

```
C:\ProgramData\Anaconda3\python.exe C:/Users/rpi08/M/MT/MTP_AD/mainCodes/
allPre_FinalTest_CV/finalTest_CV.py
C:\ProgramData\Anaconda3\lib\site-packages\requests\__init__.py:91:
RequestsDependencyWarning: urllib3 (1.26.2) or chardet (3.0.4) doesn't match a
supported version!
  RequestsDependencyWarning)
Main Start running time: 210508_001337, *****
```

Name of corresponding python code file: finalTest_CV

doScaleAfterSplit= True approach.

shiftNumber: 2, windowLength: 2
makeNoiseByJitter: False

Number of Rows Aucual yXRolled_SelFeat_Transformed :
Total: 14520
Anomalies(positives): 89 (0.61% of total)

baseFileName of output Folders and Plots name: finalTest_CV

```
Shape of Actual npTrain dataset: (14520, 60)
Number of Actual npTrain labelled 0: 14431
Number of Actual npTrain labelled 1: 89
```

```
Start running time Fold_1: 210508_001339 , -----:
```

```
Shape of Actual yXtrainRolled After Rolling Fold_1: (23108, 60)
```

```
Shape of Actual yXvalidShifted dataset: (2873, 60)
```

```
Shape of Actual yXvalidRolled After Rolling Fold_1: (5744, 60)
```

```
-----*** Train modelEvaluateVal without adding Augmented data
***-----
```

```
Shape of data after Transform ToOneRow to give Cross Validation Model in
fold_1:
```

```
xtrain: (11554, 118), ytrain: (11554,)
xvalid: (2872, 118), yvalid: (2872,)
```

```
Number of final label 0 in yXtrain_Fold_1: 11495
```

Number of final label 1 in yXtrain_Before_AddingAugedData_Fold_1: 59
Number of final label 1 in yXtrain_After_AddingAugedData_Fold_1: 59

Hyperparameters of Cross Validation Model:
epochs: 500, batch: 32, lr: 0.0001, number0fSplits:5, flagSeed: True,
train_val_split_Shuffle: False, FitShuffle: True

Start Creating new folder for each run: 210508_001339

2021-05-08 00:13:39.624388: I tensorflow/core/platform/cpu_feature_guard.cc:142] Your CPU supports instructions that this TensorFlow binary was not compiled to use: AVX AVX2
2021-05-08 00:13:39.628748: I tensorflow/core/common_runtime/process_util.cc:147] Creating new thread pool with default inter op setting: 2. Tune using inter_op_parallelism_threads for best performance.

Cross Validation Model.summary():

Model: "sequential"

Layer (type)	Output Shape	Param #
dense (Dense)	(None, 236)	28084

```
-----
dense_1 (Dense)              (None, 188)          44556
-----
dense_2 (Dense)              (None, 36)           6804
-----
dense_3 (Dense)              (None, 1)             37
=====
Total params: 79,481
Trainable params: 79,481
Non-trainable params: 0
-----
None
```

Cross Validation Model config:

```
{'name': 'sequential', 'layers': [{'class_name': 'Dense', 'config': {'name': 'dense', 'trainable': True, 'batch_input_shape': (None, 118), 'dtype': 'float32', 'units': 236, 'activation': 'tanh', 'use_bias': True, 'kernel_initializer': {'class_name': 'GlorotUniform', 'config': {'seed': None}}, 'bias_initializer': {'class_name': 'Zeros', 'config': {}}, 'kernel_regularizer': None, 'bias_regularizer': None, 'activity_regularizer': None, 'kernel_constraint': None, 'bias_constraint': None}, {'class_name': 'Dense', 'config': {'name': 'dense_1', 'trainable': True, 'dtype': 'float32', 'units': 188, 'activation': 'tanh', 'use_bias': True, 'kernel_initializer': {'class_name': 'GlorotUniform', 'config': {'seed': None}}, 'bias_initializer': {'class_name': 'Zeros', 'config': {}}, 'kernel_regularizer': {'class_name':
```

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': 'L1L2', 'config': {'l1': 0.0, 'l2': 0.014999999664723873}}, '
bias_regularizer': None, 'activity_regularizer': None, 'kernel_constraint':
None, 'bias_constraint': None}, {'class_name': 'Dense', 'config': {'name': '
dense_2', 'trainable': True, 'dtype': 'float32', 'units': 36, 'activation': '
tanh', 'use_bias': True, 'kernel_initializer': {'class_name': 'GlorotUniform
', 'config': {'seed': None}}, 'bias_initializer': {'class_name': 'Zeros', '
config': {}}, 'kernel_regularizer': {'class_name': 'L1L2', 'config': {'l1': 0.
0, 'l2': 0.014999999664723873}}, 'bias_regularizer': None, '
activity_regularizer': None, 'kernel_constraint': None, 'bias_constraint':
None}, {'class_name': 'Dense', 'config': {'name': 'dense_3', 'trainable':
True, 'dtype': 'float32', 'units': 1, 'activation': 'sigmoid', 'use_bias':
True, 'kernel_initializer': {'class_name': 'GlorotUniform', 'config': {'seed
': None}}, 'bias_initializer': {'class_name': 'Zeros', 'config': {}}, '
kernel_regularizer': None, 'bias_regularizer': None, 'activity_regularizer':
None, 'kernel_constraint': None, 'bias_constraint': None}}]}

```

Train on 11554 samples

Epoch 1/500

11554/11554 [=====] - 4s 364us/sample - loss: 3.0946

- accuracy: 0.9919

Epoch 2/500

11554/11554 [=====] - 2s 176us/sample - loss: 1.4942

- accuracy: 0.9949

Epoch 3/500

```
11554/11554 [=====] - 3s 233us/sample - loss: 0.6741
- accuracy: 0.9949
Epoch 4/500
11554/11554 [=====] - 2s 187us/sample - loss: 0.2981
- accuracy: 0.9949
Epoch 5/500
11554/11554 [=====] - 2s 206us/sample - loss: 0.1399
- accuracy: 0.9949
Epoch 6/500
11554/11554 [=====] - 3s 226us/sample - loss: 0.0777
- accuracy: 0.9949
Epoch 7/500
11554/11554 [=====] - 2s 188us/sample - loss: 0.0544
- accuracy: 0.9949
Epoch 8/500
11554/11554 [=====] - 3s 237us/sample - loss: 0.0457
- accuracy: 0.9949
Epoch 9/500
11554/11554 [=====] - 2s 186us/sample - loss: 0.0426
- accuracy: 0.9949
Epoch 10/500
11554/11554 [=====] - 2s 210us/sample - loss: 0.0405
- accuracy: 0.9949
Epoch 11/500
11554/11554 [=====] - 3s 265us/sample - loss: 0.0394
```

```
- accuracy: 0.9949
Epoch 12/500
11554/11554 [=====] - 2s 208us/sample - loss: 0.0391
- accuracy: 0.9949
Epoch 13/500
11554/11554 [=====] - 3s 233us/sample - loss: 0.0388
- accuracy: 0.9949
Epoch 14/500
11554/11554 [=====] - 2s 182us/sample - loss: 0.0381
- accuracy: 0.9949
Epoch 15/500
11554/11554 [=====] - 3s 253us/sample - loss: 0.0380
- accuracy: 0.9949
Epoch 16/500
11554/11554 [=====] - 2s 183us/sample - loss: 0.0376
- accuracy: 0.9949
Epoch 17/500
11554/11554 [=====] - 2s 210us/sample - loss: 0.0373
- accuracy: 0.9949
Epoch 18/500
11554/11554 [=====] - 2s 208us/sample - loss: 0.0369
- accuracy: 0.9949
Epoch 19/500
11554/11554 [=====] - 4s 376us/sample - loss: 0.0365
- accuracy: 0.9949
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Epoch 20/500
11554/11554 [=====] - 2s 185us/sample - loss: 0.0363
- accuracy: 0.9949
Epoch 21/500
11554/11554 [=====] - 2s 197us/sample - loss: 0.0363
- accuracy: 0.9949
Epoch 22/500
11554/11554 [=====] - 2s 211us/sample - loss: 0.0360
- accuracy: 0.9949
Epoch 23/500
11554/11554 [=====] - 2s 174us/sample - loss: 0.0361
- accuracy: 0.9949
Epoch 24/500
11554/11554 [=====] - 3s 230us/sample - loss: 0.0357
- accuracy: 0.9949
Epoch 25/500
11554/11554 [=====] - 2s 181us/sample - loss: 0.0358
- accuracy: 0.9949
Epoch 26/500
11554/11554 [=====] - 2s 196us/sample - loss: 0.0354
- accuracy: 0.9949
Epoch 27/500
11554/11554 [=====] - 2s 213us/sample - loss: 0.0352
- accuracy: 0.9949
Epoch 28/500
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11554/11554 [=====] - 2s 184us/sample - loss: 0.0349
- accuracy: 0.9949
Epoch 29/500
11554/11554 [=====] - 3s 231us/sample - loss: 0.0351
- accuracy: 0.9949
Epoch 30/500
11554/11554 [=====] - 2s 176us/sample - loss: 0.0348
- accuracy: 0.9949
Epoch 31/500
11554/11554 [=====] - 2s 206us/sample - loss: 0.0347
- accuracy: 0.9949
Epoch 32/500
11554/11554 [=====] - 3s 255us/sample - loss: 0.0348
- accuracy: 0.9949
Epoch 33/500
11554/11554 [=====] - 3s 281us/sample - loss: 0.0342
- accuracy: 0.9949
Epoch 34/500
11554/11554 [=====] - 4s 330us/sample - loss: 0.0345
- accuracy: 0.9949
Epoch 35/500
11554/11554 [=====] - 4s 342us/sample - loss: 0.0341
- accuracy: 0.9949
Epoch 36/500
11554/11554 [=====] - 5s 398us/sample - loss: 0.0344
```

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- accuracy: 0.9949
Epoch 37/500
11554/11554 [=====] - 3s 269us/sample - loss: 0.0340
- accuracy: 0.9949
Epoch 38/500
11554/11554 [=====] - 4s 352us/sample - loss: 0.0338
- accuracy: 0.9949
Epoch 39/500
11554/11554 [=====] - 4s 303us/sample - loss: 0.0338
- accuracy: 0.9949
Epoch 40/500
11554/11554 [=====] - 2s 206us/sample - loss: 0.0338
- accuracy: 0.9949
Epoch 41/500
11554/11554 [=====] - 2s 200us/sample - loss: 0.0338
- accuracy: 0.9949
Epoch 42/500
11554/11554 [=====] - 3s 295us/sample - loss: 0.0336
- accuracy: 0.9949
Epoch 43/500
11554/11554 [=====] - 4s 369us/sample - loss: 0.0334
- accuracy: 0.9949
Epoch 44/500
11554/11554 [=====] - 3s 236us/sample - loss: 0.0336
- accuracy: 0.9949
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Epoch 45/500
11554/11554 [=====] - 2s 185us/sample - loss: 0.0334
- accuracy: 0.9949
Epoch 46/500
11554/11554 [=====] - 3s 282us/sample - loss: 0.0333
- accuracy: 0.9949
Epoch 47/500
11554/11554 [=====] - 3s 295us/sample - loss: 0.0330
- accuracy: 0.9949
Epoch 48/500
11554/11554 [=====] - 2s 201us/sample - loss: 0.0332
- accuracy: 0.9949
Epoch 49/500
11554/11554 [=====] - 3s 270us/sample - loss: 0.0331
- accuracy: 0.9949
Epoch 50/500
11554/11554 [=====] - 4s 361us/sample - loss: 0.0330
- accuracy: 0.9949
Epoch 51/500
11554/11554 [=====] - 2s 188us/sample - loss: 0.0331
- accuracy: 0.9949
Epoch 52/500
11554/11554 [=====] - 3s 253us/sample - loss: 0.0331
- accuracy: 0.9949
Epoch 53/500
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```
11554/11554 [=====] - 4s 381us/sample - loss: 0.0329
- accuracy: 0.9949
Epoch 54/500
11554/11554 [=====] - 3s 249us/sample - loss: 0.0331
- accuracy: 0.9949
Epoch 55/500
11554/11554 [=====] - 3s 219us/sample - loss: 0.0327
- accuracy: 0.9949
Epoch 56/500
11554/11554 [=====] - 4s 349us/sample - loss: 0.0327
- accuracy: 0.9949
Epoch 57/500
11554/11554 [=====] - 4s 320us/sample - loss: 0.0326
- accuracy: 0.9949
Epoch 58/500
11554/11554 [=====] - 2s 208us/sample - loss: 0.0325
- accuracy: 0.9949
Epoch 59/500
11554/11554 [=====] - 3s 233us/sample - loss: 0.0329
- accuracy: 0.9949
Epoch 60/500
11554/11554 [=====] - 4s 336us/sample - loss: 0.0326
- accuracy: 0.9949
Epoch 61/500
11554/11554 [=====] - 3s 237us/sample - loss: 0.0326
```

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- accuracy: 0.9949
Epoch 62/500
11554/11554 [=====] - 2s 213us/sample - loss: 0.0325
- accuracy: 0.9949
Epoch 63/500
11554/11554 [=====] - 2s 213us/sample - loss: 0.0325
- accuracy: 0.9949
Epoch 64/500
11554/11554 [=====] - 6s 476us/sample - loss: 0.0324
- accuracy: 0.9949
Epoch 65/500
11554/11554 [=====] - 2s 212us/sample - loss: 0.0321
- accuracy: 0.9949
Epoch 66/500
11554/11554 [=====] - 4s 375us/sample - loss: 0.0326
- accuracy: 0.9949
Epoch 67/500
11554/11554 [=====] - 2s 192us/sample - loss: 0.0323
- accuracy: 0.9949
Epoch 68/500
11554/11554 [=====] - 5s 390us/sample - loss: 0.0326
- accuracy: 0.9949
Epoch 69/500
11554/11554 [=====] - 4s 357us/sample - loss: 0.0323
- accuracy: 0.9949
```

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Epoch 70/500
11554/11554 [=====] - 4s 332us/sample - loss: 0.0325
- accuracy: 0.9949
Epoch 71/500
11554/11554 [=====] - 3s 261us/sample - loss: 0.0322
- accuracy: 0.9949
Epoch 72/500
11554/11554 [=====] - 2s 206us/sample - loss: 0.0324
- accuracy: 0.9949
Epoch 73/500
11554/11554 [=====] - 2s 207us/sample - loss: 0.0323
- accuracy: 0.9949
Epoch 74/500
11554/11554 [=====] - 5s 395us/sample - loss: 0.0323
- accuracy: 0.9949
Epoch 75/500
11554/11554 [=====] - 3s 227us/sample - loss: 0.0321
- accuracy: 0.9949
Epoch 76/500
11554/11554 [=====] - 2s 214us/sample - loss: 0.0323
- accuracy: 0.9949
Epoch 77/500
11554/11554 [=====] - 3s 219us/sample - loss: 0.0325
- accuracy: 0.9949
Epoch 78/500
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11554/11554 [=====] - 2s 202us/sample - loss: 0.0323
- accuracy: 0.9949
Epoch 79/500
11554/11554 [=====] - 3s 234us/sample - loss: 0.0321
- accuracy: 0.9949
Epoch 80/500
11554/11554 [=====] - 2s 183us/sample - loss: 0.0322
- accuracy: 0.9949
Epoch 81/500
11554/11554 [=====] - 3s 236us/sample - loss: 0.0323
- accuracy: 0.9949
Epoch 82/500
11554/11554 [=====] - 3s 247us/sample - loss: 0.0320
- accuracy: 0.9949
Epoch 83/500
11554/11554 [=====] - 4s 357us/sample - loss: 0.0322
- accuracy: 0.9949
Epoch 84/500
11554/11554 [=====] - 2s 198us/sample - loss: 0.0321
- accuracy: 0.9949
Epoch 85/500
11554/11554 [=====] - 3s 236us/sample - loss: 0.0322
- accuracy: 0.9949
Epoch 86/500
11554/11554 [=====] - 4s 341us/sample - loss: 0.0321
```

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- accuracy: 0.9949
Epoch 87/500
11554/11554 [=====] - 4s 383us/sample - loss: 0.0324
- accuracy: 0.9949
Epoch 88/500
11554/11554 [=====] - 4s 362us/sample - loss: 0.0321
- accuracy: 0.9949
Epoch 89/500
11554/11554 [=====] - 3s 249us/sample - loss: 0.0322
- accuracy: 0.9949
Epoch 90/500
11554/11554 [=====] - 2s 195us/sample - loss: 0.0321
- accuracy: 0.9949
Epoch 91/500
11554/11554 [=====] - 3s 226us/sample - loss: 0.0321
- accuracy: 0.9949
Epoch 92/500
11554/11554 [=====] - 2s 206us/sample - loss: 0.0321
- accuracy: 0.9949
Epoch 93/500
11554/11554 [=====] - 3s 226us/sample - loss: 0.0321
- accuracy: 0.9949
Epoch 94/500
11554/11554 [=====] - 3s 257us/sample - loss: 0.0319
- accuracy: 0.9949
```



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Epoch 95/500
11554/11554 [=====] - 2s 210us/sample - loss: 0.0322
- accuracy: 0.9949
Epoch 96/500
11554/11554 [=====] - 2s 189us/sample - loss: 0.0321
- accuracy: 0.9949
Epoch 97/500
11554/11554 [=====] - 3s 229us/sample - loss: 0.0321
- accuracy: 0.9949
Epoch 98/500
11554/11554 [=====] - 4s 345us/sample - loss: 0.0321
- accuracy: 0.9949
Epoch 99/500
11554/11554 [=====] - 3s 284us/sample - loss: 0.0321
- accuracy: 0.9949
Epoch 100/500
11554/11554 [=====] - 2s 165us/sample - loss: 0.0320
- accuracy: 0.9949
Epoch 101/500
11554/11554 [=====] - 2s 209us/sample - loss: 0.0321
- accuracy: 0.9949
Epoch 102/500
11554/11554 [=====] - 4s 345us/sample - loss: 0.0321
- accuracy: 0.9949
Epoch 103/500
```

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11554/11554 [=====] - 5s 466us/sample - loss: 0.0322
- accuracy: 0.9949
Epoch 104/500
11554/11554 [=====] - 6s 492us/sample - loss: 0.0320
- accuracy: 0.9949
Epoch 105/500
11554/11554 [=====] - 3s 225us/sample - loss: 0.0319
- accuracy: 0.9949
Epoch 106/500
11554/11554 [=====] - 3s 230us/sample - loss: 0.0320
- accuracy: 0.9949
Epoch 107/500
11554/11554 [=====] - 5s 410us/sample - loss: 0.0320
- accuracy: 0.9949
Epoch 108/500
11554/11554 [=====] - 5s 415us/sample - loss: 0.0320
- accuracy: 0.9949
Epoch 109/500
11554/11554 [=====] - 3s 268us/sample - loss: 0.0320
- accuracy: 0.9949
Epoch 110/500
11554/11554 [=====] - 3s 264us/sample - loss: 0.0319
- accuracy: 0.9949
Epoch 111/500
11554/11554 [=====] - 4s 306us/sample - loss: 0.0320
```

```
- accuracy: 0.9949
Epoch 112/500
11554/11554 [=====] - 3s 251us/sample - loss: 0.0320
- accuracy: 0.9949
Epoch 113/500
11554/11554 [=====] - 5s 476us/sample - loss: 0.0318
- accuracy: 0.9949
Epoch 114/500
11554/11554 [=====] - 3s 232us/sample - loss: 0.0319
- accuracy: 0.9949
Epoch 115/500
11554/11554 [=====] - 2s 205us/sample - loss: 0.0318
- accuracy: 0.9949
Epoch 116/500
11554/11554 [=====] - 3s 235us/sample - loss: 0.0321
- accuracy: 0.9949
Epoch 117/500
11554/11554 [=====] - 3s 228us/sample - loss: 0.0319
- accuracy: 0.9949
Epoch 118/500
11554/11554 [=====] - 5s 461us/sample - loss: 0.0320
- accuracy: 0.9949
Epoch 119/500
11554/11554 [=====] - 4s 324us/sample - loss: 0.0319
- accuracy: 0.9949
```

```
Epoch 120/500
11554/11554 [=====] - 6s 510us/sample - loss: 0.0319
- accuracy: 0.9949
Epoch 121/500
11554/11554 [=====] - 6s 519us/sample - loss: 0.0318
- accuracy: 0.9949
Epoch 122/500
11554/11554 [=====] - 4s 378us/sample - loss: 0.0320
- accuracy: 0.9949
Epoch 123/500
11554/11554 [=====] - 6s 525us/sample - loss: 0.0318
- accuracy: 0.9949
Epoch 124/500
11554/11554 [=====] - 2s 208us/sample - loss: 0.0318
- accuracy: 0.9949
Epoch 125/500
11554/11554 [=====] - 4s 365us/sample - loss: 0.0319
- accuracy: 0.9949
Epoch 126/500
11554/11554 [=====] - 4s 312us/sample - loss: 0.0318
- accuracy: 0.9949
Epoch 127/500
11554/11554 [=====] - 4s 368us/sample - loss: 0.0320
- accuracy: 0.9949
Epoch 128/500
```

```
11554/11554 [=====] - 2s 178us/sample - loss: 0.0319
- accuracy: 0.9949
Epoch 129/500
11554/11554 [=====] - 3s 233us/sample - loss: 0.0317
- accuracy: 0.9949
Epoch 130/500
11554/11554 [=====] - 2s 193us/sample - loss: 0.0318
- accuracy: 0.9949
Epoch 131/500
11554/11554 [=====] - 4s 332us/sample - loss: 0.0318
- accuracy: 0.9949
Epoch 132/500
11554/11554 [=====] - 6s 510us/sample - loss: 0.0317
- accuracy: 0.9949
Epoch 133/500
11554/11554 [=====] - 3s 269us/sample - loss: 0.0318
- accuracy: 0.9949
Epoch 134/500
11554/11554 [=====] - 6s 524us/sample - loss: 0.0319
- accuracy: 0.9949
Epoch 135/500
11554/11554 [=====] - 3s 267us/sample - loss: 0.0316
- accuracy: 0.9949
Epoch 136/500
11554/11554 [=====] - 4s 327us/sample - loss: 0.0318
```

```
- accuracy: 0.9949
Epoch 137/500
11554/11554 [=====] - 5s 398us/sample - loss: 0.0318
- accuracy: 0.9949
Epoch 138/500
11554/11554 [=====] - 3s 260us/sample - loss: 0.0317
- accuracy: 0.9949
Epoch 139/500
11554/11554 [=====] - 3s 254us/sample - loss: 0.0321
- accuracy: 0.9949
Epoch 140/500
11554/11554 [=====] - 3s 255us/sample - loss: 0.0317
- accuracy: 0.9949
Epoch 141/500
11554/11554 [=====] - 3s 251us/sample - loss: 0.0317
- accuracy: 0.9949
Epoch 142/500
11554/11554 [=====] - 4s 380us/sample - loss: 0.0318
- accuracy: 0.9949
Epoch 143/500
11554/11554 [=====] - 4s 316us/sample - loss: 0.0317
- accuracy: 0.9949
Epoch 144/500
11554/11554 [=====] - 6s 549us/sample - loss: 0.0316
- accuracy: 0.9949
```

```
Epoch 145/500
11554/11554 [=====] - 4s 321us/sample - loss: 0.0318
- accuracy: 0.9949
Epoch 146/500
11554/11554 [=====] - 3s 271us/sample - loss: 0.0316
- accuracy: 0.9949
Epoch 147/500
11554/11554 [=====] - 5s 406us/sample - loss: 0.0317
- accuracy: 0.9949
Epoch 148/500
11554/11554 [=====] - 5s 424us/sample - loss: 0.0317
- accuracy: 0.9949
Epoch 149/500
11554/11554 [=====] - 4s 355us/sample - loss: 0.0317
- accuracy: 0.9949
Epoch 150/500
11554/11554 [=====] - 3s 298us/sample - loss: 0.0317
- accuracy: 0.9949
Epoch 151/500
11554/11554 [=====] - 5s 391us/sample - loss: 0.0319
- accuracy: 0.9949
Epoch 152/500
11554/11554 [=====] - 5s 395us/sample - loss: 0.0316
- accuracy: 0.9949
Epoch 153/500
```

```
11554/11554 [=====] - 3s 270us/sample - loss: 0.0316
- accuracy: 0.9949
Epoch 154/500
11554/11554 [=====] - 4s 345us/sample - loss: 0.0318
- accuracy: 0.9949
Epoch 155/500
11554/11554 [=====] - 5s 429us/sample - loss: 0.0317
- accuracy: 0.9949
Epoch 156/500
11554/11554 [=====] - 3s 251us/sample - loss: 0.0316
- accuracy: 0.9949
Epoch 157/500
11554/11554 [=====] - 3s 259us/sample - loss: 0.0319
- accuracy: 0.9949
Epoch 158/500
11554/11554 [=====] - 3s 247us/sample - loss: 0.0318
- accuracy: 0.9949
Epoch 159/500
11554/11554 [=====] - 4s 374us/sample - loss: 0.0317
- accuracy: 0.9949
Epoch 160/500
11554/11554 [=====] - 2s 204us/sample - loss: 0.0317
- accuracy: 0.9949
Epoch 161/500
11554/11554 [=====] - 5s 426us/sample - loss: 0.0316
```



```
- accuracy: 0.9949
Epoch 162/500
11554/11554 [=====] - 3s 294us/sample - loss: 0.0317
- accuracy: 0.9949
Epoch 163/500
11554/11554 [=====] - 3s 300us/sample - loss: 0.0317
- accuracy: 0.9949
Epoch 164/500
11554/11554 [=====] - 4s 356us/sample - loss: 0.0316
- accuracy: 0.9949
Epoch 165/500
11554/11554 [=====] - 4s 325us/sample - loss: 0.0316
- accuracy: 0.9949
Epoch 166/500
11554/11554 [=====] - 4s 336us/sample - loss: 0.0316
- accuracy: 0.9949
Epoch 167/500
11554/11554 [=====] - 2s 212us/sample - loss: 0.0316
- accuracy: 0.9949
Epoch 168/500
11554/11554 [=====] - 3s 263us/sample - loss: 0.0316
- accuracy: 0.9949
Epoch 169/500
11554/11554 [=====] - 3s 230us/sample - loss: 0.0316
- accuracy: 0.9949
```

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Epoch 170/500
11554/11554 [=====] - 3s 263us/sample - loss: 0.0316
- accuracy: 0.9949
Epoch 171/500
11554/11554 [=====] - 3s 234us/sample - loss: 0.0315
- accuracy: 0.9949
Epoch 172/500
11554/11554 [=====] - 3s 217us/sample - loss: 0.0316
- accuracy: 0.9949
Epoch 173/500
11554/11554 [=====] - 3s 250us/sample - loss: 0.0316
- accuracy: 0.9949
Epoch 174/500
11554/11554 [=====] - 3s 239us/sample - loss: 0.0316
- accuracy: 0.9949
Epoch 175/500
11554/11554 [=====] - 4s 382us/sample - loss: 0.0316
- accuracy: 0.9949
Epoch 176/500
11554/11554 [=====] - 2s 210us/sample - loss: 0.0315
- accuracy: 0.9949
Epoch 177/500
11554/11554 [=====] - 3s 222us/sample - loss: 0.0317
- accuracy: 0.9949
Epoch 178/500
```

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11554/11554 [=====] - 3s 274us/sample - loss: 0.0315
- accuracy: 0.9949
Epoch 179/500
11554/11554 [=====] - 5s 408us/sample - loss: 0.0316
- accuracy: 0.9949
Epoch 180/500
11554/11554 [=====] - 3s 243us/sample - loss: 0.0315
- accuracy: 0.9949
Epoch 181/500
11554/11554 [=====] - 4s 357us/sample - loss: 0.0314
- accuracy: 0.9949
Epoch 182/500
11554/11554 [=====] - 3s 244us/sample - loss: 0.0317
- accuracy: 0.9949
Epoch 183/500
11554/11554 [=====] - 4s 353us/sample - loss: 0.0316
- accuracy: 0.9949
Epoch 184/500
11554/11554 [=====] - 3s 247us/sample - loss: 0.0315
- accuracy: 0.9949
Epoch 185/500
11554/11554 [=====] - 3s 245us/sample - loss: 0.0315
- accuracy: 0.9949
Epoch 186/500
11554/11554 [=====] - 3s 245us/sample - loss: 0.0315
```

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- accuracy: 0.9949
Epoch 187/500
11554/11554 [=====] - 3s 250us/sample - loss: 0.0315
- accuracy: 0.9949
Epoch 188/500
11554/11554 [=====] - 4s 376us/sample - loss: 0.0317
- accuracy: 0.9949
Epoch 189/500
11554/11554 [=====] - 5s 391us/sample - loss: 0.0316
- accuracy: 0.9949
Epoch 190/500
11554/11554 [=====] - 3s 257us/sample - loss: 0.0315
- accuracy: 0.9949
Epoch 191/500
11554/11554 [=====] - 3s 265us/sample - loss: 0.0315
- accuracy: 0.9949
Epoch 192/500
11554/11554 [=====] - 4s 377us/sample - loss: 0.0314
- accuracy: 0.9949
Epoch 193/500
11554/11554 [=====] - 3s 220us/sample - loss: 0.0315
- accuracy: 0.9949
Epoch 194/500
11554/11554 [=====] - 2s 205us/sample - loss: 0.0315
- accuracy: 0.9949
```

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Epoch 195/500
11554/11554 [=====] - 2s 206us/sample - loss: 0.0315
- accuracy: 0.9949
Epoch 196/500
11554/11554 [=====] - 3s 224us/sample - loss: 0.0315
- accuracy: 0.9949
Epoch 197/500
11554/11554 [=====] - 3s 253us/sample - loss: 0.0316
- accuracy: 0.9949
Epoch 198/500
11554/11554 [=====] - 4s 319us/sample - loss: 0.0315
- accuracy: 0.9949
Epoch 199/500
11554/11554 [=====] - 3s 260us/sample - loss: 0.0315
- accuracy: 0.9949
Epoch 200/500
11554/11554 [=====] - 4s 383us/sample - loss: 0.0314
- accuracy: 0.9949
Epoch 201/500
11554/11554 [=====] - 3s 225us/sample - loss: 0.0315
- accuracy: 0.9949
Epoch 202/500
11554/11554 [=====] - 7s 563us/sample - loss: 0.0314
- accuracy: 0.9949
Epoch 203/500
```

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11554/11554 [=====] - 5s 417us/sample - loss: 0.0315
- accuracy: 0.9949
Epoch 204/500
11554/11554 [=====] - 4s 323us/sample - loss: 0.0314
- accuracy: 0.9949
Epoch 205/500
11554/11554 [=====] - 5s 459us/sample - loss: 0.0314
- accuracy: 0.9949
Epoch 206/500
11554/11554 [=====] - 4s 388us/sample - loss: 0.0314
- accuracy: 0.9949
Epoch 207/500
11554/11554 [=====] - 4s 366us/sample - loss: 0.0315
- accuracy: 0.9949
Epoch 208/500
11554/11554 [=====] - 5s 435us/sample - loss: 0.0314
- accuracy: 0.9949
Epoch 209/500
11554/11554 [=====] - 6s 487us/sample - loss: 0.0314
- accuracy: 0.9949
Epoch 210/500
11554/11554 [=====] - 3s 301us/sample - loss: 0.0314
- accuracy: 0.9949
Epoch 211/500
11554/11554 [=====] - 5s 404us/sample - loss: 0.0313
```

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- accuracy: 0.9949
Epoch 212/500
11554/11554 [=====] - 5s 433us/sample - loss: 0.0314
- accuracy: 0.9949
Epoch 213/500
11554/11554 [=====] - 3s 249us/sample - loss: 0.0315
- accuracy: 0.9949
Epoch 214/500
11554/11554 [=====] - 4s 350us/sample - loss: 0.0316
- accuracy: 0.9949
Epoch 215/500
11554/11554 [=====] - 4s 349us/sample - loss: 0.0314
- accuracy: 0.9949
Epoch 216/500
11554/11554 [=====] - 5s 404us/sample - loss: 0.0314
- accuracy: 0.9949
Epoch 217/500
11554/11554 [=====] - 5s 428us/sample - loss: 0.0314
- accuracy: 0.9949
Epoch 218/500
11554/11554 [=====] - 5s 426us/sample - loss: 0.0317
- accuracy: 0.9949
Epoch 219/500
11554/11554 [=====] - 5s 438us/sample - loss: 0.0315
- accuracy: 0.9949
```

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Epoch 220/500
11554/11554 [=====] - 4s 345us/sample - loss: 0.0313
- accuracy: 0.9949
Epoch 221/500
11554/11554 [=====] - 3s 268us/sample - loss: 0.0313
- accuracy: 0.9949
Epoch 222/500
11554/11554 [=====] - 7s 603us/sample - loss: 0.0313
- accuracy: 0.9949
Epoch 223/500
11554/11554 [=====] - 6s 554us/sample - loss: 0.0314
- accuracy: 0.9949
Epoch 224/500
11554/11554 [=====] - 3s 269us/sample - loss: 0.0313
- accuracy: 0.9949
Epoch 225/500
11554/11554 [=====] - 3s 267us/sample - loss: 0.0315
- accuracy: 0.9949
Epoch 226/500
11554/11554 [=====] - 5s 426us/sample - loss: 0.0312
- accuracy: 0.9949
Epoch 227/500
11554/11554 [=====] - 5s 430us/sample - loss: 0.0313
- accuracy: 0.9949
Epoch 228/500
```



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11554/11554 [=====] - 4s 305us/sample - loss: 0.0314
- accuracy: 0.9949
Epoch 229/500
11554/11554 [=====] - 3s 269us/sample - loss: 0.0313
- accuracy: 0.9949
Epoch 230/500
11554/11554 [=====] - 4s 336us/sample - loss: 0.0314
- accuracy: 0.9949
Epoch 231/500
11554/11554 [=====] - 3s 265us/sample - loss: 0.0313
- accuracy: 0.9949
Epoch 232/500
11554/11554 [=====] - 3s 255us/sample - loss: 0.0312
- accuracy: 0.9949
Epoch 233/500
11554/11554 [=====] - 3s 256us/sample - loss: 0.0313
- accuracy: 0.9949
Epoch 234/500
11554/11554 [=====] - 3s 285us/sample - loss: 0.0313
- accuracy: 0.9949
Epoch 235/500
11554/11554 [=====] - 5s 439us/sample - loss: 0.0313
- accuracy: 0.9949
Epoch 236/500
11554/11554 [=====] - 5s 453us/sample - loss: 0.0314
```

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- accuracy: 0.9949
Epoch 237/500
11554/11554 [=====] - 3s 265us/sample - loss: 0.0313
- accuracy: 0.9949
Epoch 238/500
11554/11554 [=====] - 5s 425us/sample - loss: 0.0314
- accuracy: 0.9949
Epoch 239/500
11554/11554 [=====] - 3s 251us/sample - loss: 0.0314
- accuracy: 0.9949
Epoch 240/500
11554/11554 [=====] - 4s 389us/sample - loss: 0.0312
- accuracy: 0.9949
Epoch 241/500
11554/11554 [=====] - 3s 263us/sample - loss: 0.0313
- accuracy: 0.9949
Epoch 242/500
11554/11554 [=====] - 5s 420us/sample - loss: 0.0313
- accuracy: 0.9949
Epoch 243/500
11554/11554 [=====] - 3s 252us/sample - loss: 0.0313
- accuracy: 0.9949
Epoch 244/500
11554/11554 [=====] - 3s 249us/sample - loss: 0.0314
- accuracy: 0.9949
```

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Epoch 245/500
11554/11554 [=====] - 3s 256us/sample - loss: 0.0313
- accuracy: 0.9949
Epoch 246/500
11554/11554 [=====] - 3s 231us/sample - loss: 0.0312
- accuracy: 0.9949
Epoch 247/500
11554/11554 [=====] - 3s 261us/sample - loss: 0.0313
- accuracy: 0.9949
Epoch 248/500
11554/11554 [=====] - 6s 525us/sample - loss: 0.0313
- accuracy: 0.9949
Epoch 249/500
11554/11554 [=====] - 3s 266us/sample - loss: 0.0312
- accuracy: 0.9949
Epoch 250/500
11554/11554 [=====] - 5s 442us/sample - loss: 0.0313
- accuracy: 0.9949
Epoch 251/500
11554/11554 [=====] - 5s 421us/sample - loss: 0.0314
- accuracy: 0.9949
Epoch 252/500
11554/11554 [=====] - 3s 292us/sample - loss: 0.0312
- accuracy: 0.9949
Epoch 253/500
```

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11554/11554 [=====] - 5s 394us/sample - loss: 0.0312
- accuracy: 0.9949
Epoch 254/500
11554/11554 [=====] - 6s 477us/sample - loss: 0.0313
- accuracy: 0.9949
Epoch 255/500
11554/11554 [=====] - 4s 364us/sample - loss: 0.0311
- accuracy: 0.9949
Epoch 256/500
11554/11554 [=====] - 4s 372us/sample - loss: 0.0312
- accuracy: 0.9949
Epoch 257/500
11554/11554 [=====] - 2s 202us/sample - loss: 0.0313
- accuracy: 0.9949
Epoch 258/500
11554/11554 [=====] - 3s 298us/sample - loss: 0.0312
- accuracy: 0.9949
Epoch 259/500
11554/11554 [=====] - 4s 378us/sample - loss: 0.0311
- accuracy: 0.9949
Epoch 260/500
11554/11554 [=====] - 2s 214us/sample - loss: 0.0313
- accuracy: 0.9949
Epoch 261/500
11554/11554 [=====] - 3s 256us/sample - loss: 0.0312
```

```
- accuracy: 0.9949
Epoch 262/500
11554/11554 [=====] - 5s 469us/sample - loss: 0.0312
- accuracy: 0.9949
Epoch 263/500
11554/11554 [=====] - 5s 408us/sample - loss: 0.0312
- accuracy: 0.9949
Epoch 264/500
11554/11554 [=====] - 3s 235us/sample - loss: 0.0312
- accuracy: 0.9949
Epoch 265/500
11554/11554 [=====] - 3s 221us/sample - loss: 0.0312
- accuracy: 0.9949
Epoch 266/500
11554/11554 [=====] - 2s 176us/sample - loss: 0.0311
- accuracy: 0.9949
Epoch 267/500
11554/11554 [=====] - 2s 215us/sample - loss: 0.0312
- accuracy: 0.9949
Epoch 268/500
11554/11554 [=====] - 2s 159us/sample - loss: 0.0312
- accuracy: 0.9949
Epoch 269/500
11554/11554 [=====] - 3s 268us/sample - loss: 0.0311
- accuracy: 0.9949
```

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Epoch 270/500
11554/11554 [=====] - 2s 203us/sample - loss: 0.0312
- accuracy: 0.9949
Epoch 271/500
11554/11554 [=====] - 4s 362us/sample - loss: 0.0311
- accuracy: 0.9949
Epoch 272/500
11554/11554 [=====] - 4s 341us/sample - loss: 0.0312
- accuracy: 0.9949
Epoch 273/500
11554/11554 [=====] - 2s 202us/sample - loss: 0.0312
- accuracy: 0.9949
Epoch 274/500
11554/11554 [=====] - 4s 307us/sample - loss: 0.0312
- accuracy: 0.9949
Epoch 275/500
11554/11554 [=====] - 5s 407us/sample - loss: 0.0312
- accuracy: 0.9949
Epoch 276/500
11554/11554 [=====] - 2s 201us/sample - loss: 0.0311
- accuracy: 0.9949
Epoch 277/500
11554/11554 [=====] - 2s 199us/sample - loss: 0.0313
- accuracy: 0.9949
Epoch 278/500
```

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11554/11554 [=====] - 2s 205us/sample - loss: 0.0314
- accuracy: 0.9949
Epoch 279/500
11554/11554 [=====] - 2s 213us/sample - loss: 0.0311
- accuracy: 0.9949
Epoch 280/500
11554/11554 [=====] - 4s 365us/sample - loss: 0.0311
- accuracy: 0.9949
Epoch 281/500
11554/11554 [=====] - 4s 310us/sample - loss: 0.0311
- accuracy: 0.9949
Epoch 282/500
11554/11554 [=====] - 2s 180us/sample - loss: 0.0312
- accuracy: 0.9949
Epoch 283/500
11554/11554 [=====] - 4s 330us/sample - loss: 0.0312
- accuracy: 0.9949
Epoch 284/500
11554/11554 [=====] - 3s 301us/sample - loss: 0.0312
- accuracy: 0.9949
Epoch 285/500
11554/11554 [=====] - 4s 354us/sample - loss: 0.0311
- accuracy: 0.9949
Epoch 286/500
11554/11554 [=====] - 4s 389us/sample - loss: 0.0311
```

```
- accuracy: 0.9949
Epoch 287/500
11554/11554 [=====] - 4s 310us/sample - loss: 0.0311
- accuracy: 0.9949
Epoch 288/500
11554/11554 [=====] - 4s 333us/sample - loss: 0.0312
- accuracy: 0.9949
Epoch 289/500
11554/11554 [=====] - 2s 153us/sample - loss: 0.0311
- accuracy: 0.9949
Epoch 290/500
11554/11554 [=====] - 4s 317us/sample - loss: 0.0311
- accuracy: 0.9949
Epoch 291/500
11554/11554 [=====] - 2s 162us/sample - loss: 0.0311
- accuracy: 0.9949
Epoch 292/500
11554/11554 [=====] - 3s 222us/sample - loss: 0.0311
- accuracy: 0.9949
Epoch 293/500
11554/11554 [=====] - 3s 302us/sample - loss: 0.0311
- accuracy: 0.9949
Epoch 294/500
11554/11554 [=====] - 4s 337us/sample - loss: 0.0311
- accuracy: 0.9949
```



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Epoch 295/500
11554/11554 [=====] - 2s 163us/sample - loss: 0.0310
- accuracy: 0.9949
Epoch 296/500
11554/11554 [=====] - 4s 332us/sample - loss: 0.0311
- accuracy: 0.9949
Epoch 297/500
11554/11554 [=====] - 2s 206us/sample - loss: 0.0309
- accuracy: 0.9949
Epoch 298/500
11554/11554 [=====] - 2s 199us/sample - loss: 0.0312
- accuracy: 0.9949
Epoch 299/500
11554/11554 [=====] - 2s 184us/sample - loss: 0.0310
- accuracy: 0.9949
Epoch 300/500
11554/11554 [=====] - 4s 338us/sample - loss: 0.0310
- accuracy: 0.9949
Epoch 301/500
11554/11554 [=====] - 2s 174us/sample - loss: 0.0310
- accuracy: 0.9949
Epoch 302/500
11554/11554 [=====] - 2s 198us/sample - loss: 0.0311
- accuracy: 0.9949
Epoch 303/500
```

```
11554/11554 [=====] - 2s 186us/sample - loss: 0.0310
- accuracy: 0.9949
Epoch 304/500
11554/11554 [=====] - 3s 219us/sample - loss: 0.0310
- accuracy: 0.9949
Epoch 305/500
11554/11554 [=====] - 4s 374us/sample - loss: 0.0311
- accuracy: 0.9949
Epoch 306/500
11554/11554 [=====] - 4s 339us/sample - loss: 0.0311
- accuracy: 0.9949
Epoch 307/500
11554/11554 [=====] - 2s 180us/sample - loss: 0.0311
- accuracy: 0.9949
Epoch 308/500
11554/11554 [=====] - 4s 323us/sample - loss: 0.0309
- accuracy: 0.9949
Epoch 309/500
11554/11554 [=====] - 2s 175us/sample - loss: 0.0310
- accuracy: 0.9949
Epoch 310/500
11554/11554 [=====] - 2s 194us/sample - loss: 0.0310
- accuracy: 0.9949
Epoch 311/500
11554/11554 [=====] - 2s 182us/sample - loss: 0.0311
```

```
- accuracy: 0.9949
Epoch 312/500
11554/11554 [=====] - 4s 328us/sample - loss: 0.0311
- accuracy: 0.9949
Epoch 313/500
11554/11554 [=====] - 2s 160us/sample - loss: 0.0311
- accuracy: 0.9949
Epoch 314/500
11554/11554 [=====] - 2s 141us/sample - loss: 0.0310
- accuracy: 0.9949
Epoch 315/500
11554/11554 [=====] - 3s 276us/sample - loss: 0.0313
- accuracy: 0.9949
Epoch 316/500
11554/11554 [=====] - 2s 178us/sample - loss: 0.0309
- accuracy: 0.9949
Epoch 317/500
11554/11554 [=====] - 3s 293us/sample - loss: 0.0310
- accuracy: 0.9949
Epoch 318/500
11554/11554 [=====] - 6s 484us/sample - loss: 0.0309
- accuracy: 0.9949
Epoch 319/500
11554/11554 [=====] - 3s 224us/sample - loss: 0.0310
- accuracy: 0.9949
```

```
Epoch 320/500
11554/11554 [=====] - 2s 175us/sample - loss: 0.0309
- accuracy: 0.9949
Epoch 321/500
11554/11554 [=====] - 4s 323us/sample - loss: 0.0311
- accuracy: 0.9949
Epoch 322/500
11554/11554 [=====] - 3s 236us/sample - loss: 0.0313
- accuracy: 0.9949
Epoch 323/500
11554/11554 [=====] - 3s 232us/sample - loss: 0.0311
- accuracy: 0.9949
Epoch 324/500
11554/11554 [=====] - 2s 170us/sample - loss: 0.0310
- accuracy: 0.9949
Epoch 325/500
11554/11554 [=====] - 3s 253us/sample - loss: 0.0310
- accuracy: 0.9949
Epoch 326/500
11554/11554 [=====] - 2s 197us/sample - loss: 0.0310
- accuracy: 0.9949
Epoch 327/500
11554/11554 [=====] - 2s 206us/sample - loss: 0.0309
- accuracy: 0.9949
Epoch 328/500
```

```
11554/11554 [=====] - 2s 191us/sample - loss: 0.0311
- accuracy: 0.9949
Epoch 329/500
11554/11554 [=====] - 4s 310us/sample - loss: 0.0309
- accuracy: 0.9949
Epoch 330/500
11554/11554 [=====] - 3s 302us/sample - loss: 0.0309
- accuracy: 0.9949
Epoch 331/500
11554/11554 [=====] - 4s 313us/sample - loss: 0.0309
- accuracy: 0.9949
Epoch 332/500
11554/11554 [=====] - 2s 195us/sample - loss: 0.0310
- accuracy: 0.9949
Epoch 333/500
11554/11554 [=====] - 4s 387us/sample - loss: 0.0309
- accuracy: 0.9949
Epoch 334/500
11554/11554 [=====] - 3s 303us/sample - loss: 0.0310
- accuracy: 0.9949
Epoch 335/500
11554/11554 [=====] - 4s 322us/sample - loss: 0.0310
- accuracy: 0.9949
Epoch 336/500
11554/11554 [=====] - 4s 333us/sample - loss: 0.0310
```

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- accuracy: 0.9949
Epoch 337/500
11554/11554 [=====] - 2s 182us/sample - loss: 0.0309
- accuracy: 0.9949
Epoch 338/500
11554/11554 [=====] - 2s 213us/sample - loss: 0.0309
- accuracy: 0.9949
Epoch 339/500
11554/11554 [=====] - 4s 311us/sample - loss: 0.0310
- accuracy: 0.9949
Epoch 340/500
11554/11554 [=====] - 2s 164us/sample - loss: 0.0309
- accuracy: 0.9949
Epoch 341/500
11554/11554 [=====] - 2s 180us/sample - loss: 0.0310
- accuracy: 0.9949
Epoch 342/500
11554/11554 [=====] - 2s 187us/sample - loss: 0.0310
- accuracy: 0.9949
Epoch 343/500
11554/11554 [=====] - 2s 212us/sample - loss: 0.0308
- accuracy: 0.9949
Epoch 344/500
11554/11554 [=====] - 2s 186us/sample - loss: 0.0310
- accuracy: 0.9949
```

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Epoch 345/500
11554/11554 [=====] - 4s 357us/sample - loss: 0.0309
- accuracy: 0.9949
Epoch 346/500
11554/11554 [=====] - 3s 217us/sample - loss: 0.0310
- accuracy: 0.9949
Epoch 347/500
11554/11554 [=====] - 5s 473us/sample - loss: 0.0309
- accuracy: 0.9949
Epoch 348/500
11554/11554 [=====] - 3s 295us/sample - loss: 0.0306
- accuracy: 0.9949
Epoch 349/500
11554/11554 [=====] - 4s 310us/sample - loss: 0.0309
- accuracy: 0.9949
Epoch 350/500
11554/11554 [=====] - 2s 186us/sample - loss: 0.0307
- accuracy: 0.9949
Epoch 351/500
11554/11554 [=====] - 2s 199us/sample - loss: 0.0310
- accuracy: 0.9949
Epoch 352/500
11554/11554 [=====] - 4s 353us/sample - loss: 0.0309
- accuracy: 0.9949
Epoch 353/500
```

```
11554/11554 [=====] - 4s 347us/sample - loss: 0.0310
- accuracy: 0.9949
Epoch 354/500
11554/11554 [=====] - 3s 301us/sample - loss: 0.0309
- accuracy: 0.9949
Epoch 355/500
11554/11554 [=====] - 5s 421us/sample - loss: 0.0309
- accuracy: 0.9949
Epoch 356/500
11554/11554 [=====] - 2s 185us/sample - loss: 0.0309
- accuracy: 0.9949
Epoch 357/500
11554/11554 [=====] - 2s 176us/sample - loss: 0.0308
- accuracy: 0.9949
Epoch 358/500
11554/11554 [=====] - 2s 185us/sample - loss: 0.0309
- accuracy: 0.9949
Epoch 359/500
11554/11554 [=====] - 2s 170us/sample - loss: 0.0308
- accuracy: 0.9949
Epoch 360/500
11554/11554 [=====] - 2s 181us/sample - loss: 0.0309
- accuracy: 0.9949
Epoch 361/500
11554/11554 [=====] - 4s 344us/sample - loss: 0.0308
```



```
- accuracy: 0.9949
Epoch 362/500
11554/11554 [=====] - 4s 382us/sample - loss: 0.0308
- accuracy: 0.9949
Epoch 363/500
11554/11554 [=====] - 2s 189us/sample - loss: 0.0309
- accuracy: 0.9949
Epoch 364/500
11554/11554 [=====] - 2s 192us/sample - loss: 0.0309
- accuracy: 0.9949
Epoch 365/500
11554/11554 [=====] - 2s 208us/sample - loss: 0.0308
- accuracy: 0.9949
Epoch 366/500
11554/11554 [=====] - 2s 195us/sample - loss: 0.0309
- accuracy: 0.9949
Epoch 367/500
11554/11554 [=====] - 3s 225us/sample - loss: 0.0308
- accuracy: 0.9949
Epoch 368/500
11554/11554 [=====] - 3s 292us/sample - loss: 0.0308
- accuracy: 0.9949
Epoch 369/500
11554/11554 [=====] - 3s 221us/sample - loss: 0.0309
- accuracy: 0.9949
```

```
Epoch 370/500
11554/11554 [=====] - 3s 230us/sample - loss: 0.0308
- accuracy: 0.9949
Epoch 371/500
11554/11554 [=====] - 3s 237us/sample - loss: 0.0308
- accuracy: 0.9949
Epoch 372/500
11554/11554 [=====] - 4s 314us/sample - loss: 0.0311
- accuracy: 0.9949
Epoch 373/500
11554/11554 [=====] - 5s 424us/sample - loss: 0.0308
- accuracy: 0.9949
Epoch 374/500
11554/11554 [=====] - 3s 263us/sample - loss: 0.0307
- accuracy: 0.9949
Epoch 375/500
11554/11554 [=====] - 3s 289us/sample - loss: 0.0308
- accuracy: 0.9949
Epoch 376/500
11554/11554 [=====] - 3s 277us/sample - loss: 0.0308
- accuracy: 0.9949
Epoch 377/500
11554/11554 [=====] - 4s 338us/sample - loss: 0.0306
- accuracy: 0.9949
Epoch 378/500
```

```
11554/11554 [=====] - 3s 293us/sample - loss: 0.0309
- accuracy: 0.9949
Epoch 379/500
11554/11554 [=====] - 2s 188us/sample - loss: 0.0307
- accuracy: 0.9949
Epoch 380/500
11554/11554 [=====] - 2s 210us/sample - loss: 0.0308
- accuracy: 0.9949
Epoch 381/500
11554/11554 [=====] - 3s 219us/sample - loss: 0.0307
- accuracy: 0.9949
Epoch 382/500
11554/11554 [=====] - 4s 336us/sample - loss: 0.0307
- accuracy: 0.9949
Epoch 383/500
11554/11554 [=====] - 6s 493us/sample - loss: 0.0310
- accuracy: 0.9949
Epoch 384/500
11554/11554 [=====] - 7s 563us/sample - loss: 0.0308
- accuracy: 0.9949
Epoch 385/500
11554/11554 [=====] - 6s 515us/sample - loss: 0.0308
- accuracy: 0.9949
Epoch 386/500
11554/11554 [=====] - 4s 345us/sample - loss: 0.0308
```

```
- accuracy: 0.9949
Epoch 387/500
11554/11554 [=====] - 3s 272us/sample - loss: 0.0307
- accuracy: 0.9949
Epoch 388/500
11554/11554 [=====] - 4s 340us/sample - loss: 0.0308
- accuracy: 0.9948
Epoch 389/500
11554/11554 [=====] - 2s 180us/sample - loss: 0.0308
- accuracy: 0.9949
Epoch 390/500
11554/11554 [=====] - 2s 174us/sample - loss: 0.0307
- accuracy: 0.9949
Epoch 391/500
11554/11554 [=====] - 6s 506us/sample - loss: 0.0307
- accuracy: 0.9949
Epoch 392/500
11554/11554 [=====] - 4s 376us/sample - loss: 0.0309
- accuracy: 0.9949
Epoch 393/500
11554/11554 [=====] - 5s 391us/sample - loss: 0.0307
- accuracy: 0.9949
Epoch 394/500
11554/11554 [=====] - 3s 297us/sample - loss: 0.0306
- accuracy: 0.9949
```

```
Epoch 395/500
11554/11554 [=====] - 3s 281us/sample - loss: 0.0308
- accuracy: 0.9949
Epoch 396/500
11554/11554 [=====] - 4s 309us/sample - loss: 0.0308
- accuracy: 0.9949
Epoch 397/500
11554/11554 [=====] - 3s 283us/sample - loss: 0.0306
- accuracy: 0.9949
Epoch 398/500
11554/11554 [=====] - 4s 353us/sample - loss: 0.0307
- accuracy: 0.9949
Epoch 399/500
11554/11554 [=====] - 4s 304us/sample - loss: 0.0306
- accuracy: 0.9949
Epoch 400/500
11554/11554 [=====] - 3s 288us/sample - loss: 0.0307
- accuracy: 0.9949
Epoch 401/500
11554/11554 [=====] - 3s 253us/sample - loss: 0.0309
- accuracy: 0.9949
Epoch 402/500
11554/11554 [=====] - 3s 243us/sample - loss: 0.0307
- accuracy: 0.9949
Epoch 403/500
```

```
11554/11554 [=====] - 3s 252us/sample - loss: 0.0308
- accuracy: 0.9949
Epoch 404/500
11554/11554 [=====] - 3s 239us/sample - loss: 0.0307
- accuracy: 0.9949
Epoch 405/500
11554/11554 [=====] - 3s 253us/sample - loss: 0.0307
- accuracy: 0.9949
Epoch 406/500
11554/11554 [=====] - 3s 247us/sample - loss: 0.0307
- accuracy: 0.9949
Epoch 407/500
11554/11554 [=====] - 3s 262us/sample - loss: 0.0306
- accuracy: 0.9949
Epoch 408/500
11554/11554 [=====] - 3s 243us/sample - loss: 0.0307
- accuracy: 0.9949
Epoch 409/500
11554/11554 [=====] - 3s 261us/sample - loss: 0.0308
- accuracy: 0.9949
Epoch 410/500
11554/11554 [=====] - 3s 244us/sample - loss: 0.0304
- accuracy: 0.9949
Epoch 411/500
11554/11554 [=====] - 3s 262us/sample - loss: 0.0308
```

```
- accuracy: 0.9949
Epoch 412/500
11554/11554 [=====] - 3s 245us/sample - loss: 0.0309
- accuracy: 0.9949
Epoch 413/500
11554/11554 [=====] - 3s 248us/sample - loss: 0.0308
- accuracy: 0.9949
Epoch 414/500
11554/11554 [=====] - 3s 250us/sample - loss: 0.0308
- accuracy: 0.9949
Epoch 415/500
11554/11554 [=====] - 3s 260us/sample - loss: 0.0307
- accuracy: 0.9949
Epoch 416/500
11554/11554 [=====] - 3s 272us/sample - loss: 0.0306
- accuracy: 0.9949
Epoch 417/500
11554/11554 [=====] - 3s 257us/sample - loss: 0.0307
- accuracy: 0.9949
Epoch 418/500
11554/11554 [=====] - 3s 241us/sample - loss: 0.0307
- accuracy: 0.9949
Epoch 419/500
11554/11554 [=====] - 3s 248us/sample - loss: 0.0307
- accuracy: 0.9949
```

```
Epoch 420/500
11554/11554 [=====] - 3s 245us/sample - loss: 0.0307
- accuracy: 0.9949
Epoch 421/500
11554/11554 [=====] - 3s 245us/sample - loss: 0.0306
- accuracy: 0.9949
Epoch 422/500
11554/11554 [=====] - 3s 249us/sample - loss: 0.0307
- accuracy: 0.9949
Epoch 423/500
11554/11554 [=====] - 3s 235us/sample - loss: 0.0307
- accuracy: 0.9949
Epoch 424/500
11554/11554 [=====] - 3s 254us/sample - loss: 0.0306
- accuracy: 0.9949
Epoch 425/500
11554/11554 [=====] - 3s 225us/sample - loss: 0.0306
- accuracy: 0.9949
Epoch 426/500
11554/11554 [=====] - 3s 264us/sample - loss: 0.0307
- accuracy: 0.9949
Epoch 427/500
11554/11554 [=====] - 3s 227us/sample - loss: 0.0306
- accuracy: 0.9949
Epoch 428/500
```



```
11554/11554 [=====] - 3s 266us/sample - loss: 0.0306
- accuracy: 0.9949
Epoch 429/500
11554/11554 [=====] - 3s 224us/sample - loss: 0.0306
- accuracy: 0.9949
Epoch 430/500
11554/11554 [=====] - 3s 262us/sample - loss: 0.0307
- accuracy: 0.9949
Epoch 431/500
11554/11554 [=====] - 3s 264us/sample - loss: 0.0306
- accuracy: 0.9949
Epoch 432/500
11554/11554 [=====] - 3s 285us/sample - loss: 0.0305
- accuracy: 0.9949
Epoch 433/500
11554/11554 [=====] - 3s 231us/sample - loss: 0.0306
- accuracy: 0.9949
Epoch 434/500
11554/11554 [=====] - 3s 260us/sample - loss: 0.0306
- accuracy: 0.9949
Epoch 435/500
11554/11554 [=====] - 3s 237us/sample - loss: 0.0307
- accuracy: 0.9949
Epoch 436/500
11554/11554 [=====] - 3s 278us/sample - loss: 0.0306
```

```
- accuracy: 0.9949
Epoch 437/500
11554/11554 [=====] - 3s 230us/sample - loss: 0.0306
- accuracy: 0.9949
Epoch 438/500
11554/11554 [=====] - 3s 266us/sample - loss: 0.0305
- accuracy: 0.9949
Epoch 439/500
11554/11554 [=====] - 3s 232us/sample - loss: 0.0306
- accuracy: 0.9949
Epoch 440/500
11554/11554 [=====] - 3s 267us/sample - loss: 0.0307
- accuracy: 0.9949
Epoch 441/500
11554/11554 [=====] - 3s 231us/sample - loss: 0.0306
- accuracy: 0.9949
Epoch 442/500
11554/11554 [=====] - 3s 263us/sample - loss: 0.0306
- accuracy: 0.9949
Epoch 443/500
11554/11554 [=====] - 3s 231us/sample - loss: 0.0306
- accuracy: 0.9949
Epoch 444/500
11554/11554 [=====] - 3s 273us/sample - loss: 0.0305
- accuracy: 0.9949
```

```
Epoch 445/500
11554/11554 [=====] - 3s 236us/sample - loss: 0.0304
- accuracy: 0.9949
Epoch 446/500
11554/11554 [=====] - 3s 267us/sample - loss: 0.0306
- accuracy: 0.9949
Epoch 447/500
11554/11554 [=====] - 3s 237us/sample - loss: 0.0306
- accuracy: 0.9949
Epoch 448/500
11554/11554 [=====] - 3s 264us/sample - loss: 0.0306
- accuracy: 0.9949
Epoch 449/500
11554/11554 [=====] - 3s 235us/sample - loss: 0.0304
- accuracy: 0.9949
Epoch 450/500
11554/11554 [=====] - 3s 272us/sample - loss: 0.0307
- accuracy: 0.9949
Epoch 451/500
11554/11554 [=====] - 3s 244us/sample - loss: 0.0305
- accuracy: 0.9949
Epoch 452/500
11554/11554 [=====] - 3s 275us/sample - loss: 0.0305
- accuracy: 0.9949
Epoch 453/500
```

```
11554/11554 [=====] - 3s 234us/sample - loss: 0.0306
- accuracy: 0.9949
Epoch 454/500
11554/11554 [=====] - 3s 264us/sample - loss: 0.0304
- accuracy: 0.9949
Epoch 455/500
11554/11554 [=====] - 3s 230us/sample - loss: 0.0307
- accuracy: 0.9949
Epoch 456/500
11554/11554 [=====] - 3s 258us/sample - loss: 0.0306
- accuracy: 0.9949
Epoch 457/500
11554/11554 [=====] - 3s 245us/sample - loss: 0.0304
- accuracy: 0.9949
Epoch 458/500
11554/11554 [=====] - 3s 265us/sample - loss: 0.0302
- accuracy: 0.9949
Epoch 459/500
11554/11554 [=====] - 3s 242us/sample - loss: 0.0306
- accuracy: 0.9949
Epoch 460/500
11554/11554 [=====] - 3s 261us/sample - loss: 0.0306
- accuracy: 0.9949
Epoch 461/500
11554/11554 [=====] - 3s 238us/sample - loss: 0.0305
```

```
- accuracy: 0.9949
Epoch 462/500
11554/11554 [=====] - 3s 263us/sample - loss: 0.0304
- accuracy: 0.9949
Epoch 463/500
11554/11554 [=====] - 3s 243us/sample - loss: 0.0306
- accuracy: 0.9949
Epoch 464/500
11554/11554 [=====] - 3s 273us/sample - loss: 0.0306
- accuracy: 0.9949
Epoch 465/500
11554/11554 [=====] - 3s 237us/sample - loss: 0.0307
- accuracy: 0.9949
Epoch 466/500
11554/11554 [=====] - 3s 251us/sample - loss: 0.0305
- accuracy: 0.9949
Epoch 467/500
11554/11554 [=====] - 3s 242us/sample - loss: 0.0305
- accuracy: 0.9949
Epoch 468/500
11554/11554 [=====] - 3s 256us/sample - loss: 0.0305
- accuracy: 0.9949
Epoch 469/500
11554/11554 [=====] - 3s 240us/sample - loss: 0.0305
- accuracy: 0.9949
```

```
Epoch 470/500
11554/11554 [=====] - 3s 261us/sample - loss: 0.0305
- accuracy: 0.9949
Epoch 471/500
11554/11554 [=====] - 3s 241us/sample - loss: 0.0305
- accuracy: 0.9949
Epoch 472/500
11554/11554 [=====] - 3s 256us/sample - loss: 0.0303
- accuracy: 0.9949
Epoch 473/500
11554/11554 [=====] - 3s 246us/sample - loss: 0.0304
- accuracy: 0.9949
Epoch 474/500
11554/11554 [=====] - 3s 262us/sample - loss: 0.0304
- accuracy: 0.9949
Epoch 475/500
11554/11554 [=====] - 3s 240us/sample - loss: 0.0305
- accuracy: 0.9949
Epoch 476/500
11554/11554 [=====] - 3s 256us/sample - loss: 0.0304
- accuracy: 0.9949
Epoch 477/500
11554/11554 [=====] - 3s 237us/sample - loss: 0.0304
- accuracy: 0.9949
Epoch 478/500
```

```
11554/11554 [=====] - 3s 259us/sample - loss: 0.0305
- accuracy: 0.9949
Epoch 479/500
11554/11554 [=====] - 3s 244us/sample - loss: 0.0307
- accuracy: 0.9949
Epoch 480/500
11554/11554 [=====] - 3s 256us/sample - loss: 0.0305
- accuracy: 0.9949
Epoch 481/500
11554/11554 [=====] - 3s 237us/sample - loss: 0.0305
- accuracy: 0.9949
Epoch 482/500
11554/11554 [=====] - 3s 254us/sample - loss: 0.0304
- accuracy: 0.9949
Epoch 483/500
11554/11554 [=====] - 3s 239us/sample - loss: 0.0304
- accuracy: 0.9949
Epoch 484/500
11554/11554 [=====] - 3s 292us/sample - loss: 0.0304
- accuracy: 0.9949
Epoch 485/500
11554/11554 [=====] - 3s 243us/sample - loss: 0.0305
- accuracy: 0.9949
Epoch 486/500
11554/11554 [=====] - 3s 254us/sample - loss: 0.0305
```

```
- accuracy: 0.9949
Epoch 487/500
11554/11554 [=====] - 3s 240us/sample - loss: 0.0304
- accuracy: 0.9949
Epoch 488/500
11554/11554 [=====] - 3s 247us/sample - loss: 0.0305
- accuracy: 0.9949
Epoch 489/500
11554/11554 [=====] - 3s 238us/sample - loss: 0.0306
- accuracy: 0.9949
Epoch 490/500
11554/11554 [=====] - 3s 250us/sample - loss: 0.0305
- accuracy: 0.9949
Epoch 491/500
11554/11554 [=====] - 3s 244us/sample - loss: 0.0304
- accuracy: 0.9949
Epoch 492/500
11554/11554 [=====] - 3s 245us/sample - loss: 0.0304
- accuracy: 0.9949
Epoch 493/500
11554/11554 [=====] - 3s 246us/sample - loss: 0.0304
- accuracy: 0.9949
Epoch 494/500
11554/11554 [=====] - 3s 237us/sample - loss: 0.0305
- accuracy: 0.9949
```



```
Epoch 495/500
11554/11554 [=====] - 3s 264us/sample - loss: 0.0304
- accuracy: 0.9949
Epoch 496/500
11554/11554 [=====] - 3s 236us/sample - loss: 0.0306
- accuracy: 0.9949
Epoch 497/500
11554/11554 [=====] - 3s 261us/sample - loss: 0.0304
- accuracy: 0.9949
Epoch 498/500
11554/11554 [=====] - 3s 234us/sample - loss: 0.0305
- accuracy: 0.9949
Epoch 499/500
11554/11554 [=====] - 3s 270us/sample - loss: 0.0305
- accuracy: 0.9949
Epoch 500/500
11554/11554 [=====] - 3s 231us/sample - loss: 0.0302
- accuracy: 0.9949
2872/2872 [=====] - 1s 217us/sample

class_weight_Fold_1: {0: 0.40205306655067424, 1: 117.49830508474575}
```

```
pos_weight: 0.6
thresholdNum: 0.5
```

Average of train loss Fold_1: 0.0429
Average of yPredProbability Fold_1: 0.0043

classification_report_Fold_1:				
	precision	recall	f1-score	support
Normal 0	0.99	1.00	1.00	2845
Anomaly 1	0.00	0.00	0.00	27
accuracy				
macro avg	0.50	0.50	0.99	2872
weighted avg	0.98	0.99	0.50	2872
			0.99	2872

confusion_matrix_Fold_1:
True Negatives: 2845
False Positives: 0
False Negatives: 27
True Positives: 0

End running time Fold_1: 210508_004108 ,-----.

Start running time Fold_2: 210508_004108 ,-----:

Shape of Actual yXtrainRolled After Rolling Fold_2: (23070, 60)

Shape of Actual yXvalidShifted dataset: (2892, 60)

Shape of Actual yXvalidRolled After Rolling Fold_2: (5782, 60)

-----*** Train modelEvaluateVal without adding Augmented data
***-----

Shape of data after Transform ToOneRow to give Cross Validation Model in
fold_2:

xtrain: (11535, 118), ytrain: (11535,)

xvalid: (2891, 118), yvalid: (2891,)

Number of final label 0 in yXtrain_Fold_2: 11459

Number of final label 1 in yXtrain_Before_AddingAugedData_Fold_2: 76

Number of final label 1 in yXtrain_After_AddingAugedData_Fold_2: 76

Train on 11535 samples

Epoch 1/500

```
11535/11535 [=====] - 5s 413us/sample - loss: 2.9979
- accuracy: 0.9933
Epoch 2/500
11535/11535 [=====] - 3s 223us/sample - loss: 1.3688
- accuracy: 0.9934
Epoch 3/500
11535/11535 [=====] - 3s 261us/sample - loss: 0.5891
- accuracy: 0.9934
Epoch 4/500
11535/11535 [=====] - 3s 226us/sample - loss: 0.2538
- accuracy: 0.9934
Epoch 5/500
11535/11535 [=====] - 3s 256us/sample - loss: 0.1218
- accuracy: 0.9934
Epoch 6/500
11535/11535 [=====] - 3s 230us/sample - loss: 0.0740
- accuracy: 0.9934
Epoch 7/500
11535/11535 [=====] - 3s 251us/sample - loss: 0.0568
- accuracy: 0.9934
Epoch 8/500
11535/11535 [=====] - 3s 236us/sample - loss: 0.0508
- accuracy: 0.9934
Epoch 9/500
11535/11535 [=====] - 3s 252us/sample - loss: 0.0486
```

```
- accuracy: 0.9934
Epoch 10/500
11535/11535 [=====] - 3s 234us/sample - loss: 0.0475
- accuracy: 0.9934
Epoch 11/500
11535/11535 [=====] - 3s 251us/sample - loss: 0.0467
- accuracy: 0.9934
Epoch 12/500
11535/11535 [=====] - 3s 239us/sample - loss: 0.0465
- accuracy: 0.9934
Epoch 13/500
11535/11535 [=====] - 3s 248us/sample - loss: 0.0457
- accuracy: 0.9934
Epoch 14/500
11535/11535 [=====] - 3s 236us/sample - loss: 0.0457
- accuracy: 0.9934
Epoch 15/500
11535/11535 [=====] - 3s 253us/sample - loss: 0.0451
- accuracy: 0.9934
Epoch 16/500
11535/11535 [=====] - 3s 230us/sample - loss: 0.0451
- accuracy: 0.9934
Epoch 17/500
11535/11535 [=====] - 3s 243us/sample - loss: 0.0445
- accuracy: 0.9934
```

```
Epoch 18/500
11535/11535 [=====] - 3s 251us/sample - loss: 0.0443
- accuracy: 0.9934
Epoch 19/500
11535/11535 [=====] - 3s 252us/sample - loss: 0.0441
- accuracy: 0.9934
Epoch 20/500
11535/11535 [=====] - 3s 244us/sample - loss: 0.0440
- accuracy: 0.9934
Epoch 21/500
11535/11535 [=====] - 3s 225us/sample - loss: 0.0437
- accuracy: 0.9934
Epoch 22/500
11535/11535 [=====] - 3s 257us/sample - loss: 0.0438
- accuracy: 0.9934
Epoch 23/500
11535/11535 [=====] - 3s 220us/sample - loss: 0.0432
- accuracy: 0.9934
Epoch 24/500
11535/11535 [=====] - 3s 259us/sample - loss: 0.0430
- accuracy: 0.9934
Epoch 25/500
11535/11535 [=====] - 3s 225us/sample - loss: 0.0428
- accuracy: 0.9934
Epoch 26/500
```

```
11535/11535 [=====] - 3s 272us/sample - loss: 0.0429
- accuracy: 0.9934
Epoch 27/500
11535/11535 [=====] - 3s 226us/sample - loss: 0.0423
- accuracy: 0.9934
Epoch 28/500
11535/11535 [=====] - 3s 275us/sample - loss: 0.0422
- accuracy: 0.9934
Epoch 29/500
11535/11535 [=====] - 3s 227us/sample - loss: 0.0421
- accuracy: 0.9934
Epoch 30/500
11535/11535 [=====] - 3s 274us/sample - loss: 0.0419
- accuracy: 0.9934
Epoch 31/500
11535/11535 [=====] - 3s 224us/sample - loss: 0.0417
- accuracy: 0.9934
Epoch 32/500
11535/11535 [=====] - 3s 270us/sample - loss: 0.0416
- accuracy: 0.9934
Epoch 33/500
11535/11535 [=====] - 3s 228us/sample - loss: 0.0415
- accuracy: 0.9934
Epoch 34/500
11535/11535 [=====] - 3s 258us/sample - loss: 0.0419
```

```
- accuracy: 0.9934
Epoch 35/500
11535/11535 [=====] - 3s 236us/sample - loss: 0.0414
- accuracy: 0.9934
Epoch 36/500
11535/11535 [=====] - 3s 253us/sample - loss: 0.0414
- accuracy: 0.9934
Epoch 37/500
11535/11535 [=====] - 3s 239us/sample - loss: 0.0412
- accuracy: 0.9934
Epoch 38/500
11535/11535 [=====] - 3s 254us/sample - loss: 0.0412
- accuracy: 0.9934
Epoch 39/500
11535/11535 [=====] - 3s 239us/sample - loss: 0.0408
- accuracy: 0.9934
Epoch 40/500
11535/11535 [=====] - 3s 252us/sample - loss: 0.0409
- accuracy: 0.9934
Epoch 41/500
11535/11535 [=====] - 3s 237us/sample - loss: 0.0407
- accuracy: 0.9934
Epoch 42/500
11535/11535 [=====] - 3s 251us/sample - loss: 0.0410
- accuracy: 0.9934
```



```
Epoch 43/500
11535/11535 [=====] - 3s 234us/sample - loss: 0.0408
- accuracy: 0.9934
Epoch 44/500
11535/11535 [=====] - 3s 243us/sample - loss: 0.0406
- accuracy: 0.9934
Epoch 45/500
11535/11535 [=====] - 3s 245us/sample - loss: 0.0405
- accuracy: 0.9934
Epoch 46/500
11535/11535 [=====] - 3s 241us/sample - loss: 0.0404
- accuracy: 0.9934
Epoch 47/500
11535/11535 [=====] - 3s 249us/sample - loss: 0.0403
- accuracy: 0.9934
Epoch 48/500
11535/11535 [=====] - 3s 236us/sample - loss: 0.0406
- accuracy: 0.9934
Epoch 49/500
11535/11535 [=====] - 3s 254us/sample - loss: 0.0400
- accuracy: 0.9934
Epoch 50/500
11535/11535 [=====] - 3s 221us/sample - loss: 0.0405
- accuracy: 0.9934
Epoch 51/500
```

```
11535/11535 [=====] - 3s 276us/sample - loss: 0.0404
- accuracy: 0.9934
Epoch 52/500
11535/11535 [=====] - 3s 222us/sample - loss: 0.0402
- accuracy: 0.9934
Epoch 53/500
11535/11535 [=====] - 3s 268us/sample - loss: 0.0400
- accuracy: 0.9934
Epoch 54/500
11535/11535 [=====] - 3s 219us/sample - loss: 0.0402
- accuracy: 0.9934
Epoch 55/500
11535/11535 [=====] - 3s 266us/sample - loss: 0.0403
- accuracy: 0.9934
Epoch 56/500
11535/11535 [=====] - 3s 223us/sample - loss: 0.0399
- accuracy: 0.9934
Epoch 57/500
11535/11535 [=====] - 3s 267us/sample - loss: 0.0401
- accuracy: 0.9934
Epoch 58/500
11535/11535 [=====] - 3s 221us/sample - loss: 0.0400
- accuracy: 0.9934
Epoch 59/500
11535/11535 [=====] - 3s 257us/sample - loss: 0.0398
```

```
- accuracy: 0.9934
Epoch 60/500
11535/11535 [=====] - 3s 229us/sample - loss: 0.0399
- accuracy: 0.9934
Epoch 61/500
11535/11535 [=====] - 3s 248us/sample - loss: 0.0401
- accuracy: 0.9934
Epoch 62/500
11535/11535 [=====] - 3s 235us/sample - loss: 0.0399
- accuracy: 0.9934
Epoch 63/500
11535/11535 [=====] - 3s 250us/sample - loss: 0.0397
- accuracy: 0.9934
Epoch 64/500
11535/11535 [=====] - 3s 239us/sample - loss: 0.0399
- accuracy: 0.9934
Epoch 65/500
11535/11535 [=====] - 3s 254us/sample - loss: 0.0396
- accuracy: 0.9934
Epoch 66/500
11535/11535 [=====] - 3s 237us/sample - loss: 0.0399
- accuracy: 0.9934
Epoch 67/500
11535/11535 [=====] - 3s 248us/sample - loss: 0.0398
- accuracy: 0.9934
```

```
Epoch 68/500
11535/11535 [=====] - 3s 236us/sample - loss: 0.0397
- accuracy: 0.9934
Epoch 69/500
11535/11535 [=====] - 3s 252us/sample - loss: 0.0395
- accuracy: 0.9934
Epoch 70/500
11535/11535 [=====] - 3s 237us/sample - loss: 0.0398
- accuracy: 0.9934
Epoch 71/500
11535/11535 [=====] - 3s 229us/sample - loss: 0.0397
- accuracy: 0.9934
Epoch 72/500
11535/11535 [=====] - 3s 249us/sample - loss: 0.0397
- accuracy: 0.9934
Epoch 73/500
11535/11535 [=====] - 3s 225us/sample - loss: 0.0396
- accuracy: 0.9934
Epoch 74/500
11535/11535 [=====] - 3s 260us/sample - loss: 0.0395
- accuracy: 0.9934
Epoch 75/500
11535/11535 [=====] - 3s 219us/sample - loss: 0.0395
- accuracy: 0.9934
Epoch 76/500
```

```
11535/11535 [=====] - 3s 260us/sample - loss: 0.0395
- accuracy: 0.9934
Epoch 77/500
11535/11535 [=====] - 3s 226us/sample - loss: 0.0395
- accuracy: 0.9934
Epoch 78/500
11535/11535 [=====] - 3s 254us/sample - loss: 0.0396
- accuracy: 0.9934
Epoch 79/500
11535/11535 [=====] - 3s 232us/sample - loss: 0.0395
- accuracy: 0.9934
Epoch 80/500
11535/11535 [=====] - 3s 254us/sample - loss: 0.0394
- accuracy: 0.9934
Epoch 81/500
11535/11535 [=====] - 3s 233us/sample - loss: 0.0393
- accuracy: 0.9934
Epoch 82/500
11535/11535 [=====] - 3s 246us/sample - loss: 0.0397
- accuracy: 0.9934
Epoch 83/500
11535/11535 [=====] - 3s 232us/sample - loss: 0.0396
- accuracy: 0.9934
Epoch 84/500
11535/11535 [=====] - 3s 246us/sample - loss: 0.0394
```

```
- accuracy: 0.9934
Epoch 85/500
11535/11535 [=====] - 3s 237us/sample - loss: 0.0393
- accuracy: 0.9934
Epoch 86/500
11535/11535 [=====] - 3s 243us/sample - loss: 0.0397
- accuracy: 0.9934
Epoch 87/500
11535/11535 [=====] - 3s 231us/sample - loss: 0.0395
- accuracy: 0.9934
Epoch 88/500
11535/11535 [=====] - 3s 238us/sample - loss: 0.0395
- accuracy: 0.9934
Epoch 89/500
11535/11535 [=====] - 3s 251us/sample - loss: 0.0395
- accuracy: 0.9934
Epoch 90/500
11535/11535 [=====] - 3s 230us/sample - loss: 0.0394
- accuracy: 0.9934
Epoch 91/500
11535/11535 [=====] - 3s 246us/sample - loss: 0.0395
- accuracy: 0.9934
Epoch 92/500
11535/11535 [=====] - 3s 217us/sample - loss: 0.0392
- accuracy: 0.9934
```

```
Epoch 93/500
11535/11535 [=====] - 3s 261us/sample - loss: 0.0393
- accuracy: 0.9934
Epoch 94/500
11535/11535 [=====] - 3s 220us/sample - loss: 0.0392
- accuracy: 0.9934
Epoch 95/500
11535/11535 [=====] - 3s 265us/sample - loss: 0.0394
- accuracy: 0.9934
Epoch 96/500
11535/11535 [=====] - 3s 222us/sample - loss: 0.0394
- accuracy: 0.9934
Epoch 97/500
11535/11535 [=====] - 3s 254us/sample - loss: 0.0393
- accuracy: 0.9934
Epoch 98/500
11535/11535 [=====] - 3s 230us/sample - loss: 0.0395
- accuracy: 0.9934
Epoch 99/500
11535/11535 [=====] - 3s 246us/sample - loss: 0.0394
- accuracy: 0.9934
Epoch 100/500
11535/11535 [=====] - 3s 252us/sample - loss: 0.0393
- accuracy: 0.9934
Epoch 101/500
```

```
11535/11535 [=====] - 3s 252us/sample - loss: 0.0393
- accuracy: 0.9934
Epoch 102/500
11535/11535 [=====] - 3s 231us/sample - loss: 0.0393
- accuracy: 0.9934
Epoch 103/500
11535/11535 [=====] - 3s 248us/sample - loss: 0.0395
- accuracy: 0.9934
Epoch 104/500
11535/11535 [=====] - 3s 238us/sample - loss: 0.0390
- accuracy: 0.9934
Epoch 105/500
11535/11535 [=====] - 3s 244us/sample - loss: 0.0391
- accuracy: 0.9934
Epoch 106/500
11535/11535 [=====] - 3s 231us/sample - loss: 0.0393
- accuracy: 0.9934
Epoch 107/500
11535/11535 [=====] - 3s 240us/sample - loss: 0.0390
- accuracy: 0.9934
Epoch 108/500
11535/11535 [=====] - 3s 241us/sample - loss: 0.0391
- accuracy: 0.9934
Epoch 109/500
11535/11535 [=====] - 3s 224us/sample - loss: 0.0392
```



```
- accuracy: 0.9934
Epoch 110/500
11535/11535 [=====] - 3s 264us/sample - loss: 0.0393
- accuracy: 0.9934
Epoch 111/500
11535/11535 [=====] - 3s 226us/sample - loss: 0.0391
- accuracy: 0.9934
Epoch 112/500
11535/11535 [=====] - 4s 368us/sample - loss: 0.0392
- accuracy: 0.9934
Epoch 113/500
11535/11535 [=====] - 3s 232us/sample - loss: 0.0392
- accuracy: 0.9934
Epoch 114/500
11535/11535 [=====] - 9s 788us/sample - loss: 0.0392
- accuracy: 0.9934
Epoch 115/500
11535/11535 [=====] - 4s 370us/sample - loss: 0.0391
- accuracy: 0.9934
Epoch 116/500
11535/11535 [=====] - 7s 648us/sample - loss: 0.0391
- accuracy: 0.9934
Epoch 117/500
11535/11535 [=====] - 3s 250us/sample - loss: 0.0392
- accuracy: 0.9934
```

```
Epoch 118/500
11535/11535 [=====] - 4s 339us/sample - loss: 0.0391
- accuracy: 0.9934
Epoch 119/500
11535/11535 [=====] - 3s 245us/sample - loss: 0.0392
- accuracy: 0.9934
Epoch 120/500
11535/11535 [=====] - 4s 324us/sample - loss: 0.0394
- accuracy: 0.9934
Epoch 121/500
11535/11535 [=====] - 3s 234us/sample - loss: 0.0391
- accuracy: 0.9934
Epoch 122/500
11535/11535 [=====] - 3s 227us/sample - loss: 0.0392
- accuracy: 0.9934
Epoch 123/500
11535/11535 [=====] - 2s 192us/sample - loss: 0.0391
- accuracy: 0.9934
Epoch 124/500
11535/11535 [=====] - 4s 363us/sample - loss: 0.0392
- accuracy: 0.9934
Epoch 125/500
11535/11535 [=====] - 5s 467us/sample - loss: 0.0391
- accuracy: 0.9934
Epoch 126/500
```

```
11535/11535 [=====] - 2s 200us/sample - loss: 0.0392
- accuracy: 0.9934
Epoch 127/500
11535/11535 [=====] - 3s 232us/sample - loss: 0.0391
- accuracy: 0.9934
Epoch 128/500
11535/11535 [=====] - 4s 311us/sample - loss: 0.0392
- accuracy: 0.9934
Epoch 129/500
11535/11535 [=====] - 3s 241us/sample - loss: 0.0390
- accuracy: 0.9934
Epoch 130/500
11535/11535 [=====] - 3s 236us/sample - loss: 0.0391
- accuracy: 0.9934
Epoch 131/500
11535/11535 [=====] - 3s 237us/sample - loss: 0.0391
- accuracy: 0.9934
Epoch 132/500
11535/11535 [=====] - 2s 205us/sample - loss: 0.0390
- accuracy: 0.9934
Epoch 133/500
11535/11535 [=====] - 3s 219us/sample - loss: 0.0391
- accuracy: 0.9934
Epoch 134/500
11535/11535 [=====] - 3s 242us/sample - loss: 0.0389
```

```
- accuracy: 0.9934
Epoch 135/500
11535/11535 [=====] - 3s 283us/sample - loss: 0.0389
- accuracy: 0.9934
Epoch 136/500
11535/11535 [=====] - 4s 357us/sample - loss: 0.0391
- accuracy: 0.9934
Epoch 137/500
11535/11535 [=====] - 4s 367us/sample - loss: 0.0390
- accuracy: 0.9934
Epoch 138/500
11535/11535 [=====] - 3s 265us/sample - loss: 0.0389
- accuracy: 0.9934
Epoch 139/500
11535/11535 [=====] - 2s 195us/sample - loss: 0.0389
- accuracy: 0.9934
Epoch 140/500
11535/11535 [=====] - 3s 242us/sample - loss: 0.0389
- accuracy: 0.9934
Epoch 141/500
11535/11535 [=====] - 2s 211us/sample - loss: 0.0391
- accuracy: 0.9934
Epoch 142/500
11535/11535 [=====] - 3s 284us/sample - loss: 0.0389
- accuracy: 0.9934
```

```
Epoch 143/500
11535/11535 [=====] - 3s 227us/sample - loss: 0.0390
- accuracy: 0.9934
Epoch 144/500
11535/11535 [=====] - 3s 257us/sample - loss: 0.0389
- accuracy: 0.9934
Epoch 145/500
11535/11535 [=====] - 2s 216us/sample - loss: 0.0389
- accuracy: 0.9934
Epoch 146/500
11535/11535 [=====] - 2s 190us/sample - loss: 0.0390
- accuracy: 0.9934
Epoch 147/500
11535/11535 [=====] - 4s 313us/sample - loss: 0.0388
- accuracy: 0.9934
Epoch 148/500
11535/11535 [=====] - 2s 211us/sample - loss: 0.0388
- accuracy: 0.9934
Epoch 149/500
11535/11535 [=====] - 3s 277us/sample - loss: 0.0390
- accuracy: 0.9934
Epoch 150/500
11535/11535 [=====] - 2s 169us/sample - loss: 0.0388
- accuracy: 0.9934
Epoch 151/500
```

```
11535/11535 [=====] - 3s 232us/sample - loss: 0.0387
- accuracy: 0.9934
Epoch 152/500
11535/11535 [=====] - 2s 195us/sample - loss: 0.0388
- accuracy: 0.9934
Epoch 153/500
11535/11535 [=====] - 3s 261us/sample - loss: 0.0389
- accuracy: 0.9934
Epoch 154/500
11535/11535 [=====] - 2s 179us/sample - loss: 0.0388
- accuracy: 0.9934
Epoch 155/500
11535/11535 [=====] - 3s 259us/sample - loss: 0.0389
- accuracy: 0.9934
Epoch 156/500
11535/11535 [=====] - 4s 320us/sample - loss: 0.0388
- accuracy: 0.9934
Epoch 157/500
11535/11535 [=====] - 4s 325us/sample - loss: 0.0390
- accuracy: 0.9934
Epoch 158/500
11535/11535 [=====] - 4s 340us/sample - loss: 0.0389
- accuracy: 0.9934
Epoch 159/500
11535/11535 [=====] - 3s 248us/sample - loss: 0.0389
```

```
- accuracy: 0.9934
Epoch 160/500
11535/11535 [=====] - 4s 343us/sample - loss: 0.0388
- accuracy: 0.9934
Epoch 161/500
11535/11535 [=====] - 2s 183us/sample - loss: 0.0389
- accuracy: 0.9934
Epoch 162/500
11535/11535 [=====] - 2s 187us/sample - loss: 0.0386
- accuracy: 0.9934
Epoch 163/500
11535/11535 [=====] - 3s 299us/sample - loss: 0.0388
- accuracy: 0.9934
Epoch 164/500
11535/11535 [=====] - 2s 146us/sample - loss: 0.0387
- accuracy: 0.9934
Epoch 165/500
11535/11535 [=====] - 3s 236us/sample - loss: 0.0386
- accuracy: 0.9934
Epoch 166/500
11535/11535 [=====] - 2s 183us/sample - loss: 0.0384
- accuracy: 0.9934
Epoch 167/500
11535/11535 [=====] - 3s 233us/sample - loss: 0.0390
- accuracy: 0.9934
```

```
Epoch 168/500
11535/11535 [=====] - 2s 195us/sample - loss: 0.0387
- accuracy: 0.9934
Epoch 169/500
11535/11535 [=====] - 3s 249us/sample - loss: 0.0389
- accuracy: 0.9934
Epoch 170/500
11535/11535 [=====] - 3s 239us/sample - loss: 0.0387
- accuracy: 0.9934
Epoch 171/500
11535/11535 [=====] - 2s 201us/sample - loss: 0.0388
- accuracy: 0.9934
Epoch 172/500
11535/11535 [=====] - 3s 249us/sample - loss: 0.0389
- accuracy: 0.9934
Epoch 173/500
11535/11535 [=====] - 3s 223us/sample - loss: 0.0388
- accuracy: 0.9934
Epoch 174/500
11535/11535 [=====] - 2s 189us/sample - loss: 0.0387
- accuracy: 0.9934
Epoch 175/500
11535/11535 [=====] - 2s 207us/sample - loss: 0.0387
- accuracy: 0.9934
Epoch 176/500
```



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11535/11535 [=====] - 2s 213us/sample - loss: 0.0389
- accuracy: 0.9934
Epoch 177/500
11535/11535 [=====] - 3s 236us/sample - loss: 0.0387
- accuracy: 0.9934
Epoch 178/500
11535/11535 [=====] - 2s 204us/sample - loss: 0.0387
- accuracy: 0.9934
Epoch 179/500
11535/11535 [=====] - 3s 237us/sample - loss: 0.0386
- accuracy: 0.9934
Epoch 180/500
11535/11535 [=====] - 2s 216us/sample - loss: 0.0387
- accuracy: 0.9934
Epoch 181/500
11535/11535 [=====] - 3s 247us/sample - loss: 0.0387
- accuracy: 0.9934
Epoch 182/500
11535/11535 [=====] - 2s 212us/sample - loss: 0.0387
- accuracy: 0.9934
Epoch 183/500
11535/11535 [=====] - 3s 232us/sample - loss: 0.0384
- accuracy: 0.9934
Epoch 184/500
11535/11535 [=====] - 3s 218us/sample - loss: 0.0388
```

```
- accuracy: 0.9934
Epoch 185/500
11535/11535 [=====] - 3s 253us/sample - loss: 0.0386
- accuracy: 0.9934
Epoch 186/500
11535/11535 [=====] - 3s 225us/sample - loss: 0.0386
- accuracy: 0.9934
Epoch 187/500
11535/11535 [=====] - 2s 212us/sample - loss: 0.0386
- accuracy: 0.9934
Epoch 188/500
11535/11535 [=====] - 3s 224us/sample - loss: 0.0386
- accuracy: 0.9934
Epoch 189/500
11535/11535 [=====] - 2s 215us/sample - loss: 0.0387
- accuracy: 0.9934
Epoch 190/500
11535/11535 [=====] - 3s 227us/sample - loss: 0.0386
- accuracy: 0.9934
Epoch 191/500
11535/11535 [=====] - 3s 248us/sample - loss: 0.0386
- accuracy: 0.9934
Epoch 192/500
11535/11535 [=====] - 4s 311us/sample - loss: 0.0386
- accuracy: 0.9934
```

```
Epoch 193/500
11535/11535 [=====] - 3s 224us/sample - loss: 0.0385
- accuracy: 0.9934
Epoch 194/500
11535/11535 [=====] - 3s 252us/sample - loss: 0.0387
- accuracy: 0.9934
Epoch 195/500
11535/11535 [=====] - 3s 230us/sample - loss: 0.0386
- accuracy: 0.9934
Epoch 196/500
11535/11535 [=====] - 3s 229us/sample - loss: 0.0387
- accuracy: 0.9934
Epoch 197/500
11535/11535 [=====] - 3s 224us/sample - loss: 0.0386
- accuracy: 0.9934
Epoch 198/500
11535/11535 [=====] - 3s 286us/sample - loss: 0.0385
- accuracy: 0.9934
Epoch 199/500
11535/11535 [=====] - 2s 193us/sample - loss: 0.0386
- accuracy: 0.9934
Epoch 200/500
11535/11535 [=====] - 2s 203us/sample - loss: 0.0385
- accuracy: 0.9934
Epoch 201/500
```

```
11535/11535 [=====] - 3s 242us/sample - loss: 0.0386
- accuracy: 0.9934
Epoch 202/500
11535/11535 [=====] - 3s 223us/sample - loss: 0.0386
- accuracy: 0.9934
Epoch 203/500
11535/11535 [=====] - 3s 223us/sample - loss: 0.0385
- accuracy: 0.9934
Epoch 204/500
11535/11535 [=====] - 2s 215us/sample - loss: 0.0386
- accuracy: 0.9934
Epoch 205/500
11535/11535 [=====] - 3s 249us/sample - loss: 0.0385
- accuracy: 0.9934
Epoch 206/500
11535/11535 [=====] - 3s 231us/sample - loss: 0.0385
- accuracy: 0.9934
Epoch 207/500
11535/11535 [=====] - 3s 247us/sample - loss: 0.0385
- accuracy: 0.9934
Epoch 208/500
11535/11535 [=====] - 2s 215us/sample - loss: 0.0386
- accuracy: 0.9934
Epoch 209/500
11535/11535 [=====] - 3s 255us/sample - loss: 0.0386
```

```
- accuracy: 0.9934
Epoch 210/500
11535/11535 [=====] - 4s 328us/sample - loss: 0.0386
- accuracy: 0.9934
Epoch 211/500
11535/11535 [=====] - 3s 221us/sample - loss: 0.0386
- accuracy: 0.9934
Epoch 212/500
11535/11535 [=====] - 3s 258us/sample - loss: 0.0385
- accuracy: 0.9934
Epoch 213/500
11535/11535 [=====] - 3s 245us/sample - loss: 0.0385
- accuracy: 0.9934
Epoch 214/500
11535/11535 [=====] - 3s 230us/sample - loss: 0.0385
- accuracy: 0.9934
Epoch 215/500
11535/11535 [=====] - 3s 249us/sample - loss: 0.0386
- accuracy: 0.9934
Epoch 216/500
11535/11535 [=====] - 2s 205us/sample - loss: 0.0385
- accuracy: 0.9934
Epoch 217/500
11535/11535 [=====] - 3s 257us/sample - loss: 0.0386
- accuracy: 0.9934
```

```
Epoch 218/500
11535/11535 [=====] - 3s 236us/sample - loss: 0.0386
- accuracy: 0.9934
Epoch 219/500
11535/11535 [=====] - 3s 227us/sample - loss: 0.0384
- accuracy: 0.9934
Epoch 220/500
11535/11535 [=====] - 3s 256us/sample - loss: 0.0384
- accuracy: 0.9934
Epoch 221/500
11535/11535 [=====] - 2s 211us/sample - loss: 0.0384
- accuracy: 0.9934
Epoch 222/500
11535/11535 [=====] - 3s 240us/sample - loss: 0.0384
- accuracy: 0.9934
Epoch 223/500
11535/11535 [=====] - 2s 192us/sample - loss: 0.0385
- accuracy: 0.9934
Epoch 224/500
11535/11535 [=====] - 3s 226us/sample - loss: 0.0385
- accuracy: 0.9934
Epoch 225/500
11535/11535 [=====] - 2s 189us/sample - loss: 0.0385
- accuracy: 0.9934
Epoch 226/500
```

```
11535/11535 [=====] - 3s 236us/sample - loss: 0.0384
- accuracy: 0.9934
Epoch 227/500
11535/11535 [=====] - 3s 261us/sample - loss: 0.0385
- accuracy: 0.9934
Epoch 228/500
11535/11535 [=====] - 3s 258us/sample - loss: 0.0385
- accuracy: 0.9934
Epoch 229/500
11535/11535 [=====] - 3s 243us/sample - loss: 0.0383
- accuracy: 0.9934
Epoch 230/500
11535/11535 [=====] - 3s 236us/sample - loss: 0.0384
- accuracy: 0.9934
Epoch 231/500
11535/11535 [=====] - 2s 207us/sample - loss: 0.0383
- accuracy: 0.9934
Epoch 232/500
11535/11535 [=====] - 2s 216us/sample - loss: 0.0384
- accuracy: 0.9934
Epoch 233/500
11535/11535 [=====] - 3s 227us/sample - loss: 0.0383
- accuracy: 0.9934
Epoch 234/500
11535/11535 [=====] - 3s 232us/sample - loss: 0.0383
```

```
- accuracy: 0.9934
Epoch 235/500
11535/11535 [=====] - 3s 235us/sample - loss: 0.0384
- accuracy: 0.9934
Epoch 236/500
11535/11535 [=====] - 3s 245us/sample - loss: 0.0383
- accuracy: 0.9934
Epoch 237/500
11535/11535 [=====] - 3s 246us/sample - loss: 0.0384
- accuracy: 0.9934
Epoch 238/500
11535/11535 [=====] - 3s 230us/sample - loss: 0.0385
- accuracy: 0.9934
Epoch 239/500
11535/11535 [=====] - 3s 223us/sample - loss: 0.0383
- accuracy: 0.9934
Epoch 240/500
11535/11535 [=====] - 2s 212us/sample - loss: 0.0383
- accuracy: 0.9934
Epoch 241/500
11535/11535 [=====] - 3s 236us/sample - loss: 0.0382
- accuracy: 0.9934
Epoch 242/500
11535/11535 [=====] - 3s 240us/sample - loss: 0.0384
- accuracy: 0.9934
```



```
Epoch 243/500
11535/11535 [=====] - 3s 226us/sample - loss: 0.0384
- accuracy: 0.9934
Epoch 244/500
11535/11535 [=====] - 3s 255us/sample - loss: 0.0383
- accuracy: 0.9934
Epoch 245/500
11535/11535 [=====] - 3s 218us/sample - loss: 0.0383
- accuracy: 0.9934
Epoch 246/500
11535/11535 [=====] - 3s 273us/sample - loss: 0.0383
- accuracy: 0.9934
Epoch 247/500
11535/11535 [=====] - 3s 222us/sample - loss: 0.0383
- accuracy: 0.9934
Epoch 248/500
11535/11535 [=====] - 3s 219us/sample - loss: 0.0383
- accuracy: 0.9934
Epoch 249/500
11535/11535 [=====] - 3s 219us/sample - loss: 0.0382
- accuracy: 0.9934
Epoch 250/500
11535/11535 [=====] - 3s 226us/sample - loss: 0.0382
- accuracy: 0.9934
Epoch 251/500
```

```
11535/11535 [=====] - 3s 232us/sample - loss: 0.0382
- accuracy: 0.9934
Epoch 252/500
11535/11535 [=====] - 2s 194us/sample - loss: 0.0382
- accuracy: 0.9934
Epoch 253/500
11535/11535 [=====] - 2s 172us/sample - loss: 0.0383
- accuracy: 0.9934
Epoch 254/500
11535/11535 [=====] - 2s 139us/sample - loss: 0.0383
- accuracy: 0.9934
Epoch 255/500
11535/11535 [=====] - 2s 159us/sample - loss: 0.0381
- accuracy: 0.9934
Epoch 256/500
11535/11535 [=====] - 3s 220us/sample - loss: 0.0384
- accuracy: 0.9933
Epoch 257/500
11535/11535 [=====] - 2s 177us/sample - loss: 0.0383
- accuracy: 0.9934
Epoch 258/500
11535/11535 [=====] - 2s 169us/sample - loss: 0.0382
- accuracy: 0.9934
Epoch 259/500
11535/11535 [=====] - 2s 166us/sample - loss: 0.0380
```

```
- accuracy: 0.9934
Epoch 260/500
11535/11535 [=====] - 2s 157us/sample - loss: 0.0382
- accuracy: 0.9934
Epoch 261/500
11535/11535 [=====] - 2s 213us/sample - loss: 0.0381
- accuracy: 0.9934
Epoch 262/500
11535/11535 [=====] - 2s 156us/sample - loss: 0.0384
- accuracy: 0.9934
Epoch 263/500
11535/11535 [=====] - 3s 263us/sample - loss: 0.0382
- accuracy: 0.9934
Epoch 264/500
11535/11535 [=====] - 2s 194us/sample - loss: 0.0381
- accuracy: 0.9934
Epoch 265/500
11535/11535 [=====] - 3s 223us/sample - loss: 0.0381
- accuracy: 0.9934
Epoch 266/500
11535/11535 [=====] - 2s 199us/sample - loss: 0.0382
- accuracy: 0.9934
Epoch 267/500
11535/11535 [=====] - 2s 198us/sample - loss: 0.0381
- accuracy: 0.9934
```

```
Epoch 268/500
11535/11535 [=====] - 2s 185us/sample - loss: 0.0381
- accuracy: 0.9934
Epoch 269/500
11535/11535 [=====] - 2s 194us/sample - loss: 0.0382
- accuracy: 0.9934
Epoch 270/500
11535/11535 [=====] - 2s 181us/sample - loss: 0.0382
- accuracy: 0.9934
Epoch 271/500
11535/11535 [=====] - 2s 213us/sample - loss: 0.0382
- accuracy: 0.9934
Epoch 272/500
11535/11535 [=====] - 2s 204us/sample - loss: 0.0379
- accuracy: 0.9934
Epoch 273/500
11535/11535 [=====] - 3s 252us/sample - loss: 0.0382
- accuracy: 0.9934
Epoch 274/500
11535/11535 [=====] - 2s 195us/sample - loss: 0.0381
- accuracy: 0.9934
Epoch 275/500
11535/11535 [=====] - 2s 166us/sample - loss: 0.0380
- accuracy: 0.9934
Epoch 276/500
```

```
11535/11535 [=====] - 3s 239us/sample - loss: 0.0380
- accuracy: 0.9934
Epoch 277/500
11535/11535 [=====] - 2s 199us/sample - loss: 0.0380
- accuracy: 0.9934
Epoch 278/500
11535/11535 [=====] - 2s 161us/sample - loss: 0.0380
- accuracy: 0.9934
Epoch 279/500
11535/11535 [=====] - 2s 179us/sample - loss: 0.0383
- accuracy: 0.9934
Epoch 280/500
11535/11535 [=====] - 2s 188us/sample - loss: 0.0382
- accuracy: 0.9934
Epoch 281/500
11535/11535 [=====] - 2s 172us/sample - loss: 0.0381
- accuracy: 0.9934
Epoch 282/500
11535/11535 [=====] - 3s 281us/sample - loss: 0.0383
- accuracy: 0.9934
Epoch 283/500
11535/11535 [=====] - 2s 184us/sample - loss: 0.0381
- accuracy: 0.9934
Epoch 284/500
11535/11535 [=====] - 2s 202us/sample - loss: 0.0381
```

```
- accuracy: 0.9934
Epoch 285/500
11535/11535 [=====] - 2s 162us/sample - loss: 0.0381
- accuracy: 0.9934
Epoch 286/500
11535/11535 [=====] - 2s 210us/sample - loss: 0.0379
- accuracy: 0.9934
Epoch 287/500
11535/11535 [=====] - 2s 188us/sample - loss: 0.0381
- accuracy: 0.9934
Epoch 288/500
11535/11535 [=====] - 2s 154us/sample - loss: 0.0381
- accuracy: 0.9934
Epoch 289/500
11535/11535 [=====] - 3s 239us/sample - loss: 0.0379
- accuracy: 0.9934
Epoch 290/500
11535/11535 [=====] - 3s 253us/sample - loss: 0.0380
- accuracy: 0.9934
Epoch 291/500
11535/11535 [=====] - 3s 221us/sample - loss: 0.0381
- accuracy: 0.9934
Epoch 292/500
11535/11535 [=====] - 2s 208us/sample - loss: 0.0380
- accuracy: 0.9934
```

```
Epoch 293/500
11535/11535 [=====] - 3s 223us/sample - loss: 0.0380
- accuracy: 0.9934
Epoch 294/500
11535/11535 [=====] - 3s 239us/sample - loss: 0.0380
- accuracy: 0.9934
Epoch 295/500
11535/11535 [=====] - 2s 195us/sample - loss: 0.0381
- accuracy: 0.9934
Epoch 296/500
11535/11535 [=====] - 3s 227us/sample - loss: 0.0385
- accuracy: 0.9934
Epoch 297/500
11535/11535 [=====] - 2s 197us/sample - loss: 0.0379
- accuracy: 0.9934
Epoch 298/500
11535/11535 [=====] - 3s 249us/sample - loss: 0.0381
- accuracy: 0.9934
Epoch 299/500
11535/11535 [=====] - 3s 222us/sample - loss: 0.0380
- accuracy: 0.9934
Epoch 300/500
11535/11535 [=====] - 2s 211us/sample - loss: 0.0380
- accuracy: 0.9934
Epoch 301/500
```

```
11535/11535 [=====] - 3s 234us/sample - loss: 0.0380
- accuracy: 0.9934
Epoch 302/500
11535/11535 [=====] - 3s 220us/sample - loss: 0.0379
- accuracy: 0.9934
Epoch 303/500
11535/11535 [=====] - 3s 239us/sample - loss: 0.0380
- accuracy: 0.9934
Epoch 304/500
11535/11535 [=====] - 2s 194us/sample - loss: 0.0378
- accuracy: 0.9934
Epoch 305/500
11535/11535 [=====] - 3s 242us/sample - loss: 0.0380
- accuracy: 0.9934
Epoch 306/500
11535/11535 [=====] - 2s 205us/sample - loss: 0.0378
- accuracy: 0.9934
Epoch 307/500
11535/11535 [=====] - 3s 225us/sample - loss: 0.0381
- accuracy: 0.9934
Epoch 308/500
11535/11535 [=====] - 2s 211us/sample - loss: 0.0379
- accuracy: 0.9934
Epoch 309/500
11535/11535 [=====] - 2s 214us/sample - loss: 0.0380
```



```
- accuracy: 0.9934
Epoch 310/500
11535/11535 [=====] - 2s 182us/sample - loss: 0.0379
- accuracy: 0.9934
Epoch 311/500
11535/11535 [=====] - 2s 196us/sample - loss: 0.0378
- accuracy: 0.9934
Epoch 312/500
11535/11535 [=====] - 2s 191us/sample - loss: 0.0379
- accuracy: 0.9934
Epoch 313/500
11535/11535 [=====] - 3s 226us/sample - loss: 0.0379
- accuracy: 0.9934
Epoch 314/500
11535/11535 [=====] - 3s 298us/sample - loss: 0.0378
- accuracy: 0.9934
Epoch 315/500
11535/11535 [=====] - 3s 227us/sample - loss: 0.0379
- accuracy: 0.9934
Epoch 316/500
11535/11535 [=====] - 2s 214us/sample - loss: 0.0381
- accuracy: 0.9934
Epoch 317/500
11535/11535 [=====] - 3s 222us/sample - loss: 0.0378
- accuracy: 0.9934
```

```
Epoch 318/500
11535/11535 [=====] - 3s 226us/sample - loss: 0.0379
- accuracy: 0.9934
Epoch 319/500
11535/11535 [=====] - 3s 231us/sample - loss: 0.0378
- accuracy: 0.9934
Epoch 320/500
11535/11535 [=====] - 2s 211us/sample - loss: 0.0378
- accuracy: 0.9934
Epoch 321/500
11535/11535 [=====] - 3s 241us/sample - loss: 0.0378
- accuracy: 0.9934
Epoch 322/500
11535/11535 [=====] - 2s 210us/sample - loss: 0.0378
- accuracy: 0.9934
Epoch 323/500
11535/11535 [=====] - 2s 194us/sample - loss: 0.0377
- accuracy: 0.9934
Epoch 324/500
11535/11535 [=====] - 3s 289us/sample - loss: 0.0378
- accuracy: 0.9934
Epoch 325/500
11535/11535 [=====] - 3s 218us/sample - loss: 0.0377
- accuracy: 0.9934
Epoch 326/500
```

```
11535/11535 [=====] - 2s 210us/sample - loss: 0.0378
- accuracy: 0.9934
Epoch 327/500
11535/11535 [=====] - 2s 212us/sample - loss: 0.0379
- accuracy: 0.9933
Epoch 328/500
11535/11535 [=====] - 3s 228us/sample - loss: 0.0378
- accuracy: 0.9934
Epoch 329/500
11535/11535 [=====] - 2s 198us/sample - loss: 0.0379
- accuracy: 0.9934
Epoch 330/500
11535/11535 [=====] - 3s 241us/sample - loss: 0.0378
- accuracy: 0.9934
Epoch 331/500
11535/11535 [=====] - 2s 196us/sample - loss: 0.0377
- accuracy: 0.9934
Epoch 332/500
11535/11535 [=====] - 3s 220us/sample - loss: 0.0377
- accuracy: 0.9934
Epoch 333/500
11535/11535 [=====] - 3s 231us/sample - loss: 0.0377
- accuracy: 0.9934
Epoch 334/500
11535/11535 [=====] - 2s 204us/sample - loss: 0.0380
```

```
- accuracy: 0.9934
Epoch 335/500
11535/11535 [=====] - 3s 221us/sample - loss: 0.0377
- accuracy: 0.9934
Epoch 336/500
11535/11535 [=====] - 3s 217us/sample - loss: 0.0378
- accuracy: 0.9934
Epoch 337/500
11535/11535 [=====] - 3s 241us/sample - loss: 0.0377
- accuracy: 0.9934
Epoch 338/500
11535/11535 [=====] - 2s 215us/sample - loss: 0.0378
- accuracy: 0.9934
Epoch 339/500
11535/11535 [=====] - 3s 237us/sample - loss: 0.0378
- accuracy: 0.9934
Epoch 340/500
11535/11535 [=====] - 3s 222us/sample - loss: 0.0377
- accuracy: 0.9934
Epoch 341/500
11535/11535 [=====] - 3s 223us/sample - loss: 0.0377
- accuracy: 0.9934
Epoch 342/500
11535/11535 [=====] - 2s 200us/sample - loss: 0.0377
- accuracy: 0.9934
```

```
Epoch 343/500
11535/11535 [=====] - 2s 202us/sample - loss: 0.0376
- accuracy: 0.9934
Epoch 344/500
11535/11535 [=====] - 2s 195us/sample - loss: 0.0376
- accuracy: 0.9934
Epoch 345/500
11535/11535 [=====] - 3s 218us/sample - loss: 0.0374
- accuracy: 0.9934
Epoch 346/500
11535/11535 [=====] - 2s 203us/sample - loss: 0.0379
- accuracy: 0.9934
Epoch 347/500
11535/11535 [=====] - 2s 214us/sample - loss: 0.0377
- accuracy: 0.9934
Epoch 348/500
11535/11535 [=====] - 2s 202us/sample - loss: 0.0377
- accuracy: 0.9934
Epoch 349/500
11535/11535 [=====] - 3s 226us/sample - loss: 0.0377
- accuracy: 0.9934
Epoch 350/500
11535/11535 [=====] - 3s 234us/sample - loss: 0.0376
- accuracy: 0.9934
Epoch 351/500
```

```
11535/11535 [=====] - 3s 220us/sample - loss: 0.0380
- accuracy: 0.9934
Epoch 352/500
11535/11535 [=====] - 2s 206us/sample - loss: 0.0377
- accuracy: 0.9934
Epoch 353/500
11535/11535 [=====] - 3s 229us/sample - loss: 0.0377
- accuracy: 0.9934
Epoch 354/500
11535/11535 [=====] - 3s 222us/sample - loss: 0.0377
- accuracy: 0.9935
Epoch 355/500
11535/11535 [=====] - 2s 216us/sample - loss: 0.0377
- accuracy: 0.9934
Epoch 356/500
11535/11535 [=====] - 3s 220us/sample - loss: 0.0378
- accuracy: 0.9934
Epoch 357/500
11535/11535 [=====] - 2s 215us/sample - loss: 0.0376
- accuracy: 0.9934
Epoch 358/500
11535/11535 [=====] - 3s 230us/sample - loss: 0.0375
- accuracy: 0.9934
Epoch 359/500
11535/11535 [=====] - 2s 204us/sample - loss: 0.0376
```

```
- accuracy: 0.9934
Epoch 360/500
11535/11535 [=====] - 2s 211us/sample - loss: 0.0376
- accuracy: 0.9934
Epoch 361/500
11535/11535 [=====] - 3s 236us/sample - loss: 0.0376
- accuracy: 0.9934
Epoch 362/500
11535/11535 [=====] - 2s 184us/sample - loss: 0.0377
- accuracy: 0.9934
Epoch 363/500
11535/11535 [=====] - 2s 214us/sample - loss: 0.0377
- accuracy: 0.9934
Epoch 364/500
11535/11535 [=====] - 3s 219us/sample - loss: 0.0376
- accuracy: 0.9934
Epoch 365/500
11535/11535 [=====] - 3s 246us/sample - loss: 0.0375
- accuracy: 0.9934
Epoch 366/500
11535/11535 [=====] - 3s 219us/sample - loss: 0.0378
- accuracy: 0.9934
Epoch 367/500
11535/11535 [=====] - 2s 210us/sample - loss: 0.0378
- accuracy: 0.9933
```

```
Epoch 368/500
11535/11535 [=====] - 3s 228us/sample - loss: 0.0376
- accuracy: 0.9934
Epoch 369/500
11535/11535 [=====] - 3s 233us/sample - loss: 0.0377
- accuracy: 0.9934
Epoch 370/500
11535/11535 [=====] - 3s 235us/sample - loss: 0.0375
- accuracy: 0.9934
Epoch 371/500
11535/11535 [=====] - 2s 217us/sample - loss: 0.0376
- accuracy: 0.9934
Epoch 372/500
11535/11535 [=====] - 2s 208us/sample - loss: 0.0375
- accuracy: 0.9934
Epoch 373/500
11535/11535 [=====] - 2s 210us/sample - loss: 0.0376
- accuracy: 0.9934
Epoch 374/500
11535/11535 [=====] - 3s 233us/sample - loss: 0.0375
- accuracy: 0.9935
Epoch 375/500
11535/11535 [=====] - 3s 225us/sample - loss: 0.0376
- accuracy: 0.9934
Epoch 376/500
```



```
11535/11535 [=====] - 2s 197us/sample - loss: 0.0375
- accuracy: 0.9934
Epoch 377/500
11535/11535 [=====] - 3s 227us/sample - loss: 0.0377
- accuracy: 0.9934
Epoch 378/500
11535/11535 [=====] - 3s 220us/sample - loss: 0.0377
- accuracy: 0.9934
Epoch 379/500
11535/11535 [=====] - 2s 195us/sample - loss: 0.0377
- accuracy: 0.9934
Epoch 380/500
11535/11535 [=====] - 3s 233us/sample - loss: 0.0376
- accuracy: 0.9934
Epoch 381/500
11535/11535 [=====] - 3s 226us/sample - loss: 0.0376
- accuracy: 0.9934
Epoch 382/500
11535/11535 [=====] - 2s 195us/sample - loss: 0.0374
- accuracy: 0.9934
Epoch 383/500
11535/11535 [=====] - 3s 226us/sample - loss: 0.0374
- accuracy: 0.9934
Epoch 384/500
11535/11535 [=====] - 3s 244us/sample - loss: 0.0376
```

```
- accuracy: 0.9934
Epoch 385/500
11535/11535 [=====] - 2s 210us/sample - loss: 0.0375
- accuracy: 0.9934
Epoch 386/500
11535/11535 [=====] - 2s 201us/sample - loss: 0.0375
- accuracy: 0.9934
Epoch 387/500
11535/11535 [=====] - 2s 201us/sample - loss: 0.0376
- accuracy: 0.9934
Epoch 388/500
11535/11535 [=====] - 3s 240us/sample - loss: 0.0376
- accuracy: 0.9934
Epoch 389/500
11535/11535 [=====] - 2s 207us/sample - loss: 0.0376
- accuracy: 0.9934
Epoch 390/500
11535/11535 [=====] - 3s 227us/sample - loss: 0.0375
- accuracy: 0.9934
Epoch 391/500
11535/11535 [=====] - 3s 219us/sample - loss: 0.0374
- accuracy: 0.9934
Epoch 392/500
11535/11535 [=====] - 3s 223us/sample - loss: 0.0376
- accuracy: 0.9934
```

```
Epoch 393/500
11535/11535 [=====] - 2s 202us/sample - loss: 0.0375
- accuracy: 0.9934
Epoch 394/500
11535/11535 [=====] - 2s 207us/sample - loss: 0.0376
- accuracy: 0.9934
Epoch 395/500
11535/11535 [=====] - 2s 216us/sample - loss: 0.0375
- accuracy: 0.9934
Epoch 396/500
11535/11535 [=====] - 2s 191us/sample - loss: 0.0374
- accuracy: 0.9934
Epoch 397/500
11535/11535 [=====] - 3s 236us/sample - loss: 0.0374
- accuracy: 0.9934
Epoch 398/500
11535/11535 [=====] - 2s 198us/sample - loss: 0.0375
- accuracy: 0.9934
Epoch 399/500
11535/11535 [=====] - 2s 191us/sample - loss: 0.0375
- accuracy: 0.9934
Epoch 400/500
11535/11535 [=====] - 3s 217us/sample - loss: 0.0376
- accuracy: 0.9934
Epoch 401/500
```

```
11535/11535 [=====] - 2s 206us/sample - loss: 0.0374
- accuracy: 0.9934
Epoch 402/500
11535/11535 [=====] - 3s 218us/sample - loss: 0.0374
- accuracy: 0.9934
Epoch 403/500
11535/11535 [=====] - 2s 211us/sample - loss: 0.0374
- accuracy: 0.9934
Epoch 404/500
11535/11535 [=====] - 2s 192us/sample - loss: 0.0375
- accuracy: 0.9934
Epoch 405/500
11535/11535 [=====] - 3s 245us/sample - loss: 0.0375
- accuracy: 0.9934
Epoch 406/500
11535/11535 [=====] - 2s 208us/sample - loss: 0.0375
- accuracy: 0.9934
Epoch 407/500
11535/11535 [=====] - 3s 220us/sample - loss: 0.0376
- accuracy: 0.9934
Epoch 408/500
11535/11535 [=====] - 2s 176us/sample - loss: 0.0376
- accuracy: 0.9934
Epoch 409/500
11535/11535 [=====] - 3s 219us/sample - loss: 0.0375
```

```
- accuracy: 0.9934
Epoch 410/500
11535/11535 [=====] - 3s 223us/sample - loss: 0.0374
- accuracy: 0.9934
Epoch 411/500
11535/11535 [=====] - 2s 194us/sample - loss: 0.0374
- accuracy: 0.9934
Epoch 412/500
11535/11535 [=====] - 3s 219us/sample - loss: 0.0374
- accuracy: 0.9934
Epoch 413/500
11535/11535 [=====] - 3s 278us/sample - loss: 0.0374
- accuracy: 0.9934
Epoch 414/500
11535/11535 [=====] - 2s 183us/sample - loss: 0.0375
- accuracy: 0.9934
Epoch 415/500
11535/11535 [=====] - 2s 194us/sample - loss: 0.0372
- accuracy: 0.9934
Epoch 416/500
11535/11535 [=====] - 2s 213us/sample - loss: 0.0373
- accuracy: 0.9934
Epoch 417/500
11535/11535 [=====] - 2s 215us/sample - loss: 0.0374
- accuracy: 0.9934
```

```
Epoch 418/500
11535/11535 [=====] - 3s 219us/sample - loss: 0.0372
- accuracy: 0.9934
Epoch 419/500
11535/11535 [=====] - 2s 216us/sample - loss: 0.0373
- accuracy: 0.9934
Epoch 420/500
11535/11535 [=====] - 2s 204us/sample - loss: 0.0375
- accuracy: 0.9934
Epoch 421/500
11535/11535 [=====] - 3s 227us/sample - loss: 0.0374
- accuracy: 0.9934
Epoch 422/500
11535/11535 [=====] - 2s 212us/sample - loss: 0.0373
- accuracy: 0.9934
Epoch 423/500
11535/11535 [=====] - 2s 202us/sample - loss: 0.0375
- accuracy: 0.9934
Epoch 424/500
11535/11535 [=====] - 3s 229us/sample - loss: 0.0374
- accuracy: 0.9934
Epoch 425/500
11535/11535 [=====] - 3s 227us/sample - loss: 0.0372
- accuracy: 0.9934
Epoch 426/500
```

```
11535/11535 [=====] - 2s 198us/sample - loss: 0.0373
- accuracy: 0.9934
Epoch 427/500
11535/11535 [=====] - 2s 197us/sample - loss: 0.0375
- accuracy: 0.9934
Epoch 428/500
11535/11535 [=====] - 3s 222us/sample - loss: 0.0374
- accuracy: 0.9934
Epoch 429/500
11535/11535 [=====] - 2s 194us/sample - loss: 0.0374
- accuracy: 0.9934
Epoch 430/500
11535/11535 [=====] - 2s 202us/sample - loss: 0.0373
- accuracy: 0.9934
Epoch 431/500
11535/11535 [=====] - 2s 208us/sample - loss: 0.0373
- accuracy: 0.9934
Epoch 432/500
11535/11535 [=====] - 2s 215us/sample - loss: 0.0372
- accuracy: 0.9934
Epoch 433/500
11535/11535 [=====] - 2s 211us/sample - loss: 0.0373
- accuracy: 0.9934
Epoch 434/500
11535/11535 [=====] - 2s 209us/sample - loss: 0.0372
```

```
- accuracy: 0.9934
Epoch 435/500
11535/11535 [=====] - 2s 212us/sample - loss: 0.0371
- accuracy: 0.9934
Epoch 436/500
11535/11535 [=====] - 2s 203us/sample - loss: 0.0372
- accuracy: 0.9934
Epoch 437/500
11535/11535 [=====] - 2s 205us/sample - loss: 0.0371
- accuracy: 0.9934
Epoch 438/500
11535/11535 [=====] - 3s 230us/sample - loss: 0.0372
- accuracy: 0.9934
Epoch 439/500
11535/11535 [=====] - 2s 201us/sample - loss: 0.0372
- accuracy: 0.9934
Epoch 440/500
11535/11535 [=====] - 2s 215us/sample - loss: 0.0374
- accuracy: 0.9934
Epoch 441/500
11535/11535 [=====] - 3s 243us/sample - loss: 0.0373
- accuracy: 0.9934
Epoch 442/500
11535/11535 [=====] - 3s 222us/sample - loss: 0.0374
- accuracy: 0.9934
```



```
Epoch 443/500
11535/11535 [=====] - 3s 221us/sample - loss: 0.0372
- accuracy: 0.9934
Epoch 444/500
11535/11535 [=====] - 2s 198us/sample - loss: 0.0371
- accuracy: 0.9934
Epoch 445/500
11535/11535 [=====] - 3s 244us/sample - loss: 0.0372
- accuracy: 0.9934
Epoch 446/500
11535/11535 [=====] - 2s 208us/sample - loss: 0.0372
- accuracy: 0.9934
Epoch 447/500
11535/11535 [=====] - 2s 210us/sample - loss: 0.0371
- accuracy: 0.9934
Epoch 448/500
11535/11535 [=====] - 3s 224us/sample - loss: 0.0372
- accuracy: 0.9934
Epoch 449/500
11535/11535 [=====] - 3s 226us/sample - loss: 0.0372
- accuracy: 0.9934
Epoch 450/500
11535/11535 [=====] - 3s 225us/sample - loss: 0.0374
- accuracy: 0.9934
Epoch 451/500
```

```
11535/11535 [=====] - 2s 197us/sample - loss: 0.0374
- accuracy: 0.9934
Epoch 452/500
11535/11535 [=====] - 2s 211us/sample - loss: 0.0372
- accuracy: 0.9934
Epoch 453/500
11535/11535 [=====] - 3s 226us/sample - loss: 0.0371
- accuracy: 0.9934
Epoch 454/500
11535/11535 [=====] - 2s 205us/sample - loss: 0.0373
- accuracy: 0.9934
Epoch 455/500
11535/11535 [=====] - 3s 218us/sample - loss: 0.0372
- accuracy: 0.9934
Epoch 456/500
11535/11535 [=====] - 3s 222us/sample - loss: 0.0372
- accuracy: 0.9934
Epoch 457/500
11535/11535 [=====] - 3s 229us/sample - loss: 0.0373
- accuracy: 0.9934
Epoch 458/500
11535/11535 [=====] - 2s 199us/sample - loss: 0.0373
- accuracy: 0.9934
Epoch 459/500
11535/11535 [=====] - 2s 209us/sample - loss: 0.0371
```

```
- accuracy: 0.9933
Epoch 460/500
11535/11535 [=====] - 2s 214us/sample - loss: 0.0373
- accuracy: 0.9933
Epoch 461/500
11535/11535 [=====] - 3s 245us/sample - loss: 0.0375
- accuracy: 0.9933
Epoch 462/500
11535/11535 [=====] - 2s 196us/sample - loss: 0.0372
- accuracy: 0.9934
Epoch 463/500
11535/11535 [=====] - 2s 214us/sample - loss: 0.0372
- accuracy: 0.9934
Epoch 464/500
11535/11535 [=====] - 3s 235us/sample - loss: 0.0370
- accuracy: 0.9934
Epoch 465/500
11535/11535 [=====] - 3s 233us/sample - loss: 0.0371
- accuracy: 0.9934
Epoch 466/500
11535/11535 [=====] - 2s 211us/sample - loss: 0.0372
- accuracy: 0.9934
Epoch 467/500
11535/11535 [=====] - 2s 204us/sample - loss: 0.0371
- accuracy: 0.9934
```

```
Epoch 468/500
11535/11535 [=====] - 3s 225us/sample - loss: 0.0371
- accuracy: 0.9934
Epoch 469/500
11535/11535 [=====] - 2s 207us/sample - loss: 0.0371
- accuracy: 0.9934
Epoch 470/500
11535/11535 [=====] - 2s 204us/sample - loss: 0.0372
- accuracy: 0.9934
Epoch 471/500
11535/11535 [=====] - 3s 220us/sample - loss: 0.0371
- accuracy: 0.9934
Epoch 472/500
11535/11535 [=====] - 2s 190us/sample - loss: 0.0372
- accuracy: 0.9934
Epoch 473/500
11535/11535 [=====] - 3s 236us/sample - loss: 0.0370
- accuracy: 0.9934
Epoch 474/500
11535/11535 [=====] - 2s 211us/sample - loss: 0.0373
- accuracy: 0.9933
Epoch 475/500
11535/11535 [=====] - 2s 195us/sample - loss: 0.0370
- accuracy: 0.9934
Epoch 476/500
```

```
11535/11535 [=====] - 3s 217us/sample - loss: 0.0370
- accuracy: 0.9934
Epoch 477/500
11535/11535 [=====] - 2s 216us/sample - loss: 0.0368
- accuracy: 0.9934
Epoch 478/500
11535/11535 [=====] - 2s 206us/sample - loss: 0.0370
- accuracy: 0.9934
Epoch 479/500
11535/11535 [=====] - 2s 201us/sample - loss: 0.0372
- accuracy: 0.9934
Epoch 480/500
11535/11535 [=====] - 2s 212us/sample - loss: 0.0371
- accuracy: 0.9934
Epoch 481/500
11535/11535 [=====] - 2s 194us/sample - loss: 0.0370
- accuracy: 0.9934
Epoch 482/500
11535/11535 [=====] - 3s 222us/sample - loss: 0.0372
- accuracy: 0.9934
Epoch 483/500
11535/11535 [=====] - 2s 200us/sample - loss: 0.0369
- accuracy: 0.9934
Epoch 484/500
11535/11535 [=====] - 2s 210us/sample - loss: 0.0369
```

```
- accuracy: 0.9934
Epoch 485/500
11535/11535 [=====] - 3s 218us/sample - loss: 0.0371
- accuracy: 0.9934
Epoch 486/500
11535/11535 [=====] - 3s 228us/sample - loss: 0.0373
- accuracy: 0.9934
Epoch 487/500
11535/11535 [=====] - 2s 207us/sample - loss: 0.0371
- accuracy: 0.9934
Epoch 488/500
11535/11535 [=====] - 2s 214us/sample - loss: 0.0369
- accuracy: 0.9934
Epoch 489/500
11535/11535 [=====] - 2s 211us/sample - loss: 0.0369
- accuracy: 0.9934
Epoch 490/500
11535/11535 [=====] - 3s 223us/sample - loss: 0.0371
- accuracy: 0.9934
Epoch 491/500
11535/11535 [=====] - 2s 211us/sample - loss: 0.0371
- accuracy: 0.9934
Epoch 492/500
11535/11535 [=====] - 2s 209us/sample - loss: 0.0370
- accuracy: 0.9934
```

```
Epoch 493/500
11535/11535 [=====] - 2s 191us/sample - loss: 0.0370
- accuracy: 0.9933
Epoch 494/500
11535/11535 [=====] - 2s 203us/sample - loss: 0.0369
- accuracy: 0.9934
Epoch 495/500
11535/11535 [=====] - 2s 188us/sample - loss: 0.0371
- accuracy: 0.9934
Epoch 496/500
11535/11535 [=====] - 2s 206us/sample - loss: 0.0369
- accuracy: 0.9934
Epoch 497/500
11535/11535 [=====] - 2s 194us/sample - loss: 0.0370
- accuracy: 0.9934
Epoch 498/500
11535/11535 [=====] - 2s 212us/sample - loss: 0.0370
- accuracy: 0.9934
Epoch 499/500
11535/11535 [=====] - 2s 209us/sample - loss: 0.0371
- accuracy: 0.9934
Epoch 500/500
11535/11535 [=====] - 2s 194us/sample - loss: 0.0370
- accuracy: 0.9934
2891/2891 [=====] - 0s 108us/sample
```

class_weight_Fold_2: {0: 0.40265293655641854, 1: 91.0657894736842}

pos_weight: 0.6
thresholdNum: 0.5

Average of train loss Fold_2: 0.049
Average of yPredProbability Fold_2: 0.0071

classification_report_Fold_2:			
	precision	recall	f1-score
Normal 0	1.00	1.00	1.00
Anomaly 1	0.00	0.00	0.00
accuracy			1.00
macro avg	0.50	0.50	0.50
weighted avg	0.99	1.00	0.99

confusion_matrix_Fold_2:
True Negatives: 2881
False Positives: 0

False Negatives: 10
True Positives: 0

End running time Fold_2: 210508_010318 ,-----.

Start running time Fold_3: 210508_010318 ,-----:

Shape of Actual yXtrainRolled After Rolling Fold_3: (23080, 60)

Shape of Actual yXvalidShifted dataset: (2888, 60)

Shape of Actual yXvalidRolled After Rolling Fold_3: (5774, 60)

-----*** Train modelEvaluateVal without adding Augmented data
***-----

Shape of data after Transform ToOneRow to give Cross Validation Model in
fold_3:

xtrain: (11540, 118), ytrain: (11540,)
xvalid: (2887, 118), yvalid: (2887,)

Number of final label 0 in yXtrain_Fold_3: 11469

Number of final label 1 in yXtrain_Before_AddingAugedData_Fold_3: 71
 Number of final label 1 in yXtrain_After_AddingAugedData_Fold_3: 71

Train on 11540 samples

Epoch 1/500

11540/11540 [=====] - 4s 363us/sample - loss: 2.9958
 - accuracy: 0.9938

Epoch 2/500

11540/11540 [=====] - 2s 204us/sample - loss: 1.3680
 - accuracy: 0.9938

Epoch 3/500

11540/11540 [=====] - 2s 196us/sample - loss: 0.5872
 - accuracy: 0.9938

Epoch 4/500

11540/11540 [=====] - 2s 206us/sample - loss: 0.2510
 - accuracy: 0.9938

Epoch 5/500

11540/11540 [=====] - 3s 244us/sample - loss: 0.1189
 - accuracy: 0.9938

Epoch 6/500

11540/11540 [=====] - 2s 207us/sample - loss: 0.0708
 - accuracy: 0.9938

Epoch 7/500

11540/11540 [=====] - 2s 205us/sample - loss: 0.0542

```
- accuracy: 0.9938
Epoch 8/500
11540/11540 [=====] - 3s 224us/sample - loss: 0.0481
- accuracy: 0.9938
Epoch 9/500
11540/11540 [=====] - 3s 222us/sample - loss: 0.0455
- accuracy: 0.9938
Epoch 10/500
11540/11540 [=====] - 2s 202us/sample - loss: 0.0443
- accuracy: 0.9938
Epoch 11/500
11540/11540 [=====] - 2s 208us/sample - loss: 0.0438
- accuracy: 0.9938
Epoch 12/500
11540/11540 [=====] - 3s 224us/sample - loss: 0.0435
- accuracy: 0.9938
Epoch 13/500
11540/11540 [=====] - 2s 212us/sample - loss: 0.0433
- accuracy: 0.9938
Epoch 14/500
11540/11540 [=====] - 3s 225us/sample - loss: 0.0430
- accuracy: 0.9938
Epoch 15/500
11540/11540 [=====] - 2s 206us/sample - loss: 0.0426
- accuracy: 0.9938
```

```
Epoch 16/500
11540/11540 [=====] - 2s 203us/sample - loss: 0.0421
- accuracy: 0.9938
Epoch 17/500
11540/11540 [=====] - 3s 233us/sample - loss: 0.0421
- accuracy: 0.9938
Epoch 18/500
11540/11540 [=====] - 2s 203us/sample - loss: 0.0418
- accuracy: 0.9938
Epoch 19/500
11540/11540 [=====] - 2s 186us/sample - loss: 0.0413
- accuracy: 0.9938
Epoch 20/500
11540/11540 [=====] - 2s 209us/sample - loss: 0.0413
- accuracy: 0.9938
Epoch 21/500
11540/11540 [=====] - 3s 229us/sample - loss: 0.0408
- accuracy: 0.9938
Epoch 22/500
11540/11540 [=====] - 2s 204us/sample - loss: 0.0407
- accuracy: 0.9938
Epoch 23/500
11540/11540 [=====] - 2s 189us/sample - loss: 0.0405
- accuracy: 0.9938
Epoch 24/500
```

```
11540/11540 [=====] - 2s 208us/sample - loss: 0.0402
- accuracy: 0.9938
Epoch 25/500
11540/11540 [=====] - 3s 226us/sample - loss: 0.0399
- accuracy: 0.9938
Epoch 26/500
11540/11540 [=====] - 2s 213us/sample - loss: 0.0401
- accuracy: 0.9938
Epoch 27/500
11540/11540 [=====] - 3s 227us/sample - loss: 0.0398
- accuracy: 0.9938
Epoch 28/500
11540/11540 [=====] - 2s 203us/sample - loss: 0.0396
- accuracy: 0.9938
Epoch 29/500
11540/11540 [=====] - 3s 280us/sample - loss: 0.0398
- accuracy: 0.9938
Epoch 30/500
11540/11540 [=====] - 2s 164us/sample - loss: 0.0395
- accuracy: 0.9938
Epoch 31/500
11540/11540 [=====] - 3s 231us/sample - loss: 0.0393
- accuracy: 0.9938
Epoch 32/500
11540/11540 [=====] - 3s 220us/sample - loss: 0.0393
```

```
- accuracy: 0.9938
Epoch 33/500
11540/11540 [=====] - 2s 201us/sample - loss: 0.0390
- accuracy: 0.9938
Epoch 34/500
11540/11540 [=====] - 2s 204us/sample - loss: 0.0389
- accuracy: 0.9938
Epoch 35/500
11540/11540 [=====] - 2s 197us/sample - loss: 0.0386
- accuracy: 0.9938
Epoch 36/500
11540/11540 [=====] - 3s 220us/sample - loss: 0.0388
- accuracy: 0.9938
Epoch 37/500
11540/11540 [=====] - 2s 177us/sample - loss: 0.0384
- accuracy: 0.9938
Epoch 38/500
11540/11540 [=====] - 2s 145us/sample - loss: 0.0385
- accuracy: 0.9938
Epoch 39/500
11540/11540 [=====] - 2s 143us/sample - loss: 0.0385
- accuracy: 0.9938
Epoch 40/500
11540/11540 [=====] - 2s 144us/sample - loss: 0.0383
- accuracy: 0.9938
```

```
Epoch 41/500
11540/11540 [=====] - 2s 159us/sample - loss: 0.0381
- accuracy: 0.9938
Epoch 42/500
11540/11540 [=====] - 2s 144us/sample - loss: 0.0383
- accuracy: 0.9938
Epoch 43/500
11540/11540 [=====] - 2s 150us/sample - loss: 0.0380
- accuracy: 0.9938
Epoch 44/500
11540/11540 [=====] - 2s 132us/sample - loss: 0.0379
- accuracy: 0.9938
Epoch 45/500
11540/11540 [=====] - 2s 138us/sample - loss: 0.0377
- accuracy: 0.9938
Epoch 46/500
11540/11540 [=====] - 2s 136us/sample - loss: 0.0376
- accuracy: 0.9938
Epoch 47/500
11540/11540 [=====] - 2s 138us/sample - loss: 0.0379
- accuracy: 0.9938
Epoch 48/500
11540/11540 [=====] - 1s 129us/sample - loss: 0.0376
- accuracy: 0.9938
Epoch 49/500
```

```
11540/11540 [=====] - 2s 134us/sample - loss: 0.0378
- accuracy: 0.9938
Epoch 50/500
11540/11540 [=====] - 2s 140us/sample - loss: 0.0377
- accuracy: 0.9938
Epoch 51/500
11540/11540 [=====] - 2s 130us/sample - loss: 0.0374
- accuracy: 0.9938
Epoch 52/500
11540/11540 [=====] - 1s 125us/sample - loss: 0.0374
- accuracy: 0.9938
Epoch 53/500
11540/11540 [=====] - 2s 131us/sample - loss: 0.0377
- accuracy: 0.9938
Epoch 54/500
11540/11540 [=====] - 2s 134us/sample - loss: 0.0377
- accuracy: 0.9938
Epoch 55/500
11540/11540 [=====] - 2s 131us/sample - loss: 0.0375
- accuracy: 0.9938
Epoch 56/500
11540/11540 [=====] - 2s 146us/sample - loss: 0.0373
- accuracy: 0.9938
Epoch 57/500
11540/11540 [=====] - 2s 141us/sample - loss: 0.0373
```



```
- accuracy: 0.9938
Epoch 58/500
11540/11540 [=====] - 2s 134us/sample - loss: 0.0374
- accuracy: 0.9938
Epoch 59/500
11540/11540 [=====] - 2s 140us/sample - loss: 0.0374
- accuracy: 0.9938
Epoch 60/500
11540/11540 [=====] - 2s 133us/sample - loss: 0.0373
- accuracy: 0.9938
Epoch 61/500
11540/11540 [=====] - 2s 133us/sample - loss: 0.0372
- accuracy: 0.9938
Epoch 62/500
11540/11540 [=====] - 2s 133us/sample - loss: 0.0373
- accuracy: 0.9938
Epoch 63/500
11540/11540 [=====] - 2s 132us/sample - loss: 0.0370
- accuracy: 0.9938
Epoch 64/500
11540/11540 [=====] - 2s 137us/sample - loss: 0.0372
- accuracy: 0.9938
Epoch 65/500
11540/11540 [=====] - 2s 144us/sample - loss: 0.0375
- accuracy: 0.9938
```

```
Epoch 66/500
11540/11540 [=====] - 2s 131us/sample - loss: 0.0369
- accuracy: 0.9938
Epoch 67/500
11540/11540 [=====] - 1s 126us/sample - loss: 0.0371
- accuracy: 0.9938
Epoch 68/500
11540/11540 [=====] - 2s 131us/sample - loss: 0.0371
- accuracy: 0.9938
Epoch 69/500
11540/11540 [=====] - 2s 140us/sample - loss: 0.0371
- accuracy: 0.9938
Epoch 70/500
11540/11540 [=====] - 1s 128us/sample - loss: 0.0368
- accuracy: 0.9938
Epoch 71/500
11540/11540 [=====] - 1s 130us/sample - loss: 0.0371
- accuracy: 0.9938
Epoch 72/500
11540/11540 [=====] - 2s 132us/sample - loss: 0.0370
- accuracy: 0.9938
Epoch 73/500
11540/11540 [=====] - 2s 134us/sample - loss: 0.0370
- accuracy: 0.9938
Epoch 74/500
```

```
11540/11540 [=====] - 2s 130us/sample - loss: 0.0370
- accuracy: 0.9938
Epoch 75/500
11540/11540 [=====] - 2s 131us/sample - loss: 0.0368
- accuracy: 0.9938
Epoch 76/500
11540/11540 [=====] - 2s 142us/sample - loss: 0.0370
- accuracy: 0.9938
Epoch 77/500
11540/11540 [=====] - 2s 136us/sample - loss: 0.0371
- accuracy: 0.9938
Epoch 78/500
11540/11540 [=====] - 1s 126us/sample - loss: 0.0370
- accuracy: 0.9938
Epoch 79/500
11540/11540 [=====] - 2s 134us/sample - loss: 0.0368
- accuracy: 0.9938
Epoch 80/500
11540/11540 [=====] - 2s 134us/sample - loss: 0.0368
- accuracy: 0.9938
Epoch 81/500
11540/11540 [=====] - 2s 131us/sample - loss: 0.0370
- accuracy: 0.9938
Epoch 82/500
11540/11540 [=====] - 2s 133us/sample - loss: 0.0370
```

```
- accuracy: 0.9938
Epoch 83/500
11540/11540 [=====] - 2s 137us/sample - loss: 0.0370
- accuracy: 0.9938
Epoch 84/500
11540/11540 [=====] - 2s 133us/sample - loss: 0.0369
- accuracy: 0.9938
Epoch 85/500
11540/11540 [=====] - 2s 135us/sample - loss: 0.0369
- accuracy: 0.9938
Epoch 86/500
11540/11540 [=====] - 1s 127us/sample - loss: 0.0367
- accuracy: 0.9938
Epoch 87/500
11540/11540 [=====] - 2s 148us/sample - loss: 0.0367
- accuracy: 0.9938
Epoch 88/500
11540/11540 [=====] - 2s 150us/sample - loss: 0.0367
- accuracy: 0.9938
Epoch 89/500
11540/11540 [=====] - 2s 132us/sample - loss: 0.0369
- accuracy: 0.9938
Epoch 90/500
11540/11540 [=====] - 2s 138us/sample - loss: 0.0368
- accuracy: 0.9938
```

```
Epoch 91/500
11540/11540 [=====] - 2s 131us/sample - loss: 0.0368
- accuracy: 0.9938
Epoch 92/500
11540/11540 [=====] - 2s 140us/sample - loss: 0.0367
- accuracy: 0.9938
Epoch 93/500
11540/11540 [=====] - 2s 131us/sample - loss: 0.0365
- accuracy: 0.9938
Epoch 94/500
11540/11540 [=====] - 2s 157us/sample - loss: 0.0368
- accuracy: 0.9938
Epoch 95/500
11540/11540 [=====] - 2s 163us/sample - loss: 0.0367
- accuracy: 0.9938
Epoch 96/500
11540/11540 [=====] - 2s 197us/sample - loss: 0.0367
- accuracy: 0.9938
Epoch 97/500
11540/11540 [=====] - 2s 188us/sample - loss: 0.0367
- accuracy: 0.9938
Epoch 98/500
11540/11540 [=====] - 2s 143us/sample - loss: 0.0365
- accuracy: 0.9938
Epoch 99/500
```

```
11540/11540 [=====] - 2s 132us/sample - loss: 0.0367
- accuracy: 0.9938
Epoch 100/500
11540/11540 [=====] - 2s 140us/sample - loss: 0.0367
- accuracy: 0.9938
Epoch 101/500
11540/11540 [=====] - 2s 145us/sample - loss: 0.0366
- accuracy: 0.9938
Epoch 102/500
11540/11540 [=====] - 2s 135us/sample - loss: 0.0366
- accuracy: 0.9938
Epoch 103/500
11540/11540 [=====] - 2s 143us/sample - loss: 0.0365
- accuracy: 0.9938
Epoch 104/500
11540/11540 [=====] - 2s 144us/sample - loss: 0.0366
- accuracy: 0.9938
Epoch 105/500
11540/11540 [=====] - 2s 137us/sample - loss: 0.0367
- accuracy: 0.9938
Epoch 106/500
11540/11540 [=====] - 2s 137us/sample - loss: 0.0366
- accuracy: 0.9938
Epoch 107/500
11540/11540 [=====] - 2s 138us/sample - loss: 0.0365
```

```
- accuracy: 0.9938
Epoch 108/500
11540/11540 [=====] - 2s 134us/sample - loss: 0.0365
- accuracy: 0.9938
Epoch 109/500
11540/11540 [=====] - 2s 144us/sample - loss: 0.0367
- accuracy: 0.9938
Epoch 110/500
11540/11540 [=====] - 2s 137us/sample - loss: 0.0364
- accuracy: 0.9938
Epoch 111/500
11540/11540 [=====] - 2s 142us/sample - loss: 0.0365
- accuracy: 0.9938
Epoch 112/500
11540/11540 [=====] - 2s 146us/sample - loss: 0.0366
- accuracy: 0.9938
Epoch 113/500
11540/11540 [=====] - 2s 137us/sample - loss: 0.0365
- accuracy: 0.9938
Epoch 114/500
11540/11540 [=====] - 1s 125us/sample - loss: 0.0364
- accuracy: 0.9938
Epoch 115/500
11540/11540 [=====] - 2s 136us/sample - loss: 0.0365
- accuracy: 0.9938
```

```
Epoch 116/500
11540/11540 [=====] - 2s 143us/sample - loss: 0.0364
- accuracy: 0.9938
Epoch 117/500
11540/11540 [=====] - 2s 151us/sample - loss: 0.0364
- accuracy: 0.9938
Epoch 118/500
11540/11540 [=====] - 2s 135us/sample - loss: 0.0364
- accuracy: 0.9938
Epoch 119/500
11540/11540 [=====] - 2s 148us/sample - loss: 0.0365
- accuracy: 0.9938
Epoch 120/500
11540/11540 [=====] - 2s 154us/sample - loss: 0.0364
- accuracy: 0.9938
Epoch 121/500
11540/11540 [=====] - 2s 135us/sample - loss: 0.0364
- accuracy: 0.9938
Epoch 122/500
11540/11540 [=====] - 2s 147us/sample - loss: 0.0366
- accuracy: 0.9938
Epoch 123/500
11540/11540 [=====] - 2s 135us/sample - loss: 0.0364
- accuracy: 0.9938
Epoch 124/500
```



```
11540/11540 [=====] - 2s 148us/sample - loss: 0.0364
- accuracy: 0.9938
Epoch 125/500
11540/11540 [=====] - 2s 138us/sample - loss: 0.0365
- accuracy: 0.9938
Epoch 126/500
11540/11540 [=====] - 2s 144us/sample - loss: 0.0365
- accuracy: 0.9938
Epoch 127/500
11540/11540 [=====] - 2s 140us/sample - loss: 0.0363
- accuracy: 0.9938
Epoch 128/500
11540/11540 [=====] - 2s 136us/sample - loss: 0.0363
- accuracy: 0.9938
Epoch 129/500
11540/11540 [=====] - 2s 133us/sample - loss: 0.0364
- accuracy: 0.9938
Epoch 130/500
11540/11540 [=====] - 2s 132us/sample - loss: 0.0364
- accuracy: 0.9938
Epoch 131/500
11540/11540 [=====] - 2s 135us/sample - loss: 0.0363
- accuracy: 0.9938
Epoch 132/500
11540/11540 [=====] - 1s 125us/sample - loss: 0.0363
```

```
- accuracy: 0.9938
Epoch 133/500
11540/11540 [=====] - 2s 141us/sample - loss: 0.0364
- accuracy: 0.9938
Epoch 134/500
11540/11540 [=====] - 2s 140us/sample - loss: 0.0363
- accuracy: 0.9938
Epoch 135/500
11540/11540 [=====] - 2s 136us/sample - loss: 0.0362
- accuracy: 0.9938
Epoch 136/500
11540/11540 [=====] - 2s 132us/sample - loss: 0.0365
- accuracy: 0.9938
Epoch 137/500
11540/11540 [=====] - 2s 142us/sample - loss: 0.0364
- accuracy: 0.9938
Epoch 138/500
11540/11540 [=====] - 2s 140us/sample - loss: 0.0362
- accuracy: 0.9938
Epoch 139/500
11540/11540 [=====] - 2s 134us/sample - loss: 0.0362
- accuracy: 0.9938
Epoch 140/500
11540/11540 [=====] - 2s 142us/sample - loss: 0.0363
- accuracy: 0.9938
```

```
Epoch 141/500
11540/11540 [=====] - 2s 142us/sample - loss: 0.0362
- accuracy: 0.9938
Epoch 142/500
11540/11540 [=====] - 2s 171us/sample - loss: 0.0362
- accuracy: 0.9938
Epoch 143/500
11540/11540 [=====] - 2s 131us/sample - loss: 0.0362
- accuracy: 0.9938
Epoch 144/500
11540/11540 [=====] - 2s 194us/sample - loss: 0.0363
- accuracy: 0.9938
Epoch 145/500
11540/11540 [=====] - 2s 213us/sample - loss: 0.0362
- accuracy: 0.9938
Epoch 146/500
11540/11540 [=====] - 2s 202us/sample - loss: 0.0363
- accuracy: 0.9938
Epoch 147/500
11540/11540 [=====] - 3s 267us/sample - loss: 0.0361
- accuracy: 0.9938
Epoch 148/500
11540/11540 [=====] - 3s 237us/sample - loss: 0.0363
- accuracy: 0.9938
Epoch 149/500
```

```
11540/11540 [=====] - 2s 157us/sample - loss: 0.0361
- accuracy: 0.9938
Epoch 150/500
11540/11540 [=====] - 3s 225us/sample - loss: 0.0363
- accuracy: 0.9938
Epoch 151/500
11540/11540 [=====] - 3s 294us/sample - loss: 0.0362
- accuracy: 0.9938
Epoch 152/500
11540/11540 [=====] - 2s 200us/sample - loss: 0.0362
- accuracy: 0.9938
Epoch 153/500
11540/11540 [=====] - 2s 179us/sample - loss: 0.0361
- accuracy: 0.9938
Epoch 154/500
11540/11540 [=====] - 2s 190us/sample - loss: 0.0361
- accuracy: 0.9938
Epoch 155/500
11540/11540 [=====] - 2s 166us/sample - loss: 0.0362
- accuracy: 0.9938
Epoch 156/500
11540/11540 [=====] - 2s 171us/sample - loss: 0.0360
- accuracy: 0.9938
Epoch 157/500
11540/11540 [=====] - 2s 170us/sample - loss: 0.0358
```

```
- accuracy: 0.9938
Epoch 158/500
11540/11540 [=====] - 2s 191us/sample - loss: 0.0360
- accuracy: 0.9938
Epoch 159/500
11540/11540 [=====] - 2s 175us/sample - loss: 0.0362
- accuracy: 0.9938
Epoch 160/500
11540/11540 [=====] - 2s 167us/sample - loss: 0.0361
- accuracy: 0.9938
Epoch 161/500
11540/11540 [=====] - 2s 167us/sample - loss: 0.0362
- accuracy: 0.9938
Epoch 162/500
11540/11540 [=====] - 2s 174us/sample - loss: 0.0360
- accuracy: 0.9938
Epoch 163/500
11540/11540 [=====] - 2s 159us/sample - loss: 0.0360
- accuracy: 0.9938
Epoch 164/500
11540/11540 [=====] - 2s 137us/sample - loss: 0.0361
- accuracy: 0.9938
Epoch 165/500
11540/11540 [=====] - 2s 143us/sample - loss: 0.0360
- accuracy: 0.9938
```

```
Epoch 166/500
11540/11540 [=====] - 2s 144us/sample - loss: 0.0361
- accuracy: 0.9938
Epoch 167/500
11540/11540 [=====] - 2s 150us/sample - loss: 0.0360
- accuracy: 0.9938
Epoch 168/500
11540/11540 [=====] - 2s 143us/sample - loss: 0.0360
- accuracy: 0.9938
Epoch 169/500
11540/11540 [=====] - 2s 139us/sample - loss: 0.0359
- accuracy: 0.9938
Epoch 170/500
11540/11540 [=====] - 2s 131us/sample - loss: 0.0359
- accuracy: 0.9938
Epoch 171/500
11540/11540 [=====] - 2s 138us/sample - loss: 0.0360
- accuracy: 0.9938
Epoch 172/500
11540/11540 [=====] - 1s 129us/sample - loss: 0.0358
- accuracy: 0.9938
Epoch 173/500
11540/11540 [=====] - 3s 227us/sample - loss: 0.0360
- accuracy: 0.9938
Epoch 174/500
```

```
11540/11540 [=====] - 3s 257us/sample - loss: 0.0359
- accuracy: 0.9938
Epoch 175/500
11540/11540 [=====] - 2s 148us/sample - loss: 0.0358
- accuracy: 0.9938
Epoch 176/500
11540/11540 [=====] - 3s 219us/sample - loss: 0.0361
- accuracy: 0.9938
Epoch 177/500
11540/11540 [=====] - 2s 148us/sample - loss: 0.0360
- accuracy: 0.9938
Epoch 178/500
11540/11540 [=====] - 2s 136us/sample - loss: 0.0361
- accuracy: 0.9938
Epoch 179/500
11540/11540 [=====] - 2s 131us/sample - loss: 0.0360
- accuracy: 0.9938
Epoch 180/500
11540/11540 [=====] - 2s 161us/sample - loss: 0.0359
- accuracy: 0.9938
Epoch 181/500
11540/11540 [=====] - 2s 136us/sample - loss: 0.0358
- accuracy: 0.9938
Epoch 182/500
11540/11540 [=====] - 2s 136us/sample - loss: 0.0359
```

```
- accuracy: 0.9938
Epoch 183/500
11540/11540 [=====] - 1s 127us/sample - loss: 0.0357
- accuracy: 0.9938
Epoch 184/500
11540/11540 [=====] - 2s 174us/sample - loss: 0.0358
- accuracy: 0.9938
Epoch 185/500
11540/11540 [=====] - 2s 183us/sample - loss: 0.0360
- accuracy: 0.9938
Epoch 186/500
11540/11540 [=====] - 2s 156us/sample - loss: 0.0358
- accuracy: 0.9938
Epoch 187/500
11540/11540 [=====] - 1s 130us/sample - loss: 0.0360
- accuracy: 0.9938
Epoch 188/500
11540/11540 [=====] - 1s 127us/sample - loss: 0.0360
- accuracy: 0.9938
Epoch 189/500
11540/11540 [=====] - 2s 132us/sample - loss: 0.0358
- accuracy: 0.9938
Epoch 190/500
11540/11540 [=====] - 2s 138us/sample - loss: 0.0359
- accuracy: 0.9938
```



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Epoch 191/500
11540/11540 [=====] - 1s 124us/sample - loss: 0.0359
- accuracy: 0.9938
Epoch 192/500
11540/11540 [=====] - 1s 130us/sample - loss: 0.0358
- accuracy: 0.9938
Epoch 193/500
11540/11540 [=====] - 2s 131us/sample - loss: 0.0360
- accuracy: 0.9938
Epoch 194/500
11540/11540 [=====] - 1s 128us/sample - loss: 0.0358
- accuracy: 0.9938
Epoch 195/500
11540/11540 [=====] - 1s 126us/sample - loss: 0.0358
- accuracy: 0.9938
Epoch 196/500
11540/11540 [=====] - 2s 132us/sample - loss: 0.0359
- accuracy: 0.9938
Epoch 197/500
11540/11540 [=====] - 2s 132us/sample - loss: 0.0358
- accuracy: 0.9938
Epoch 198/500
11540/11540 [=====] - 2s 131us/sample - loss: 0.0357
- accuracy: 0.9938
Epoch 199/500
```

```
11540/11540 [=====] - 1s 123us/sample - loss: 0.0358
- accuracy: 0.9938
Epoch 200/500
11540/11540 [=====] - 2s 133us/sample - loss: 0.0358
- accuracy: 0.9938
Epoch 201/500
11540/11540 [=====] - 2s 130us/sample - loss: 0.0358
- accuracy: 0.9938
Epoch 202/500
11540/11540 [=====] - 1s 127us/sample - loss: 0.0358
- accuracy: 0.9938
Epoch 203/500
11540/11540 [=====] - 1s 123us/sample - loss: 0.0356
- accuracy: 0.9938
Epoch 204/500
11540/11540 [=====] - 2s 132us/sample - loss: 0.0358
- accuracy: 0.9938
Epoch 205/500
11540/11540 [=====] - 1s 129us/sample - loss: 0.0357
- accuracy: 0.9938
Epoch 206/500
11540/11540 [=====] - 2s 131us/sample - loss: 0.0357
- accuracy: 0.9938
Epoch 207/500
11540/11540 [=====] - 1s 122us/sample - loss: 0.0356
```

```
- accuracy: 0.9938
Epoch 208/500
11540/11540 [=====] - 2s 131us/sample - loss: 0.0359
- accuracy: 0.9938
Epoch 209/500
11540/11540 [=====] - 2s 130us/sample - loss: 0.0358
- accuracy: 0.9938
Epoch 210/500
11540/11540 [=====] - 1s 129us/sample - loss: 0.0356
- accuracy: 0.9938
Epoch 211/500
11540/11540 [=====] - 1s 121us/sample - loss: 0.0357
- accuracy: 0.9938
Epoch 212/500
11540/11540 [=====] - 2s 133us/sample - loss: 0.0355
- accuracy: 0.9938
Epoch 213/500
11540/11540 [=====] - 1s 128us/sample - loss: 0.0357
- accuracy: 0.9938
Epoch 214/500
11540/11540 [=====] - 2s 131us/sample - loss: 0.0359
- accuracy: 0.9938
Epoch 215/500
11540/11540 [=====] - 1s 125us/sample - loss: 0.0356
- accuracy: 0.9938
```

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Epoch 216/500
11540/11540 [=====] - 2s 132us/sample - loss: 0.0357
- accuracy: 0.9938
Epoch 217/500
11540/11540 [=====] - 1s 128us/sample - loss: 0.0357
- accuracy: 0.9938
Epoch 218/500
11540/11540 [=====] - 1s 126us/sample - loss: 0.0356
- accuracy: 0.9938
Epoch 219/500
11540/11540 [=====] - 1s 124us/sample - loss: 0.0355
- accuracy: 0.9938
Epoch 220/500
11540/11540 [=====] - 2s 132us/sample - loss: 0.0356
- accuracy: 0.9938
Epoch 221/500
11540/11540 [=====] - 1s 125us/sample - loss: 0.0356
- accuracy: 0.9938
Epoch 222/500
11540/11540 [=====] - 2s 137us/sample - loss: 0.0355
- accuracy: 0.9938
Epoch 223/500
11540/11540 [=====] - 1s 126us/sample - loss: 0.0357
- accuracy: 0.9938
Epoch 224/500
```

```
11540/11540 [=====] - 2s 134us/sample - loss: 0.0355
- accuracy: 0.9938
Epoch 225/500
11540/11540 [=====] - 1s 124us/sample - loss: 0.0359
- accuracy: 0.9938
Epoch 226/500
11540/11540 [=====] - 1s 126us/sample - loss: 0.0357
- accuracy: 0.9938
Epoch 227/500
11540/11540 [=====] - 1s 125us/sample - loss: 0.0356
- accuracy: 0.9938
Epoch 228/500
11540/11540 [=====] - 2s 130us/sample - loss: 0.0356
- accuracy: 0.9938
Epoch 229/500
11540/11540 [=====] - 1s 123us/sample - loss: 0.0356
- accuracy: 0.9938
Epoch 230/500
11540/11540 [=====] - 1s 130us/sample - loss: 0.0355
- accuracy: 0.9938
Epoch 231/500
11540/11540 [=====] - 1s 129us/sample - loss: 0.0355
- accuracy: 0.9938
Epoch 232/500
11540/11540 [=====] - 2s 132us/sample - loss: 0.0357
```

```
- accuracy: 0.9938
Epoch 233/500
11540/11540 [=====] - 2s 131us/sample - loss: 0.0355
- accuracy: 0.9938
Epoch 234/500
11540/11540 [=====] - 2s 144us/sample - loss: 0.0355
- accuracy: 0.9938
Epoch 235/500
11540/11540 [=====] - 2s 152us/sample - loss: 0.0356
- accuracy: 0.9938
Epoch 236/500
11540/11540 [=====] - 2s 171us/sample - loss: 0.0356
- accuracy: 0.9938
Epoch 237/500
11540/11540 [=====] - 2s 149us/sample - loss: 0.0354
- accuracy: 0.9938
Epoch 238/500
11540/11540 [=====] - 2s 148us/sample - loss: 0.0356
- accuracy: 0.9938
Epoch 239/500
11540/11540 [=====] - 2s 146us/sample - loss: 0.0354
- accuracy: 0.9938
Epoch 240/500
11540/11540 [=====] - 2s 152us/sample - loss: 0.0356
- accuracy: 0.9938
```

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Epoch 241/500
11540/11540 [=====] - 2s 135us/sample - loss: 0.0354
- accuracy: 0.9938
Epoch 242/500
11540/11540 [=====] - 2s 144us/sample - loss: 0.0355
- accuracy: 0.9938
Epoch 243/500
11540/11540 [=====] - 2s 144us/sample - loss: 0.0354
- accuracy: 0.9938
Epoch 244/500
11540/11540 [=====] - 2s 143us/sample - loss: 0.0355
- accuracy: 0.9938
Epoch 245/500
11540/11540 [=====] - 2s 138us/sample - loss: 0.0353
- accuracy: 0.9938
Epoch 246/500
11540/11540 [=====] - 2s 141us/sample - loss: 0.0353
- accuracy: 0.9938
Epoch 247/500
11540/11540 [=====] - 1s 129us/sample - loss: 0.0355
- accuracy: 0.9938
Epoch 248/500
11540/11540 [=====] - 2s 147us/sample - loss: 0.0354
- accuracy: 0.9938
Epoch 249/500
```

```
11540/11540 [=====] - 2s 149us/sample - loss: 0.0356
- accuracy: 0.9938
Epoch 250/500
11540/11540 [=====] - 2s 148us/sample - loss: 0.0353
- accuracy: 0.9938
Epoch 251/500
11540/11540 [=====] - 2s 170us/sample - loss: 0.0354
- accuracy: 0.9938
Epoch 252/500
11540/11540 [=====] - 2s 183us/sample - loss: 0.0354
- accuracy: 0.9938
Epoch 253/500
11540/11540 [=====] - 2s 142us/sample - loss: 0.0355
- accuracy: 0.9938
Epoch 254/500
11540/11540 [=====] - 2s 136us/sample - loss: 0.0355
- accuracy: 0.9938
Epoch 255/500
11540/11540 [=====] - 1s 128us/sample - loss: 0.0354
- accuracy: 0.9938
Epoch 256/500
11540/11540 [=====] - 2s 139us/sample - loss: 0.0354
- accuracy: 0.9938
Epoch 257/500
11540/11540 [=====] - 2s 131us/sample - loss: 0.0356
```



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- accuracy: 0.9938
Epoch 258/500
11540/11540 [=====] - 2s 139us/sample - loss: 0.0352
- accuracy: 0.9938
Epoch 259/500
11540/11540 [=====] - 2s 131us/sample - loss: 0.0354
- accuracy: 0.9938
Epoch 260/500
11540/11540 [=====] - 2s 139us/sample - loss: 0.0354
- accuracy: 0.9938
Epoch 261/500
11540/11540 [=====] - 2s 132us/sample - loss: 0.0354
- accuracy: 0.9938
Epoch 262/500
11540/11540 [=====] - 2s 132us/sample - loss: 0.0353
- accuracy: 0.9938
Epoch 263/500
11540/11540 [=====] - 2s 136us/sample - loss: 0.0354
- accuracy: 0.9938
Epoch 264/500
11540/11540 [=====] - 2s 137us/sample - loss: 0.0352
- accuracy: 0.9938
Epoch 265/500
11540/11540 [=====] - 1s 130us/sample - loss: 0.0354
- accuracy: 0.9938
```

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Epoch 266/500
11540/11540 [=====] - 2s 135us/sample - loss: 0.0357
- accuracy: 0.9938
Epoch 267/500
11540/11540 [=====] - 2s 132us/sample - loss: 0.0353
- accuracy: 0.9938
Epoch 268/500
11540/11540 [=====] - 2s 136us/sample - loss: 0.0353
- accuracy: 0.9938
Epoch 269/500
11540/11540 [=====] - 2s 136us/sample - loss: 0.0354
- accuracy: 0.9938
Epoch 270/500
11540/11540 [=====] - 2s 131us/sample - loss: 0.0353
- accuracy: 0.9938
Epoch 271/500
11540/11540 [=====] - 2s 140us/sample - loss: 0.0353
- accuracy: 0.9938
Epoch 272/500
11540/11540 [=====] - 1s 128us/sample - loss: 0.0354
- accuracy: 0.9938
Epoch 273/500
11540/11540 [=====] - 2s 143us/sample - loss: 0.0354
- accuracy: 0.9938
Epoch 274/500
```

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11540/11540 [=====] - 1s 129us/sample - loss: 0.0352
- accuracy: 0.9938
Epoch 275/500
11540/11540 [=====] - 2s 145us/sample - loss: 0.0353
- accuracy: 0.9938
Epoch 276/500
11540/11540 [=====] - 2s 131us/sample - loss: 0.0354
- accuracy: 0.9938
Epoch 277/500
11540/11540 [=====] - 2s 135us/sample - loss: 0.0352
- accuracy: 0.9938
Epoch 278/500
11540/11540 [=====] - 2s 137us/sample - loss: 0.0354
- accuracy: 0.9938
Epoch 279/500
11540/11540 [=====] - 2s 136us/sample - loss: 0.0351
- accuracy: 0.9938
Epoch 280/500
11540/11540 [=====] - 2s 137us/sample - loss: 0.0353
- accuracy: 0.9938
Epoch 281/500
11540/11540 [=====] - 2s 134us/sample - loss: 0.0351
- accuracy: 0.9938
Epoch 282/500
11540/11540 [=====] - 2s 140us/sample - loss: 0.0353
```

```
- accuracy: 0.9938
Epoch 283/500
11540/11540 [=====] - 2s 139us/sample - loss: 0.0355
- accuracy: 0.9938
Epoch 284/500
11540/11540 [=====] - 2s 136us/sample - loss: 0.0353
- accuracy: 0.9938
Epoch 285/500
11540/11540 [=====] - 1s 125us/sample - loss: 0.0352
- accuracy: 0.9938
Epoch 286/500
11540/11540 [=====] - 2s 142us/sample - loss: 0.0352
- accuracy: 0.9938
Epoch 287/500
11540/11540 [=====] - 1s 126us/sample - loss: 0.0353
- accuracy: 0.9938
Epoch 288/500
11540/11540 [=====] - 2s 133us/sample - loss: 0.0353
- accuracy: 0.9938
Epoch 289/500
11540/11540 [=====] - 2s 134us/sample - loss: 0.0352
- accuracy: 0.9938
Epoch 290/500
11540/11540 [=====] - 2s 142us/sample - loss: 0.0352
- accuracy: 0.9938
```

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Epoch 291/500
11540/11540 [=====] - 1s 126us/sample - loss: 0.0353
- accuracy: 0.9938
Epoch 292/500
11540/11540 [=====] - 2s 134us/sample - loss: 0.0353
- accuracy: 0.9938
Epoch 293/500
11540/11540 [=====] - 1s 128us/sample - loss: 0.0350
- accuracy: 0.9938
Epoch 294/500
11540/11540 [=====] - 2s 134us/sample - loss: 0.0352
- accuracy: 0.9938
Epoch 295/500
11540/11540 [=====] - 1s 127us/sample - loss: 0.0352
- accuracy: 0.9938
Epoch 296/500
11540/11540 [=====] - 2s 134us/sample - loss: 0.0352
- accuracy: 0.9938
Epoch 297/500
11540/11540 [=====] - 2s 134us/sample - loss: 0.0352
- accuracy: 0.9938
Epoch 298/500
11540/11540 [=====] - 2s 144us/sample - loss: 0.0353
- accuracy: 0.9938
Epoch 299/500
```

```
11540/11540 [=====] - 2s 154us/sample - loss: 0.0351
- accuracy: 0.9938
Epoch 300/500
11540/11540 [=====] - 2s 168us/sample - loss: 0.0351
- accuracy: 0.9938
Epoch 301/500
11540/11540 [=====] - 2s 174us/sample - loss: 0.0351
- accuracy: 0.9938
Epoch 302/500
11540/11540 [=====] - 2s 138us/sample - loss: 0.0352
- accuracy: 0.9938
Epoch 303/500
11540/11540 [=====] - 2s 132us/sample - loss: 0.0351
- accuracy: 0.9938
Epoch 304/500
11540/11540 [=====] - 2s 156us/sample - loss: 0.0352
- accuracy: 0.9938
Epoch 305/500
11540/11540 [=====] - 2s 138us/sample - loss: 0.0351
- accuracy: 0.9938
Epoch 306/500
11540/11540 [=====] - 2s 143us/sample - loss: 0.0350
- accuracy: 0.9938
Epoch 307/500
11540/11540 [=====] - 2s 133us/sample - loss: 0.0353
```

```
- accuracy: 0.9938
Epoch 308/500
11540/11540 [=====] - 2s 142us/sample - loss: 0.0352
- accuracy: 0.9938
Epoch 309/500
11540/11540 [=====] - 1s 125us/sample - loss: 0.0351
- accuracy: 0.9938
Epoch 310/500
11540/11540 [=====] - 2s 138us/sample - loss: 0.0351
- accuracy: 0.9938
Epoch 311/500
11540/11540 [=====] - 2s 140us/sample - loss: 0.0350
- accuracy: 0.9938
Epoch 312/500
11540/11540 [=====] - 2s 141us/sample - loss: 0.0352
- accuracy: 0.9938
Epoch 313/500
11540/11540 [=====] - 2s 137us/sample - loss: 0.0352
- accuracy: 0.9938
Epoch 314/500
11540/11540 [=====] - 1s 126us/sample - loss: 0.0351
- accuracy: 0.9938
Epoch 315/500
11540/11540 [=====] - 2s 136us/sample - loss: 0.0350
- accuracy: 0.9938
```

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Epoch 316/500
11540/11540 [=====] - 2s 133us/sample - loss: 0.0351
- accuracy: 0.9938
Epoch 317/500
11540/11540 [=====] - 2s 145us/sample - loss: 0.0352
- accuracy: 0.9938
Epoch 318/500
11540/11540 [=====] - 2s 132us/sample - loss: 0.0353
- accuracy: 0.9938
Epoch 319/500
11540/11540 [=====] - 2s 142us/sample - loss: 0.0351
- accuracy: 0.9938
Epoch 320/500
11540/11540 [=====] - 2s 131us/sample - loss: 0.0351
- accuracy: 0.9938
Epoch 321/500
11540/11540 [=====] - 2s 143us/sample - loss: 0.0352
- accuracy: 0.9938
Epoch 322/500
11540/11540 [=====] - 2s 152us/sample - loss: 0.0349
- accuracy: 0.9938
Epoch 323/500
11540/11540 [=====] - 2s 138us/sample - loss: 0.0353
- accuracy: 0.9938
Epoch 324/500
```



```
11540/11540 [=====] - 2s 136us/sample - loss: 0.0351
- accuracy: 0.9938
Epoch 325/500
11540/11540 [=====] - 2s 132us/sample - loss: 0.0350
- accuracy: 0.9938
Epoch 326/500
11540/11540 [=====] - 2s 143us/sample - loss: 0.0351
- accuracy: 0.9938
Epoch 327/500
11540/11540 [=====] - 2s 137us/sample - loss: 0.0350
- accuracy: 0.9938
Epoch 328/500
11540/11540 [=====] - 2s 158us/sample - loss: 0.0350
- accuracy: 0.9938
Epoch 329/500
11540/11540 [=====] - 2s 132us/sample - loss: 0.0350
- accuracy: 0.9938
Epoch 330/500
11540/11540 [=====] - 2s 146us/sample - loss: 0.0351
- accuracy: 0.9938
Epoch 331/500
11540/11540 [=====] - 2s 139us/sample - loss: 0.0350
- accuracy: 0.9938
Epoch 332/500
11540/11540 [=====] - 2s 143us/sample - loss: 0.0351
```

```
- accuracy: 0.9938
Epoch 333/500
11540/11540 [=====] - 2s 143us/sample - loss: 0.0351
- accuracy: 0.9938
Epoch 334/500
11540/11540 [=====] - 2s 144us/sample - loss: 0.0349
- accuracy: 0.9938
Epoch 335/500
11540/11540 [=====] - 2s 155us/sample - loss: 0.0352
- accuracy: 0.9938
Epoch 336/500
11540/11540 [=====] - 2s 140us/sample - loss: 0.0351
- accuracy: 0.9938
Epoch 337/500
11540/11540 [=====] - 2s 162us/sample - loss: 0.0347
- accuracy: 0.9938
Epoch 338/500
11540/11540 [=====] - 2s 137us/sample - loss: 0.0349
- accuracy: 0.9938
Epoch 339/500
11540/11540 [=====] - 2s 146us/sample - loss: 0.0351
- accuracy: 0.9938
Epoch 340/500
11540/11540 [=====] - 2s 167us/sample - loss: 0.0350
- accuracy: 0.9938
```

```
Epoch 341/500
11540/11540 [=====] - 2s 148us/sample - loss: 0.0350
- accuracy: 0.9938
Epoch 342/500
11540/11540 [=====] - 2s 167us/sample - loss: 0.0350
- accuracy: 0.9938
Epoch 343/500
11540/11540 [=====] - 2s 167us/sample - loss: 0.0350
- accuracy: 0.9938
Epoch 344/500
11540/11540 [=====] - 2s 156us/sample - loss: 0.0349
- accuracy: 0.9938
Epoch 345/500
11540/11540 [=====] - 2s 156us/sample - loss: 0.0350
- accuracy: 0.9938
Epoch 346/500
11540/11540 [=====] - 2s 152us/sample - loss: 0.0350
- accuracy: 0.9938
Epoch 347/500
11540/11540 [=====] - 2s 162us/sample - loss: 0.0349
- accuracy: 0.9938
Epoch 348/500
11540/11540 [=====] - 2s 153us/sample - loss: 0.0350
- accuracy: 0.9938
Epoch 349/500
```

```
11540/11540 [=====] - 2s 147us/sample - loss: 0.0350
- accuracy: 0.9938
Epoch 350/500
11540/11540 [=====] - 2s 170us/sample - loss: 0.0349
- accuracy: 0.9938
Epoch 351/500
11540/11540 [=====] - 2s 143us/sample - loss: 0.0349
- accuracy: 0.9938
Epoch 352/500
11540/11540 [=====] - 2s 158us/sample - loss: 0.0349
- accuracy: 0.9938
Epoch 353/500
11540/11540 [=====] - 2s 164us/sample - loss: 0.0350
- accuracy: 0.9938
Epoch 354/500
11540/11540 [=====] - 2s 149us/sample - loss: 0.0349
- accuracy: 0.9938
Epoch 355/500
11540/11540 [=====] - 2s 159us/sample - loss: 0.0349
- accuracy: 0.9938
Epoch 356/500
11540/11540 [=====] - 2s 157us/sample - loss: 0.0349
- accuracy: 0.9938
Epoch 357/500
11540/11540 [=====] - 2s 159us/sample - loss: 0.0350
```

```
- accuracy: 0.9938
Epoch 358/500
11540/11540 [=====] - 2s 162us/sample - loss: 0.0348
- accuracy: 0.9938
Epoch 359/500
11540/11540 [=====] - 2s 144us/sample - loss: 0.0349
- accuracy: 0.9938
Epoch 360/500
11540/11540 [=====] - 2s 164us/sample - loss: 0.0347
- accuracy: 0.9938
Epoch 361/500
11540/11540 [=====] - 2s 147us/sample - loss: 0.0348
- accuracy: 0.9938
Epoch 362/500
11540/11540 [=====] - 2s 152us/sample - loss: 0.0349
- accuracy: 0.9938
Epoch 363/500
11540/11540 [=====] - 2s 145us/sample - loss: 0.0346
- accuracy: 0.9938
Epoch 364/500
11540/11540 [=====] - 2s 131us/sample - loss: 0.0347
- accuracy: 0.9940
Epoch 365/500
11540/11540 [=====] - 2s 145us/sample - loss: 0.0350
- accuracy: 0.9938
```

```
Epoch 366/500
11540/11540 [=====] - 2s 149us/sample - loss: 0.0348
- accuracy: 0.9938
Epoch 367/500
11540/11540 [=====] - 2s 162us/sample - loss: 0.0347
- accuracy: 0.9938
Epoch 368/500
11540/11540 [=====] - 2s 150us/sample - loss: 0.0348
- accuracy: 0.9938
Epoch 369/500
11540/11540 [=====] - 2s 146us/sample - loss: 0.0350
- accuracy: 0.9938
Epoch 370/500
11540/11540 [=====] - 2s 149us/sample - loss: 0.0348
- accuracy: 0.9938
Epoch 371/500
11540/11540 [=====] - 1s 127us/sample - loss: 0.0350
- accuracy: 0.9938
Epoch 372/500
11540/11540 [=====] - 2s 136us/sample - loss: 0.0348
- accuracy: 0.9938
Epoch 373/500
11540/11540 [=====] - 2s 134us/sample - loss: 0.0346
- accuracy: 0.9938
Epoch 374/500
```

```
11540/11540 [=====] - 2s 140us/sample - loss: 0.0348
- accuracy: 0.9938
Epoch 375/500
11540/11540 [=====] - 1s 126us/sample - loss: 0.0347
- accuracy: 0.9938
Epoch 376/500
11540/11540 [=====] - 2s 133us/sample - loss: 0.0349
- accuracy: 0.9938
Epoch 377/500
11540/11540 [=====] - 2s 135us/sample - loss: 0.0349
- accuracy: 0.9938
Epoch 378/500
11540/11540 [=====] - 2s 136us/sample - loss: 0.0349
- accuracy: 0.9938
Epoch 379/500
11540/11540 [=====] - 2s 131us/sample - loss: 0.0349
- accuracy: 0.9938
Epoch 380/500
11540/11540 [=====] - 2s 138us/sample - loss: 0.0348
- accuracy: 0.9938
Epoch 381/500
11540/11540 [=====] - 2s 142us/sample - loss: 0.0347
- accuracy: 0.9938
Epoch 382/500
11540/11540 [=====] - 2s 140us/sample - loss: 0.0347
```

```
- accuracy: 0.9938
Epoch 383/500
11540/11540 [=====] - 2s 140us/sample - loss: 0.0348
- accuracy: 0.9938
Epoch 384/500
11540/11540 [=====] - 2s 142us/sample - loss: 0.0348
- accuracy: 0.9938
Epoch 385/500
11540/11540 [=====] - 2s 139us/sample - loss: 0.0349
- accuracy: 0.9938
Epoch 386/500
11540/11540 [=====] - 1s 125us/sample - loss: 0.0347
- accuracy: 0.9938
Epoch 387/500
11540/11540 [=====] - 2s 137us/sample - loss: 0.0348
- accuracy: 0.9938
Epoch 388/500
11540/11540 [=====] - 2s 134us/sample - loss: 0.0348
- accuracy: 0.9938
Epoch 389/500
11540/11540 [=====] - 2s 138us/sample - loss: 0.0346
- accuracy: 0.9938
Epoch 390/500
11540/11540 [=====] - 2s 132us/sample - loss: 0.0349
- accuracy: 0.9938
```



```
Epoch 391/500
11540/11540 [=====] - 2s 149us/sample - loss: 0.0348
- accuracy: 0.9938
Epoch 392/500
11540/11540 [=====] - 2s 143us/sample - loss: 0.0347
- accuracy: 0.9938
Epoch 393/500
11540/11540 [=====] - 2s 131us/sample - loss: 0.0349
- accuracy: 0.9938
Epoch 394/500
11540/11540 [=====] - 2s 132us/sample - loss: 0.0347
- accuracy: 0.9938
Epoch 395/500
11540/11540 [=====] - 1s 126us/sample - loss: 0.0347
- accuracy: 0.9938
Epoch 396/500
11540/11540 [=====] - 2s 143us/sample - loss: 0.0346
- accuracy: 0.9938
Epoch 397/500
11540/11540 [=====] - 1s 127us/sample - loss: 0.0348
- accuracy: 0.9938
Epoch 398/500
11540/11540 [=====] - 2s 132us/sample - loss: 0.0347
- accuracy: 0.9938
Epoch 399/500
```

```
11540/11540 [=====] - 1s 128us/sample - loss: 0.0345
- accuracy: 0.9938
Epoch 400/500
11540/11540 [=====] - 2s 137us/sample - loss: 0.0348
- accuracy: 0.9938
Epoch 401/500
11540/11540 [=====] - 1s 124us/sample - loss: 0.0349
- accuracy: 0.9938
Epoch 402/500
11540/11540 [=====] - 2s 133us/sample - loss: 0.0348
- accuracy: 0.9938
Epoch 403/500
11540/11540 [=====] - 1s 130us/sample - loss: 0.0348
- accuracy: 0.9938
Epoch 404/500
11540/11540 [=====] - 2s 139us/sample - loss: 0.0346
- accuracy: 0.9938
Epoch 405/500
11540/11540 [=====] - 1s 125us/sample - loss: 0.0347
- accuracy: 0.9938
Epoch 406/500
11540/11540 [=====] - 2s 136us/sample - loss: 0.0346
- accuracy: 0.9938
Epoch 407/500
11540/11540 [=====] - 2s 133us/sample - loss: 0.0347
```

```
- accuracy: 0.9938
Epoch 408/500
11540/11540 [=====] - 2s 133us/sample - loss: 0.0347
- accuracy: 0.9938
Epoch 409/500
11540/11540 [=====] - 1s 123us/sample - loss: 0.0347
- accuracy: 0.9938
Epoch 410/500
11540/11540 [=====] - 2s 135us/sample - loss: 0.0347
- accuracy: 0.9938
Epoch 411/500
11540/11540 [=====] - 2s 134us/sample - loss: 0.0349
- accuracy: 0.9938
Epoch 412/500
11540/11540 [=====] - 2s 133us/sample - loss: 0.0346
- accuracy: 0.9938
Epoch 413/500
11540/11540 [=====] - 1s 126us/sample - loss: 0.0346
- accuracy: 0.9938
Epoch 414/500
11540/11540 [=====] - 2s 131us/sample - loss: 0.0347
- accuracy: 0.9938
Epoch 415/500
11540/11540 [=====] - 2s 130us/sample - loss: 0.0347
- accuracy: 0.9938
```

```
Epoch 416/500
11540/11540 [=====] - 1s 130us/sample - loss: 0.0348
- accuracy: 0.9938
Epoch 417/500
11540/11540 [=====] - 1s 126us/sample - loss: 0.0347
- accuracy: 0.9938
Epoch 418/500
11540/11540 [=====] - 1s 127us/sample - loss: 0.0348
- accuracy: 0.9938
Epoch 419/500
11540/11540 [=====] - 2s 137us/sample - loss: 0.0346
- accuracy: 0.9938
Epoch 420/500
11540/11540 [=====] - 1s 128us/sample - loss: 0.0346
- accuracy: 0.9938
Epoch 421/500
11540/11540 [=====] - 2s 134us/sample - loss: 0.0347
- accuracy: 0.9938
Epoch 422/500
11540/11540 [=====] - 1s 128us/sample - loss: 0.0346
- accuracy: 0.9938
Epoch 423/500
11540/11540 [=====] - 2s 138us/sample - loss: 0.0347
- accuracy: 0.9938
Epoch 424/500
```

```
11540/11540 [=====] - 1s 124us/sample - loss: 0.0345
- accuracy: 0.9938
Epoch 425/500
11540/11540 [=====] - 2s 134us/sample - loss: 0.0345
- accuracy: 0.9938
Epoch 426/500
11540/11540 [=====] - 2s 130us/sample - loss: 0.0346
- accuracy: 0.9938
Epoch 427/500
11540/11540 [=====] - 2s 134us/sample - loss: 0.0348
- accuracy: 0.9938
Epoch 428/500
11540/11540 [=====] - 1s 126us/sample - loss: 0.0347
- accuracy: 0.9938
Epoch 429/500
11540/11540 [=====] - 2s 132us/sample - loss: 0.0346
- accuracy: 0.9938
Epoch 430/500
11540/11540 [=====] - 2s 131us/sample - loss: 0.0346
- accuracy: 0.9938
Epoch 431/500
11540/11540 [=====] - 2s 138us/sample - loss: 0.0345
- accuracy: 0.9938
Epoch 432/500
11540/11540 [=====] - 1s 126us/sample - loss: 0.0346
```

```
- accuracy: 0.9938
Epoch 433/500
11540/11540 [=====] - 2s 135us/sample - loss: 0.0346
- accuracy: 0.9938
Epoch 434/500
11540/11540 [=====] - 2s 132us/sample - loss: 0.0346
- accuracy: 0.9938
Epoch 435/500
11540/11540 [=====] - 2s 137us/sample - loss: 0.0346
- accuracy: 0.9938
Epoch 436/500
11540/11540 [=====] - 1s 125us/sample - loss: 0.0344
- accuracy: 0.9938
Epoch 437/500
11540/11540 [=====] - 1s 127us/sample - loss: 0.0345
- accuracy: 0.9938
Epoch 438/500
11540/11540 [=====] - 2s 133us/sample - loss: 0.0345
- accuracy: 0.9938
Epoch 439/500
11540/11540 [=====] - 2s 134us/sample - loss: 0.0344
- accuracy: 0.9938
Epoch 440/500
11540/11540 [=====] - 1s 129us/sample - loss: 0.0346
- accuracy: 0.9938
```

```
Epoch 441/500
11540/11540 [=====] - 2s 131us/sample - loss: 0.0346
- accuracy: 0.9938
Epoch 442/500
11540/11540 [=====] - 2s 135us/sample - loss: 0.0346
- accuracy: 0.9938
Epoch 443/500
11540/11540 [=====] - 1s 129us/sample - loss: 0.0346
- accuracy: 0.9938
Epoch 444/500
11540/11540 [=====] - 2s 132us/sample - loss: 0.0347
- accuracy: 0.9938
Epoch 445/500
11540/11540 [=====] - 1s 129us/sample - loss: 0.0343
- accuracy: 0.9938
Epoch 446/500
11540/11540 [=====] - 2s 142us/sample - loss: 0.0346
- accuracy: 0.9938
Epoch 447/500
11540/11540 [=====] - 1s 126us/sample - loss: 0.0345
- accuracy: 0.9938
Epoch 448/500
11540/11540 [=====] - 2s 134us/sample - loss: 0.0345
- accuracy: 0.9938
Epoch 449/500
```

```
11540/11540 [=====] - 2s 130us/sample - loss: 0.0347
- accuracy: 0.9938
Epoch 450/500
11540/11540 [=====] - 2s 134us/sample - loss: 0.0345
- accuracy: 0.9938
Epoch 451/500
11540/11540 [=====] - 1s 126us/sample - loss: 0.0345
- accuracy: 0.9938
Epoch 452/500
11540/11540 [=====] - 2s 132us/sample - loss: 0.0343
- accuracy: 0.9938
Epoch 453/500
11540/11540 [=====] - 2s 131us/sample - loss: 0.0346
- accuracy: 0.9938
Epoch 454/500
11540/11540 [=====] - 2s 132us/sample - loss: 0.0345
- accuracy: 0.9938
Epoch 455/500
11540/11540 [=====] - 1s 125us/sample - loss: 0.0345
- accuracy: 0.9938
Epoch 456/500
11540/11540 [=====] - 2s 132us/sample - loss: 0.0347
- accuracy: 0.9938
Epoch 457/500
11540/11540 [=====] - 2s 131us/sample - loss: 0.0344
```



```
- accuracy: 0.9938
Epoch 458/500
11540/11540 [=====] - 2s 132us/sample - loss: 0.0344
- accuracy: 0.9938
Epoch 459/500
11540/11540 [=====] - 1s 124us/sample - loss: 0.0344
- accuracy: 0.9938
Epoch 460/500
11540/11540 [=====] - 2s 133us/sample - loss: 0.0344
- accuracy: 0.9938
Epoch 461/500
11540/11540 [=====] - 2s 136us/sample - loss: 0.0345
- accuracy: 0.9938
Epoch 462/500
11540/11540 [=====] - 1s 127us/sample - loss: 0.0345
- accuracy: 0.9938
Epoch 463/500
11540/11540 [=====] - 1s 128us/sample - loss: 0.0343
- accuracy: 0.9938
Epoch 464/500
11540/11540 [=====] - 1s 129us/sample - loss: 0.0346
- accuracy: 0.9938
Epoch 465/500
11540/11540 [=====] - 2s 134us/sample - loss: 0.0345
- accuracy: 0.9938
```

```
Epoch 466/500
11540/11540 [=====] - 1s 127us/sample - loss: 0.0345
- accuracy: 0.9938
Epoch 467/500
11540/11540 [=====] - 1s 128us/sample - loss: 0.0343
- accuracy: 0.9938
Epoch 468/500
11540/11540 [=====] - 1s 127us/sample - loss: 0.0345
- accuracy: 0.9938
Epoch 469/500
11540/11540 [=====] - 2s 139us/sample - loss: 0.0346
- accuracy: 0.9938
Epoch 470/500
11540/11540 [=====] - 1s 127us/sample - loss: 0.0345
- accuracy: 0.9938
Epoch 471/500
11540/11540 [=====] - 2s 131us/sample - loss: 0.0344
- accuracy: 0.9938
Epoch 472/500
11540/11540 [=====] - 1s 126us/sample - loss: 0.0345
- accuracy: 0.9938
Epoch 473/500
11540/11540 [=====] - 2s 141us/sample - loss: 0.0346
- accuracy: 0.9938
Epoch 474/500
```

```
11540/11540 [=====] - 1s 125us/sample - loss: 0.0345
- accuracy: 0.9938
Epoch 475/500
11540/11540 [=====] - 2s 133us/sample - loss: 0.0343
- accuracy: 0.9938
Epoch 476/500
11540/11540 [=====] - 1s 125us/sample - loss: 0.0344
- accuracy: 0.9938
Epoch 477/500
11540/11540 [=====] - 2s 136us/sample - loss: 0.0343
- accuracy: 0.9938
Epoch 478/500
11540/11540 [=====] - 1s 125us/sample - loss: 0.0345
- accuracy: 0.9938
Epoch 479/500
11540/11540 [=====] - 2s 135us/sample - loss: 0.0344
- accuracy: 0.9938
Epoch 480/500
11540/11540 [=====] - 2s 132us/sample - loss: 0.0345
- accuracy: 0.9938
Epoch 481/500
11540/11540 [=====] - 2s 135us/sample - loss: 0.0345
- accuracy: 0.9938
Epoch 482/500
11540/11540 [=====] - 2s 131us/sample - loss: 0.0342
```

```
- accuracy: 0.9938
Epoch 483/500
11540/11540 [=====] - 2s 132us/sample - loss: 0.0344
- accuracy: 0.9938
Epoch 484/500
11540/11540 [=====] - 1s 129us/sample - loss: 0.0343
- accuracy: 0.9938
Epoch 485/500
11540/11540 [=====] - 2s 140us/sample - loss: 0.0345
- accuracy: 0.9938
Epoch 486/500
11540/11540 [=====] - 1s 128us/sample - loss: 0.0344
- accuracy: 0.9938
Epoch 487/500
11540/11540 [=====] - 2s 130us/sample - loss: 0.0344
- accuracy: 0.9938
Epoch 488/500
11540/11540 [=====] - 2s 137us/sample - loss: 0.0344
- accuracy: 0.9938
Epoch 489/500
11540/11540 [=====] - 1s 129us/sample - loss: 0.0343
- accuracy: 0.9938
Epoch 490/500
11540/11540 [=====] - 2s 133us/sample - loss: 0.0343
- accuracy: 0.9938
```

```
Epoch 491/500
11540/11540 [=====] - 1s 127us/sample - loss: 0.0342
- accuracy: 0.9938
Epoch 492/500
11540/11540 [=====] - 2s 136us/sample - loss: 0.0347
- accuracy: 0.9938
Epoch 493/500
11540/11540 [=====] - 1s 126us/sample - loss: 0.0344
- accuracy: 0.9938
Epoch 494/500
11540/11540 [=====] - 1s 128us/sample - loss: 0.0343
- accuracy: 0.9938
Epoch 495/500
11540/11540 [=====] - 1s 129us/sample - loss: 0.0344
- accuracy: 0.9938
Epoch 496/500
11540/11540 [=====] - 2s 133us/sample - loss: 0.0342
- accuracy: 0.9938
Epoch 497/500
11540/11540 [=====] - 1s 125us/sample - loss: 0.0345
- accuracy: 0.9938
Epoch 498/500
11540/11540 [=====] - 2s 130us/sample - loss: 0.0343
- accuracy: 0.9938
Epoch 499/500
```

```
11540/11540 [=====] - 1s 129us/sample - loss: 0.0343
- accuracy: 0.9938
Epoch 500/500
11540/11540 [=====] - 2s 134us/sample - loss: 0.0342
- accuracy: 0.9938
2887/2887 [=====] - 0s 92us/sample

class_weight_Fold_3: {0: 0.40247624029993895, 1: 97.52112676056338}
```

```
pos_weight: 0.6
thresholdNum: 0.5
```

```
Average of train loss Fold_3: 0.0463
Average of yPredProbability Fold_3: 0.0133
```

classification_report_Fold_3:		precision	recall	f1-score	support
Normal	0	0.99	1.00	1.00	2871
Anomaly	1	0.00	0.00	0.00	16
accuracy		0.99			2887

macro avg	0.50	0.50	2887
weighted avg	0.99	0.99	2887

confusion_matrix_Fold_3:

True Negatives: 2871

False Positives: 0

False Negatives: 16

True Positives: 0

End running time Fold_3: 210508_011724 ,-----.

Start running time Fold_4: 210508_011724 ,-----:

Shape of Actual yXtrainRolled After Rolling Fold_4: (23094, 60)

Shape of Actual yXvalidShifted dataset: (2881, 60)

Shape of Actual yXvalidRolled After Rolling Fold_4: (5760, 60)

-----*** Train modelEvaluateVal without adding Augmented data
***-----

Shape of data after Transform ToOneRow to give Cross Validation Model in

fold_4:

xtrain: (11547, 118), ytrain: (11547,)
 xvalid: (2880, 118), yvalid: (2880,)

Number of final label 0 in yXtrain_Fold_4: 11483

Number of final label 1 in yXtrain_Before_AddingAugedData_Fold_4: 64
 Number of final label 1 in yXtrain_After_AddingAugedData_Fold_4: 64

Train on 11547 samples

Epoch 1/500

11547/11547 [=====] - 3s 234us/sample - loss: 3.1467
 - accuracy: 0.9919

Epoch 2/500

11547/11547 [=====] - 1s 122us/sample - loss: 1.5704
 - accuracy: 0.9945

Epoch 3/500

11547/11547 [=====] - 1s 125us/sample - loss: 0.7340
 - accuracy: 0.9945

Epoch 4/500

11547/11547 [=====] - 1s 124us/sample - loss: 0.3369
 - accuracy: 0.9945

Epoch 5/500

11547/11547 [=====] - 2s 130us/sample - loss: 0.1623


```
- accuracy: 0.9945
Epoch 6/500
11547/11547 [=====] - 1s 121us/sample - loss: 0.0899
- accuracy: 0.9945
Epoch 7/500
11547/11547 [=====] - 1s 124us/sample - loss: 0.0607
- accuracy: 0.9945
Epoch 8/500
11547/11547 [=====] - 1s 123us/sample - loss: 0.0492
- accuracy: 0.9945
Epoch 9/500
11547/11547 [=====] - 2s 131us/sample - loss: 0.0444
- accuracy: 0.9945
Epoch 10/500
11547/11547 [=====] - 1s 121us/sample - loss: 0.0426
- accuracy: 0.9945
Epoch 11/500
11547/11547 [=====] - 2s 130us/sample - loss: 0.0414
- accuracy: 0.9945
Epoch 12/500
11547/11547 [=====] - 1s 125us/sample - loss: 0.0410
- accuracy: 0.9945
Epoch 13/500
11547/11547 [=====] - 2s 131us/sample - loss: 0.0405
- accuracy: 0.9945
```

```
Epoch 14/500
11547/11547 [=====] - 1s 124us/sample - loss: 0.0401
- accuracy: 0.9945
Epoch 15/500
11547/11547 [=====] - 2s 137us/sample - loss: 0.0394
- accuracy: 0.9945
Epoch 16/500
11547/11547 [=====] - 2s 134us/sample - loss: 0.0393
- accuracy: 0.9945
Epoch 17/500
11547/11547 [=====] - 2s 134us/sample - loss: 0.0393
- accuracy: 0.9945
Epoch 18/500
11547/11547 [=====] - 1s 122us/sample - loss: 0.0391
- accuracy: 0.9945
Epoch 19/500
11547/11547 [=====] - 1s 129us/sample - loss: 0.0385
- accuracy: 0.9945
Epoch 20/500
11547/11547 [=====] - 1s 125us/sample - loss: 0.0382
- accuracy: 0.9945
Epoch 21/500
11547/11547 [=====] - 1s 127us/sample - loss: 0.0382
- accuracy: 0.9945
Epoch 22/500
```

```
11547/11547 [=====] - 1s 121us/sample - loss: 0.0381
- accuracy: 0.9945
Epoch 23/500
11547/11547 [=====] - 1s 126us/sample - loss: 0.0372
- accuracy: 0.9945
Epoch 24/500
11547/11547 [=====] - 1s 125us/sample - loss: 0.0373
- accuracy: 0.9945
Epoch 25/500
11547/11547 [=====] - 2s 132us/sample - loss: 0.0371
- accuracy: 0.9945
Epoch 26/500
11547/11547 [=====] - 1s 120us/sample - loss: 0.0372
- accuracy: 0.9945
Epoch 27/500
11547/11547 [=====] - 1s 127us/sample - loss: 0.0369
- accuracy: 0.9945
Epoch 28/500
11547/11547 [=====] - 1s 123us/sample - loss: 0.0366
- accuracy: 0.9945
Epoch 29/500
11547/11547 [=====] - 2s 131us/sample - loss: 0.0368
- accuracy: 0.9945
Epoch 30/500
11547/11547 [=====] - 1s 120us/sample - loss: 0.0363
```

```
- accuracy: 0.9945
Epoch 31/500
11547/11547 [=====] - 1s 129us/sample - loss: 0.0360
- accuracy: 0.9945
Epoch 32/500
11547/11547 [=====] - 1s 128us/sample - loss: 0.0364
- accuracy: 0.9945
Epoch 33/500
11547/11547 [=====] - 1s 130us/sample - loss: 0.0361
- accuracy: 0.9945
Epoch 34/500
11547/11547 [=====] - 1s 120us/sample - loss: 0.0360
- accuracy: 0.9945
Epoch 35/500
11547/11547 [=====] - 1s 125us/sample - loss: 0.0359
- accuracy: 0.9945
Epoch 36/500
11547/11547 [=====] - 1s 122us/sample - loss: 0.0359
- accuracy: 0.9945
Epoch 37/500
11547/11547 [=====] - 1s 127us/sample - loss: 0.0357
- accuracy: 0.9945
Epoch 38/500
11547/11547 [=====] - 1s 121us/sample - loss: 0.0363
- accuracy: 0.9945
```

```
Epoch 39/500
11547/11547 [=====] - 2s 134us/sample - loss: 0.0356
- accuracy: 0.9945
Epoch 40/500
11547/11547 [=====] - 1s 128us/sample - loss: 0.0356
- accuracy: 0.9945
Epoch 41/500
11547/11547 [=====] - 1s 127us/sample - loss: 0.0352
- accuracy: 0.9945
Epoch 42/500
11547/11547 [=====] - 1s 121us/sample - loss: 0.0353
- accuracy: 0.9945
Epoch 43/500
11547/11547 [=====] - 1s 127us/sample - loss: 0.0353
- accuracy: 0.9945
Epoch 44/500
11547/11547 [=====] - 1s 123us/sample - loss: 0.0355
- accuracy: 0.9945
Epoch 45/500
11547/11547 [=====] - 2s 131us/sample - loss: 0.0351
- accuracy: 0.9945
Epoch 46/500
11547/11547 [=====] - 1s 120us/sample - loss: 0.0350
- accuracy: 0.9945
Epoch 47/500
```

```
11547/11547 [=====] - 1s 125us/sample - loss: 0.0350
- accuracy: 0.9945
Epoch 48/500
11547/11547 [=====] - 1s 126us/sample - loss: 0.0350
- accuracy: 0.9945
Epoch 49/500
11547/11547 [=====] - 2s 131us/sample - loss: 0.0349
- accuracy: 0.9945
Epoch 50/500
11547/11547 [=====] - 2s 133us/sample - loss: 0.0348
- accuracy: 0.9945
Epoch 51/500
11547/11547 [=====] - 2s 144us/sample - loss: 0.0347
- accuracy: 0.9945
Epoch 52/500
11547/11547 [=====] - 2s 133us/sample - loss: 0.0346
- accuracy: 0.9945
Epoch 53/500
11547/11547 [=====] - 1s 127us/sample - loss: 0.0347
- accuracy: 0.9945
Epoch 54/500
11547/11547 [=====] - 1s 122us/sample - loss: 0.0347
- accuracy: 0.9945
Epoch 55/500
11547/11547 [=====] - 2s 131us/sample - loss: 0.0345
```

```
- accuracy: 0.9945
Epoch 56/500
11547/11547 [=====] - 1s 129us/sample - loss: 0.0348
- accuracy: 0.9945
Epoch 57/500
11547/11547 [=====] - 1s 128us/sample - loss: 0.0346
- accuracy: 0.9945
Epoch 58/500
11547/11547 [=====] - 1s 125us/sample - loss: 0.0346
- accuracy: 0.9945
Epoch 59/500
11547/11547 [=====] - 2s 134us/sample - loss: 0.0343
- accuracy: 0.9945
Epoch 60/500
11547/11547 [=====] - 1s 128us/sample - loss: 0.0347
- accuracy: 0.9945
Epoch 61/500
11547/11547 [=====] - 1s 129us/sample - loss: 0.0345
- accuracy: 0.9945
Epoch 62/500
11547/11547 [=====] - 1s 122us/sample - loss: 0.0343
- accuracy: 0.9945
Epoch 63/500
11547/11547 [=====] - 2s 131us/sample - loss: 0.0343
- accuracy: 0.9945
```

```
Epoch 64/500
11547/11547 [=====] - 1s 127us/sample - loss: 0.0344
- accuracy: 0.9945
Epoch 65/500
11547/11547 [=====] - 1s 129us/sample - loss: 0.0343
- accuracy: 0.9945
Epoch 66/500
11547/11547 [=====] - 1s 120us/sample - loss: 0.0344
- accuracy: 0.9945
Epoch 67/500
11547/11547 [=====] - 1s 127us/sample - loss: 0.0342
- accuracy: 0.9945
Epoch 68/500
11547/11547 [=====] - 1s 130us/sample - loss: 0.0340
- accuracy: 0.9945
Epoch 69/500
11547/11547 [=====] - 2s 130us/sample - loss: 0.0340
- accuracy: 0.9945
Epoch 70/500
11547/11547 [=====] - 1s 123us/sample - loss: 0.0341
- accuracy: 0.9945
Epoch 71/500
11547/11547 [=====] - 1s 128us/sample - loss: 0.0340
- accuracy: 0.9945
Epoch 72/500
```



```
11547/11547 [=====] - 2s 134us/sample - loss: 0.0343
- accuracy: 0.9945
Epoch 73/500
11547/11547 [=====] - 1s 127us/sample - loss: 0.0341
- accuracy: 0.9945
Epoch 74/500
11547/11547 [=====] - 1s 122us/sample - loss: 0.0341
- accuracy: 0.9945
Epoch 75/500
11547/11547 [=====] - 1s 126us/sample - loss: 0.0341
- accuracy: 0.9945
Epoch 76/500
11547/11547 [=====] - 2s 136us/sample - loss: 0.0342
- accuracy: 0.9945
Epoch 77/500
11547/11547 [=====] - 1s 125us/sample - loss: 0.0340
- accuracy: 0.9945
Epoch 78/500
11547/11547 [=====] - 1s 125us/sample - loss: 0.0342
- accuracy: 0.9945
Epoch 79/500
11547/11547 [=====] - 1s 125us/sample - loss: 0.0341
- accuracy: 0.9945
Epoch 80/500
11547/11547 [=====] - 2s 134us/sample - loss: 0.0340
```

```
- accuracy: 0.9945
Epoch 81/500
11547/11547 [=====] - 1s 123us/sample - loss: 0.0339
- accuracy: 0.9945
Epoch 82/500
11547/11547 [=====] - 1s 125us/sample - loss: 0.0339
- accuracy: 0.9945
Epoch 83/500
11547/11547 [=====] - 1s 125us/sample - loss: 0.0338
- accuracy: 0.9945
Epoch 84/500
11547/11547 [=====] - 2s 137us/sample - loss: 0.0342
- accuracy: 0.9945
Epoch 85/500
11547/11547 [=====] - 1s 123us/sample - loss: 0.0341
- accuracy: 0.9945
Epoch 86/500
11547/11547 [=====] - 1s 124us/sample - loss: 0.0339
- accuracy: 0.9945
Epoch 87/500
11547/11547 [=====] - 1s 125us/sample - loss: 0.0338
- accuracy: 0.9945
Epoch 88/500
11547/11547 [=====] - 2s 138us/sample - loss: 0.0339
- accuracy: 0.9945
```

```
Epoch 89/500
11547/11547 [=====] - 1s 125us/sample - loss: 0.0339
- accuracy: 0.9945
Epoch 90/500
11547/11547 [=====] - 1s 128us/sample - loss: 0.0339
- accuracy: 0.9945
Epoch 91/500
11547/11547 [=====] - 1s 126us/sample - loss: 0.0337
- accuracy: 0.9945
Epoch 92/500
11547/11547 [=====] - 2s 133us/sample - loss: 0.0340
- accuracy: 0.9945
Epoch 93/500
11547/11547 [=====] - 1s 121us/sample - loss: 0.0337
- accuracy: 0.9945
Epoch 94/500
11547/11547 [=====] - 1s 128us/sample - loss: 0.0337
- accuracy: 0.9945
Epoch 95/500
11547/11547 [=====] - 1s 128us/sample - loss: 0.0337
- accuracy: 0.9945
Epoch 96/500
11547/11547 [=====] - 2s 135us/sample - loss: 0.0337
- accuracy: 0.9945
Epoch 97/500
```

```
11547/11547 [=====] - 1s 126us/sample - loss: 0.0336
- accuracy: 0.9945
Epoch 98/500
11547/11547 [=====] - 2s 131us/sample - loss: 0.0337
- accuracy: 0.9945
Epoch 99/500
11547/11547 [=====] - 1s 128us/sample - loss: 0.0336
- accuracy: 0.9945
Epoch 100/500
11547/11547 [=====] - 2s 132us/sample - loss: 0.0337
- accuracy: 0.9945
Epoch 101/500
11547/11547 [=====] - 1s 122us/sample - loss: 0.0338
- accuracy: 0.9945
Epoch 102/500
11547/11547 [=====] - 1s 130us/sample - loss: 0.0337
- accuracy: 0.9945
Epoch 103/500
11547/11547 [=====] - 1s 126us/sample - loss: 0.0337
- accuracy: 0.9945
Epoch 104/500
11547/11547 [=====] - 2s 132us/sample - loss: 0.0336
- accuracy: 0.9945
Epoch 105/500
11547/11547 [=====] - 1s 124us/sample - loss: 0.0337
```

```
- accuracy: 0.9945
Epoch 106/500
11547/11547 [=====] - 1s 129us/sample - loss: 0.0337
- accuracy: 0.9945
Epoch 107/500
11547/11547 [=====] - 1s 127us/sample - loss: 0.0337
- accuracy: 0.9945
Epoch 108/500
11547/11547 [=====] - 1s 129us/sample - loss: 0.0338
- accuracy: 0.9945
Epoch 109/500
11547/11547 [=====] - 1s 122us/sample - loss: 0.0336
- accuracy: 0.9945
Epoch 110/500
11547/11547 [=====] - 2s 132us/sample - loss: 0.0336
- accuracy: 0.9945
Epoch 111/500
11547/11547 [=====] - 1s 128us/sample - loss: 0.0336
- accuracy: 0.9945
Epoch 112/500
11547/11547 [=====] - 2s 132us/sample - loss: 0.0337
- accuracy: 0.9945
Epoch 113/500
11547/11547 [=====] - 1s 120us/sample - loss: 0.0336
- accuracy: 0.9945
```

```
Epoch 114/500
11547/11547 [=====] - 1s 128us/sample - loss: 0.0336
- accuracy: 0.9945
Epoch 115/500
11547/11547 [=====] - 1s 125us/sample - loss: 0.0340
- accuracy: 0.9945
Epoch 116/500
11547/11547 [=====] - 2s 131us/sample - loss: 0.0335
- accuracy: 0.9945
Epoch 117/500
11547/11547 [=====] - 1s 121us/sample - loss: 0.0335
- accuracy: 0.9945
Epoch 118/500
11547/11547 [=====] - 2s 132us/sample - loss: 0.0338
- accuracy: 0.9945
Epoch 119/500
11547/11547 [=====] - 2s 131us/sample - loss: 0.0335
- accuracy: 0.9945
Epoch 120/500
11547/11547 [=====] - 2s 132us/sample - loss: 0.0337
- accuracy: 0.9945
Epoch 121/500
11547/11547 [=====] - 1s 120us/sample - loss: 0.0336
- accuracy: 0.9945
Epoch 122/500
```

```
11547/11547 [=====] - 2s 132us/sample - loss: 0.0335
- accuracy: 0.9945
Epoch 123/500
11547/11547 [=====] - 2s 132us/sample - loss: 0.0334
- accuracy: 0.9945
Epoch 124/500
11547/11547 [=====] - 1s 129us/sample - loss: 0.0335
- accuracy: 0.9945
Epoch 125/500
11547/11547 [=====] - 1s 121us/sample - loss: 0.0335
- accuracy: 0.9945
Epoch 126/500
11547/11547 [=====] - 2s 133us/sample - loss: 0.0334
- accuracy: 0.9945
Epoch 127/500
11547/11547 [=====] - 2s 139us/sample - loss: 0.0334
- accuracy: 0.9945
Epoch 128/500
11547/11547 [=====] - 2s 142us/sample - loss: 0.0334
- accuracy: 0.9945
Epoch 129/500
11547/11547 [=====] - 2s 143us/sample - loss: 0.0336
- accuracy: 0.9945
Epoch 130/500
11547/11547 [=====] - 2s 136us/sample - loss: 0.0333
```

```
- accuracy: 0.9945
Epoch 131/500
11547/11547 [=====] - 2s 136us/sample - loss: 0.0333
- accuracy: 0.9945
Epoch 132/500
11547/11547 [=====] - 2s 187us/sample - loss: 0.0333
- accuracy: 0.9945
Epoch 133/500
11547/11547 [=====] - 2s 138us/sample - loss: 0.0334
- accuracy: 0.9945
Epoch 134/500
11547/11547 [=====] - 2s 133us/sample - loss: 0.0336
- accuracy: 0.9945
Epoch 135/500
11547/11547 [=====] - 1s 127us/sample - loss: 0.0335
- accuracy: 0.9944
Epoch 136/500
11547/11547 [=====] - 1s 124us/sample - loss: 0.0334
- accuracy: 0.9945
Epoch 137/500
11547/11547 [=====] - 1s 128us/sample - loss: 0.0334
- accuracy: 0.9945
Epoch 138/500
11547/11547 [=====] - 2s 133us/sample - loss: 0.0336
- accuracy: 0.9945
```



```
Epoch 139/500
11547/11547 [=====] - 1s 122us/sample - loss: 0.0334
- accuracy: 0.9945
Epoch 140/500
11547/11547 [=====] - 1s 124us/sample - loss: 0.0334
- accuracy: 0.9945
Epoch 141/500
11547/11547 [=====] - 1s 126us/sample - loss: 0.0333
- accuracy: 0.9945
Epoch 142/500
11547/11547 [=====] - 2s 130us/sample - loss: 0.0334
- accuracy: 0.9945
Epoch 143/500
11547/11547 [=====] - 1s 124us/sample - loss: 0.0333
- accuracy: 0.9945
Epoch 144/500
11547/11547 [=====] - 1s 123us/sample - loss: 0.0334
- accuracy: 0.9945
Epoch 145/500
11547/11547 [=====] - 1s 125us/sample - loss: 0.0334
- accuracy: 0.9945
Epoch 146/500
11547/11547 [=====] - 1s 130us/sample - loss: 0.0333
- accuracy: 0.9945
Epoch 147/500
```

```
11547/11547 [=====] - 1s 127us/sample - loss: 0.0333
- accuracy: 0.9945
Epoch 148/500
11547/11547 [=====] - 1s 123us/sample - loss: 0.0334
- accuracy: 0.9945
Epoch 149/500
11547/11547 [=====] - 1s 129us/sample - loss: 0.0334
- accuracy: 0.9945
Epoch 150/500
11547/11547 [=====] - 2s 131us/sample - loss: 0.0333
- accuracy: 0.9945
Epoch 151/500
11547/11547 [=====] - 1s 122us/sample - loss: 0.0334
- accuracy: 0.9945
Epoch 152/500
11547/11547 [=====] - 1s 120us/sample - loss: 0.0332
- accuracy: 0.9945
Epoch 153/500
11547/11547 [=====] - 1s 122us/sample - loss: 0.0334
- accuracy: 0.9945
Epoch 154/500
11547/11547 [=====] - 1s 128us/sample - loss: 0.0332
- accuracy: 0.9945
Epoch 155/500
11547/11547 [=====] - 1s 124us/sample - loss: 0.0333
```

```
- accuracy: 0.9945
Epoch 156/500
11547/11547 [=====] - 1s 120us/sample - loss: 0.0334
- accuracy: 0.9945
Epoch 157/500
11547/11547 [=====] - 1s 129us/sample - loss: 0.0332
- accuracy: 0.9945
Epoch 158/500
11547/11547 [=====] - 2s 133us/sample - loss: 0.0333
- accuracy: 0.9945
Epoch 159/500
11547/11547 [=====] - 1s 123us/sample - loss: 0.0334
- accuracy: 0.9945
Epoch 160/500
11547/11547 [=====] - 1s 126us/sample - loss: 0.0332
- accuracy: 0.9945
Epoch 161/500
11547/11547 [=====] - 1s 125us/sample - loss: 0.0331
- accuracy: 0.9945
Epoch 162/500
11547/11547 [=====] - 1s 128us/sample - loss: 0.0334
- accuracy: 0.9945
Epoch 163/500
11547/11547 [=====] - 1s 127us/sample - loss: 0.0331
- accuracy: 0.9945
```

```
Epoch 164/500
11547/11547 [=====] - 1s 122us/sample - loss: 0.0333
- accuracy: 0.9945
Epoch 165/500
11547/11547 [=====] - 1s 125us/sample - loss: 0.0332
- accuracy: 0.9945
Epoch 166/500
11547/11547 [=====] - 1s 127us/sample - loss: 0.0331
- accuracy: 0.9945
Epoch 167/500
11547/11547 [=====] - 1s 125us/sample - loss: 0.0332
- accuracy: 0.9945
Epoch 168/500
11547/11547 [=====] - 1s 118us/sample - loss: 0.0333
- accuracy: 0.9945
Epoch 169/500
11547/11547 [=====] - 1s 127us/sample - loss: 0.0330
- accuracy: 0.9945
Epoch 170/500
11547/11547 [=====] - 2s 134us/sample - loss: 0.0333
- accuracy: 0.9945
Epoch 171/500
11547/11547 [=====] - 1s 125us/sample - loss: 0.0331
- accuracy: 0.9945
Epoch 172/500
```

```
11547/11547 [=====] - 1s 125us/sample - loss: 0.0332
- accuracy: 0.9945
Epoch 173/500
11547/11547 [=====] - 1s 123us/sample - loss: 0.0331
- accuracy: 0.9945
Epoch 174/500
11547/11547 [=====] - 2s 132us/sample - loss: 0.0332
- accuracy: 0.9945
Epoch 175/500
11547/11547 [=====] - 1s 123us/sample - loss: 0.0331
- accuracy: 0.9945
Epoch 176/500
11547/11547 [=====] - 1s 122us/sample - loss: 0.0332
- accuracy: 0.9945
Epoch 177/500
11547/11547 [=====] - 1s 126us/sample - loss: 0.0331
- accuracy: 0.9945
Epoch 178/500
11547/11547 [=====] - 2s 132us/sample - loss: 0.0332
- accuracy: 0.9945
Epoch 179/500
11547/11547 [=====] - 1s 123us/sample - loss: 0.0332
- accuracy: 0.9945
Epoch 180/500
11547/11547 [=====] - 1s 121us/sample - loss: 0.0330
```

```
- accuracy: 0.9945
Epoch 181/500
11547/11547 [=====] - 1s 129us/sample - loss: 0.0332
- accuracy: 0.9945
Epoch 182/500
11547/11547 [=====] - 2s 132us/sample - loss: 0.0329
- accuracy: 0.9945
Epoch 183/500
11547/11547 [=====] - 1s 122us/sample - loss: 0.0330
- accuracy: 0.9945
Epoch 184/500
11547/11547 [=====] - 1s 120us/sample - loss: 0.0331
- accuracy: 0.9945
Epoch 185/500
11547/11547 [=====] - 2s 138us/sample - loss: 0.0330
- accuracy: 0.9945
Epoch 186/500
11547/11547 [=====] - 2s 134us/sample - loss: 0.0330
- accuracy: 0.9945
Epoch 187/500
11547/11547 [=====] - 1s 124us/sample - loss: 0.0330
- accuracy: 0.9945
Epoch 188/500
11547/11547 [=====] - 1s 125us/sample - loss: 0.0330
- accuracy: 0.9945
```

```
Epoch 189/500
11547/11547 [=====] - 1s 121us/sample - loss: 0.0330
- accuracy: 0.9945
Epoch 190/500
11547/11547 [=====] - 2s 135us/sample - loss: 0.0329
- accuracy: 0.9945
Epoch 191/500
11547/11547 [=====] - 1s 127us/sample - loss: 0.0329
- accuracy: 0.9945
Epoch 192/500
11547/11547 [=====] - 1s 123us/sample - loss: 0.0331
- accuracy: 0.9945
Epoch 193/500
11547/11547 [=====] - 1s 124us/sample - loss: 0.0330
- accuracy: 0.9945
Epoch 194/500
11547/11547 [=====] - 2s 134us/sample - loss: 0.0333
- accuracy: 0.9945
Epoch 195/500
11547/11547 [=====] - 1s 121us/sample - loss: 0.0330
- accuracy: 0.9945
Epoch 196/500
11547/11547 [=====] - 1s 125us/sample - loss: 0.0330
- accuracy: 0.9945
Epoch 197/500
```

```
11547/11547 [=====] - 1s 125us/sample - loss: 0.0331
- accuracy: 0.9945
Epoch 198/500
11547/11547 [=====] - 2s 137us/sample - loss: 0.0329
- accuracy: 0.9945
Epoch 199/500
11547/11547 [=====] - 1s 120us/sample - loss: 0.0329
- accuracy: 0.9945
Epoch 200/500
11547/11547 [=====] - 1s 123us/sample - loss: 0.0327
- accuracy: 0.9945
Epoch 201/500
11547/11547 [=====] - 1s 124us/sample - loss: 0.0329
- accuracy: 0.9945
Epoch 202/500
11547/11547 [=====] - 2s 136us/sample - loss: 0.0332
- accuracy: 0.9945
Epoch 203/500
11547/11547 [=====] - 1s 121us/sample - loss: 0.0330
- accuracy: 0.9945
Epoch 204/500
11547/11547 [=====] - 1s 124us/sample - loss: 0.0330
- accuracy: 0.9945
Epoch 205/500
11547/11547 [=====] - 1s 125us/sample - loss: 0.0330
```



```
- accuracy: 0.9945
Epoch 206/500
11547/11547 [=====] - 2s 134us/sample - loss: 0.0329
- accuracy: 0.9945
Epoch 207/500
11547/11547 [=====] - 1s 120us/sample - loss: 0.0329
- accuracy: 0.9945
Epoch 208/500
11547/11547 [=====] - 1s 122us/sample - loss: 0.0330
- accuracy: 0.9945
Epoch 209/500
11547/11547 [=====] - 1s 127us/sample - loss: 0.0329
- accuracy: 0.9945
Epoch 210/500
11547/11547 [=====] - 2s 137us/sample - loss: 0.0329
- accuracy: 0.9945
Epoch 211/500
11547/11547 [=====] - 1s 122us/sample - loss: 0.0331
- accuracy: 0.9945
Epoch 212/500
11547/11547 [=====] - 1s 128us/sample - loss: 0.0330
- accuracy: 0.9945
Epoch 213/500
11547/11547 [=====] - 1s 125us/sample - loss: 0.0328
- accuracy: 0.9945
```

```
Epoch 214/500
11547/11547 [=====] - 2s 133us/sample - loss: 0.0328
- accuracy: 0.9945
Epoch 215/500
11547/11547 [=====] - 1s 120us/sample - loss: 0.0329
- accuracy: 0.9945
Epoch 216/500
11547/11547 [=====] - 1s 129us/sample - loss: 0.0329
- accuracy: 0.9945
Epoch 217/500
11547/11547 [=====] - 1s 123us/sample - loss: 0.0328
- accuracy: 0.9945
Epoch 218/500
11547/11547 [=====] - 2s 131us/sample - loss: 0.0328
- accuracy: 0.9945
Epoch 219/500
11547/11547 [=====] - 1s 120us/sample - loss: 0.0328
- accuracy: 0.9945
Epoch 220/500
11547/11547 [=====] - 1s 127us/sample - loss: 0.0328
- accuracy: 0.9945
Epoch 221/500
11547/11547 [=====] - 1s 125us/sample - loss: 0.0328
- accuracy: 0.9945
Epoch 222/500
```

```
11547/11547 [=====] - 2s 133us/sample - loss: 0.0329
- accuracy: 0.9945
Epoch 223/500
11547/11547 [=====] - 1s 121us/sample - loss: 0.0329
- accuracy: 0.9945
Epoch 224/500
11547/11547 [=====] - 2s 130us/sample - loss: 0.0327
- accuracy: 0.9945
Epoch 225/500
11547/11547 [=====] - 1s 126us/sample - loss: 0.0328
- accuracy: 0.9945
Epoch 226/500
11547/11547 [=====] - 2s 136us/sample - loss: 0.0328
- accuracy: 0.9945
Epoch 227/500
11547/11547 [=====] - 1s 120us/sample - loss: 0.0328
- accuracy: 0.9945
Epoch 228/500
11547/11547 [=====] - 1s 128us/sample - loss: 0.0328
- accuracy: 0.9945
Epoch 229/500
11547/11547 [=====] - 1s 128us/sample - loss: 0.0328
- accuracy: 0.9945
Epoch 230/500
11547/11547 [=====] - 2s 134us/sample - loss: 0.0327
```

```
- accuracy: 0.9945
Epoch 231/500
11547/11547 [=====] - 1s 119us/sample - loss: 0.0329
- accuracy: 0.9944
Epoch 232/500
11547/11547 [=====] - 2s 130us/sample - loss: 0.0328
- accuracy: 0.9945
Epoch 233/500
11547/11547 [=====] - 1s 125us/sample - loss: 0.0327
- accuracy: 0.9945
Epoch 234/500
11547/11547 [=====] - 1s 129us/sample - loss: 0.0328
- accuracy: 0.9945
Epoch 235/500
11547/11547 [=====] - 1s 120us/sample - loss: 0.0328
- accuracy: 0.9945
Epoch 236/500
11547/11547 [=====] - 2s 131us/sample - loss: 0.0328
- accuracy: 0.9945
Epoch 237/500
11547/11547 [=====] - 1s 129us/sample - loss: 0.0327
- accuracy: 0.9945
Epoch 238/500
11547/11547 [=====] - 1s 127us/sample - loss: 0.0329
- accuracy: 0.9945
```

```
Epoch 239/500
11547/11547 [=====] - 1s 120us/sample - loss: 0.0326
- accuracy: 0.9945
Epoch 240/500
11547/11547 [=====] - 2s 131us/sample - loss: 0.0328
- accuracy: 0.9945
Epoch 241/500
11547/11547 [=====] - 1s 128us/sample - loss: 0.0327
- accuracy: 0.9945
Epoch 242/500
11547/11547 [=====] - 1s 128us/sample - loss: 0.0327
- accuracy: 0.9945
Epoch 243/500
11547/11547 [=====] - 1s 120us/sample - loss: 0.0327
- accuracy: 0.9945
Epoch 244/500
11547/11547 [=====] - 2s 131us/sample - loss: 0.0329
- accuracy: 0.9945
Epoch 245/500
11547/11547 [=====] - 1s 123us/sample - loss: 0.0329
- accuracy: 0.9945
Epoch 246/500
11547/11547 [=====] - 1s 106us/sample - loss: 0.0326
- accuracy: 0.9945
Epoch 247/500
```

```
11547/11547 [=====] - 1s 93us/sample - loss: 0.0328
- accuracy: 0.9945
Epoch 248/500
11547/11547 [=====] - 1s 94us/sample - loss: 0.0327
- accuracy: 0.9945
Epoch 249/500
11547/11547 [=====] - 1s 108us/sample - loss: 0.0328
- accuracy: 0.9945
Epoch 250/500
11547/11547 [=====] - 1s 113us/sample - loss: 0.0327
- accuracy: 0.9945
Epoch 251/500
11547/11547 [=====] - 1s 114us/sample - loss: 0.0327
- accuracy: 0.9945
Epoch 252/500
11547/11547 [=====] - 1s 107us/sample - loss: 0.0327
- accuracy: 0.9945
Epoch 253/500
11547/11547 [=====] - 1s 109us/sample - loss: 0.0328
- accuracy: 0.9945
Epoch 254/500
11547/11547 [=====] - 1s 109us/sample - loss: 0.0326
- accuracy: 0.9945
Epoch 255/500
11547/11547 [=====] - 1s 114us/sample - loss: 0.0327
```

```
- accuracy: 0.9945
Epoch 256/500
11547/11547 [=====] - 1s 111us/sample - loss: 0.0326
- accuracy: 0.9945
Epoch 257/500
11547/11547 [=====] - 1s 108us/sample - loss: 0.0326
- accuracy: 0.9945
Epoch 258/500
11547/11547 [=====] - 1s 113us/sample - loss: 0.0327
- accuracy: 0.9945
Epoch 259/500
11547/11547 [=====] - 1s 114us/sample - loss: 0.0328
- accuracy: 0.9945
Epoch 260/500
11547/11547 [=====] - 1s 116us/sample - loss: 0.0327
- accuracy: 0.9945
Epoch 261/500
11547/11547 [=====] - 1s 107us/sample - loss: 0.0326
- accuracy: 0.9945
Epoch 262/500
11547/11547 [=====] - 1s 113us/sample - loss: 0.0327
- accuracy: 0.9945
Epoch 263/500
11547/11547 [=====] - 1s 111us/sample - loss: 0.0325
- accuracy: 0.9945
```

```
Epoch 264/500
11547/11547 [=====] - 1s 116us/sample - loss: 0.0327
- accuracy: 0.9945
Epoch 265/500
11547/11547 [=====] - 1s 111us/sample - loss: 0.0326
- accuracy: 0.9945
Epoch 266/500
11547/11547 [=====] - 1s 108us/sample - loss: 0.0326
- accuracy: 0.9945
Epoch 267/500
11547/11547 [=====] - 1s 113us/sample - loss: 0.0328
- accuracy: 0.9945
Epoch 268/500
11547/11547 [=====] - 1s 115us/sample - loss: 0.0327
- accuracy: 0.9945
Epoch 269/500
11547/11547 [=====] - 1s 112us/sample - loss: 0.0327
- accuracy: 0.9945
Epoch 270/500
11547/11547 [=====] - 1s 108us/sample - loss: 0.0326
- accuracy: 0.9945
Epoch 271/500
11547/11547 [=====] - 1s 111us/sample - loss: 0.0326
- accuracy: 0.9945
Epoch 272/500
```



```
11547/11547 [=====] - 1s 110us/sample - loss: 0.0327
- accuracy: 0.9945
Epoch 273/500
11547/11547 [=====] - 1s 115us/sample - loss: 0.0325
- accuracy: 0.9945
Epoch 274/500
11547/11547 [=====] - 1s 109us/sample - loss: 0.0327
- accuracy: 0.9945
Epoch 275/500
11547/11547 [=====] - 1s 107us/sample - loss: 0.0327
- accuracy: 0.9945
Epoch 276/500
11547/11547 [=====] - 1s 115us/sample - loss: 0.0326
- accuracy: 0.9945
Epoch 277/500
11547/11547 [=====] - 1s 115us/sample - loss: 0.0327
- accuracy: 0.9945
Epoch 278/500
11547/11547 [=====] - 1s 112us/sample - loss: 0.0326
- accuracy: 0.9945
Epoch 279/500
11547/11547 [=====] - 1s 108us/sample - loss: 0.0326
- accuracy: 0.9945
Epoch 280/500
11547/11547 [=====] - 1s 114us/sample - loss: 0.0325
```

```
- accuracy: 0.9945
Epoch 281/500
11547/11547 [=====] - 1s 105us/sample - loss: 0.0327
- accuracy: 0.9945
Epoch 282/500
11547/11547 [=====] - 1s 107us/sample - loss: 0.0326
- accuracy: 0.9945
Epoch 283/500
11547/11547 [=====] - 1s 102us/sample - loss: 0.0323
- accuracy: 0.9945
Epoch 284/500
11547/11547 [=====] - 1s 98us/sample - loss: 0.0328
- accuracy: 0.9945
Epoch 285/500
11547/11547 [=====] - 1s 101us/sample - loss: 0.0326
- accuracy: 0.9945
Epoch 286/500
11547/11547 [=====] - 1s 101us/sample - loss: 0.0325
- accuracy: 0.9945
Epoch 287/500
11547/11547 [=====] - 2s 130us/sample - loss: 0.0325
- accuracy: 0.9945
Epoch 288/500
11547/11547 [=====] - 1s 122us/sample - loss: 0.0325
- accuracy: 0.9945
```

```
Epoch 289/500
11547/11547 [=====] - 2s 131us/sample - loss: 0.0326
- accuracy: 0.9945
Epoch 290/500
11547/11547 [=====] - 1s 127us/sample - loss: 0.0325
- accuracy: 0.9945
Epoch 291/500
11547/11547 [=====] - 2s 134us/sample - loss: 0.0326
- accuracy: 0.9945
Epoch 292/500
11547/11547 [=====] - 1s 122us/sample - loss: 0.0324
- accuracy: 0.9945
Epoch 293/500
11547/11547 [=====] - 1s 128us/sample - loss: 0.0324
- accuracy: 0.9944
Epoch 294/500
11547/11547 [=====] - 1s 128us/sample - loss: 0.0325
- accuracy: 0.9945
Epoch 295/500
11547/11547 [=====] - 2s 131us/sample - loss: 0.0324
- accuracy: 0.9945
Epoch 296/500
11547/11547 [=====] - 1s 121us/sample - loss: 0.0326
- accuracy: 0.9945
Epoch 297/500
```

```
11547/11547 [=====] - 2s 130us/sample - loss: 0.0325
- accuracy: 0.9945
Epoch 298/500
11547/11547 [=====] - 1s 127us/sample - loss: 0.0324
- accuracy: 0.9945
Epoch 299/500
11547/11547 [=====] - 1s 130us/sample - loss: 0.0324
- accuracy: 0.9945
Epoch 300/500
11547/11547 [=====] - 1s 120us/sample - loss: 0.0324
- accuracy: 0.9945
Epoch 301/500
11547/11547 [=====] - 2s 132us/sample - loss: 0.0325
- accuracy: 0.9945
Epoch 302/500
11547/11547 [=====] - 2s 142us/sample - loss: 0.0325
- accuracy: 0.9945
Epoch 303/500
11547/11547 [=====] - 2s 135us/sample - loss: 0.0324
- accuracy: 0.9945
Epoch 304/500
11547/11547 [=====] - 1s 120us/sample - loss: 0.0325
- accuracy: 0.9945
Epoch 305/500
11547/11547 [=====] - 1s 129us/sample - loss: 0.0324
```

```
- accuracy: 0.9945
Epoch 306/500
11547/11547 [=====] - 1s 129us/sample - loss: 0.0323
- accuracy: 0.9945
Epoch 307/500
11547/11547 [=====] - 2s 131us/sample - loss: 0.0324
- accuracy: 0.9945
Epoch 308/500
11547/11547 [=====] - 1s 122us/sample - loss: 0.0325
- accuracy: 0.9945
Epoch 309/500
11547/11547 [=====] - 1s 128us/sample - loss: 0.0324
- accuracy: 0.9945
Epoch 310/500
11547/11547 [=====] - 1s 129us/sample - loss: 0.0329
- accuracy: 0.9945
Epoch 311/500
11547/11547 [=====] - 2s 131us/sample - loss: 0.0325
- accuracy: 0.9945
Epoch 312/500
11547/11547 [=====] - 1s 119us/sample - loss: 0.0325
- accuracy: 0.9945
Epoch 313/500
11547/11547 [=====] - 1s 130us/sample - loss: 0.0323
- accuracy: 0.9945
```

```
Epoch 314/500
11547/11547 [=====] - 1s 126us/sample - loss: 0.0324
- accuracy: 0.9945
Epoch 315/500
11547/11547 [=====] - 1s 129us/sample - loss: 0.0324
- accuracy: 0.9945
Epoch 316/500
11547/11547 [=====] - 1s 119us/sample - loss: 0.0324
- accuracy: 0.9945
Epoch 317/500
11547/11547 [=====] - 1s 128us/sample - loss: 0.0325
- accuracy: 0.9945
Epoch 318/500
11547/11547 [=====] - 1s 128us/sample - loss: 0.0323
- accuracy: 0.9945
Epoch 319/500
11547/11547 [=====] - 1s 130us/sample - loss: 0.0324
- accuracy: 0.9945
Epoch 320/500
11547/11547 [=====] - 1s 123us/sample - loss: 0.0323
- accuracy: 0.9945
Epoch 321/500
11547/11547 [=====] - 1s 129us/sample - loss: 0.0323
- accuracy: 0.9945
Epoch 322/500
```

```
11547/11547 [=====] - 1s 130us/sample - loss: 0.0328
- accuracy: 0.9945
Epoch 323/500
11547/11547 [=====] - 1s 129us/sample - loss: 0.0325
- accuracy: 0.9945
Epoch 324/500
11547/11547 [=====] - 1s 120us/sample - loss: 0.0323
- accuracy: 0.9945
Epoch 325/500
11547/11547 [=====] - 1s 125us/sample - loss: 0.0323
- accuracy: 0.9945
Epoch 326/500
11547/11547 [=====] - 1s 128us/sample - loss: 0.0323
- accuracy: 0.9945
Epoch 327/500
11547/11547 [=====] - 1s 127us/sample - loss: 0.0324
- accuracy: 0.9945
Epoch 328/500
11547/11547 [=====] - 1s 121us/sample - loss: 0.0322
- accuracy: 0.9945
Epoch 329/500
11547/11547 [=====] - 2s 131us/sample - loss: 0.0324
- accuracy: 0.9945
Epoch 330/500
11547/11547 [=====] - 2s 133us/sample - loss: 0.0323
```

```
- accuracy: 0.9945
Epoch 331/500
11547/11547 [=====] - 1s 127us/sample - loss: 0.0322
- accuracy: 0.9945
Epoch 332/500
11547/11547 [=====] - 1s 121us/sample - loss: 0.0324
- accuracy: 0.9945
Epoch 333/500
11547/11547 [=====] - 1s 125us/sample - loss: 0.0324
- accuracy: 0.9945
Epoch 334/500
11547/11547 [=====] - 2s 132us/sample - loss: 0.0325
- accuracy: 0.9945
Epoch 335/500
11547/11547 [=====] - 1s 127us/sample - loss: 0.0324
- accuracy: 0.9945
Epoch 336/500
11547/11547 [=====] - 1s 119us/sample - loss: 0.0321
- accuracy: 0.9945
Epoch 337/500
11547/11547 [=====] - 1s 127us/sample - loss: 0.0324
- accuracy: 0.9945
Epoch 338/500
11547/11547 [=====] - 2s 132us/sample - loss: 0.0325
- accuracy: 0.9945
```



```
Epoch 339/500
11547/11547 [=====] - 1s 127us/sample - loss: 0.0323
- accuracy: 0.9945
Epoch 340/500
11547/11547 [=====] - 1s 122us/sample - loss: 0.0323
- accuracy: 0.9945
Epoch 341/500
11547/11547 [=====] - 1s 125us/sample - loss: 0.0324
- accuracy: 0.9945
Epoch 342/500
11547/11547 [=====] - 2s 130us/sample - loss: 0.0323
- accuracy: 0.9945
Epoch 343/500
11547/11547 [=====] - 1s 124us/sample - loss: 0.0324
- accuracy: 0.9945
Epoch 344/500
11547/11547 [=====] - 1s 120us/sample - loss: 0.0324
- accuracy: 0.9945
Epoch 345/500
11547/11547 [=====] - 1s 127us/sample - loss: 0.0326
- accuracy: 0.9945
Epoch 346/500
11547/11547 [=====] - 2s 135us/sample - loss: 0.0324
- accuracy: 0.9945
Epoch 347/500
```

```
11547/11547 [=====] - 2s 131us/sample - loss: 0.0323
- accuracy: 0.9945
Epoch 348/500
11547/11547 [=====] - 1s 129us/sample - loss: 0.0323
- accuracy: 0.9945
Epoch 349/500
11547/11547 [=====] - 1s 125us/sample - loss: 0.0323
- accuracy: 0.9945
Epoch 350/500
11547/11547 [=====] - 2s 135us/sample - loss: 0.0322
- accuracy: 0.9945
Epoch 351/500
11547/11547 [=====] - 1s 125us/sample - loss: 0.0321
- accuracy: 0.9945
Epoch 352/500
11547/11547 [=====] - 1s 128us/sample - loss: 0.0323
- accuracy: 0.9945
Epoch 353/500
11547/11547 [=====] - 1s 125us/sample - loss: 0.0323
- accuracy: 0.9945
Epoch 354/500
11547/11547 [=====] - 2s 156us/sample - loss: 0.0324
- accuracy: 0.9945
Epoch 355/500
11547/11547 [=====] - 1s 126us/sample - loss: 0.0324
```

```
- accuracy: 0.9945
Epoch 356/500
11547/11547 [=====] - 1s 129us/sample - loss: 0.0320
- accuracy: 0.9945
Epoch 357/500
11547/11547 [=====] - 1s 120us/sample - loss: 0.0322
- accuracy: 0.9945
Epoch 358/500
11547/11547 [=====] - 2s 136us/sample - loss: 0.0323
- accuracy: 0.9945
Epoch 359/500
11547/11547 [=====] - 1s 121us/sample - loss: 0.0322
- accuracy: 0.9945
Epoch 360/500
11547/11547 [=====] - 2s 132us/sample - loss: 0.0323
- accuracy: 0.9945
Epoch 361/500
11547/11547 [=====] - 1s 125us/sample - loss: 0.0322
- accuracy: 0.9945
Epoch 362/500
11547/11547 [=====] - 2s 135us/sample - loss: 0.0323
- accuracy: 0.9945
Epoch 363/500
11547/11547 [=====] - 1s 120us/sample - loss: 0.0322
- accuracy: 0.9945
```

```
Epoch 364/500
11547/11547 [=====] - 2s 131us/sample - loss: 0.0322
- accuracy: 0.9945
Epoch 365/500
11547/11547 [=====] - 1s 128us/sample - loss: 0.0322
- accuracy: 0.9945
Epoch 366/500
11547/11547 [=====] - 2s 134us/sample - loss: 0.0323
- accuracy: 0.9945
Epoch 367/500
11547/11547 [=====] - 1s 120us/sample - loss: 0.0322
- accuracy: 0.9945
Epoch 368/500
11547/11547 [=====] - 2s 131us/sample - loss: 0.0323
- accuracy: 0.9945
Epoch 369/500
11547/11547 [=====] - 1s 129us/sample - loss: 0.0321
- accuracy: 0.9945
Epoch 370/500
11547/11547 [=====] - 2s 131us/sample - loss: 0.0321
- accuracy: 0.9945
Epoch 371/500
11547/11547 [=====] - 1s 120us/sample - loss: 0.0324
- accuracy: 0.9945
Epoch 372/500
```

```
11547/11547 [=====] - 2s 131us/sample - loss: 0.0323
- accuracy: 0.9945
Epoch 373/500
11547/11547 [=====] - 2s 132us/sample - loss: 0.0320
- accuracy: 0.9945
Epoch 374/500
11547/11547 [=====] - 1s 129us/sample - loss: 0.0322
- accuracy: 0.9945
Epoch 375/500
11547/11547 [=====] - 1s 121us/sample - loss: 0.0323
- accuracy: 0.9945
Epoch 376/500
11547/11547 [=====] - 2s 132us/sample - loss: 0.0322
- accuracy: 0.9945
Epoch 377/500
11547/11547 [=====] - 2s 133us/sample - loss: 0.0322
- accuracy: 0.9945
Epoch 378/500
11547/11547 [=====] - 2s 131us/sample - loss: 0.0321
- accuracy: 0.9945
Epoch 379/500
11547/11547 [=====] - 1s 120us/sample - loss: 0.0321
- accuracy: 0.9945
Epoch 380/500
11547/11547 [=====] - 2s 131us/sample - loss: 0.0322
```

```
- accuracy: 0.9945
Epoch 381/500
11547/11547 [=====] - 2s 134us/sample - loss: 0.0322
- accuracy: 0.9945
Epoch 382/500
11547/11547 [=====] - 1s 129us/sample - loss: 0.0320
- accuracy: 0.9945
Epoch 383/500
11547/11547 [=====] - 1s 120us/sample - loss: 0.0323
- accuracy: 0.9945
Epoch 384/500
11547/11547 [=====] - 1s 129us/sample - loss: 0.0321
- accuracy: 0.9945
Epoch 385/500
11547/11547 [=====] - 2s 133us/sample - loss: 0.0321
- accuracy: 0.9945
Epoch 386/500
11547/11547 [=====] - 1s 129us/sample - loss: 0.0322
- accuracy: 0.9945
Epoch 387/500
11547/11547 [=====] - 1s 123us/sample - loss: 0.0322
- accuracy: 0.9945
Epoch 388/500
11547/11547 [=====] - 1s 129us/sample - loss: 0.0318
- accuracy: 0.9945
```

```
Epoch 389/500
11547/11547 [=====] - 1s 127us/sample - loss: 0.0320
- accuracy: 0.9945
Epoch 390/500
11547/11547 [=====] - 1s 126us/sample - loss: 0.0323
- accuracy: 0.9945
Epoch 391/500
11547/11547 [=====] - 1s 125us/sample - loss: 0.0322
- accuracy: 0.9945
Epoch 392/500
11547/11547 [=====] - 1s 129us/sample - loss: 0.0322
- accuracy: 0.9945
Epoch 393/500
11547/11547 [=====] - 2s 137us/sample - loss: 0.0321
- accuracy: 0.9945
Epoch 394/500
11547/11547 [=====] - 1s 128us/sample - loss: 0.0321
- accuracy: 0.9945
Epoch 395/500
11547/11547 [=====] - 2s 134us/sample - loss: 0.0320
- accuracy: 0.9945
Epoch 396/500
11547/11547 [=====] - 1s 128us/sample - loss: 0.0320
- accuracy: 0.9945
Epoch 397/500
```

```
11547/11547 [=====] - 2s 140us/sample - loss: 0.0321
- accuracy: 0.9945
Epoch 398/500
11547/11547 [=====] - 1s 122us/sample - loss: 0.0322
- accuracy: 0.9945
Epoch 399/500
11547/11547 [=====] - 1s 125us/sample - loss: 0.0321
- accuracy: 0.9945
Epoch 400/500
11547/11547 [=====] - 1s 126us/sample - loss: 0.0321
- accuracy: 0.9945
Epoch 401/500
11547/11547 [=====] - 2s 143us/sample - loss: 0.0322
- accuracy: 0.9945
Epoch 402/500
11547/11547 [=====] - 1s 122us/sample - loss: 0.0323
- accuracy: 0.9945
Epoch 403/500
11547/11547 [=====] - 1s 129us/sample - loss: 0.0321
- accuracy: 0.9945
Epoch 404/500
11547/11547 [=====] - 1s 126us/sample - loss: 0.0322
- accuracy: 0.9945
Epoch 405/500
11547/11547 [=====] - 2s 138us/sample - loss: 0.0323
```



```
- accuracy: 0.9945
Epoch 406/500
11547/11547 [=====] - 1s 121us/sample - loss: 0.0321
- accuracy: 0.9945
Epoch 407/500
11547/11547 [=====] - 1s 130us/sample - loss: 0.0320
- accuracy: 0.9945
Epoch 408/500
11547/11547 [=====] - 1s 127us/sample - loss: 0.0320
- accuracy: 0.9945
Epoch 409/500
11547/11547 [=====] - 2s 136us/sample - loss: 0.0321
- accuracy: 0.9945
Epoch 410/500
11547/11547 [=====] - 1s 119us/sample - loss: 0.0323
- accuracy: 0.9945
Epoch 411/500
11547/11547 [=====] - 2s 131us/sample - loss: 0.0321
- accuracy: 0.9945
Epoch 412/500
11547/11547 [=====] - 1s 127us/sample - loss: 0.0320
- accuracy: 0.9945
Epoch 413/500
11547/11547 [=====] - 2s 134us/sample - loss: 0.0322
- accuracy: 0.9945
```

```
Epoch 414/500
11547/11547 [=====] - 1s 120us/sample - loss: 0.0320
- accuracy: 0.9945
Epoch 415/500
11547/11547 [=====] - 1s 128us/sample - loss: 0.0321
- accuracy: 0.9945
Epoch 416/500
11547/11547 [=====] - 2s 131us/sample - loss: 0.0321
- accuracy: 0.9945
Epoch 417/500
11547/11547 [=====] - 2s 133us/sample - loss: 0.0321
- accuracy: 0.9945
Epoch 418/500
11547/11547 [=====] - 1s 120us/sample - loss: 0.0321
- accuracy: 0.9945
Epoch 419/500
11547/11547 [=====] - 2s 132us/sample - loss: 0.0322
- accuracy: 0.9945
Epoch 420/500
11547/11547 [=====] - 2s 135us/sample - loss: 0.0321
- accuracy: 0.9945
Epoch 421/500
11547/11547 [=====] - 2s 131us/sample - loss: 0.0320
- accuracy: 0.9945
Epoch 422/500
```

```
11547/11547 [=====] - 1s 120us/sample - loss: 0.0319
- accuracy: 0.9945
Epoch 423/500
11547/11547 [=====] - 2s 131us/sample - loss: 0.0319
- accuracy: 0.9945
Epoch 424/500
11547/11547 [=====] - 2s 132us/sample - loss: 0.0319
- accuracy: 0.9945
Epoch 425/500
11547/11547 [=====] - 2s 134us/sample - loss: 0.0319
- accuracy: 0.9945
Epoch 426/500
11547/11547 [=====] - 1s 124us/sample - loss: 0.0320
- accuracy: 0.9945
Epoch 427/500
11547/11547 [=====] - 2s 130us/sample - loss: 0.0319
- accuracy: 0.9945
Epoch 428/500
11547/11547 [=====] - 2s 134us/sample - loss: 0.0321
- accuracy: 0.9945
Epoch 429/500
11547/11547 [=====] - 2s 131us/sample - loss: 0.0321
- accuracy: 0.9945
Epoch 430/500
11547/11547 [=====] - 1s 128us/sample - loss: 0.0322
```

```
- accuracy: 0.9944
Epoch 431/500
11547/11547 [=====] - 1s 128us/sample - loss: 0.0321
- accuracy: 0.9945
Epoch 432/500
11547/11547 [=====] - 2s 137us/sample - loss: 0.0319
- accuracy: 0.9945
Epoch 433/500
11547/11547 [=====] - 1s 125us/sample - loss: 0.0321
- accuracy: 0.9945
Epoch 434/500
11547/11547 [=====] - 1s 129us/sample - loss: 0.0320
- accuracy: 0.9944
Epoch 435/500
11547/11547 [=====] - 1s 122us/sample - loss: 0.0320
- accuracy: 0.9945
Epoch 436/500
11547/11547 [=====] - 2s 140us/sample - loss: 0.0321
- accuracy: 0.9945
Epoch 437/500
11547/11547 [=====] - 1s 123us/sample - loss: 0.0320
- accuracy: 0.9945
Epoch 438/500
11547/11547 [=====] - 2s 131us/sample - loss: 0.0320
- accuracy: 0.9945
```

```
Epoch 439/500
11547/11547 [=====] - 1s 123us/sample - loss: 0.0321
- accuracy: 0.9945
Epoch 440/500
11547/11547 [=====] - 2s 141us/sample - loss: 0.0321
- accuracy: 0.9945
Epoch 441/500
11547/11547 [=====] - 1s 122us/sample - loss: 0.0321
- accuracy: 0.9945
Epoch 442/500
11547/11547 [=====] - 2s 134us/sample - loss: 0.0318
- accuracy: 0.9945
Epoch 443/500
11547/11547 [=====] - 1s 126us/sample - loss: 0.0317
- accuracy: 0.9945
Epoch 444/500
11547/11547 [=====] - 2s 140us/sample - loss: 0.0318
- accuracy: 0.9945
Epoch 445/500
11547/11547 [=====] - 1s 119us/sample - loss: 0.0321
- accuracy: 0.9945
Epoch 446/500
11547/11547 [=====] - 2s 133us/sample - loss: 0.0321
- accuracy: 0.9945
Epoch 447/500
```

```
11547/11547 [=====] - 1s 124us/sample - loss: 0.0318
- accuracy: 0.9945
Epoch 448/500
11547/11547 [=====] - 2s 138us/sample - loss: 0.0321
- accuracy: 0.9945
Epoch 449/500
11547/11547 [=====] - 1s 120us/sample - loss: 0.0319
- accuracy: 0.9945
Epoch 450/500
11547/11547 [=====] - 2s 133us/sample - loss: 0.0322
- accuracy: 0.9945
Epoch 451/500
11547/11547 [=====] - 2s 130us/sample - loss: 0.0319
- accuracy: 0.9945
Epoch 452/500
11547/11547 [=====] - 2s 135us/sample - loss: 0.0322
- accuracy: 0.9945
Epoch 453/500
11547/11547 [=====] - 1s 120us/sample - loss: 0.0319
- accuracy: 0.9945
Epoch 454/500
11547/11547 [=====] - 2s 132us/sample - loss: 0.0319
- accuracy: 0.9945
Epoch 455/500
11547/11547 [=====] - 1s 130us/sample - loss: 0.0319
```

```
- accuracy: 0.9945
Epoch 456/500
11547/11547 [=====] - 2s 136us/sample - loss: 0.0319
- accuracy: 0.9944
Epoch 457/500
11547/11547 [=====] - 1s 119us/sample - loss: 0.0319
- accuracy: 0.9945
Epoch 458/500
11547/11547 [=====] - 2s 130us/sample - loss: 0.0320
- accuracy: 0.9945
Epoch 459/500
11547/11547 [=====] - 2s 133us/sample - loss: 0.0321
- accuracy: 0.9945
Epoch 460/500
11547/11547 [=====] - 2s 131us/sample - loss: 0.0319
- accuracy: 0.9945
Epoch 461/500
11547/11547 [=====] - 1s 121us/sample - loss: 0.0317
- accuracy: 0.9945
Epoch 462/500
11547/11547 [=====] - 2s 133us/sample - loss: 0.0318
- accuracy: 0.9945
Epoch 463/500
11547/11547 [=====] - 2s 135us/sample - loss: 0.0318
- accuracy: 0.9945
```

```
Epoch 464/500
11547/11547 [=====] - 2s 133us/sample - loss: 0.0319
- accuracy: 0.9945
Epoch 465/500
11547/11547 [=====] - 1s 123us/sample - loss: 0.0321
- accuracy: 0.9945
Epoch 466/500
11547/11547 [=====] - 1s 127us/sample - loss: 0.0317
- accuracy: 0.9945
Epoch 467/500
11547/11547 [=====] - 2s 138us/sample - loss: 0.0317
- accuracy: 0.9945
Epoch 468/500
11547/11547 [=====] - 1s 127us/sample - loss: 0.0319
- accuracy: 0.9945
Epoch 469/500
11547/11547 [=====] - 1s 128us/sample - loss: 0.0318
- accuracy: 0.9945
Epoch 470/500
11547/11547 [=====] - 1s 121us/sample - loss: 0.0318
- accuracy: 0.9945
Epoch 471/500
11547/11547 [=====] - 2s 141us/sample - loss: 0.0318
- accuracy: 0.9945
Epoch 472/500
```



```
11547/11547 [=====] - 1s 124us/sample - loss: 0.0318
- accuracy: 0.9945
Epoch 473/500
11547/11547 [=====] - 1s 130us/sample - loss: 0.0320
- accuracy: 0.9945
Epoch 474/500
11547/11547 [=====] - 1s 127us/sample - loss: 0.0317
- accuracy: 0.9945
Epoch 475/500
11547/11547 [=====] - 2s 132us/sample - loss: 0.0317
- accuracy: 0.9945
Epoch 476/500
11547/11547 [=====] - 1s 126us/sample - loss: 0.0320
- accuracy: 0.9945
Epoch 477/500
11547/11547 [=====] - 2s 134us/sample - loss: 0.0319
- accuracy: 0.9945
Epoch 478/500
11547/11547 [=====] - 1s 123us/sample - loss: 0.0318
- accuracy: 0.9945
Epoch 479/500
11547/11547 [=====] - 2s 137us/sample - loss: 0.0318
- accuracy: 0.9945
Epoch 480/500
11547/11547 [=====] - 1s 120us/sample - loss: 0.0319
```

```
- accuracy: 0.9945
Epoch 481/500
11547/11547 [=====] - 2s 133us/sample - loss: 0.0317
- accuracy: 0.9945
Epoch 482/500
11547/11547 [=====] - 1s 127us/sample - loss: 0.0320
- accuracy: 0.9945
Epoch 483/500
11547/11547 [=====] - 2s 137us/sample - loss: 0.0318
- accuracy: 0.9945
Epoch 484/500
11547/11547 [=====] - 1s 118us/sample - loss: 0.0317
- accuracy: 0.9945
Epoch 485/500
11547/11547 [=====] - 2s 132us/sample - loss: 0.0319
- accuracy: 0.9945
Epoch 486/500
11547/11547 [=====] - 2s 132us/sample - loss: 0.0318
- accuracy: 0.9945
Epoch 487/500
11547/11547 [=====] - 2s 134us/sample - loss: 0.0325
- accuracy: 0.9944
Epoch 488/500
11547/11547 [=====] - 1s 119us/sample - loss: 0.0320
- accuracy: 0.9945
```

```
Epoch 489/500
11547/11547 [=====] - 2s 130us/sample - loss: 0.0319
- accuracy: 0.9945
Epoch 490/500
11547/11547 [=====] - 2s 132us/sample - loss: 0.0318
- accuracy: 0.9945
Epoch 491/500
11547/11547 [=====] - 2s 131us/sample - loss: 0.0316
- accuracy: 0.9945
Epoch 492/500
11547/11547 [=====] - 1s 120us/sample - loss: 0.0318
- accuracy: 0.9945
Epoch 493/500
11547/11547 [=====] - 1s 128us/sample - loss: 0.0317
- accuracy: 0.9945
Epoch 494/500
11547/11547 [=====] - 2s 131us/sample - loss: 0.0320
- accuracy: 0.9945
Epoch 495/500
11547/11547 [=====] - 2s 134us/sample - loss: 0.0318
- accuracy: 0.9944
Epoch 496/500
11547/11547 [=====] - 1s 119us/sample - loss: 0.0316
- accuracy: 0.9945
Epoch 497/500
```

```
11547/11547 [=====] - 2s 133us/sample - loss: 0.0318
- accuracy: 0.9945
Epoch 498/500
11547/11547 [=====] - 2s 133us/sample - loss: 0.0318
- accuracy: 0.9945
Epoch 499/500
11547/11547 [=====] - 2s 134us/sample - loss: 0.0318
- accuracy: 0.9945
Epoch 500/500
11547/11547 [=====] - 1s 121us/sample - loss: 0.0319
- accuracy: 0.9945
2880/2880 [=====] - 0s 98us/sample
```

```
class_weight_Fold_4: {0: 0.40222938256553165, 1: 108.253125}
```

```
pos_weight: 0.6
thresholdNum: 0.5
```

```
Average of train loss Fold_4: 0.0449
Average of yPredProbability Fold_4: 0.0099
```

```
classification_report_Fold_4:
```

	precision	recall	f1-score	support
Normal 0	0.99	1.00	1.00	2857
Anomaly 1	0.00	0.00	0.00	23
accuracy			0.99	2880
macro avg	0.50	0.50	0.50	2880
weighted avg	0.98	0.99	0.99	2880

confusion_matrix_Fold_4:

True Negatives: 2857

False Positives: 0

False Negatives: 23

True Positives: 0

End running time Fold_4: 210508_012938 ,-----.

Start running time Fold_5: 210508_012938 ,-----:

Shape of Actual yXtrainRolled After Rolling Fold_5: (23068, 60)

Shape of Actual yXvalidShifted dataset: (2894, 60)

Shape of Actual yXvalidRolled After Rolling Fold_5: (5786, 60)

-----*** Train modelEvaluateVal without adding Augmented data
***-----

Shape of data after Transform ToOneRow to give Cross Validation Model in
fold_5:

xtrain: (11534, 118), ytrain: (11534,)
xvalid: (2893, 118), yvalid: (2893,)

Number of final label 0 in yXtrain_Fold_5: 11457

Number of final label 1 in yXtrain_Before_AddingAugedData_Fold_5: 77
Number of final label 1 in yXtrain_After_AddingAugedData_Fold_5: 77

Train on 11534 samples

Epoch 1/500

11534/11534 [=====] - 3s 221us/sample - loss: 3.0272
- accuracy: 0.9927

Epoch 2/500

11534/11534 [=====] - 2s 133us/sample - loss: 1.4195
- accuracy: 0.9933

Epoch 3/500

11534/11534 [=====] - 2s 133us/sample - loss: 0.6244

```
- accuracy: 0.9933
Epoch 4/500
11534/11534 [=====] - 2s 132us/sample - loss: 0.2732
- accuracy: 0.9933
Epoch 5/500
11534/11534 [=====] - 1s 119us/sample - loss: 0.1315
- accuracy: 0.9933
Epoch 6/500
11534/11534 [=====] - 2s 135us/sample - loss: 0.0782
- accuracy: 0.9933
Epoch 7/500
11534/11534 [=====] - 2s 134us/sample - loss: 0.0590
- accuracy: 0.9933
Epoch 8/500
11534/11534 [=====] - 2s 134us/sample - loss: 0.0520
- accuracy: 0.9933
Epoch 9/500
11534/11534 [=====] - 1s 119us/sample - loss: 0.0490
- accuracy: 0.9933
Epoch 10/500
11534/11534 [=====] - 2s 132us/sample - loss: 0.0479
- accuracy: 0.9933
Epoch 11/500
11534/11534 [=====] - 1s 130us/sample - loss: 0.0471
- accuracy: 0.9933
```

```
Epoch 12/500
11534/11534 [=====] - 2s 132us/sample - loss: 0.0467
- accuracy: 0.9933
Epoch 13/500
11534/11534 [=====] - 1s 121us/sample - loss: 0.0460
- accuracy: 0.9933
Epoch 14/500
11534/11534 [=====] - 2s 131us/sample - loss: 0.0459
- accuracy: 0.9933
Epoch 15/500
11534/11534 [=====] - 2s 148us/sample - loss: 0.0455
- accuracy: 0.9933
Epoch 16/500
11534/11534 [=====] - 1s 129us/sample - loss: 0.0452
- accuracy: 0.9933
Epoch 17/500
11534/11534 [=====] - 1s 129us/sample - loss: 0.0446
- accuracy: 0.9933
Epoch 18/500
11534/11534 [=====] - 1s 128us/sample - loss: 0.0447
- accuracy: 0.9933
Epoch 19/500
11534/11534 [=====] - 2s 141us/sample - loss: 0.0440
- accuracy: 0.9933
Epoch 20/500
```



```
11534/11534 [=====] - 1s 126us/sample - loss: 0.0441
- accuracy: 0.9933
Epoch 21/500
11534/11534 [=====] - 1s 130us/sample - loss: 0.0436
- accuracy: 0.9933
Epoch 22/500
11534/11534 [=====] - 1s 121us/sample - loss: 0.0438
- accuracy: 0.9933
Epoch 23/500
11534/11534 [=====] - 2s 136us/sample - loss: 0.0432
- accuracy: 0.9933
Epoch 24/500
11534/11534 [=====] - 1s 124us/sample - loss: 0.0432
- accuracy: 0.9933
Epoch 25/500
11534/11534 [=====] - 2s 135us/sample - loss: 0.0429
- accuracy: 0.9933
Epoch 26/500
11534/11534 [=====] - 1s 127us/sample - loss: 0.0424
- accuracy: 0.9933
Epoch 27/500
11534/11534 [=====] - 2s 137us/sample - loss: 0.0425
- accuracy: 0.9933
Epoch 28/500
11534/11534 [=====] - 1s 119us/sample - loss: 0.0426
```

```
- accuracy: 0.9933
Epoch 29/500
11534/11534 [=====] - 2s 131us/sample - loss: 0.0425
- accuracy: 0.9933
Epoch 30/500
11534/11534 [=====] - 1s 129us/sample - loss: 0.0419
- accuracy: 0.9933
Epoch 31/500
11534/11534 [=====] - 2s 136us/sample - loss: 0.0418
- accuracy: 0.9933
Epoch 32/500
11534/11534 [=====] - 1s 123us/sample - loss: 0.0418
- accuracy: 0.9933
Epoch 33/500
11534/11534 [=====] - 2s 132us/sample - loss: 0.0419
- accuracy: 0.9933
Epoch 34/500
11534/11534 [=====] - 2s 132us/sample - loss: 0.0418
- accuracy: 0.9933
Epoch 35/500
11534/11534 [=====] - 2s 133us/sample - loss: 0.0415
- accuracy: 0.9933
Epoch 36/500
11534/11534 [=====] - 1s 119us/sample - loss: 0.0419
- accuracy: 0.9933
```

```
Epoch 37/500
11534/11534 [=====] - 2s 130us/sample - loss: 0.0412
- accuracy: 0.9933
Epoch 38/500
11534/11534 [=====] - 2s 132us/sample - loss: 0.0414
- accuracy: 0.9933
Epoch 39/500
11534/11534 [=====] - 2s 134us/sample - loss: 0.0415
- accuracy: 0.9933
Epoch 40/500
11534/11534 [=====] - 1s 119us/sample - loss: 0.0413
- accuracy: 0.9933
Epoch 41/500
11534/11534 [=====] - 2s 130us/sample - loss: 0.0407
- accuracy: 0.9933
Epoch 42/500
11534/11534 [=====] - 1s 130us/sample - loss: 0.0413
- accuracy: 0.9933
Epoch 43/500
11534/11534 [=====] - 2s 130us/sample - loss: 0.0407
- accuracy: 0.9933
Epoch 44/500
11534/11534 [=====] - 1s 120us/sample - loss: 0.0408
- accuracy: 0.9933
Epoch 45/500
```

```
11534/11534 [=====] - 2s 133us/sample - loss: 0.0405
- accuracy: 0.9933
Epoch 46/500
11534/11534 [=====] - 2s 136us/sample - loss: 0.0406
- accuracy: 0.9933
Epoch 47/500
11534/11534 [=====] - 2s 132us/sample - loss: 0.0405
- accuracy: 0.9933
Epoch 48/500
11534/11534 [=====] - 1s 121us/sample - loss: 0.0406
- accuracy: 0.9933
Epoch 49/500
11534/11534 [=====] - 1s 130us/sample - loss: 0.0405
- accuracy: 0.9933
Epoch 50/500
11534/11534 [=====] - 2s 132us/sample - loss: 0.0403
- accuracy: 0.9933
Epoch 51/500
11534/11534 [=====] - 2s 132us/sample - loss: 0.0402
- accuracy: 0.9933
Epoch 52/500
11534/11534 [=====] - 1s 124us/sample - loss: 0.0398
- accuracy: 0.9933
Epoch 53/500
11534/11534 [=====] - 1s 126us/sample - loss: 0.0403
```

```
- accuracy: 0.9933
Epoch 54/500
11534/11534 [=====] - 2s 135us/sample - loss: 0.0406
- accuracy: 0.9933
Epoch 55/500
11534/11534 [=====] - 1s 128us/sample - loss: 0.0403
- accuracy: 0.9933
Epoch 56/500
11534/11534 [=====] - 2s 130us/sample - loss: 0.0402
- accuracy: 0.9933
Epoch 57/500
11534/11534 [=====] - 1s 124us/sample - loss: 0.0402
- accuracy: 0.9933
Epoch 58/500
11534/11534 [=====] - 2s 134us/sample - loss: 0.0403
- accuracy: 0.9933
Epoch 59/500
11534/11534 [=====] - 1s 128us/sample - loss: 0.0402
- accuracy: 0.9933
Epoch 60/500
11534/11534 [=====] - 1s 127us/sample - loss: 0.0402
- accuracy: 0.9933
Epoch 61/500
11534/11534 [=====] - 1s 125us/sample - loss: 0.0399
- accuracy: 0.9933
```

```
Epoch 62/500
11534/11534 [=====] - 2s 136us/sample - loss: 0.0397
- accuracy: 0.9933
Epoch 63/500
11534/11534 [=====] - 1s 124us/sample - loss: 0.0402
- accuracy: 0.9933
Epoch 64/500
11534/11534 [=====] - 1s 130us/sample - loss: 0.0399
- accuracy: 0.9933
Epoch 65/500
11534/11534 [=====] - 1s 123us/sample - loss: 0.0398
- accuracy: 0.9933
Epoch 66/500
11534/11534 [=====] - 2s 139us/sample - loss: 0.0399
- accuracy: 0.9933
Epoch 67/500
11534/11534 [=====] - 1s 122us/sample - loss: 0.0395
- accuracy: 0.9933
Epoch 68/500
11534/11534 [=====] - 2s 131us/sample - loss: 0.0399
- accuracy: 0.9933
Epoch 69/500
11534/11534 [=====] - 1s 126us/sample - loss: 0.0398
- accuracy: 0.9933
Epoch 70/500
```

```
11534/11534 [=====] - 2s 136us/sample - loss: 0.0397
- accuracy: 0.9933
Epoch 71/500
11534/11534 [=====] - 1s 118us/sample - loss: 0.0396
- accuracy: 0.9933
Epoch 72/500
11534/11534 [=====] - 2s 133us/sample - loss: 0.0401
- accuracy: 0.9933
Epoch 73/500
11534/11534 [=====] - 1s 127us/sample - loss: 0.0396
- accuracy: 0.9933
Epoch 74/500
11534/11534 [=====] - 2s 135us/sample - loss: 0.0398
- accuracy: 0.9933
Epoch 75/500
11534/11534 [=====] - 1s 119us/sample - loss: 0.0397
- accuracy: 0.9933
Epoch 76/500
11534/11534 [=====] - 1s 129us/sample - loss: 0.0398
- accuracy: 0.9933
Epoch 77/500
11534/11534 [=====] - 1s 128us/sample - loss: 0.0399
- accuracy: 0.9933
Epoch 78/500
11534/11534 [=====] - 2s 133us/sample - loss: 0.0399
```

```
- accuracy: 0.9933
Epoch 79/500
11534/11534 [=====] - 1s 121us/sample - loss: 0.0397
- accuracy: 0.9933
Epoch 80/500
11534/11534 [=====] - 1s 128us/sample - loss: 0.0396
- accuracy: 0.9933
Epoch 81/500
11534/11534 [=====] - 2s 131us/sample - loss: 0.0397
- accuracy: 0.9933
Epoch 82/500
11534/11534 [=====] - 2s 135us/sample - loss: 0.0397
- accuracy: 0.9933
Epoch 83/500
11534/11534 [=====] - 1s 119us/sample - loss: 0.0396
- accuracy: 0.9933
Epoch 84/500
11534/11534 [=====] - 1s 130us/sample - loss: 0.0399
- accuracy: 0.9933
Epoch 85/500
11534/11534 [=====] - 2s 131us/sample - loss: 0.0395
- accuracy: 0.9933
Epoch 86/500
11534/11534 [=====] - 2s 134us/sample - loss: 0.0396
- accuracy: 0.9933
```



```
Epoch 87/500
11534/11534 [=====] - 1s 120us/sample - loss: 0.0392
- accuracy: 0.9933
Epoch 88/500
11534/11534 [=====] - 2s 133us/sample - loss: 0.0398
- accuracy: 0.9933
Epoch 89/500
11534/11534 [=====] - 2s 131us/sample - loss: 0.0397
- accuracy: 0.9933
Epoch 90/500
11534/11534 [=====] - 2s 133us/sample - loss: 0.0396
- accuracy: 0.9933
Epoch 91/500
11534/11534 [=====] - 1s 121us/sample - loss: 0.0396
- accuracy: 0.9933
Epoch 92/500
11534/11534 [=====] - 2s 132us/sample - loss: 0.0395
- accuracy: 0.9933
Epoch 93/500
11534/11534 [=====] - 2s 144us/sample - loss: 0.0394
- accuracy: 0.9933
Epoch 94/500
11534/11534 [=====] - 2s 145us/sample - loss: 0.0396
- accuracy: 0.9933
Epoch 95/500
```

```
11534/11534 [=====] - 2s 131us/sample - loss: 0.0399
- accuracy: 0.9933
Epoch 96/500
11534/11534 [=====] - 1s 124us/sample - loss: 0.0396
- accuracy: 0.9933
Epoch 97/500
11534/11534 [=====] - 2s 139us/sample - loss: 0.0397
- accuracy: 0.9933
Epoch 98/500
11534/11534 [=====] - 1s 125us/sample - loss: 0.0395
- accuracy: 0.9933
Epoch 99/500
11534/11534 [=====] - 2s 130us/sample - loss: 0.0396
- accuracy: 0.9933
Epoch 100/500
11534/11534 [=====] - 1s 126us/sample - loss: 0.0393
- accuracy: 0.9933
Epoch 101/500
11534/11534 [=====] - 2s 137us/sample - loss: 0.0393
- accuracy: 0.9933
Epoch 102/500
11534/11534 [=====] - 1s 123us/sample - loss: 0.0394
- accuracy: 0.9933
Epoch 103/500
11534/11534 [=====] - 1s 130us/sample - loss: 0.0395
```

```
- accuracy: 0.9933
Epoch 104/500
11534/11534 [=====] - 1s 125us/sample - loss: 0.0393
- accuracy: 0.9933
Epoch 105/500
11534/11534 [=====] - 2s 140us/sample - loss: 0.0395
- accuracy: 0.9933
Epoch 106/500
11534/11534 [=====] - 1s 128us/sample - loss: 0.0394
- accuracy: 0.9933
Epoch 107/500
11534/11534 [=====] - 2s 139us/sample - loss: 0.0394
- accuracy: 0.9933
Epoch 108/500
11534/11534 [=====] - 2s 133us/sample - loss: 0.0394
- accuracy: 0.9933
Epoch 109/500
11534/11534 [=====] - 2s 134us/sample - loss: 0.0394
- accuracy: 0.9933
Epoch 110/500
11534/11534 [=====] - 1s 122us/sample - loss: 0.0393
- accuracy: 0.9933
Epoch 111/500
11534/11534 [=====] - 2s 131us/sample - loss: 0.0392
- accuracy: 0.9933
```

```
Epoch 112/500
11534/11534 [=====] - 2s 133us/sample - loss: 0.0392
- accuracy: 0.9933
Epoch 113/500
11534/11534 [=====] - 2s 132us/sample - loss: 0.0397
- accuracy: 0.9933
Epoch 114/500
11534/11534 [=====] - 1s 120us/sample - loss: 0.0391
- accuracy: 0.9933
Epoch 115/500
11534/11534 [=====] - 1s 130us/sample - loss: 0.0393
- accuracy: 0.9933
Epoch 116/500
11534/11534 [=====] - 2s 131us/sample - loss: 0.0392
- accuracy: 0.9933
Epoch 117/500
11534/11534 [=====] - 2s 131us/sample - loss: 0.0393
- accuracy: 0.9933
Epoch 118/500
11534/11534 [=====] - 1s 122us/sample - loss: 0.0392
- accuracy: 0.9933
Epoch 119/500
11534/11534 [=====] - 2s 130us/sample - loss: 0.0393
- accuracy: 0.9933
Epoch 120/500
```

```
11534/11534 [=====] - 2s 132us/sample - loss: 0.0393
- accuracy: 0.9933
Epoch 121/500
11534/11534 [=====] - 2s 131us/sample - loss: 0.0391
- accuracy: 0.9933
Epoch 122/500
11534/11534 [=====] - 1s 125us/sample - loss: 0.0393
- accuracy: 0.9933
Epoch 123/500
11534/11534 [=====] - 1s 127us/sample - loss: 0.0392
- accuracy: 0.9933
Epoch 124/500
11534/11534 [=====] - 2s 137us/sample - loss: 0.0393
- accuracy: 0.9933
Epoch 125/500
11534/11534 [=====] - 1s 130us/sample - loss: 0.0393
- accuracy: 0.9933
Epoch 126/500
11534/11534 [=====] - 1s 129us/sample - loss: 0.0391
- accuracy: 0.9933
Epoch 127/500
11534/11534 [=====] - 1s 124us/sample - loss: 0.0393
- accuracy: 0.9933
Epoch 128/500
11534/11534 [=====] - 2s 137us/sample - loss: 0.0394
```

```
- accuracy: 0.9933
Epoch 129/500
11534/11534 [=====] - 1s 128us/sample - loss: 0.0391
- accuracy: 0.9933
Epoch 130/500
11534/11534 [=====] - 1s 129us/sample - loss: 0.0393
- accuracy: 0.9933
Epoch 131/500
11534/11534 [=====] - 1s 123us/sample - loss: 0.0394
- accuracy: 0.9933
Epoch 132/500
11534/11534 [=====] - 2s 140us/sample - loss: 0.0390
- accuracy: 0.9933
Epoch 133/500
11534/11534 [=====] - 1s 124us/sample - loss: 0.0391
- accuracy: 0.9933
Epoch 134/500
11534/11534 [=====] - 2s 133us/sample - loss: 0.0393
- accuracy: 0.9933
Epoch 135/500
11534/11534 [=====] - 1s 124us/sample - loss: 0.0392
- accuracy: 0.9933
Epoch 136/500
11534/11534 [=====] - 2s 138us/sample - loss: 0.0391
- accuracy: 0.9933
```

```
Epoch 137/500
11534/11534 [=====] - 1s 121us/sample - loss: 0.0390
- accuracy: 0.9933
Epoch 138/500
11534/11534 [=====] - 2s 130us/sample - loss: 0.0392
- accuracy: 0.9933
Epoch 139/500
11534/11534 [=====] - 1s 130us/sample - loss: 0.0391
- accuracy: 0.9933
Epoch 140/500
11534/11534 [=====] - 2s 136us/sample - loss: 0.0390
- accuracy: 0.9933
Epoch 141/500
11534/11534 [=====] - 1s 122us/sample - loss: 0.0392
- accuracy: 0.9933
Epoch 142/500
11534/11534 [=====] - 2s 132us/sample - loss: 0.0391
- accuracy: 0.9933
Epoch 143/500
11534/11534 [=====] - 2s 132us/sample - loss: 0.0392
- accuracy: 0.9933
Epoch 144/500
11534/11534 [=====] - 2s 135us/sample - loss: 0.0392
- accuracy: 0.9933
Epoch 145/500
```

```
11534/11534 [=====] - 1s 121us/sample - loss: 0.0390
- accuracy: 0.9933
Epoch 146/500
11534/11534 [=====] - 2s 133us/sample - loss: 0.0391
- accuracy: 0.9933
Epoch 147/500
11534/11534 [=====] - 2s 132us/sample - loss: 0.0391
- accuracy: 0.9933
Epoch 148/500
11534/11534 [=====] - 2s 134us/sample - loss: 0.0391
- accuracy: 0.9933
Epoch 149/500
11534/11534 [=====] - 1s 120us/sample - loss: 0.0390
- accuracy: 0.9933
Epoch 150/500
11534/11534 [=====] - 2s 135us/sample - loss: 0.0392
- accuracy: 0.9933
Epoch 151/500
11534/11534 [=====] - 2s 133us/sample - loss: 0.0391
- accuracy: 0.9933
Epoch 152/500
11534/11534 [=====] - 2s 132us/sample - loss: 0.0389
- accuracy: 0.9933
Epoch 153/500
11534/11534 [=====] - 1s 123us/sample - loss: 0.0390
```



```
- accuracy: 0.9933
Epoch 154/500
11534/11534 [=====] - 2s 131us/sample - loss: 0.0387
- accuracy: 0.9933
Epoch 155/500
11534/11534 [=====] - 2s 133us/sample - loss: 0.0390
- accuracy: 0.9933
Epoch 156/500
11534/11534 [=====] - 1s 129us/sample - loss: 0.0390
- accuracy: 0.9933
Epoch 157/500
11534/11534 [=====] - 1s 123us/sample - loss: 0.0390
- accuracy: 0.9933
Epoch 158/500
11534/11534 [=====] - 1s 128us/sample - loss: 0.0389
- accuracy: 0.9933
Epoch 159/500
11534/11534 [=====] - 2s 136us/sample - loss: 0.0390
- accuracy: 0.9933
Epoch 160/500
11534/11534 [=====] - 1s 129us/sample - loss: 0.0389
- accuracy: 0.9933
Epoch 161/500
11534/11534 [=====] - 1s 124us/sample - loss: 0.0389
- accuracy: 0.9933
```

```
Epoch 162/500
11534/11534 [=====] - 1s 125us/sample - loss: 0.0391
- accuracy: 0.9933
Epoch 163/500
11534/11534 [=====] - 2s 139us/sample - loss: 0.0388
- accuracy: 0.9933
Epoch 164/500
11534/11534 [=====] - 1s 126us/sample - loss: 0.0390
- accuracy: 0.9933
Epoch 165/500
11534/11534 [=====] - 1s 128us/sample - loss: 0.0388
- accuracy: 0.9933
Epoch 166/500
11534/11534 [=====] - 1s 124us/sample - loss: 0.0390
- accuracy: 0.9933
Epoch 167/500
11534/11534 [=====] - 2s 141us/sample - loss: 0.0390
- accuracy: 0.9933
Epoch 168/500
11534/11534 [=====] - 1s 124us/sample - loss: 0.0390
- accuracy: 0.9933
Epoch 169/500
11534/11534 [=====] - 2s 133us/sample - loss: 0.0390
- accuracy: 0.9933
Epoch 170/500
```

```
11534/11534 [=====] - 1s 126us/sample - loss: 0.0388
- accuracy: 0.9933
Epoch 171/500
11534/11534 [=====] - 2s 140us/sample - loss: 0.0388
- accuracy: 0.9933
Epoch 172/500
11534/11534 [=====] - 1s 122us/sample - loss: 0.0389
- accuracy: 0.9933
Epoch 173/500
11534/11534 [=====] - 2s 132us/sample - loss: 0.0390
- accuracy: 0.9933
Epoch 174/500
11534/11534 [=====] - 1s 127us/sample - loss: 0.0389
- accuracy: 0.9933
Epoch 175/500
11534/11534 [=====] - 2s 137us/sample - loss: 0.0389
- accuracy: 0.9933
Epoch 176/500
11534/11534 [=====] - 1s 119us/sample - loss: 0.0389
- accuracy: 0.9933
Epoch 177/500
11534/11534 [=====] - 2s 131us/sample - loss: 0.0389
- accuracy: 0.9933
Epoch 178/500
11534/11534 [=====] - 1s 128us/sample - loss: 0.0389
```

```
- accuracy: 0.9933
Epoch 179/500
11534/11534 [=====] - 2s 137us/sample - loss: 0.0389
- accuracy: 0.9933
Epoch 180/500
11534/11534 [=====] - 1s 119us/sample - loss: 0.0389
- accuracy: 0.9933
Epoch 181/500
11534/11534 [=====] - 2s 131us/sample - loss: 0.0390
- accuracy: 0.9933
Epoch 182/500
11534/11534 [=====] - 1s 130us/sample - loss: 0.0389
- accuracy: 0.9933
Epoch 183/500
11534/11534 [=====] - 2s 134us/sample - loss: 0.0390
- accuracy: 0.9933
Epoch 184/500
11534/11534 [=====] - 1s 120us/sample - loss: 0.0389
- accuracy: 0.9933
Epoch 185/500
11534/11534 [=====] - 2s 132us/sample - loss: 0.0389
- accuracy: 0.9933
Epoch 186/500
11534/11534 [=====] - 2s 135us/sample - loss: 0.0388
- accuracy: 0.9933
```

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Epoch 187/500
11534/11534 [=====] - 2s 131us/sample - loss: 0.0389
- accuracy: 0.9933
Epoch 188/500
11534/11534 [=====] - 1s 121us/sample - loss: 0.0386
- accuracy: 0.9933
Epoch 189/500
11534/11534 [=====] - 2s 131us/sample - loss: 0.0388
- accuracy: 0.9933
Epoch 190/500
11534/11534 [=====] - 2s 134us/sample - loss: 0.0388
- accuracy: 0.9933
Epoch 191/500
11534/11534 [=====] - 2s 131us/sample - loss: 0.0388
- accuracy: 0.9933
Epoch 192/500
11534/11534 [=====] - 1s 120us/sample - loss: 0.0389
- accuracy: 0.9933
Epoch 193/500
11534/11534 [=====] - 2s 132us/sample - loss: 0.0389
- accuracy: 0.9933
Epoch 194/500
11534/11534 [=====] - 2s 131us/sample - loss: 0.0388
- accuracy: 0.9933
Epoch 195/500
```

```
11534/11534 [=====] - 2s 132us/sample - loss: 0.0387
- accuracy: 0.9933
Epoch 196/500
11534/11534 [=====] - 1s 123us/sample - loss: 0.0389
- accuracy: 0.9933
Epoch 197/500
11534/11534 [=====] - 1s 128us/sample - loss: 0.0388
- accuracy: 0.9933
Epoch 198/500
11534/11534 [=====] - 2s 136us/sample - loss: 0.0387
- accuracy: 0.9933
Epoch 199/500
11534/11534 [=====] - 1s 129us/sample - loss: 0.0387
- accuracy: 0.9933
Epoch 200/500
11534/11534 [=====] - 1s 126us/sample - loss: 0.0387
- accuracy: 0.9933
Epoch 201/500
11534/11534 [=====] - 1s 125us/sample - loss: 0.0388
- accuracy: 0.9933
Epoch 202/500
11534/11534 [=====] - 2s 137us/sample - loss: 0.0388
- accuracy: 0.9933
Epoch 203/500
11534/11534 [=====] - 1s 127us/sample - loss: 0.0388
```

```
- accuracy: 0.9933
Epoch 204/500
11534/11534 [=====] - 1s 129us/sample - loss: 0.0387
- accuracy: 0.9933
Epoch 205/500
11534/11534 [=====] - 1s 122us/sample - loss: 0.0388
- accuracy: 0.9933
Epoch 206/500
11534/11534 [=====] - 2s 139us/sample - loss: 0.0388
- accuracy: 0.9933
Epoch 207/500
11534/11534 [=====] - 1s 124us/sample - loss: 0.0387
- accuracy: 0.9933
Epoch 208/500
11534/11534 [=====] - 2s 133us/sample - loss: 0.0386
- accuracy: 0.9933
Epoch 209/500
11534/11534 [=====] - 1s 123us/sample - loss: 0.0388
- accuracy: 0.9933
Epoch 210/500
11534/11534 [=====] - 2s 142us/sample - loss: 0.0387
- accuracy: 0.9933
Epoch 211/500
11534/11534 [=====] - 1s 122us/sample - loss: 0.0389
- accuracy: 0.9933
```

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Epoch 212/500
11534/11534 [=====] - 2s 133us/sample - loss: 0.0388
- accuracy: 0.9933
Epoch 213/500
11534/11534 [=====] - 1s 121us/sample - loss: 0.0386
- accuracy: 0.9933
Epoch 214/500
11534/11534 [=====] - 2s 141us/sample - loss: 0.0386
- accuracy: 0.9933
Epoch 215/500
11534/11534 [=====] - 1s 120us/sample - loss: 0.0388
- accuracy: 0.9933
Epoch 216/500
11534/11534 [=====] - 2s 131us/sample - loss: 0.0387
- accuracy: 0.9933
Epoch 217/500
11534/11534 [=====] - 1s 125us/sample - loss: 0.0386
- accuracy: 0.9933
Epoch 218/500
11534/11534 [=====] - 2s 139us/sample - loss: 0.0386
- accuracy: 0.9933
Epoch 219/500
11534/11534 [=====] - 1s 120us/sample - loss: 0.0384
- accuracy: 0.9933
Epoch 220/500
```



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11534/11534 [=====] - 2s 132us/sample - loss: 0.0386
- accuracy: 0.9933
Epoch 221/500
11534/11534 [=====] - 1s 127us/sample - loss: 0.0388
- accuracy: 0.9933
Epoch 222/500
11534/11534 [=====] - 2s 135us/sample - loss: 0.0385
- accuracy: 0.9933
Epoch 223/500
11534/11534 [=====] - 1s 120us/sample - loss: 0.0386
- accuracy: 0.9933
Epoch 224/500
11534/11534 [=====] - 2s 132us/sample - loss: 0.0386
- accuracy: 0.9933
Epoch 225/500
11534/11534 [=====] - 1s 129us/sample - loss: 0.0387
- accuracy: 0.9933
Epoch 226/500
11534/11534 [=====] - 2s 138us/sample - loss: 0.0388
- accuracy: 0.9933
Epoch 227/500
11534/11534 [=====] - 1s 121us/sample - loss: 0.0386
- accuracy: 0.9933
Epoch 228/500
11534/11534 [=====] - 2s 134us/sample - loss: 0.0386
```

```
- accuracy: 0.9933
Epoch 229/500
11534/11534 [=====] - 2s 133us/sample - loss: 0.0388
- accuracy: 0.9933
Epoch 230/500
11534/11534 [=====] - 2s 132us/sample - loss: 0.0385
- accuracy: 0.9933
Epoch 231/500
11534/11534 [=====] - 1s 120us/sample - loss: 0.0385
- accuracy: 0.9933
Epoch 232/500
11534/11534 [=====] - 2s 132us/sample - loss: 0.0384
- accuracy: 0.9933
Epoch 233/500
11534/11534 [=====] - 2s 131us/sample - loss: 0.0384
- accuracy: 0.9933
Epoch 234/500
11534/11534 [=====] - 2s 130us/sample - loss: 0.0387
- accuracy: 0.9933
Epoch 235/500
11534/11534 [=====] - 1s 122us/sample - loss: 0.0387
- accuracy: 0.9933
Epoch 236/500
11534/11534 [=====] - 1s 130us/sample - loss: 0.0386
- accuracy: 0.9933
```

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Epoch 237/500
11534/11534 [=====] - 2s 132us/sample - loss: 0.0386
- accuracy: 0.9933
Epoch 238/500
11534/11534 [=====] - 2s 131us/sample - loss: 0.0385
- accuracy: 0.9933
Epoch 239/500
11534/11534 [=====] - 1s 125us/sample - loss: 0.0387
- accuracy: 0.9933
Epoch 240/500
11534/11534 [=====] - 1s 128us/sample - loss: 0.0383
- accuracy: 0.9933
Epoch 241/500
11534/11534 [=====] - 2s 136us/sample - loss: 0.0385
- accuracy: 0.9933
Epoch 242/500
11534/11534 [=====] - 1s 127us/sample - loss: 0.0385
- accuracy: 0.9933
Epoch 243/500
11534/11534 [=====] - 1s 126us/sample - loss: 0.0385
- accuracy: 0.9932
Epoch 244/500
11534/11534 [=====] - 1s 125us/sample - loss: 0.0387
- accuracy: 0.9933
Epoch 245/500
```

```
11534/11534 [=====] - 2s 139us/sample - loss: 0.0384
- accuracy: 0.9933
Epoch 246/500
11534/11534 [=====] - 1s 125us/sample - loss: 0.0386
- accuracy: 0.9933
Epoch 247/500
11534/11534 [=====] - 2s 132us/sample - loss: 0.0385
- accuracy: 0.9933
Epoch 248/500
11534/11534 [=====] - 1s 123us/sample - loss: 0.0384
- accuracy: 0.9933
Epoch 249/500
11534/11534 [=====] - 2s 139us/sample - loss: 0.0385
- accuracy: 0.9933
Epoch 250/500
11534/11534 [=====] - 1s 123us/sample - loss: 0.0385
- accuracy: 0.9933
Epoch 251/500
11534/11534 [=====] - 2s 133us/sample - loss: 0.0383
- accuracy: 0.9933
Epoch 252/500
11534/11534 [=====] - 1s 124us/sample - loss: 0.0385
- accuracy: 0.9933
Epoch 253/500
11534/11534 [=====] - 2s 136us/sample - loss: 0.0385
```

```
- accuracy: 0.9933
Epoch 254/500
11534/11534 [=====] - 1s 122us/sample - loss: 0.0385
- accuracy: 0.9933
Epoch 255/500
11534/11534 [=====] - 1s 130us/sample - loss: 0.0386
- accuracy: 0.9933
Epoch 256/500
11534/11534 [=====] - 1s 124us/sample - loss: 0.0384
- accuracy: 0.9933
Epoch 257/500
11534/11534 [=====] - 2s 137us/sample - loss: 0.0387
- accuracy: 0.9933
Epoch 258/500
11534/11534 [=====] - 1s 120us/sample - loss: 0.0384
- accuracy: 0.9933
Epoch 259/500
11534/11534 [=====] - 2s 132us/sample - loss: 0.0385
- accuracy: 0.9933
Epoch 260/500
11534/11534 [=====] - 1s 125us/sample - loss: 0.0384
- accuracy: 0.9933
Epoch 261/500
11534/11534 [=====] - 2s 136us/sample - loss: 0.0385
- accuracy: 0.9933
```

```
Epoch 262/500
11534/11534 [=====] - 1s 119us/sample - loss: 0.0383
- accuracy: 0.9933
Epoch 263/500
11534/11534 [=====] - 1s 130us/sample - loss: 0.0385
- accuracy: 0.9933
Epoch 264/500
11534/11534 [=====] - 1s 125us/sample - loss: 0.0384
- accuracy: 0.9933
Epoch 265/500
11534/11534 [=====] - 2s 133us/sample - loss: 0.0384
- accuracy: 0.9933
Epoch 266/500
11534/11534 [=====] - 1s 121us/sample - loss: 0.0384
- accuracy: 0.9933
Epoch 267/500
11534/11534 [=====] - 1s 129us/sample - loss: 0.0384
- accuracy: 0.9933
Epoch 268/500
11534/11534 [=====] - 1s 127us/sample - loss: 0.0386
- accuracy: 0.9932
Epoch 269/500
11534/11534 [=====] - 2s 135us/sample - loss: 0.0383
- accuracy: 0.9933
Epoch 270/500
```

```
11534/11534 [=====] - 1s 121us/sample - loss: 0.0385
- accuracy: 0.9933
Epoch 271/500
11534/11534 [=====] - 2s 134us/sample - loss: 0.0384
- accuracy: 0.9933
Epoch 272/500
11534/11534 [=====] - 1s 128us/sample - loss: 0.0382
- accuracy: 0.9933
Epoch 273/500
11534/11534 [=====] - 2s 134us/sample - loss: 0.0384
- accuracy: 0.9933
Epoch 274/500
11534/11534 [=====] - 1s 120us/sample - loss: 0.0385
- accuracy: 0.9933
Epoch 275/500
11534/11534 [=====] - 2s 131us/sample - loss: 0.0383
- accuracy: 0.9933
Epoch 276/500
11534/11534 [=====] - 1s 129us/sample - loss: 0.0385
- accuracy: 0.9933
Epoch 277/500
11534/11534 [=====] - 2s 133us/sample - loss: 0.0384
- accuracy: 0.9933
Epoch 278/500
11534/11534 [=====] - 1s 120us/sample - loss: 0.0385
```

```
- accuracy: 0.9933
Epoch 279/500
11534/11534 [=====] - 2s 133us/sample - loss: 0.0384
- accuracy: 0.9933
Epoch 280/500
11534/11534 [=====] - 2s 131us/sample - loss: 0.0384
- accuracy: 0.9933
Epoch 281/500
11534/11534 [=====] - 2s 132us/sample - loss: 0.0384
- accuracy: 0.9933
Epoch 282/500
11534/11534 [=====] - 1s 120us/sample - loss: 0.0384
- accuracy: 0.9933
Epoch 283/500
11534/11534 [=====] - 2s 130us/sample - loss: 0.0386
- accuracy: 0.9933
Epoch 284/500
11534/11534 [=====] - 1s 129us/sample - loss: 0.0382
- accuracy: 0.9933
Epoch 285/500
11534/11534 [=====] - 2s 132us/sample - loss: 0.0384
- accuracy: 0.9933
Epoch 286/500
11534/11534 [=====] - 1s 120us/sample - loss: 0.0383
- accuracy: 0.9933
```



```
Epoch 287/500
11534/11534 [=====] - 2s 134us/sample - loss: 0.0384
- accuracy: 0.9933
Epoch 288/500
11534/11534 [=====] - 2s 131us/sample - loss: 0.0385
- accuracy: 0.9933
Epoch 289/500
11534/11534 [=====] - 1s 129us/sample - loss: 0.0382
- accuracy: 0.9933
Epoch 290/500
11534/11534 [=====] - 1s 123us/sample - loss: 0.0382
- accuracy: 0.9933
Epoch 291/500
11534/11534 [=====] - 2s 133us/sample - loss: 0.0383
- accuracy: 0.9933
Epoch 292/500
11534/11534 [=====] - 2s 135us/sample - loss: 0.0381
- accuracy: 0.9933
Epoch 293/500
11534/11534 [=====] - 1s 125us/sample - loss: 0.0383
- accuracy: 0.9933
Epoch 294/500
11534/11534 [=====] - 2s 131us/sample - loss: 0.0382
- accuracy: 0.9933
Epoch 295/500
```

```
11534/11534 [=====] - 1s 127us/sample - loss: 0.0382
- accuracy: 0.9933
Epoch 296/500
11534/11534 [=====] - 2s 138us/sample - loss: 0.0384
- accuracy: 0.9933
Epoch 297/500
11534/11534 [=====] - 1s 123us/sample - loss: 0.0383
- accuracy: 0.9933
Epoch 298/500
11534/11534 [=====] - 1s 125us/sample - loss: 0.0384
- accuracy: 0.9933
Epoch 299/500
11534/11534 [=====] - 1s 126us/sample - loss: 0.0382
- accuracy: 0.9933
Epoch 300/500
11534/11534 [=====] - 2s 144us/sample - loss: 0.0384
- accuracy: 0.9933
Epoch 301/500
11534/11534 [=====] - 1s 126us/sample - loss: 0.0383
- accuracy: 0.9933
Epoch 302/500
11534/11534 [=====] - 1s 125us/sample - loss: 0.0384
- accuracy: 0.9933
Epoch 303/500
11534/11534 [=====] - 1s 122us/sample - loss: 0.0383
```

```
- accuracy: 0.9933
Epoch 304/500
11534/11534 [=====] - 2s 138us/sample - loss: 0.0382
- accuracy: 0.9933
Epoch 305/500
11534/11534 [=====] - 1s 123us/sample - loss: 0.0383
- accuracy: 0.9933
Epoch 306/500
11534/11534 [=====] - 1s 129us/sample - loss: 0.0381
- accuracy: 0.9933
Epoch 307/500
11534/11534 [=====] - 1s 124us/sample - loss: 0.0382
- accuracy: 0.9933
Epoch 308/500
11534/11534 [=====] - 2s 137us/sample - loss: 0.0383
- accuracy: 0.9933
Epoch 309/500
11534/11534 [=====] - 1s 121us/sample - loss: 0.0383
- accuracy: 0.9933
Epoch 310/500
11534/11534 [=====] - 2s 132us/sample - loss: 0.0382
- accuracy: 0.9933
Epoch 311/500
11534/11534 [=====] - 1s 125us/sample - loss: 0.0381
- accuracy: 0.9933
```

```
Epoch 312/500
11534/11534 [=====] - 2s 137us/sample - loss: 0.0386
- accuracy: 0.9933
Epoch 313/500
11534/11534 [=====] - 1s 120us/sample - loss: 0.0383
- accuracy: 0.9933
Epoch 314/500
11534/11534 [=====] - 1s 128us/sample - loss: 0.0382
- accuracy: 0.9933
Epoch 315/500
11534/11534 [=====] - 1s 127us/sample - loss: 0.0381
- accuracy: 0.9933
Epoch 316/500
11534/11534 [=====] - 2s 137us/sample - loss: 0.0383
- accuracy: 0.9933
Epoch 317/500
11534/11534 [=====] - 1s 119us/sample - loss: 0.0383
- accuracy: 0.9933
Epoch 318/500
11534/11534 [=====] - 2s 133us/sample - loss: 0.0382
- accuracy: 0.9933
Epoch 319/500
11534/11534 [=====] - 1s 125us/sample - loss: 0.0381
- accuracy: 0.9933
Epoch 320/500
```

```
11534/11534 [=====] - 2s 137us/sample - loss: 0.0382
- accuracy: 0.9933
Epoch 321/500
11534/11534 [=====] - 1s 120us/sample - loss: 0.0381
- accuracy: 0.9933
Epoch 322/500
11534/11534 [=====] - 2s 134us/sample - loss: 0.0382
- accuracy: 0.9933
Epoch 323/500
11534/11534 [=====] - 1s 127us/sample - loss: 0.0382
- accuracy: 0.9933
Epoch 324/500
11534/11534 [=====] - 2s 138us/sample - loss: 0.0382
- accuracy: 0.9933
Epoch 325/500
11534/11534 [=====] - 1s 127us/sample - loss: 0.0382
- accuracy: 0.9933
Epoch 326/500
11534/11534 [=====] - 2s 145us/sample - loss: 0.0381
- accuracy: 0.9933
Epoch 327/500
11534/11534 [=====] - 2s 133us/sample - loss: 0.0384
- accuracy: 0.9933
Epoch 328/500
11534/11534 [=====] - 2s 136us/sample - loss: 0.0382
```

```
- accuracy: 0.9933
Epoch 329/500
11534/11534 [=====] - 1s 126us/sample - loss: 0.0379
- accuracy: 0.9933
Epoch 330/500
11534/11534 [=====] - 1s 130us/sample - loss: 0.0381
- accuracy: 0.9933
Epoch 331/500
11534/11534 [=====] - 2s 143us/sample - loss: 0.0382
- accuracy: 0.9933
Epoch 332/500
11534/11534 [=====] - 1s 127us/sample - loss: 0.0380
- accuracy: 0.9933
Epoch 333/500
11534/11534 [=====] - 2s 130us/sample - loss: 0.0382
- accuracy: 0.9933
Epoch 334/500
11534/11534 [=====] - 2s 132us/sample - loss: 0.0384
- accuracy: 0.9933
Epoch 335/500
11534/11534 [=====] - 2s 137us/sample - loss: 0.0384
- accuracy: 0.9933
Epoch 336/500
11534/11534 [=====] - 1s 122us/sample - loss: 0.0380
- accuracy: 0.9933
```

```
Epoch 337/500
11534/11534 [=====] - 1s 129us/sample - loss: 0.0382
- accuracy: 0.9933
Epoch 338/500
11534/11534 [=====] - 1s 124us/sample - loss: 0.0382
- accuracy: 0.9933
Epoch 339/500
11534/11534 [=====] - 2s 138us/sample - loss: 0.0382
- accuracy: 0.9933
Epoch 340/500
11534/11534 [=====] - 1s 123us/sample - loss: 0.0378
- accuracy: 0.9933
Epoch 341/500
11534/11534 [=====] - 2s 134us/sample - loss: 0.0378
- accuracy: 0.9933
Epoch 342/500
11534/11534 [=====] - 1s 128us/sample - loss: 0.0382
- accuracy: 0.9933
Epoch 343/500
11534/11534 [=====] - 2s 138us/sample - loss: 0.0381
- accuracy: 0.9933
Epoch 344/500
11534/11534 [=====] - 1s 122us/sample - loss: 0.0381
- accuracy: 0.9933
Epoch 345/500
```

```
11534/11534 [=====] - 1s 129us/sample - loss: 0.0379
- accuracy: 0.9932
Epoch 346/500
11534/11534 [=====] - 1s 124us/sample - loss: 0.0381
- accuracy: 0.9933
Epoch 347/500
11534/11534 [=====] - 2s 134us/sample - loss: 0.0381
- accuracy: 0.9933
Epoch 348/500
11534/11534 [=====] - 1s 123us/sample - loss: 0.0381
- accuracy: 0.9933
Epoch 349/500
11534/11534 [=====] - 2s 132us/sample - loss: 0.0381
- accuracy: 0.9933
Epoch 350/500
11534/11534 [=====] - 1s 127us/sample - loss: 0.0380
- accuracy: 0.9933
Epoch 351/500
11534/11534 [=====] - 2s 134us/sample - loss: 0.0382
- accuracy: 0.9933
Epoch 352/500
11534/11534 [=====] - 1s 120us/sample - loss: 0.0381
- accuracy: 0.9933
Epoch 353/500
11534/11534 [=====] - 1s 130us/sample - loss: 0.0380
```



```
- accuracy: 0.9933
Epoch 354/500
11534/11534 [=====] - 2s 134us/sample - loss: 0.0382
- accuracy: 0.9933
Epoch 355/500
11534/11534 [=====] - 2s 135us/sample - loss: 0.0380
- accuracy: 0.9933
Epoch 356/500
11534/11534 [=====] - 1s 125us/sample - loss: 0.0381
- accuracy: 0.9933
Epoch 357/500
11534/11534 [=====] - 2s 143us/sample - loss: 0.0382
- accuracy: 0.9933
Epoch 358/500
11534/11534 [=====] - 2s 146us/sample - loss: 0.0381
- accuracy: 0.9933
Epoch 359/500
11534/11534 [=====] - 1s 125us/sample - loss: 0.0381
- accuracy: 0.9933
Epoch 360/500
11534/11534 [=====] - 1s 127us/sample - loss: 0.0380
- accuracy: 0.9933
Epoch 361/500
11534/11534 [=====] - 1s 127us/sample - loss: 0.0380
- accuracy: 0.9933
```

```
Epoch 362/500
11534/11534 [=====] - 2s 138us/sample - loss: 0.0380
- accuracy: 0.9933
Epoch 363/500
11534/11534 [=====] - 1s 125us/sample - loss: 0.0381
- accuracy: 0.9933
Epoch 364/500
11534/11534 [=====] - 1s 127us/sample - loss: 0.0379
- accuracy: 0.9933
Epoch 365/500
11534/11534 [=====] - 1s 123us/sample - loss: 0.0380
- accuracy: 0.9933
Epoch 366/500
11534/11534 [=====] - 2s 139us/sample - loss: 0.0382
- accuracy: 0.9933
Epoch 367/500
11534/11534 [=====] - 1s 125us/sample - loss: 0.0380
- accuracy: 0.9933
Epoch 368/500
11534/11534 [=====] - 1s 126us/sample - loss: 0.0380
- accuracy: 0.9933
Epoch 369/500
11534/11534 [=====] - 1s 124us/sample - loss: 0.0380
- accuracy: 0.9933
Epoch 370/500
```

```
11534/11534 [=====] - 2s 143us/sample - loss: 0.0381
- accuracy: 0.9933
Epoch 371/500
11534/11534 [=====] - 1s 123us/sample - loss: 0.0381
- accuracy: 0.9933
Epoch 372/500
11534/11534 [=====] - 1s 128us/sample - loss: 0.0378
- accuracy: 0.9933
Epoch 373/500
11534/11534 [=====] - 1s 122us/sample - loss: 0.0380
- accuracy: 0.9933
Epoch 374/500
11534/11534 [=====] - 2s 138us/sample - loss: 0.0378
- accuracy: 0.9933
Epoch 375/500
11534/11534 [=====] - 1s 120us/sample - loss: 0.0382
- accuracy: 0.9933
Epoch 376/500
11534/11534 [=====] - 2s 130us/sample - loss: 0.0381
- accuracy: 0.9933
Epoch 377/500
11534/11534 [=====] - 1s 123us/sample - loss: 0.0379
- accuracy: 0.9933
Epoch 378/500
11534/11534 [=====] - 2s 139us/sample - loss: 0.0379
```

```
- accuracy: 0.9933
Epoch 379/500
11534/11534 [=====] - 1s 121us/sample - loss: 0.0379
- accuracy: 0.9933
Epoch 380/500
11534/11534 [=====] - 2s 131us/sample - loss: 0.0379
- accuracy: 0.9933
Epoch 381/500
11534/11534 [=====] - 1s 125us/sample - loss: 0.0378
- accuracy: 0.9933
Epoch 382/500
11534/11534 [=====] - 2s 137us/sample - loss: 0.0381
- accuracy: 0.9933
Epoch 383/500
11534/11534 [=====] - 1s 119us/sample - loss: 0.0378
- accuracy: 0.9933
Epoch 384/500
11534/11534 [=====] - 2s 131us/sample - loss: 0.0381
- accuracy: 0.9933
Epoch 385/500
11534/11534 [=====] - 1s 125us/sample - loss: 0.0380
- accuracy: 0.9933
Epoch 386/500
11534/11534 [=====] - 1s 129us/sample - loss: 0.0380
- accuracy: 0.9933
```

```
Epoch 387/500
11534/11534 [=====] - 1s 121us/sample - loss: 0.0378
- accuracy: 0.9933
Epoch 388/500
11534/11534 [=====] - 2s 131us/sample - loss: 0.0380
- accuracy: 0.9933
Epoch 389/500
11534/11534 [=====] - 1s 128us/sample - loss: 0.0380
- accuracy: 0.9933
Epoch 390/500
11534/11534 [=====] - 1s 129us/sample - loss: 0.0380
- accuracy: 0.9933
Epoch 391/500
11534/11534 [=====] - 1s 121us/sample - loss: 0.0384
- accuracy: 0.9933
Epoch 392/500
11534/11534 [=====] - 2s 131us/sample - loss: 0.0379
- accuracy: 0.9933
Epoch 393/500
11534/11534 [=====] - 1s 126us/sample - loss: 0.0380
- accuracy: 0.9933
Epoch 394/500
11534/11534 [=====] - 2s 131us/sample - loss: 0.0380
- accuracy: 0.9933
Epoch 395/500
```

```
11534/11534 [=====] - 1s 122us/sample - loss: 0.0379
- accuracy: 0.9933
Epoch 396/500
11534/11534 [=====] - 2s 136us/sample - loss: 0.0378
- accuracy: 0.9933
Epoch 397/500
11534/11534 [=====] - 2s 132us/sample - loss: 0.0380
- accuracy: 0.9933
Epoch 398/500
11534/11534 [=====] - 2s 132us/sample - loss: 0.0377
- accuracy: 0.9933
Epoch 399/500
11534/11534 [=====] - 1s 120us/sample - loss: 0.0379
- accuracy: 0.9933
Epoch 400/500
11534/11534 [=====] - 2s 134us/sample - loss: 0.0380
- accuracy: 0.9933
Epoch 401/500
11534/11534 [=====] - 2s 134us/sample - loss: 0.0378
- accuracy: 0.9933
Epoch 402/500
11534/11534 [=====] - 2s 134us/sample - loss: 0.0379
- accuracy: 0.9933
Epoch 403/500
11534/11534 [=====] - 1s 120us/sample - loss: 0.0378
```

```
- accuracy: 0.9933
Epoch 404/500
11534/11534 [=====] - 1s 129us/sample - loss: 0.0378
- accuracy: 0.9933
Epoch 405/500
11534/11534 [=====] - 2s 132us/sample - loss: 0.0379
- accuracy: 0.9933
Epoch 406/500
11534/11534 [=====] - 2s 132us/sample - loss: 0.0380
- accuracy: 0.9933
Epoch 407/500
11534/11534 [=====] - 1s 122us/sample - loss: 0.0378
- accuracy: 0.9933
Epoch 408/500
11534/11534 [=====] - 1s 128us/sample - loss: 0.0377
- accuracy: 0.9933
Epoch 409/500
11534/11534 [=====] - 2s 138us/sample - loss: 0.0381
- accuracy: 0.9933
Epoch 410/500
11534/11534 [=====] - 1s 126us/sample - loss: 0.0378
- accuracy: 0.9933
Epoch 411/500
11534/11534 [=====] - 1s 125us/sample - loss: 0.0379
- accuracy: 0.9933
```

```
Epoch 412/500
11534/11534 [=====] - 1s 128us/sample - loss: 0.0379
- accuracy: 0.9933
Epoch 413/500
11534/11534 [=====] - 2s 136us/sample - loss: 0.0379
- accuracy: 0.9933
Epoch 414/500
11534/11534 [=====] - 1s 125us/sample - loss: 0.0382
- accuracy: 0.9933
Epoch 415/500
11534/11534 [=====] - 1s 126us/sample - loss: 0.0378
- accuracy: 0.9933
Epoch 416/500
11534/11534 [=====] - 1s 128us/sample - loss: 0.0377
- accuracy: 0.9933
Epoch 417/500
11534/11534 [=====] - 2s 136us/sample - loss: 0.0378
- accuracy: 0.9933
Epoch 418/500
11534/11534 [=====] - 1s 127us/sample - loss: 0.0379
- accuracy: 0.9933
Epoch 419/500
11534/11534 [=====] - 1s 127us/sample - loss: 0.0376
- accuracy: 0.9932
Epoch 420/500
```



```
11534/11534 [=====] - 1s 124us/sample - loss: 0.0377
- accuracy: 0.9933
Epoch 421/500
11534/11534 [=====] - 2s 138us/sample - loss: 0.0380
- accuracy: 0.9933
Epoch 422/500
11534/11534 [=====] - 1s 124us/sample - loss: 0.0379
- accuracy: 0.9933
Epoch 423/500
11534/11534 [=====] - 1s 128us/sample - loss: 0.0379
- accuracy: 0.9933
Epoch 424/500
11534/11534 [=====] - 1s 126us/sample - loss: 0.0377
- accuracy: 0.9933
Epoch 425/500
11534/11534 [=====] - 2s 140us/sample - loss: 0.0376
- accuracy: 0.9933
Epoch 426/500
11534/11534 [=====] - 1s 123us/sample - loss: 0.0379
- accuracy: 0.9933
Epoch 427/500
11534/11534 [=====] - 2s 132us/sample - loss: 0.0382
- accuracy: 0.9933
Epoch 428/500
11534/11534 [=====] - 1s 124us/sample - loss: 0.0377
```

```
- accuracy: 0.9933
Epoch 429/500
11534/11534 [=====] - 2s 143us/sample - loss: 0.0378
- accuracy: 0.9933
Epoch 430/500
11534/11534 [=====] - 1s 123us/sample - loss: 0.0377
- accuracy: 0.9933
Epoch 431/500
11534/11534 [=====] - 2s 131us/sample - loss: 0.0378
- accuracy: 0.9933
Epoch 432/500
11534/11534 [=====] - 1s 129us/sample - loss: 0.0380
- accuracy: 0.9933
Epoch 433/500
11534/11534 [=====] - 2s 134us/sample - loss: 0.0378
- accuracy: 0.9933
Epoch 434/500
11534/11534 [=====] - 1s 120us/sample - loss: 0.0379
- accuracy: 0.9933
Epoch 435/500
11534/11534 [=====] - 2s 130us/sample - loss: 0.0379
- accuracy: 0.9933
Epoch 436/500
11534/11534 [=====] - 1s 128us/sample - loss: 0.0379
- accuracy: 0.9933
```

```
Epoch 437/500
11534/11534 [=====] - 2s 134us/sample - loss: 0.0377
- accuracy: 0.9933
Epoch 438/500
11534/11534 [=====] - 1s 121us/sample - loss: 0.0380
- accuracy: 0.9934
Epoch 439/500
11534/11534 [=====] - 1s 129us/sample - loss: 0.0378
- accuracy: 0.9933
Epoch 440/500
11534/11534 [=====] - 1s 129us/sample - loss: 0.0378
- accuracy: 0.9933
Epoch 441/500
11534/11534 [=====] - 2s 132us/sample - loss: 0.0376
- accuracy: 0.9933
Epoch 442/500
11534/11534 [=====] - 1s 120us/sample - loss: 0.0377
- accuracy: 0.9933
Epoch 443/500
11534/11534 [=====] - 1s 125us/sample - loss: 0.0379
- accuracy: 0.9933
Epoch 444/500
11534/11534 [=====] - 1s 127us/sample - loss: 0.0378
- accuracy: 0.9933
Epoch 445/500
```

```
11534/11534 [=====] - 2s 135us/sample - loss: 0.0376
- accuracy: 0.9933
Epoch 446/500
11534/11534 [=====] - 1s 119us/sample - loss: 0.0376
- accuracy: 0.9933
Epoch 447/500
11534/11534 [=====] - 1s 127us/sample - loss: 0.0377
- accuracy: 0.9933
Epoch 448/500
11534/11534 [=====] - 1s 125us/sample - loss: 0.0377
- accuracy: 0.9933
Epoch 449/500
11534/11534 [=====] - 1s 130us/sample - loss: 0.0376
- accuracy: 0.9933
Epoch 450/500
11534/11534 [=====] - 1s 120us/sample - loss: 0.0377
- accuracy: 0.9933
Epoch 451/500
11534/11534 [=====] - 2s 131us/sample - loss: 0.0376
- accuracy: 0.9933
Epoch 452/500
11534/11534 [=====] - 2s 133us/sample - loss: 0.0376
- accuracy: 0.9933
Epoch 453/500
11534/11534 [=====] - 2s 132us/sample - loss: 0.0378
```

```
- accuracy: 0.9933
Epoch 454/500
11534/11534 [=====] - 1s 121us/sample - loss: 0.0378
- accuracy: 0.9933
Epoch 455/500
11534/11534 [=====] - 2s 132us/sample - loss: 0.0376
- accuracy: 0.9933
Epoch 456/500
11534/11534 [=====] - 2s 134us/sample - loss: 0.0376
- accuracy: 0.9933
Epoch 457/500
11534/11534 [=====] - 2s 131us/sample - loss: 0.0377
- accuracy: 0.9933
Epoch 458/500
11534/11534 [=====] - 1s 122us/sample - loss: 0.0376
- accuracy: 0.9933
Epoch 459/500
11534/11534 [=====] - 2s 130us/sample - loss: 0.0380
- accuracy: 0.9933
Epoch 460/500
11534/11534 [=====] - 2s 133us/sample - loss: 0.0376
- accuracy: 0.9933
Epoch 461/500
11534/11534 [=====] - 1s 129us/sample - loss: 0.0380
- accuracy: 0.9933
```

```
Epoch 462/500
11534/11534 [=====] - 1s 123us/sample - loss: 0.0376
- accuracy: 0.9933
Epoch 463/500
11534/11534 [=====] - 1s 128us/sample - loss: 0.0377
- accuracy: 0.9933
Epoch 464/500
11534/11534 [=====] - 2s 132us/sample - loss: 0.0378
- accuracy: 0.9933
Epoch 465/500
11534/11534 [=====] - 1s 128us/sample - loss: 0.0380
- accuracy: 0.9933
Epoch 466/500
11534/11534 [=====] - 1s 125us/sample - loss: 0.0377
- accuracy: 0.9933
Epoch 467/500
11534/11534 [=====] - 1s 126us/sample - loss: 0.0375
- accuracy: 0.9933
Epoch 468/500
11534/11534 [=====] - 2s 131us/sample - loss: 0.0375
- accuracy: 0.9933
Epoch 469/500
11534/11534 [=====] - 1s 126us/sample - loss: 0.0376
- accuracy: 0.9933
Epoch 470/500
```

```
11534/11534 [=====] - 1s 125us/sample - loss: 0.0377
- accuracy: 0.9933
Epoch 471/500
11534/11534 [=====] - 1s 126us/sample - loss: 0.0378
- accuracy: 0.9933
Epoch 472/500
11534/11534 [=====] - 2s 134us/sample - loss: 0.0376
- accuracy: 0.9933
Epoch 473/500
11534/11534 [=====] - 1s 125us/sample - loss: 0.0378
- accuracy: 0.9933
Epoch 474/500
11534/11534 [=====] - 1s 124us/sample - loss: 0.0377
- accuracy: 0.9933
Epoch 475/500
11534/11534 [=====] - 1s 125us/sample - loss: 0.0376
- accuracy: 0.9933
Epoch 476/500
11534/11534 [=====] - 2s 139us/sample - loss: 0.0377
- accuracy: 0.9933
Epoch 477/500
11534/11534 [=====] - 1s 126us/sample - loss: 0.0376
- accuracy: 0.9933
Epoch 478/500
11534/11534 [=====] - 1s 126us/sample - loss: 0.0379
```

```
- accuracy: 0.9933
Epoch 479/500
11534/11534 [=====] - 1s 123us/sample - loss: 0.0376
- accuracy: 0.9933
Epoch 480/500
11534/11534 [=====] - 2s 135us/sample - loss: 0.0377
- accuracy: 0.9933
Epoch 481/500
11534/11534 [=====] - 1s 123us/sample - loss: 0.0375
- accuracy: 0.9933
Epoch 482/500
11534/11534 [=====] - 1s 126us/sample - loss: 0.0376
- accuracy: 0.9933
Epoch 483/500
11534/11534 [=====] - 1s 123us/sample - loss: 0.0375
- accuracy: 0.9933
Epoch 484/500
11534/11534 [=====] - 2s 141us/sample - loss: 0.0377
- accuracy: 0.9933
Epoch 485/500
11534/11534 [=====] - 1s 123us/sample - loss: 0.0375
- accuracy: 0.9933
Epoch 486/500
11534/11534 [=====] - 1s 126us/sample - loss: 0.0377
- accuracy: 0.9933
```



```
Epoch 487/500
11534/11534 [=====] - 1s 123us/sample - loss: 0.0376
- accuracy: 0.9933
Epoch 488/500
11534/11534 [=====] - 2s 135us/sample - loss: 0.0375
- accuracy: 0.9933
Epoch 489/500
11534/11534 [=====] - 1s 122us/sample - loss: 0.0376
- accuracy: 0.9933
Epoch 490/500
11534/11534 [=====] - 1s 129us/sample - loss: 0.0377
- accuracy: 0.9933
Epoch 491/500
11534/11534 [=====] - 1s 124us/sample - loss: 0.0377
- accuracy: 0.9933
Epoch 492/500
11534/11534 [=====] - 2s 137us/sample - loss: 0.0376
- accuracy: 0.9933
Epoch 493/500
11534/11534 [=====] - 1s 120us/sample - loss: 0.0377
- accuracy: 0.9933
Epoch 494/500
11534/11534 [=====] - 2s 131us/sample - loss: 0.0376
- accuracy: 0.9933
Epoch 495/500
```

```
11534/11534 [=====] - 1s 123us/sample - loss: 0.0377
- accuracy: 0.9933
Epoch 496/500
11534/11534 [=====] - 2s 149us/sample - loss: 0.0375
- accuracy: 0.9933
Epoch 497/500
11534/11534 [=====] - 1s 120us/sample - loss: 0.0376
- accuracy: 0.9933
Epoch 498/500
11534/11534 [=====] - 2s 133us/sample - loss: 0.0378
- accuracy: 0.9933
Epoch 499/500
11534/11534 [=====] - 1s 129us/sample - loss: 0.0380
- accuracy: 0.9933
Epoch 500/500
11534/11534 [=====] - 2s 135us/sample - loss: 0.0376
- accuracy: 0.9933
2893/2893 [=====] - 0s 83us/sample

class_weight_Fold_5: {0: 0.4026883128218557, 1: 89.87532467532468}

pos_weight: 0.6
thresholdNum: 0.5
```


Average's Results of All Folds is such as below:

Approach class_weight did not use

thresholdNum: 0.5

Average's train loss of All Folds : 0.0465
Average of yPredProbability fold_All: 0.0097

classification_report_AllFolds:			
	precision	recall	f1-score support
Normal 0	0.99	1.00	1.00 14337
Anomaly 1	0.00	0.00	0.00 86
accuracy			0.99 14423
macro avg	0.50	0.50	0.50 14423
weighted avg	0.99	0.99	0.99 14423

confusion_matrix_AllFolds:
True Negatives: 14337

False Positives: 0
False Negatives: 86
True Positives: 0

Average threshold_rt AllFolds: 0.04
Average precision_rt AllFolds: 0.02
Average recall_rt AllFolds: 0.2

Main End running time: 210508_014218, *****.

Process finished with exit code 0