    4.55G   0.02904   0.01402   0.003186   45     640: 69% 38/55 [00:17<00:07, 2.28it/s]
with torch.cuda.amp.autocast(amp):
  49/49    4.55G   0.02922   0.01398   0.003173   44     640: 71% 39/55 [00:17<00:07, 2.25it/s]
with torch.cuda.amp.autocast(amp):
  49/49    4.55G   0.02915   0.01398   0.003151   42     640: 73% 40/55 [00:18<00:06, 2.21it/s]
with torch.cuda.amp.autocast(amp):
  49/49    4.55G   0.02879   0.01399   0.003099   39     640: 75% 41/55 [00:18<00:06, 2.25it/s]
with torch.cuda.amp.autocast(amp):
  49/49    4.55G   0.02892   0.01393   0.00305   35     640: 76% 42/55 [00:18<00:05, 2.37it/s]
with torch.cuda.amp.autocast(amp):
  49/49    4.55G   0.0292   0.01389   0.003013   41     640: 78% 43/55 [00:19<00:05, 2.28it/s]
with torch.cuda.amp.autocast(amp):
  49/49    4.55G   0.02926   0.01393   0.00296   48     640: 80% 44/55 [00:19<00:04, 2.25it/s]
with torch.cuda.amp.autocast(amp):
  49/49    4.55G   0.02947   0.01396   0.002934   47     640: 82% 45/55 [00:20<00:04, 2.23it/s]
with torch.cuda.amp.autocast(amp):
  49/49    4.55G   0.02955   0.01394   0.002893   41     640: 84% 46/55 [00:20<00:03, 2.27it/s]
with torch.cuda.amp.autocast(amp):

```

4/15/25, 5:34 PM

yolo\_fire\_smoke.ipynb - Colab

|                                    |       |         |           |   |       |       |           |       |               |               |
|------------------------------------|-------|---------|-----------|---|-------|-------|-----------|-------|---------------|---------------|
| 49/49                              | 4.55G | 0.02924 | 0.01385   | 0.002852  | 34    | 640:  | 85%       | 47/55 | [00:21<00:03, | 2.32it/s]     |
| with torch.cuda.amp.autocast(amp): |       |         |           |   |       |       |           |       |               |               |
| 49/49                              | 4.55G | 0.02915 | 0.01389   | 0.002827  | 44    | 640:  | 87%       | 48/55 | [00:21<00:03, | 2.22it/s]     |
| with torch.cuda.amp.autocast(amp): |       |         |           |   |       |       |           |       |               |               |
| 49/49                              | 4.55G | 0.02911 | 0.0139    | 0.002835  | 38    | 640:  | 89%       | 49/55 | [00:22<00:02, | 2.02it/s]     |
| with torch.cuda.amp.autocast(amp): |       |         |           |   |       |       |           |       |               |               |
| 49/49                              | 4.55G | 0.02923 | 0.01386   | 0.002822  | 40    | 640:  | 91%       | 50/55 | [00:22<00:02, | 1.93it/s]     |
| with torch.cuda.amp.autocast(amp): |       |         |           |   |       |       |           |       |               |               |
| 49/49                              | 4.55G | 0.02957 | 0.01387   | 0.002801  | 41    | 640:  | 93%       | 51/55 | [00:23<00:02, | 1.76it/s]     |
| with torch.cuda.amp.autocast(amp): |       |         |           |   |       |       |           |       |               |               |
| 49/49                              | 4.55G | 0.02929 | 0.        | Run cell (Ctrl+Enter)<br>cell has not been executed in this session |       | 640:  | 95%       | 52/55 | [00:24<00:01, | 1.67it/s]     |
| with torch.cuda.amp.autocast(amp): |       |         |           | Previous execution ended unsuccessfully                             |       |       |           |       |               |               |
| 49/49                              | 4.55G | 0.0295  | 0.        | currently executing...  |       | 640:  | 96%       | 53/55 | [00:24<00:01, | 1.60it/s]     |
| with torch.cuda.amp.autocast(amp): |       |         |           |   |       |       |           |       |               |               |
| 49/49                              | 4.55G | 0.02922 | 0.01394   | 0.002949  | 46    | 640:  | 98%       | 54/55 | [00:25<00:00, | 1.71it/s]     |
| with torch.cuda.amp.autocast(amp): |       |         |           |   |       |       |           |       |               |               |
| 49/49                              | 4.55G | 0.02919 | 0.01395   | 0.002953  | 36    | 640:  | 100%      | 55/55 | [00:25<00:00, | 2.14it/s]     |
|                                    | Class | Images  | Instances | P   | R     | mAP50 | mAP50-95: | 100%  | 28/28         | [00:14<00:00, |
|                                    | all   | 877     | 971       | 0.929   | 0.918 | 0.962 | 0.688     |       |               |               |

50 epochs completed in 0.514 hours.

Optimizer stripped from /content/yolov5\_project/runs/fire\_yolov5/weights/last.pt, 14.5MB

Optimizer stripped from /content/yolov5\_project/runs/fire\_yolov5/weights/best.pt, 14.5MB

Validating /content/yolov5\_project/runs/fire\_yolov5/weights/best.pt...

Fusing layers...

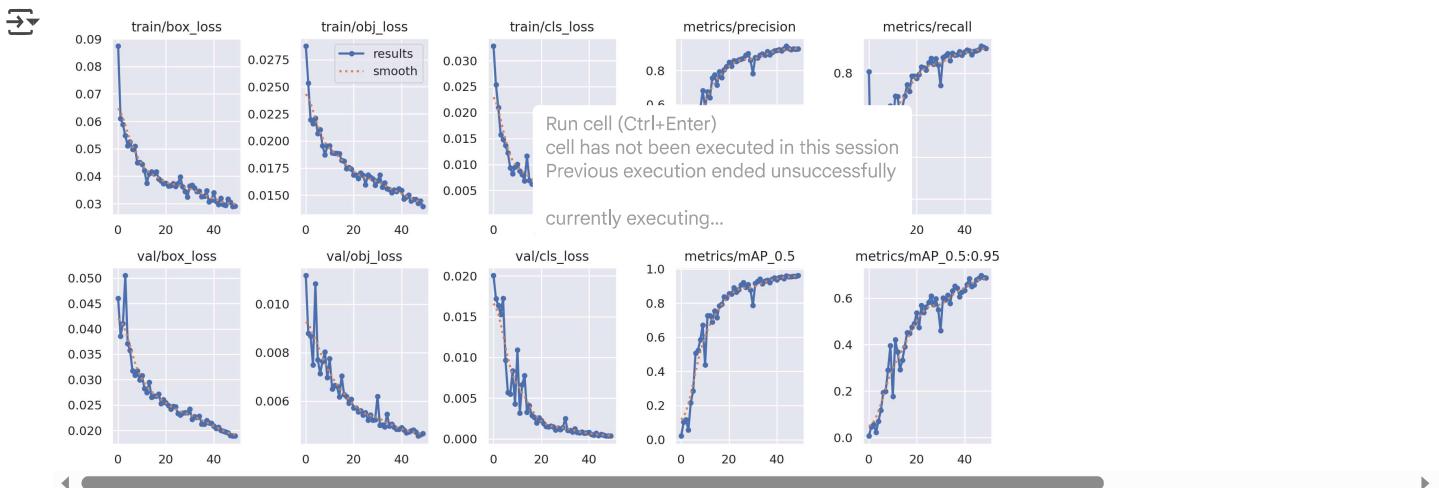
Model summary: 157 layers, 7018216 parameters, 0 gradients, 15.8 GFLOPs

| Class | Images | Instances | P     | R     | mAP50 | mAP50-95: |
|-------|--------|-----------|-------|-------|-------|-----------|
| all   | 877    | 971       | 0.93  | 0.927 | 0.957 | 0.698     |
| fire  | 877    | 331       | 0.881 | 0.888 | 0.903 | 0.508     |
| other | 877    | 159       | 0.938 | 0.987 | 0.99  | 0.916     |
| smoke | 877    | 481       | 0.971 | 0.906 | 0.976 | 0.669     |

Results saved to /content/yolov5\_project/runs/fire\_yolov5

'\n%cd /content/yolov8\_project\n!pip install ultralytics -q\n\n# Step 4: Train YOLOv8 (3 epochs to match)\n!yolov8 task=detect mode=train model=yolov8s.pt data=/content/Fire-and-Smoke-Detection-2/data.yaml epochs=3 imgsz=640 batch=16 workers=1 project=/content/yolov8\_project/runs name=fire\_yolov8'

```
from IPython.display import Image
Image(filename='/content/yolov5_project/runs/fire_yolov5/results.png', width=600)
```



```
# ===== TRAIN YOLOv8 =====
```

```
# Step 3: Install Ultralytics (YOLOv8)
```

```
%cd /content/yolov8_project
```

```
!pip install ultralytics -q
```

```
# Step 4: Train YOLOv8 (50 epochs to match)
```

```
!yolo task=detect mode=train model=yolov8s.pt data=/content/Fire-and-Smoke-Detection-2/data.yaml epochs=50 imgsz=640 bat
```

|       |        |           |        |        |       |                                       |
|-------|--------|-----------|--------|--------|-------|---------------------------------------|
| 50/50 | 6.64G  | 0.1341    | 0.8851 | 0.9079 | 16    | 640: 100% 227/227 [01:20<00:00, 2.83i |
| Class | Images | Instances | Box(P) | R      | mAP50 | mAP50-95): 100% 8/8 [00:02<00:00,     |
| all   | 255    | 255       | 0.611  | 0.817  | 0.722 | 0.719                                 |

50 epochs completed in 1.184 hours.

Optimizer stripped from /content/yolov8\_project/runs/fire\_yolov8/weights/last.pt, 22.5MB

Optimizer stripped from /content/yolov8\_project/runs/fire\_yolov8/weights/best.pt, 22.5MB

Validating /content/yolov8\_project/runs/fire\_yolov8/weights/best.pt...

Ultralytics 8.3.108 🚀 Python-3.11.12 t Run cell (Ctrl+Enter)

T4, 15095MiB)

Model summary (fused): 72 layers, 11,121,745 parameters, 0 gradients, 28.4 GFLOPs

| Class | Images | Inst | Box(P) | R     | mAP50 | mAP50-95): 100% 8/8 [00:04<00:00, |
|-------|--------|------|--------|-------|-------|-----------------------------------|
| all   | 255    | 255  | 0.611  | 0.817 | 0.722 | 0.719                             |
| fire  | 134    | 134  | 0.704  | 0.978 | 0.886 | 0.886                             |
| other | 35     | 35   | 0.318  | 0.657 | 0.386 | 0.384                             |
| smoke | 86     | 86   | 0.839  | 0.789 | 0.904 | 0.903                             |

Speed: 0.5ms preprocess, 4.6ms inference, 0.0ms loss, 3.8ms postprocess per image

Results saved to /content/yolov8\_project/runs/fire\_yolov8

💡 Learn more at <https://docs.ultralytics.com/modes/train>

# YOLOv8 Evaluation + Plot

```
!yolo task=detect mode=val model=/content/yolov8_project/runs/fire_yolov8/weights/best.pt data=/content/Fire-and-Smoke
```

# Plot results from training

from IPython.display import Image

```
Image(filename='/content/yolov8_project/runs/fire_yolov8/results.png', width=600)
```

Ultralytics 8.3.108 🚀 Python-3.11.12 torch-2.6.0+cu124 CUDA:0 (Tesla T4, 15095MiB)

Model summary (fused): 72 layers, 11,126,745 parameters, 0 gradients, 28.4 GFLOPs

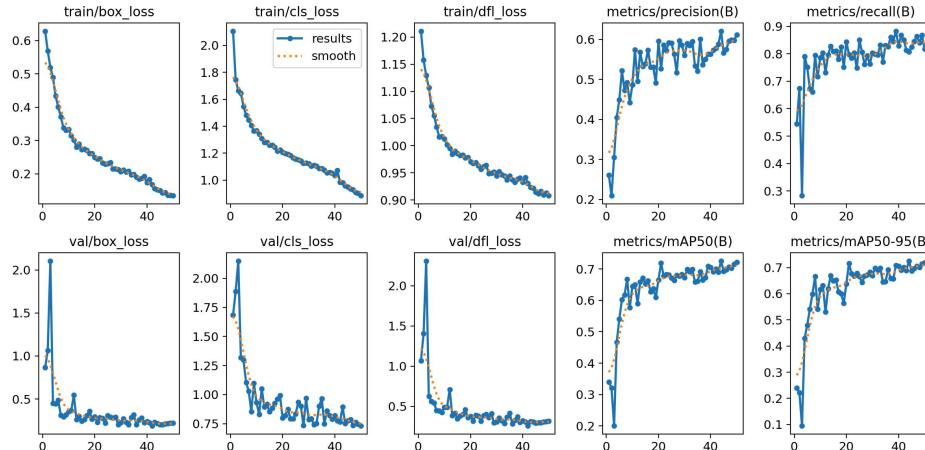
val: Scanning /content/Fire-and-Smoke-Detection-2/valid/labels.cache... 255 images, 0 backgrounds, 0 corrupt: 100%

| Class | Images | Instances | Box(P) | R     | mAP50 | mAP50-95): 100% 16/16 [00:04<00:00, |
|-------|--------|-----------|--------|-------|-------|-------------------------------------|
| all   | 255    | 255       | 0.621  | 0.807 | 0.725 | 0.725                               |
| fire  | 134    | 134       | 0.704  | 0.978 | 0.886 | 0.886                               |
| other | 35     | 35        | 0.32   | 0.657 | 0.387 | 0.385                               |
| smoke | 86     | 86        | 0.839  | 0.788 | 0.903 | 0.903                               |

Speed: 1.4ms preprocess, 9.3ms inference, 0.0ms loss, 2.0ms postprocess per image

Results saved to runs/detect/val

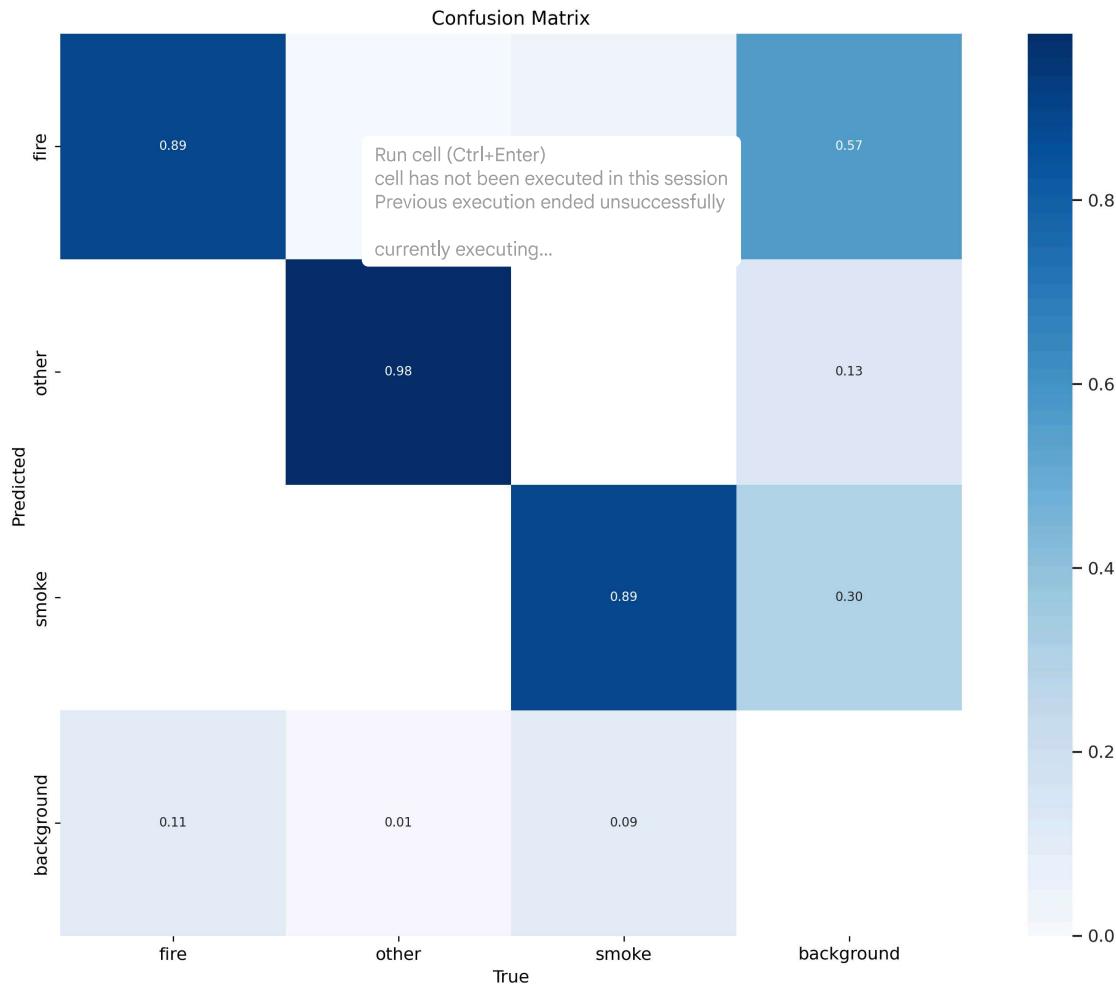
💡 Learn more at <https://docs.ultralytics.com/modes/val>



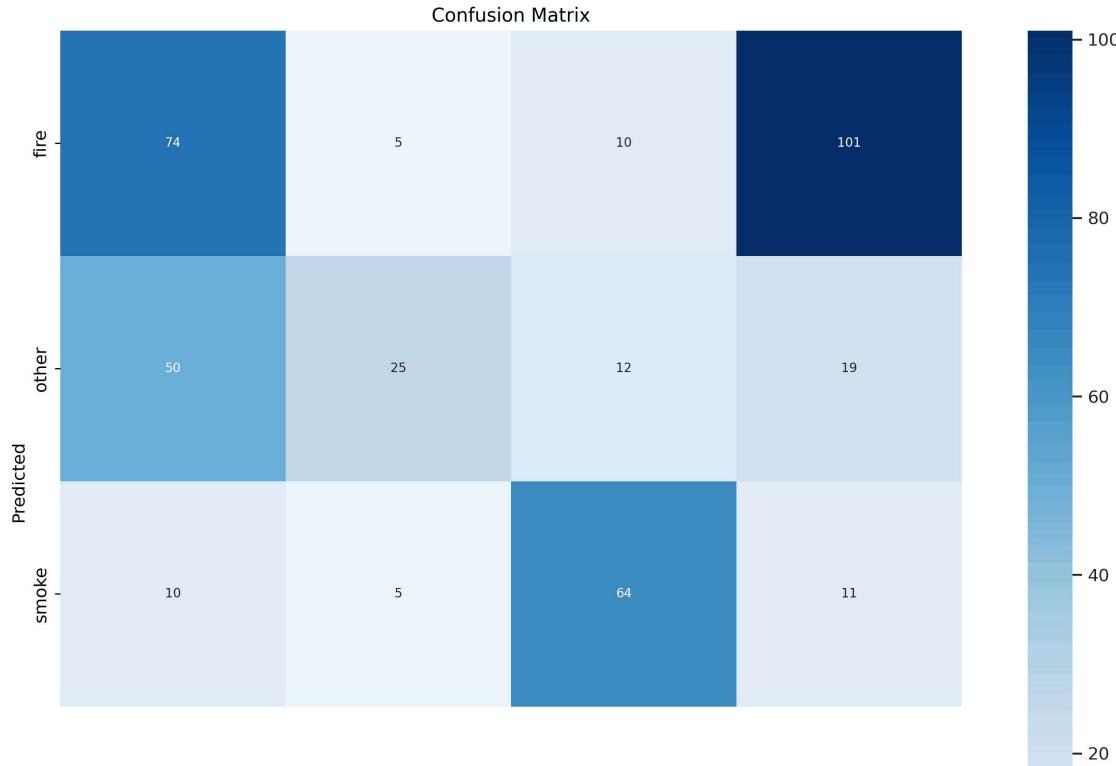
```
from IPython.display import Image, display, HTML
display(HTML("<h2 style='color: #E67E22;'>YOLOv5 Confusion Matrix</h2>"))
# Show confusion matrix image
display(Image('/content/yolov5_project/runs/fire_yolov5/confusion_matrix.png'))
display(HTML("<h2 style='color: #1ABC9C;'>YOLOv8 Confusion Matrix</h2>"))
# Show confusion matrix image (default Ultralytics path)
display(Image('/content/yolov8_project/runs/fire_yolov8/confusion_matrix.png'))
```



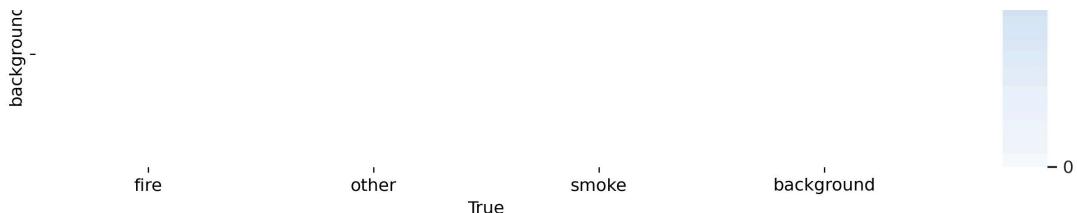
## YOLOv5 Confusion Matrix



## YOLOv8 Confusion Matrix



1



Run cell (Ctrl+Enter)  
cell has not been executed in this session  
Previous execution ended unsuccessfully

currently executing...

```
##image inference
!python detect.py --weights /content/yolov5_project/runs/fire_yolov5/weights/best.pt --img 640 --conf 0.1 --source /content
```

detect: weights=['/content/yolov5\_project/runs/fire\_yolov5/weights/best.pt'], source=/content/fire-8/test/images  
YOLOv5 v7.0-411-gf4d8a84c Python-3.11.12 torch-2.6.0+cu124 CUDA:0 (Tesla T4, 15095MiB)

Fusing layers... Run cell (Ctrl+Enter)  
Model summary: 157 layers, 7018216 para cell has not been executed in this session s  
image 1/55 /content/fire-8/test/images/ Previous execution ended unsuccessfully :f23a9413ca63bc2a6085.jpg: 640x640 1 fire,  
image 2/55 /content/fire-8/test/images/ currently executing... 3db98ca428fdf902c9e66.jpg: 640x640 1 fire,  
image 3/55 /content/fire-8/test/images/...\_22\_...\_22\_...\_22\_...\_22\_...\_22dc0fb772be8648477c.jpg: 640x640 1 fire,  
image 4/55 /content/fire-8/test/images/fire2\_mp4-50.jpg.rf.07b08a19a25759f464ebccdf1158f1d23.jpg: 640x640 1 fire,  
image 5/55 /content/fire-8/test/images/fire2\_mp4-51.jpg.rf.09ddf16d6c4c8117c7a4a5f26f796a44.jpg: 640x640 1 fire,  
image 6/55 /content/fire-8/test/images/fire2\_mp4-56.jpg.rf.1e9523e7b497838a4e40d80da90084d6.jpg: 640x640 1 fire,  
image 7/55 /content/fire-8/test/images/fire2\_mp4-59.jpg.rf.bfb4094aaaedee1338797863badb4e1.jpg: 640x640 1 fire,  
image 8/55 /content/fire-8/test/images/fire2\_mp4-62.jpg.rf.8a5e98819f46ed6519fb1c06cbc2a44c.jpg: 640x640 1 fire,  
image 9/55 /content/fire-8/test/images/fire2\_mp4-68.jpg.rf.8cba43ae545a7f06cd149426135dc6c9.jpg: 640x640 1 fire,  
image 10/55 /content/fire-8/test/images/fire2\_mp4-70.jpg.rf.fbc2015ea4e7f063e0c19c4c4a09818c.jpg: 640x640 1 fire  
image 11/55 /content/fire-8/test/images/img\_103.jpg.rf.5774ed31f78c5aa78b16ec989e6f53c7.jpg: 640x640 2 fires, 9.  
image 12/55 /content/fire-8/test/images/img\_104.jpg.rf.0c7f5cd544d243395eb5f6979b5bb34b.jpg: 640x640 2 fires, 9.  
image 13/55 /content/fire-8/test/images/img\_105.jpg.rf.a7dff51279e0f7c3594055d005bea41.jpg: 640x640 2 fires, 9.  
image 14/55 /content/fire-8/test/images/img\_106.jpg.rf.d6a2a3c989ef56704e3586df5a9a510a.jpg: 640x640 1 fire, 9.8  
image 15/55 /content/fire-8/test/images/img\_107.jpg.rf.1aab7d951006d22ca53b251e197720a0.jpg: 640x640 1 fire, 10.  
image 16/55 /content/fire-8/test/images/img\_108.jpg.rf.dccf0f880eff26c113e7112e3c41f854.jpg: 640x640 1 fire, 9.8  
image 17/55 /content/fire-8/test/images/img\_109.jpg.rf.629f764413847f6fb5e374209ddfc283.jpg: 640x640 1 fire, 9.8  
image 18/55 /content/fire-8/test/images/img\_110.jpg.rf.d99f4ab102b4899c4a87c23bd9cb2aa4.jpg: 640x640 1 fire, 9.8  
image 19/55 /content/fire-8/test/images/img\_111.jpg.rf.6fbaa9c4b1d728c36355d02fab8c3caf.jpg: 640x640 1 fire, 9.8  
image 20/55 /content/fire-8/test/images/img\_115.jpg.rf.e97bf08faaa0cec274caadec8924920d.jpg: 640x640 2 fires, 9.  
image 21/55 /content/fire-8/test/images/img\_116.jpg.rf.3fdb3d7dd1783b9375239746a359411c.jpg: 640x640 2 fires, 7.  
image 22/55 /content/fire-8/test/images/img\_117.jpg.rf.9a0e3b4d6435a9d9e71b31c2aea3f77a.jpg: 640x640 2 fires, 7.  
image 23/55 /content/fire-8/test/images/img\_225.jpg.rf.2ca8fc886860dc10ccfaf5109d39ffa6.jpg: 640x640 1 fire, 7.5  
image 24/55 /content/fire-8/test/images/img\_240.jpg.rf.d6e6d1035a346fcfebe8af520e7a6987.jpg: 640x640 (no detecti  
image 25/55 /content/fire-8/test/images/img\_241.jpg.rf.2f2f2bcae51b49146ffbd002d993b259.jpg: 640x640 (no detecti  
image 26/55 /content/fire-8/test/images/img\_242.jpg.rf.fce0011079fc864cbc261c292d3d2f16.jpg: 640x640 1 other, 7.  
image 27/55 /content/fire-8/test/images/img\_243.jpg.rf.932edb2d24c287e57fb6a4ab9e02da9f.jpg: 640x640 (no detecti  
image 28/55 /content/fire-8/test/images/img\_244.jpg.rf.35f8b1f8ecddce556f91f11772c0e23.jpg: 640x640 (no detecti  
image 29/55 /content/fire-8/test/images/img\_259.jpg.rf.1901481afb87c6d5c6e0c61e5bf59c60.jpg: 640x640 1 fire, 7.5  
image 30/55 /content/fire-8/test/images/img\_260.jpg.rf.5b8b0c766e34a110aee8d4806e44c796.jpg: 640x640 1 fire, 7.5  
image 31/55 /content/fire-8/test/images/img\_261.jpg.rf.065d0fef257db2fb431674e081f3fa1.jpg: 640x640 1 fire, 7.5  
image 32/55 /content/fire-8/test/images/img\_262.jpg.rf.084879e778014a5ada2f7921f59953cb.jpg: 640x640 1 fire, 7.5  
image 33/55 /content/fire-8/test/images/img\_263.jpg.rf.2b46e1285e542bc191370365f2035c0c.jpg: 640x640 1 fire, 7.5  
image 34/55 /content/fire-8/test/images/img\_361.jpg.rf.dd308dda2158bb4d4eea2431a1f0fe68.jpg: 640x640 1 smoke, 6.  
image 35/55 /content/fire-8/test/images/img\_362.jpg.rf.ac7325a850b560b54e0c98c85010a09b.jpg: 640x640 1 fire, 1 s  
image 36/55 /content/fire-8/test/images/newsmoke1\_mp4-59.jpg.rf.9ed4cf16cd0b324bae6df1e0db5b4c5e.jpg: 640x640 1  
image 37/55 /content/fire-8/test/images/newsmoke1\_mp4-86.jpg.rf.7ad60fcbb6b2d61ee12f6271b51e8dc10.jpg: 640x640 1  
image 38/55 /content/fire-8/test/images/newsmoke2\_mp4-19.jpg.rf.a9c891012654fd371a618ccfd591c.jpg: 640x640 1  
image 39/55 /content/fire-8/test/images/newsmoke2\_mp4-36.jpg.rf.fc73f74caeb66dd8a15161643655507e.jpg: 640x640 1  
image 40/55 /content/fire-8/test/images/newsmoke2\_mp4-41.jpg.rf.56540618c452ce6d7d88950e242122b9.jpg: 640x640 1  
image 41/55 /content/fire-8/test/images/newsmoke2\_mp4-77.jpg.rf.9492854e7bcfb33d7a6bbf788992a6ed.jpg: 640x640 2  
image 42/55 /content/fire-8/test/images/newsmoke2\_mp4-86.jpg.rf.ab4cb9e7f010679c9a4f6f07f1e90d60.jpg: 640x640 2  
image 43/55 /content/fire-8/test/images/pexels-alan-w-8365989\_mp4-0.jpg.rf.407424de81f2dbcba0adeb878e1a23.jpg:  
image 44/55 /content/fire-8/test/images/pexels-alan-w-8365989\_mp4-8.jpg.rf.e78f4eaaecff4f8896e4877db29d09e0.jpg:  
image 45/55 /content/fire-8/test/images/pexels-alan-w-8365989\_mp4-9.jpg.rf.df430428f71135471d31bd59742971c.jpg:  
image 46/55 /content/fire-8/test/images/pexels-alan-w-8365993\_mp4-10.jpg.rf.b04cc6a97a8611d09d79638953c9c3d3.jpg  
image 47/55 /content/fire-8/test/images/pexels-alan-w-8365993\_mp4-21.jpg.rf.c1a66cc2e22ff35cf59ad918f0fc92c.jpg  
image 48/55 /content/fire-8/test/images/pexels-alan-w-8365993\_mp4-22.jpg.rf.10099878d7148064c628c8751361b62e.jpg  
image 49/55 /content/fire-8/test/images/smoke1\_mp4-6.jpg.rf.7ab8b3f9ba1e6c2a602c46a7716cedfe.jpg: 640x640 1 smok  
image 50/55 /content/fire-8/test/images/smoke1\_mp4-8.jpg.rf.9998f087e9e4ddb061aadac9cbe8d18f.jpg: 640x640 1 smok  
image 51/55 /content/fire-8/test/images/smoke2\_mp4-10.jpg.rf.1fa6f0db9bdabbf2c52ff08f1c18d040.jpg: 640x640 1 smo  
image 52/55 /content/fire-8/test/images/smoke2\_mp4-11.jpg.rf.ad807741a5e2dc1f4a1394978a679532.jpg: 640x640 1 smo

```
import os
from IPython.display import Image, display, HTML

# Path where results are saved
result_path = '/content/yolov5_project/inference/results_v53'
```

```
# Add a heading
display(HTML("<h2 style='color: #2E86C1;'>YOLOv5 Image Results</h2>"))

# Set how many images you want to show
max_images = 20
count = 0

# Loop and show images
for img_file in sorted(os.listdir(result_pat) Run cell (Ctrl+Enter)
    if img_file.endswith('.jpg', '.png'): cell has not been executed in this session
        display(Image(filename=os.path.join( Previous execution ended unsuccessfully
            count += 1 currently executing...
            if count >= max_images:
                break
```



## YOLOv5 Image Results







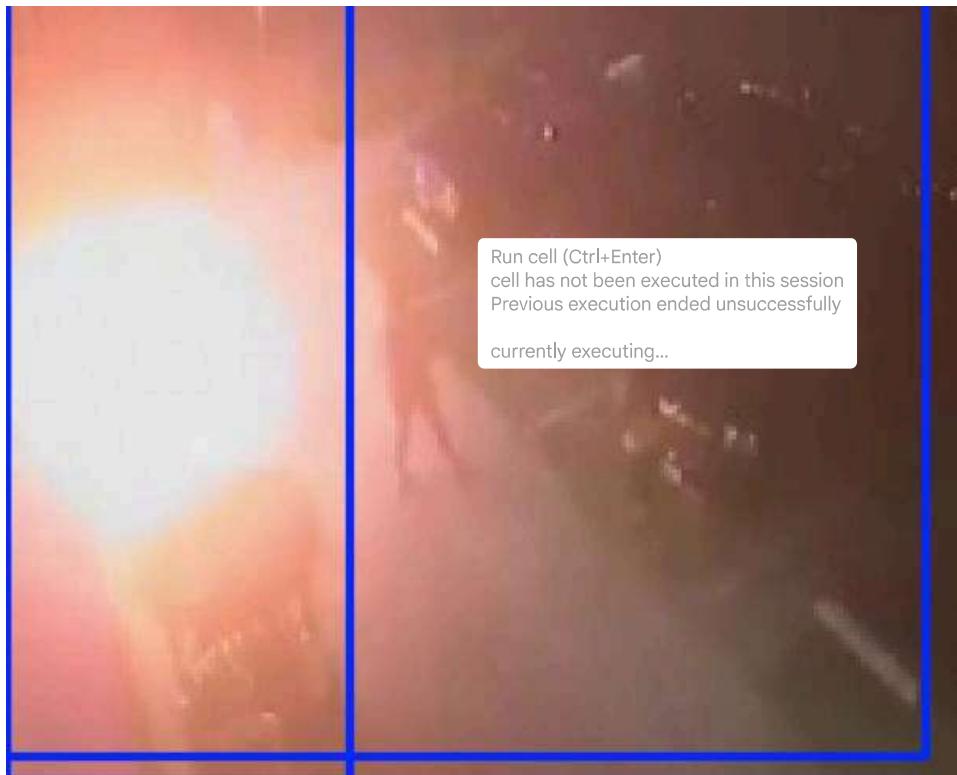


09/14/2016 12:02:48 PM King County Sheriff's Office



09/14/2016 12:02:57 PM King County Sheriff's Office





fire 0.14



