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I have used argo instead of Google Colab. So [for the training part](#) I use the Main.py file, which is available in my HW folder, instead of Ipython file. I have an [out.txt](#) file which I wright all the outputs there. I have also copy them here.

```
Starting epoch number 1
Loss for Training on Epoch 1 is 0.6122685670852661
Starting epoch number 2
Loss for Training on Epoch 2 is 0.5155720710754395
Starting epoch number 3
Loss for Training on Epoch 3 is 0.44207140803337097
Starting epoch number 4
Loss for Training on Epoch 4 is 0.38569337129592896
Starting epoch number 5
Loss for Training on Epoch 5 is 0.34068700671195984
----- Class: aeroplane      AP: 0.4885 -----
----- Class: bicycle        AP: 0.0884 -----
----- Class: bird            AP: 0.1424 -----
----- Class: boat            AP: 0.1509 -----
----- Class: bottle          AP: 0.0736 -----
----- Class: bus              AP: 0.0896 -----
----- Class: car              AP: 0.3783 -----
----- Class: cat              AP: 0.2006 -----
----- Class: chair            AP: 0.2267 -----
----- Class: cow              AP: 0.0398 -----
----- Class: diningtable     AP: 0.1059 -----
----- Class: dog              AP: 0.1337 -----
----- Class: horse            AP: 0.2176 -----
----- Class: motorbike        AP: 0.1035 -----
----- Class: person           AP: 0.5844 -----
----- Class: pottedplant      AP: 0.0850 -----
----- Class: sheep            AP: 0.0472 -----
----- Class: sofa             AP: 0.1735 -----
----- Class: train            AP: 0.1588 -----
----- Class: tvmonitor        AP: 0.0929 -----
mAP: 0.1791
Avg loss: 0.3251422643661499
Evaluating classifier
Mean Precision Score for Testing on Epoch 5 is 0.1790679298681936
Starting epoch number 6
Loss for Training on Epoch 6 is 0.3073834478855133
Starting epoch number 7
Loss for Training on Epoch 7 is 0.2831120491027832
Starting epoch number 8
Loss for Training on Epoch 8 is 0.26378512382507324
Starting epoch number 9
Loss for Training on Epoch 9 is 0.24947236478328705
Starting epoch number 10
Loss for Training on Epoch 10 is 0.23929384350776672
----- Class: aeroplane      AP: 0.4627 -----
----- Class: bicycle        AP: 0.1054 -----
----- Class: bird            AP: 0.1696 -----
```

----- Class: boat AP: 0.1239 -----
----- Class: bottle AP: 0.0855 -----
----- Class: bus AP: 0.0636 -----
----- Class: car AP: 0.3654 -----
----- Class: cat AP: 0.2471 -----
----- Class: chair AP: 0.2519 -----
----- Class: cow AP: 0.0583 -----
----- Class: diningtable AP: 0.1277 -----
----- Class: dog AP: 0.1653 -----
----- Class: horse AP: 0.2751 -----
----- Class: motorbike AP: 0.0785 -----
----- Class: person AP: 0.5771 -----
----- Class: pottedplant AP: 0.1106 -----
----- Class: sheep AP: 0.1009 -----
----- Class: sofa AP: 0.1684 -----
----- Class: train AP: 0.1667 -----
----- Class: tvmonitor AP: 0.0988 -----

mAP: 0.1901

Avg loss: 0.24689532816410065

Evaluating classifier

Mean Precision Score for Testing on Epoch 10 is 0.19012985658018797

Starting epoch number 11

Loss for Training on Epoch 11 is 0.23107111145401001

Starting epoch number 12

Loss for Training on Epoch 12 is 0.22449161112308502

Starting epoch number 13

Loss for Training on Epoch 13 is 0.21938183903694153

Starting epoch number 14

Loss for Training on Epoch 14 is 0.21403412520885468

Starting epoch number 15

Loss for Training on Epoch 15 is 0.21058647334575653

----- Class: aeroplane AP: 0.4814 -----
----- Class: bicycle AP: 0.1270 -----
----- Class: bird AP: 0.1505 -----
----- Class: boat AP: 0.1879 -----
----- Class: bottle AP: 0.0921 -----
----- Class: bus AP: 0.0977 -----
----- Class: car AP: 0.4382 -----
----- Class: cat AP: 0.2482 -----
----- Class: chair AP: 0.2727 -----
----- Class: cow AP: 0.0582 -----
----- Class: diningtable AP: 0.1624 -----
----- Class: dog AP: 0.1735 -----
----- Class: horse AP: 0.3841 -----
----- Class: motorbike AP: 0.1392 -----
----- Class: person AP: 0.6248 -----
----- Class: pottedplant AP: 0.1394 -----
----- Class: sheep AP: 0.1343 -----
----- Class: sofa AP: 0.1799 -----
----- Class: train AP: 0.1747 -----
----- Class: tvmonitor AP: 0.1105 -----

mAP: 0.2188

Avg loss: 0.21934828162193298

Evaluating classifier

Mean Precision Score for Testing on Epoch 15 is 0.21882480394826032

Starting epoch number 16

Loss for Training on Epoch 16 is 0.2083199918270111

Starting epoch number 17

Loss for Training on Epoch 17 is 0.20619550347328186

Starting epoch number 18

Loss for Training on Epoch 18 is 0.20327657461166382

Starting epoch number 19

Loss for Training on Epoch 19 is 0.20149466395378113

Starting epoch number 20

Loss for Training on Epoch 20 is 0.19854062795639038

----- Class: aeroplane AP: 0.5487 -----

----- Class: bicycle AP: 0.1142 -----

----- Class: bird AP: 0.1659 -----

----- Class: boat AP: 0.2068 -----

----- Class: bottle AP: 0.0928 -----

----- Class: bus AP: 0.1005 -----

----- Class: car AP: 0.4228 -----

----- Class: cat AP: 0.2755 -----

----- Class: chair AP: 0.2535 -----

----- Class: cow AP: 0.0777 -----

----- Class: diningtable AP: 0.1785 -----

----- Class: dog AP: 0.1834 -----

----- Class: horse AP: 0.4111 -----

----- Class: motorbike AP: 0.1008 -----

----- Class: person AP: 0.6313 -----

----- Class: pottedplant AP: 0.1106 -----

----- Class: sheep AP: 0.1380 -----

----- Class: sofa AP: 0.2031 -----

----- Class: train AP: 0.1678 -----

----- Class: tvmonitor AP: 0.1060 -----

mAP: 0.2245

Avg loss: 0.21756763756275177

Evaluating classifier

Mean Precision Score for Testing on Epoch 20 is 0.22445562106582945

Starting epoch number 21

Loss for Training on Epoch 21 is 0.19700364768505096

Starting epoch number 22

Loss for Training on Epoch 22 is 0.19476807117462158

Starting epoch number 23

Loss for Training on Epoch 23 is 0.19323459267616272

Starting epoch number 24

Loss for Training on Epoch 24 is 0.19249966740608215

Starting epoch number 25

Loss for Training on Epoch 25 is 0.1909705400466919

----- Class: aeroplane AP: 0.5699 -----

----- Class: bicycle AP: 0.1683 -----

----- Class: bird AP: 0.1942 -----

----- Class: boat AP: 0.2468 -----

----- Class: bottle AP: 0.0984 -----

----- Class: bus AP: 0.1014 -----

----- Class: car AP: 0.4862 -----

----- Class: cat AP: 0.3144 -----

----- Class: chair AP: 0.2916 -----

----- Class: cow AP: 0.0904 -----
----- Class: diningtable AP: 0.2087 -----
----- Class: dog AP: 0.2244 -----
----- Class: horse AP: 0.4413 -----
----- Class: motorbike AP: 0.1438 -----
----- Class: person AP: 0.6765 -----
----- Class: pottedplant AP: 0.1069 -----
----- Class: sheep AP: 0.1339 -----
----- Class: sofa AP: 0.2418 -----
----- Class: train AP: 0.2331 -----
----- Class: tvmonitor AP: 0.1234 -----

mAP: 0.2548

Avg loss: 0.20444585382938385

Evaluating classifier

Mean Precision Score for Testing on Epoch 25 is 0.2547724815216136

Starting epoch number 26

Loss for Training on Epoch 26 is 0.18927951157093048

Starting epoch number 27

Loss for Training on Epoch 27 is 0.18801471590995789

Starting epoch number 28

Loss for Training on Epoch 28 is 0.18534304201602936

Starting epoch number 29

Loss for Training on Epoch 29 is 0.18378950655460358

Starting epoch number 30

Loss for Training on Epoch 30 is 0.18425095081329346

----- Class: aeroplane AP: 0.5686 -----
----- Class: bicycle AP: 0.1839 -----
----- Class: bird AP: 0.2112 -----
----- Class: boat AP: 0.3253 -----
----- Class: bottle AP: 0.0888 -----
----- Class: bus AP: 0.1385 -----
----- Class: car AP: 0.4689 -----
----- Class: cat AP: 0.3207 -----
----- Class: chair AP: 0.3044 -----
----- Class: cow AP: 0.1079 -----
----- Class: diningtable AP: 0.1933 -----
----- Class: dog AP: 0.2145 -----
----- Class: horse AP: 0.4297 -----
----- Class: motorbike AP: 0.1918 -----
----- Class: person AP: 0.6722 -----
----- Class: pottedplant AP: 0.0963 -----
----- Class: sheep AP: 0.1229 -----
----- Class: sofa AP: 0.2152 -----
----- Class: train AP: 0.3062 -----
----- Class: tvmonitor AP: 0.1443 -----

mAP: 0.2652

Avg loss: 0.2048996388912201

Evaluating classifier

Mean Precision Score for Testing on Epoch 30 is 0.26524038740517103

Starting epoch number 31

Loss for Training on Epoch 31 is 0.182608500123024

Starting epoch number 32

Loss for Training on Epoch 32 is 0.1813325732946396

Starting epoch number 33

Loss for Training on Epoch 33 is 0.1783204972743988

Starting epoch number 34

Loss for Training on Epoch 34 is 0.1767604798078537

Starting epoch number 35

Loss for Training on Epoch 35 is 0.17553962767124176

| | | |
|--------------------------|------------|-------|
| ----- Class: aeroplane | AP: 0.5848 | ----- |
| ----- Class: bicycle | AP: 0.2056 | ----- |
| ----- Class: bird | AP: 0.2419 | ----- |
| ----- Class: boat | AP: 0.3201 | ----- |
| ----- Class: bottle | AP: 0.0859 | ----- |
| ----- Class: bus | AP: 0.1738 | ----- |
| ----- Class: car | AP: 0.4811 | ----- |
| ----- Class: cat | AP: 0.3234 | ----- |
| ----- Class: chair | AP: 0.3274 | ----- |
| ----- Class: cow | AP: 0.1328 | ----- |
| ----- Class: diningtable | AP: 0.1954 | ----- |
| ----- Class: dog | AP: 0.2532 | ----- |
| ----- Class: horse | AP: 0.4201 | ----- |
| ----- Class: motorbike | AP: 0.2038 | ----- |
| ----- Class: person | AP: 0.6849 | ----- |
| ----- Class: pottedplant | AP: 0.0962 | ----- |
| ----- Class: sheep | AP: 0.1314 | ----- |
| ----- Class: sofa | AP: 0.2100 | ----- |
| ----- Class: train | AP: 0.3538 | ----- |
| ----- Class: tvmonitor | AP: 0.1818 | ----- |

mAP: 0.2804

Avg loss: 0.20314286649227142

Evaluating classifier

Mean Precision Score for Testing on Epoch 35 is 0.2803708720106045

Starting epoch number 36

Loss for Training on Epoch 36 is 0.1747542768716812

Starting epoch number 37

Loss for Training on Epoch 37 is 0.17463292181491852

Starting epoch number 38

Loss for Training on Epoch 38 is 0.17254383862018585

Starting epoch number 39

Loss for Training on Epoch 39 is 0.17177601158618927

Starting epoch number 40

Loss for Training on Epoch 40 is 0.17062300443649292

| | | |
|--------------------------|------------|-------|
| ----- Class: aeroplane | AP: 0.5684 | ----- |
| ----- Class: bicycle | AP: 0.2350 | ----- |
| ----- Class: bird | AP: 0.2239 | ----- |
| ----- Class: boat | AP: 0.3262 | ----- |
| ----- Class: bottle | AP: 0.0905 | ----- |
| ----- Class: bus | AP: 0.1833 | ----- |
| ----- Class: car | AP: 0.4900 | ----- |
| ----- Class: cat | AP: 0.3283 | ----- |
| ----- Class: chair | AP: 0.3497 | ----- |
| ----- Class: cow | AP: 0.1324 | ----- |
| ----- Class: diningtable | AP: 0.2064 | ----- |
| ----- Class: dog | AP: 0.2639 | ----- |
| ----- Class: horse | AP: 0.4458 | ----- |
| ----- Class: motorbike | AP: 0.3081 | ----- |
| ----- Class: person | AP: 0.6991 | ----- |

----- Class: pottedplant AP: 0.1073 -----
----- Class: sheep AP: 0.1266 -----
----- Class: sofa AP: 0.2174 -----
----- Class: train AP: 0.3625 -----
----- Class: tvmonitor AP: 0.1956 -----

mAP: 0.2930

Avg loss: 0.1985173374414444

Evaluating classifier

Mean Precision Score for Testing on Epoch 40 is 0.2930293553367723

Starting epoch number 41

Loss for Training on Epoch 41 is 0.1707962155342102

Starting epoch number 42

Loss for Training on Epoch 42 is 0.16951046884059906

Starting epoch number 43

Loss for Training on Epoch 43 is 0.16914239525794983

Starting epoch number 44

Loss for Training on Epoch 44 is 0.1667134314775467

Starting epoch number 45

Loss for Training on Epoch 45 is 0.1676657348871231

----- Class: aeroplane AP: 0.5839 -----
----- Class: bicycle AP: 0.2598 -----
----- Class: bird AP: 0.2326 -----
----- Class: boat AP: 0.3445 -----
----- Class: bottle AP: 0.0898 -----
----- Class: bus AP: 0.2018 -----
----- Class: car AP: 0.4908 -----
----- Class: cat AP: 0.3280 -----
----- Class: chair AP: 0.3464 -----
----- Class: cow AP: 0.1178 -----
----- Class: diningtable AP: 0.1904 -----
----- Class: dog AP: 0.2506 -----
----- Class: horse AP: 0.4681 -----
----- Class: motorbike AP: 0.3113 -----
----- Class: person AP: 0.6893 -----
----- Class: pottedplant AP: 0.1248 -----
----- Class: sheep AP: 0.1279 -----
----- Class: sofa AP: 0.2328 -----
----- Class: train AP: 0.3263 -----
----- Class: tvmonitor AP: 0.2021 -----

mAP: 0.2960

Avg loss: 0.20001403987407684

Evaluating classifier

Mean Precision Score for Testing on Epoch 45 is 0.29595920551060745

Starting epoch number 46

Loss for Training on Epoch 46 is 0.16491034626960754

Starting epoch number 47

Loss for Training on Epoch 47 is 0.16604232788085938

Starting epoch number 48

Loss for Training on Epoch 48 is 0.16540926694869995

Starting epoch number 49

Loss for Training on Epoch 49 is 0.1650872379541397

Starting epoch number 50

Loss for Training on Epoch 50 is 0.16303080320358276

----- Class: aeroplane AP: 0.5835 -----

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----- Class: bicycle      AP: 0.2528 -----
----- Class: bird        AP: 0.2425 -----
----- Class: boat        AP: 0.3323 -----
----- Class: bottle      AP: 0.0900 -----
----- Class: bus         AP: 0.2399 -----
----- Class: car         AP: 0.4709 -----
----- Class: cat         AP: 0.3312 -----
----- Class: chair       AP: 0.3634 -----
----- Class: cow         AP: 0.1222 -----
----- Class: diningtable AP: 0.1855 -----
----- Class: dog         AP: 0.2537 -----
----- Class: horse       AP: 0.4819 -----
----- Class: motorbike   AP: 0.3286 -----
----- Class: person      AP: 0.7035 -----
----- Class: pottedplant AP: 0.1195 -----
----- Class: sheep       AP: 0.1432 -----
----- Class: sofa        AP: 0.2514 -----
----- Class: train       AP: 0.3935 -----
----- Class: tvmonitor   AP: 0.2434 -----

```

mAP: 0.3066

Avg loss: 0.19697105884552002

Evaluating classifier

Mean Precision Score for Testing on Epoch 50 is 0.3066441291149082

```

----- Class: aeroplane   AP: 0.5742 -----
----- Class: bicycle     AP: 0.2430 -----
----- Class: bird        AP: 0.2255 -----
----- Class: boat        AP: 0.3195 -----
----- Class: bottle      AP: 0.1012 -----
----- Class: bus         AP: 0.2474 -----
----- Class: car         AP: 0.5353 -----
----- Class: cat         AP: 0.2683 -----
----- Class: chair       AP: 0.3608 -----
----- Class: cow         AP: 0.1105 -----
----- Class: diningtable AP: 0.1758 -----
----- Class: dog         AP: 0.2458 -----
----- Class: horse       AP: 0.5495 -----
----- Class: motorbike   AP: 0.2579 -----
----- Class: person      AP: 0.7044 -----
----- Class: pottedplant AP: 0.1488 -----
----- Class: sheep       AP: 0.1837 -----
----- Class: sofa        AP: 0.2393 -----
----- Class: train       AP: 0.3969 -----
----- Class: tvmonitor   AP: 0.2504 -----

```

mAP: 0.3069

Avg loss: 0.19141614437103271

DDDDD 0.30691706942527514 tensor(0.1914, device='cuda:0')