

```
C:\ProgramData\Anaconda3\python.exe C:/Users/rpi08/M/MT/MTP_AD/mainCodes/
allPre_FinalTest_CV/finalTest_Evaluation.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_001512, *****
```

Name of corresponding python code file: finalTest\_Evaluation

doScaleAfterSplit= True approach.

shiftNumber: 2, windowLength: 2  
makeNoiseByJitter: False

Number of Rows Aucual yXRolled\_Transformed :  
Total: 14520  
Anomalies(positives): 89 (0.61% of total)

baseFileName of output Folders and Plots name: finalTest\_Evaluation

Shape of Actual npTrain dataset: (14520, 60)  
Shape of Actual npFinalTest dataset: (3630, 60)

Number of Actual npTrain labelled 0: 14431  
Number of Actual npTrain labelled 1: 89

Number of Actual npFinalTest labelled 0: 3596  
Number of Actual npFinalTest labelled 1: 34

Start running time : 210508\_001514 , -----:

Shape of Actual yXtrainRolled After Rolling: (28856, 60)

Shape of Actual yXfinalTestShifted dataset: (3595, 60)  
Shape of Actual yXfinalTestRolled After Rolling: (7188, 60)

Start Creating new folder finalTest run: 210508\_001514

-----\*\*\* Train ModelFinalTestEvaluation without adding Augmented data  
\*\*\*-----

Shape of data after Transform ToOneRow to give finalTest Model:

xtrain: (14428, 118), ytrain: (14428,)
xfinalTest: (3594, 118), yfinalTest: (3594,)

Number of final label 0 in yXtrain: 14341

Number of final label 1 in yXtrain\_Before\_AddingAugedData: 87
Number of final label 1 in yXtrain\_After\_AddingAugedData: 87

Hyperparameters of finalTest Model:

epochs: 500, batch: 32, lr: 0.0001, flagSeed: True, FitShuffle: True

finalTest 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

finalTest 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': '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': None, 'bias_regularizer': None, 'activity_regularizer': None, 'kernel_constraint': None, 'bias_constraint': None}]}
```

```

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': 0.01499999664723873}}, '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 14428 samples

Epoch 1/500

2021-05-08 00:15:14.704236: 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 00:15:14.714973: 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.

14428/14428 [=====] - 6s 424us/sample - loss: 2.8736

- accuracy: 0.9929

Epoch 2/500

```
14428/14428 [=====] - 3s 218us/sample - loss: 1.1436
- accuracy: 0.9940
Epoch 3/500
14428/14428 [=====] - 3s 194us/sample - loss: 0.4211
- accuracy: 0.9940
Epoch 4/500
14428/14428 [=====] - 3s 193us/sample - loss: 0.1627
- accuracy: 0.9940
Epoch 5/500
14428/14428 [=====] - 3s 226us/sample - loss: 0.0799
- accuracy: 0.9940
Epoch 6/500
14428/14428 [=====] - 4s 255us/sample - loss: 0.0553
- accuracy: 0.9940
Epoch 7/500
14428/14428 [=====] - 4s 304us/sample - loss: 0.0477
- accuracy: 0.9940
Epoch 8/500
14428/14428 [=====] - 3s 241us/sample - loss: 0.0453
- accuracy: 0.9940
Epoch 9/500
14428/14428 [=====] - 3s 202us/sample - loss: 0.0440
- accuracy: 0.9940
Epoch 10/500
14428/14428 [=====] - 3s 214us/sample - loss: 0.0434
```

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- accuracy: 0.9940
Epoch 11/500
14428/14428 [=====] - 6s 414us/sample - loss: 0.0431
- accuracy: 0.9940
Epoch 12/500
14428/14428 [=====] - 4s 244us/sample - loss: 0.0425
- accuracy: 0.9940
Epoch 13/500
14428/14428 [=====] - 3s 231us/sample - loss: 0.0421
- accuracy: 0.9940
Epoch 14/500
14428/14428 [=====] - 5s 346us/sample - loss: 0.0416
- accuracy: 0.9940
Epoch 15/500
14428/14428 [=====] - 4s 250us/sample - loss: 0.0412
- accuracy: 0.9940
Epoch 16/500
14428/14428 [=====] - 3s 221us/sample - loss: 0.0410
- accuracy: 0.9940
Epoch 17/500
14428/14428 [=====] - 6s 421us/sample - loss: 0.0411
- accuracy: 0.9940
Epoch 18/500
14428/14428 [=====] - 4s 299us/sample - loss: 0.0407
- accuracy: 0.9940
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Epoch 19/500
14428/14428 [=====] - 3s 226us/sample - loss: 0.0399
- accuracy: 0.9940
Epoch 20/500
14428/14428 [=====] - 4s 311us/sample - loss: 0.0404
- accuracy: 0.9940
Epoch 21/500
14428/14428 [=====] - 3s 223us/sample - loss: 0.0400
- accuracy: 0.9940
Epoch 22/500
14428/14428 [=====] - 3s 239us/sample - loss: 0.0397
- accuracy: 0.9940
Epoch 23/500
14428/14428 [=====] - 4s 249us/sample - loss: 0.0392
- accuracy: 0.9940
Epoch 24/500
14428/14428 [=====] - 7s 456us/sample - loss: 0.0389
- accuracy: 0.9940
Epoch 25/500
14428/14428 [=====] - 3s 222us/sample - loss: 0.0393
- accuracy: 0.9940
Epoch 26/500
14428/14428 [=====] - 5s 322us/sample - loss: 0.0388
- accuracy: 0.9940
Epoch 27/500
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14428/14428 [=====] - 4s 298us/sample - loss: 0.0388
- accuracy: 0.9940
Epoch 28/500
14428/14428 [=====] - 3s 211us/sample - loss: 0.0390
- accuracy: 0.9940
Epoch 29/500
14428/14428 [=====] - 4s 255us/sample - loss: 0.0387
- accuracy: 0.9940
Epoch 30/500
14428/14428 [=====] - 3s 203us/sample - loss: 0.0387
- accuracy: 0.9940
Epoch 31/500
14428/14428 [=====] - 3s 239us/sample - loss: 0.0384
- accuracy: 0.9940
Epoch 32/500
14428/14428 [=====] - 5s 345us/sample - loss: 0.0383
- accuracy: 0.9940
Epoch 33/500
14428/14428 [=====] - 3s 196us/sample - loss: 0.0382
- accuracy: 0.9940
Epoch 34/500
14428/14428 [=====] - 4s 300us/sample - loss: 0.0378
- accuracy: 0.9940
Epoch 35/500
14428/14428 [=====] - 4s 304us/sample - loss: 0.0379
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- accuracy: 0.9940
Epoch 36/500
14428/14428 [=====] - 3s 209us/sample - loss: 0.0378
- accuracy: 0.9940
Epoch 37/500
14428/14428 [=====] - 5s 337us/sample - loss: 0.0379
- accuracy: 0.9940
Epoch 38/500
14428/14428 [=====] - 3s 230us/sample - loss: 0.0376
- accuracy: 0.9940
Epoch 39/500
14428/14428 [=====] - 5s 323us/sample - loss: 0.0378
- accuracy: 0.9940
Epoch 40/500
14428/14428 [=====] - 5s 324us/sample - loss: 0.0377
- accuracy: 0.9940
Epoch 41/500
14428/14428 [=====] - 5s 340us/sample - loss: 0.0375
- accuracy: 0.9940
Epoch 42/500
14428/14428 [=====] - 5s 348us/sample - loss: 0.0375
- accuracy: 0.9940
Epoch 43/500
14428/14428 [=====] - 3s 212us/sample - loss: 0.0372
- accuracy: 0.9940
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Epoch 44/500
14428/14428 [=====] - 4s 308us/sample - loss: 0.0371
- accuracy: 0.9940
Epoch 45/500
14428/14428 [=====] - 3s 240us/sample - loss: 0.0373
- accuracy: 0.9940
Epoch 46/500
14428/14428 [=====] - 6s 432us/sample - loss: 0.0373
- accuracy: 0.9940
Epoch 47/500
14428/14428 [=====] - 3s 220us/sample - loss: 0.0372
- accuracy: 0.9940
Epoch 48/500
14428/14428 [=====] - 6s 447us/sample - loss: 0.0374
- accuracy: 0.9940
Epoch 49/500
14428/14428 [=====] - 3s 208us/sample - loss: 0.0368
- accuracy: 0.9940
Epoch 50/500
14428/14428 [=====] - 3s 232us/sample - loss: 0.0371
- accuracy: 0.9940
Epoch 51/500
14428/14428 [=====] - 3s 224us/sample - loss: 0.0369
- accuracy: 0.9940
Epoch 52/500
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14428/14428 [=====] - 4s 302us/sample - loss: 0.0370
- accuracy: 0.9940
Epoch 53/500
14428/14428 [=====] - 5s 341us/sample - loss: 0.0369
- accuracy: 0.9940
Epoch 54/500
14428/14428 [=====] - 5s 316us/sample - loss: 0.0368
- accuracy: 0.9940
Epoch 55/500
14428/14428 [=====] - 3s 213us/sample - loss: 0.0371
- accuracy: 0.9940
Epoch 56/500
14428/14428 [=====] - 7s 477us/sample - loss: 0.0369
- accuracy: 0.9940
Epoch 57/500
14428/14428 [=====] - 6s 391us/sample - loss: 0.0370
- accuracy: 0.9940
Epoch 58/500
14428/14428 [=====] - 5s 349us/sample - loss: 0.0367
- accuracy: 0.9940
Epoch 59/500
14428/14428 [=====] - 5s 353us/sample - loss: 0.0367
- accuracy: 0.9940
Epoch 60/500
14428/14428 [=====] - 5s 363us/sample - loss: 0.0369
```

```
- accuracy: 0.9940
Epoch 61/500
14428/14428 [=====] - 5s 352us/sample - loss: 0.0367
- accuracy: 0.9940
Epoch 62/500
14428/14428 [=====] - 5s 327us/sample - loss: 0.0368
- accuracy: 0.9940
Epoch 63/500
14428/14428 [=====] - 6s 441us/sample - loss: 0.0368
- accuracy: 0.9940
Epoch 64/500
14428/14428 [=====] - 5s 317us/sample - loss: 0.0367
- accuracy: 0.9940
Epoch 65/500
14428/14428 [=====] - 4s 270us/sample - loss: 0.0366
- accuracy: 0.9940
Epoch 66/500
14428/14428 [=====] - 5s 379us/sample - loss: 0.0366
- accuracy: 0.9940
Epoch 67/500
14428/14428 [=====] - 7s 516us/sample - loss: 0.0366
- accuracy: 0.9940
Epoch 68/500
14428/14428 [=====] - 6s 385us/sample - loss: 0.0366
- accuracy: 0.9940
```

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Epoch 69/500
14428/14428 [=====] - 4s 302us/sample - loss: 0.0366
- accuracy: 0.9940
Epoch 70/500
14428/14428 [=====] - 4s 305us/sample - loss: 0.0365
- accuracy: 0.9940
Epoch 71/500
14428/14428 [=====] - 3s 211us/sample - loss: 0.0366
- accuracy: 0.9940
Epoch 72/500
14428/14428 [=====] - 3s 216us/sample - loss: 0.0366
- accuracy: 0.9940
Epoch 73/500
14428/14428 [=====] - 4s 301us/sample - loss: 0.0366
- accuracy: 0.9940
Epoch 74/500
14428/14428 [=====] - 4s 275us/sample - loss: 0.0367
- accuracy: 0.9940
Epoch 75/500
14428/14428 [=====] - 4s 274us/sample - loss: 0.0366
- accuracy: 0.9940
Epoch 76/500
14428/14428 [=====] - 6s 438us/sample - loss: 0.0367
- accuracy: 0.9940
Epoch 77/500
```

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14428/14428 [=====] - 4s 252us/sample - loss: 0.0366
- accuracy: 0.9940
Epoch 78/500
14428/14428 [=====] - 4s 269us/sample - loss: 0.0365
- accuracy: 0.9940
Epoch 79/500
14428/14428 [=====] - 6s 445us/sample - loss: 0.0367
- accuracy: 0.9940
Epoch 80/500
14428/14428 [=====] - 7s 456us/sample - loss: 0.0367
- accuracy: 0.9940
Epoch 81/500
14428/14428 [=====] - 5s 353us/sample - loss: 0.0365
- accuracy: 0.9940
Epoch 82/500
14428/14428 [=====] - 5s 357us/sample - loss: 0.0365
- accuracy: 0.9940
Epoch 83/500
14428/14428 [=====] - 4s 252us/sample - loss: 0.0365
- accuracy: 0.9940
Epoch 84/500
14428/14428 [=====] - 6s 385us/sample - loss: 0.0365
- accuracy: 0.9940
Epoch 85/500
14428/14428 [=====] - 6s 404us/sample - loss: 0.0366
```

```
- accuracy: 0.9940
Epoch 86/500
14428/14428 [=====] - 6s 398us/sample - loss: 0.0364
- accuracy: 0.9940
Epoch 87/500
14428/14428 [=====] - 4s 267us/sample - loss: 0.0363
- accuracy: 0.9940
Epoch 88/500
14428/14428 [=====] - 6s 394us/sample - loss: 0.0365
- accuracy: 0.9940
Epoch 89/500
14428/14428 [=====] - 7s 475us/sample - loss: 0.0365
- accuracy: 0.9940
Epoch 90/500
14428/14428 [=====] - 5s 368us/sample - loss: 0.0366
- accuracy: 0.9940
Epoch 91/500
14428/14428 [=====] - 5s 338us/sample - loss: 0.0364
- accuracy: 0.9940
Epoch 92/500
14428/14428 [=====] - 5s 318us/sample - loss: 0.0364
- accuracy: 0.9940
Epoch 93/500
14428/14428 [=====] - 4s 298us/sample - loss: 0.0364
- accuracy: 0.9940
```



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Epoch 94/500
14428/14428 [=====] - 7s 480us/sample - loss: 0.0363
- accuracy: 0.9940
Epoch 95/500
14428/14428 [=====] - 5s 345us/sample - loss: 0.0365
- accuracy: 0.9940
Epoch 96/500
14428/14428 [=====] - 5s 333us/sample - loss: 0.0364
- accuracy: 0.9940
Epoch 97/500
14428/14428 [=====] - 4s 257us/sample - loss: 0.0364
- accuracy: 0.9940
Epoch 98/500
14428/14428 [=====] - 4s 273us/sample - loss: 0.0363
- accuracy: 0.9940
Epoch 99/500
14428/14428 [=====] - 3s 226us/sample - loss: 0.0364
- accuracy: 0.9940
Epoch 100/500
14428/14428 [=====] - 6s 386us/sample - loss: 0.0365
- accuracy: 0.9940
Epoch 101/500
14428/14428 [=====] - 4s 311us/sample - loss: 0.0362
- accuracy: 0.9940
Epoch 102/500
```

```
14428/14428 [=====] - 4s 257us/sample - loss: 0.0363
- accuracy: 0.9940
Epoch 103/500
14428/14428 [=====] - 3s 210us/sample - loss: 0.0362
- accuracy: 0.9940
Epoch 104/500
14428/14428 [=====] - 3s 213us/sample - loss: 0.0365
- accuracy: 0.9940
Epoch 105/500
14428/14428 [=====] - 5s 327us/sample - loss: 0.0363
- accuracy: 0.9940
Epoch 106/500
14428/14428 [=====] - 4s 260us/sample - loss: 0.0363
- accuracy: 0.9940
Epoch 107/500
14428/14428 [=====] - 4s 301us/sample - loss: 0.0363
- accuracy: 0.9940
Epoch 108/500
14428/14428 [=====] - 3s 225us/sample - loss: 0.0364
- accuracy: 0.9940
Epoch 109/500
14428/14428 [=====] - 4s 253us/sample - loss: 0.0362
- accuracy: 0.9940
Epoch 110/500
14428/14428 [=====] - 4s 279us/sample - loss: 0.0363
```

```
- accuracy: 0.9940
Epoch 111/500
14428/14428 [=====] - 4s 253us/sample - loss: 0.0363
- accuracy: 0.9940
Epoch 112/500
14428/14428 [=====] - 3s 212us/sample - loss: 0.0360
- accuracy: 0.9940
Epoch 113/500
14428/14428 [=====] - 7s 483us/sample - loss: 0.0361
- accuracy: 0.9940
Epoch 114/500
14428/14428 [=====] - 4s 309us/sample - loss: 0.0363
- accuracy: 0.9940
Epoch 115/500
14428/14428 [=====] - 4s 243us/sample - loss: 0.0362
- accuracy: 0.9940
Epoch 116/500
14428/14428 [=====] - 3s 242us/sample - loss: 0.0362
- accuracy: 0.9940
Epoch 117/500
14428/14428 [=====] - 3s 229us/sample - loss: 0.0362
- accuracy: 0.9940
Epoch 118/500
14428/14428 [=====] - 5s 327us/sample - loss: 0.0362
- accuracy: 0.9940
```

```
Epoch 119/500
14428/14428 [=====] - 3s 224us/sample - loss: 0.0362
- accuracy: 0.9940
Epoch 120/500
14428/14428 [=====] - 6s 414us/sample - loss: 0.0362
- accuracy: 0.9940
Epoch 121/500
14428/14428 [=====] - 3s 225us/sample - loss: 0.0362
- accuracy: 0.9940
Epoch 122/500
14428/14428 [=====] - 7s 478us/sample - loss: 0.0362
- accuracy: 0.9940
Epoch 123/500
14428/14428 [=====] - 3s 223us/sample - loss: 0.0362
- accuracy: 0.9940
Epoch 124/500
14428/14428 [=====] - 4s 304us/sample - loss: 0.0362
- accuracy: 0.9940
Epoch 125/500
14428/14428 [=====] - 3s 207us/sample - loss: 0.0361
- accuracy: 0.9940
Epoch 126/500
14428/14428 [=====] - 3s 214us/sample - loss: 0.0361
- accuracy: 0.9940
Epoch 127/500
```

```
14428/14428 [=====] - 4s 302us/sample - loss: 0.0361
- accuracy: 0.9940
Epoch 128/500
14428/14428 [=====] - 5s 364us/sample - loss: 0.0362
- accuracy: 0.9940
Epoch 129/500
14428/14428 [=====] - 3s 229us/sample - loss: 0.0362
- accuracy: 0.9940
Epoch 130/500
14428/14428 [=====] - 4s 269us/sample - loss: 0.0362
- accuracy: 0.9940
Epoch 131/500
14428/14428 [=====] - 4s 254us/sample - loss: 0.0362
- accuracy: 0.9940
Epoch 132/500
14428/14428 [=====] - 8s 527us/sample - loss: 0.0362
- accuracy: 0.9940
Epoch 133/500
14428/14428 [=====] - 4s 311us/sample - loss: 0.0360
- accuracy: 0.9940
Epoch 134/500
14428/14428 [=====] - 7s 520us/sample - loss: 0.0362
- accuracy: 0.9940
Epoch 135/500
14428/14428 [=====] - 5s 319us/sample - loss: 0.0361
```

```
- accuracy: 0.9940
Epoch 136/500
14428/14428 [=====] - 5s 348us/sample - loss: 0.0360
- accuracy: 0.9940
Epoch 137/500
14428/14428 [=====] - 4s 309us/sample - loss: 0.0362
- accuracy: 0.9940
Epoch 138/500
14428/14428 [=====] - 8s 583us/sample - loss: 0.0361
- accuracy: 0.9940
Epoch 139/500
14428/14428 [=====] - 4s 308us/sample - loss: 0.0360
- accuracy: 0.9940
Epoch 140/500
14428/14428 [=====] - 6s 421us/sample - loss: 0.0360
- accuracy: 0.9940
Epoch 141/500
14428/14428 [=====] - 7s 487us/sample - loss: 0.0361
- accuracy: 0.9940
Epoch 142/500
14428/14428 [=====] - 6s 412us/sample - loss: 0.0361
- accuracy: 0.9940
Epoch 143/500
14428/14428 [=====] - 6s 413us/sample - loss: 0.0360
- accuracy: 0.9940
```

```
Epoch 144/500
14428/14428 [=====] - 4s 295us/sample - loss: 0.0360
- accuracy: 0.9940
Epoch 145/500
14428/14428 [=====] - 6s 434us/sample - loss: 0.0360
- accuracy: 0.9940
Epoch 146/500
14428/14428 [=====] - 5s 316us/sample - loss: 0.0361
- accuracy: 0.9940
Epoch 147/500
14428/14428 [=====] - 4s 257us/sample - loss: 0.0360
- accuracy: 0.9940
Epoch 148/500
14428/14428 [=====] - 7s 462us/sample - loss: 0.0360
- accuracy: 0.9940
Epoch 149/500
14428/14428 [=====] - 5s 323us/sample - loss: 0.0361
- accuracy: 0.9940
Epoch 150/500
14428/14428 [=====] - 5s 378us/sample - loss: 0.0360
- accuracy: 0.9940
Epoch 151/500
14428/14428 [=====] - 4s 264us/sample - loss: 0.0360
- accuracy: 0.9940
Epoch 152/500
```

```
14428/14428 [=====] - 6s 389us/sample - loss: 0.0362
- accuracy: 0.9940
Epoch 153/500
14428/14428 [=====] - 6s 406us/sample - loss: 0.0360
- accuracy: 0.9940
Epoch 154/500
14428/14428 [=====] - 5s 375us/sample - loss: 0.0361
- accuracy: 0.9940
Epoch 155/500
14428/14428 [=====] - 5s 346us/sample - loss: 0.0359
- accuracy: 0.9940
Epoch 156/500
14428/14428 [=====] - 4s 270us/sample - loss: 0.0359
- accuracy: 0.9940
Epoch 157/500
14428/14428 [=====] - 5s 320us/sample - loss: 0.0359
- accuracy: 0.9940
Epoch 158/500
14428/14428 [=====] - 4s 301us/sample - loss: 0.0360
- accuracy: 0.9940
Epoch 159/500
14428/14428 [=====] - 7s 486us/sample - loss: 0.0360
- accuracy: 0.9940
Epoch 160/500
14428/14428 [=====] - 7s 488us/sample - loss: 0.0361
```



```
- accuracy: 0.9940
Epoch 161/500
14428/14428 [=====] - 7s 476us/sample - loss: 0.0359
- accuracy: 0.9940
Epoch 162/500
14428/14428 [=====] - 4s 264us/sample - loss: 0.0359
- accuracy: 0.9940
Epoch 163/500
14428/14428 [=====] - 4s 296us/sample - loss: 0.0359
- accuracy: 0.9940
Epoch 164/500
14428/14428 [=====] - 4s 244us/sample - loss: 0.0359
- accuracy: 0.9940
Epoch 165/500
14428/14428 [=====] - 5s 364us/sample - loss: 0.0360
- accuracy: 0.9940
Epoch 166/500
14428/14428 [=====] - 3s 240us/sample - loss: 0.0359
- accuracy: 0.9940
Epoch 167/500
14428/14428 [=====] - 7s 477us/sample - loss: 0.0358
- accuracy: 0.9940
Epoch 168/500
14428/14428 [=====] - 3s 238us/sample - loss: 0.0360
- accuracy: 0.9940
```

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Epoch 169/500
14428/14428 [=====] - 7s 476us/sample - loss: 0.0360
- accuracy: 0.9940
Epoch 170/500
14428/14428 [=====] - 9s 598us/sample - loss: 0.0360
- accuracy: 0.9940
Epoch 171/500
14428/14428 [=====] - 4s 277us/sample - loss: 0.0359
- accuracy: 0.9940
Epoch 172/500
14428/14428 [=====] - 5s 327us/sample - loss: 0.0359
- accuracy: 0.9940
Epoch 173/500
14428/14428 [=====] - 5s 348us/sample - loss: 0.0358
- accuracy: 0.9940
Epoch 174/500
14428/14428 [=====] - 4s 252us/sample - loss: 0.0359
- accuracy: 0.9940
Epoch 175/500
14428/14428 [=====] - 3s 201us/sample - loss: 0.0360
- accuracy: 0.9940
Epoch 176/500
14428/14428 [=====] - 5s 362us/sample - loss: 0.0358
- accuracy: 0.9940
Epoch 177/500
```

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14428/14428 [=====] - 5s 346us/sample - loss: 0.0358
- accuracy: 0.9940
Epoch 178/500
14428/14428 [=====] - 4s 244us/sample - loss: 0.0359
- accuracy: 0.9940
Epoch 179/500
14428/14428 [=====] - 3s 211us/sample - loss: 0.0358
- accuracy: 0.9940
Epoch 180/500
14428/14428 [=====] - 5s 379us/sample - loss: 0.0358
- accuracy: 0.9940
Epoch 181/500
14428/14428 [=====] - 2s 168us/sample - loss: 0.0358
- accuracy: 0.9940
Epoch 182/500
14428/14428 [=====] - 4s 298us/sample - loss: 0.0358
- accuracy: 0.9940
Epoch 183/500
14428/14428 [=====] - 4s 260us/sample - loss: 0.0357
- accuracy: 0.9940
Epoch 184/500
14428/14428 [=====] - 3s 236us/sample - loss: 0.0359
- accuracy: 0.9940
Epoch 185/500
14428/14428 [=====] - 3s 212us/sample - loss: 0.0357
```

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- accuracy: 0.9940
Epoch 186/500
14428/14428 [=====] - 5s 365us/sample - loss: 0.0359
- accuracy: 0.9940
Epoch 187/500
14428/14428 [=====] - 4s 283us/sample - loss: 0.0358
- accuracy: 0.9940
Epoch 188/500
14428/14428 [=====] - 3s 207us/sample - loss: 0.0358
- accuracy: 0.9940
Epoch 189/500
14428/14428 [=====] - 4s 246us/sample - loss: 0.0358
- accuracy: 0.9940
Epoch 190/500
14428/14428 [=====] - 3s 215us/sample - loss: 0.0359
- accuracy: 0.9940
Epoch 191/500
14428/14428 [=====] - 6s 390us/sample - loss: 0.0357
- accuracy: 0.9940
Epoch 192/500
14428/14428 [=====] - 5s 333us/sample - loss: 0.0358
- accuracy: 0.9940
Epoch 193/500
14428/14428 [=====] - 4s 279us/sample - loss: 0.0358
- accuracy: 0.9940
```

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Epoch 194/500
14428/14428 [=====] - 3s 204us/sample - loss: 0.0357
- accuracy: 0.9940
Epoch 195/500
14428/14428 [=====] - 5s 318us/sample - loss: 0.0358
- accuracy: 0.9940
Epoch 196/500
14428/14428 [=====] - 3s 201us/sample - loss: 0.0357
- accuracy: 0.9940
Epoch 197/500
14428/14428 [=====] - 4s 297us/sample - loss: 0.0356
- accuracy: 0.9940
Epoch 198/500
14428/14428 [=====] - 5s 347us/sample - loss: 0.0358
- accuracy: 0.9940
Epoch 199/500
14428/14428 [=====] - 3s 223us/sample - loss: 0.0358
- accuracy: 0.9940
Epoch 200/500
14428/14428 [=====] - 3s 205us/sample - loss: 0.0358
- accuracy: 0.9940
Epoch 201/500
14428/14428 [=====] - 3s 193us/sample - loss: 0.0358
- accuracy: 0.9940
Epoch 202/500
```

```
14428/14428 [=====] - 3s 180us/sample - loss: 0.0357
- accuracy: 0.9940
Epoch 203/500
14428/14428 [=====] - 3s 177us/sample - loss: 0.0357
- accuracy: 0.9940
Epoch 204/500
14428/14428 [=====] - 3s 211us/sample - loss: 0.0359
- accuracy: 0.9940
Epoch 205/500
14428/14428 [=====] - 3s 191us/sample - loss: 0.0357
- accuracy: 0.9940
Epoch 206/500
14428/14428 [=====] - 4s 292us/sample - loss: 0.0357
- accuracy: 0.9940
Epoch 207/500
14428/14428 [=====] - 2s 167us/sample - loss: 0.0358
- accuracy: 0.9940
Epoch 208/500
14428/14428 [=====] - 4s 291us/sample - loss: 0.0357
- accuracy: 0.9940
Epoch 209/500
14428/14428 [=====] - 7s 461us/sample - loss: 0.0356
- accuracy: 0.9940
Epoch 210/500
14428/14428 [=====] - 4s 293us/sample - loss: 0.0357
```

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- accuracy: 0.9940
Epoch 211/500
14428/14428 [=====] - 2s 172us/sample - loss: 0.0358
- accuracy: 0.9940
Epoch 212/500
14428/14428 [=====] - 3s 189us/sample - loss: 0.0356
- accuracy: 0.9940
Epoch 213/500
14428/14428 [=====] - 5s 336us/sample - loss: 0.0357
- accuracy: 0.9940
Epoch 214/500
14428/14428 [=====] - 3s 218us/sample - loss: 0.0356
- accuracy: 0.9940
Epoch 215/500
14428/14428 [=====] - 6s 400us/sample - loss: 0.0356
- accuracy: 0.9940
Epoch 216/500
14428/14428 [=====] - 3s 211us/sample - loss: 0.0355
- accuracy: 0.9940
Epoch 217/500
14428/14428 [=====] - 3s 180us/sample - loss: 0.0357
- accuracy: 0.9940
Epoch 218/500
14428/14428 [=====] - 3s 181us/sample - loss: 0.0356
- accuracy: 0.9940
```

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Epoch 219/500
14428/14428 [=====] - 4s 293us/sample - loss: 0.0356
- accuracy: 0.9940
Epoch 220/500
14428/14428 [=====] - 3s 194us/sample - loss: 0.0357
- accuracy: 0.9940
Epoch 221/500
14428/14428 [=====] - 2s 162us/sample - loss: 0.0355
- accuracy: 0.9940
Epoch 222/500
14428/14428 [=====] - 3s 189us/sample - loss: 0.0355
- accuracy: 0.9940
Epoch 223/500
14428/14428 [=====] - 4s 295us/sample - loss: 0.0356
- accuracy: 0.9940
Epoch 224/500
14428/14428 [=====] - 3s 203us/sample - loss: 0.0356
- accuracy: 0.9940
Epoch 225/500
14428/14428 [=====] - 8s 563us/sample - loss: 0.0356
- accuracy: 0.9940
Epoch 226/500
14428/14428 [=====] - 3s 197us/sample - loss: 0.0356
- accuracy: 0.9940
Epoch 227/500
```



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14428/14428 [=====] - 5s 328us/sample - loss: 0.0357
- accuracy: 0.9940
Epoch 228/500
14428/14428 [=====] - 3s 219us/sample - loss: 0.0355
- accuracy: 0.9940
Epoch 229/500
14428/14428 [=====] - 3s 204us/sample - loss: 0.0357
- accuracy: 0.9940
Epoch 230/500
14428/14428 [=====] - 3s 187us/sample - loss: 0.0357
- accuracy: 0.9940
Epoch 231/500
14428/14428 [=====] - 3s 213us/sample - loss: 0.0357
- accuracy: 0.9940
Epoch 232/500
14428/14428 [=====] - 6s 401us/sample - loss: 0.0355
- accuracy: 0.9940
Epoch 233/500
14428/14428 [=====] - 3s 190us/sample - loss: 0.0355
- accuracy: 0.9940
Epoch 234/500
14428/14428 [=====] - 3s 181us/sample - loss: 0.0355
- accuracy: 0.9940
Epoch 235/500
14428/14428 [=====] - 3s 195us/sample - loss: 0.0356
```

```
- accuracy: 0.9940
Epoch 236/500
14428/14428 [=====] - 4s 255us/sample - loss: 0.0357
- accuracy: 0.9940
Epoch 237/500
14428/14428 [=====] - 4s 281us/sample - loss: 0.0356
- accuracy: 0.9940
Epoch 238/500
14428/14428 [=====] - 3s 231us/sample - loss: 0.0353
- accuracy: 0.9940
Epoch 239/500
14428/14428 [=====] - 3s 210us/sample - loss: 0.0355
- accuracy: 0.9940
Epoch 240/500
14428/14428 [=====] - 3s 209us/sample - loss: 0.0354
- accuracy: 0.9940
Epoch 241/500
14428/14428 [=====] - 6s 388us/sample - loss: 0.0355
- accuracy: 0.9940
Epoch 242/500
14428/14428 [=====] - 3s 183us/sample - loss: 0.0354
- accuracy: 0.9940
Epoch 243/500
14428/14428 [=====] - 2s 167us/sample - loss: 0.0355
- accuracy: 0.9940
```

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Epoch 244/500
14428/14428 [=====] - 3s 199us/sample - loss: 0.0355
- accuracy: 0.9940
Epoch 245/500
14428/14428 [=====] - 3s 192us/sample - loss: 0.0356
- accuracy: 0.9940
Epoch 246/500
14428/14428 [=====] - 6s 424us/sample - loss: 0.0356
- accuracy: 0.9940
Epoch 247/500
14428/14428 [=====] - 5s 314us/sample - loss: 0.0354
- accuracy: 0.9940
Epoch 248/500
14428/14428 [=====] - 3s 206us/sample - loss: 0.0355
- accuracy: 0.9940
Epoch 249/500
14428/14428 [=====] - 4s 294us/sample - loss: 0.0355
- accuracy: 0.9940
Epoch 250/500
14428/14428 [=====] - 3s 182us/sample - loss: 0.0354
- accuracy: 0.9940
Epoch 251/500
14428/14428 [=====] - 3s 211us/sample - loss: 0.0353
- accuracy: 0.9940
Epoch 252/500
```

```
14428/14428 [=====] - 3s 179us/sample - loss: 0.0357
- accuracy: 0.9940
Epoch 253/500
14428/14428 [=====] - 5s 316us/sample - loss: 0.0354
- accuracy: 0.9940
Epoch 254/500
14428/14428 [=====] - 4s 251us/sample - loss: 0.0355
- accuracy: 0.9940
Epoch 255/500
14428/14428 [=====] - 4s 262us/sample - loss: 0.0354
- accuracy: 0.9940
Epoch 256/500
14428/14428 [=====] - 3s 208us/sample - loss: 0.0355
- accuracy: 0.9940
Epoch 257/500
14428/14428 [=====] - 3s 176us/sample - loss: 0.0355
- accuracy: 0.9940
Epoch 258/500
14428/14428 [=====] - 3s 197us/sample - loss: 0.0355
- accuracy: 0.9940
Epoch 259/500
14428/14428 [=====] - 3s 184us/sample - loss: 0.0354
- accuracy: 0.9940
Epoch 260/500
14428/14428 [=====] - 3s 189us/sample - loss: 0.0354
```

```
- accuracy: 0.9940
Epoch 261/500
14428/14428 [=====] - 4s 281us/sample - loss: 0.0354
- accuracy: 0.9940
Epoch 262/500
14428/14428 [=====] - 4s 293us/sample - loss: 0.0353
- accuracy: 0.9940
Epoch 263/500
14428/14428 [=====] - 5s 329us/sample - loss: 0.0355
- accuracy: 0.9940
Epoch 264/500
14428/14428 [=====] - 4s 274us/sample - loss: 0.0356
- accuracy: 0.9940
Epoch 265/500
14428/14428 [=====] - 3s 178us/sample - loss: 0.0354
- accuracy: 0.9940
Epoch 266/500
14428/14428 [=====] - 4s 250us/sample - loss: 0.0354
- accuracy: 0.9940
Epoch 267/500
14428/14428 [=====] - 3s 200us/sample - loss: 0.0354
- accuracy: 0.9940
Epoch 268/500
14428/14428 [=====] - 6s 396us/sample - loss: 0.0353
- accuracy: 0.9940
```

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Epoch 269/500
14428/14428 [=====] - 5s 321us/sample - loss: 0.0356
- accuracy: 0.9940
Epoch 270/500
14428/14428 [=====] - 4s 262us/sample - loss: 0.0354
- accuracy: 0.9940
Epoch 271/500
14428/14428 [=====] - 3s 196us/sample - loss: 0.0353
- accuracy: 0.9940
Epoch 272/500
14428/14428 [=====] - 3s 238us/sample - loss: 0.0353
- accuracy: 0.9940
Epoch 273/500
14428/14428 [=====] - 9s 615us/sample - loss: 0.0354
- accuracy: 0.9940
Epoch 274/500
14428/14428 [=====] - 5s 323us/sample - loss: 0.0354
- accuracy: 0.9940
Epoch 275/500
14428/14428 [=====] - 4s 288us/sample - loss: 0.0354
- accuracy: 0.9940
Epoch 276/500
14428/14428 [=====] - 6s 413us/sample - loss: 0.0353
- accuracy: 0.9940
Epoch 277/500
```

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14428/14428 [=====] - 4s 284us/sample - loss: 0.0354
- accuracy: 0.9940
Epoch 278/500
14428/14428 [=====] - 5s 352us/sample - loss: 0.0353
- accuracy: 0.9940
Epoch 279/500
14428/14428 [=====] - 5s 377us/sample - loss: 0.0353
- accuracy: 0.9940
Epoch 280/500
14428/14428 [=====] - 7s 478us/sample - loss: 0.0353
- accuracy: 0.9940
Epoch 281/500
14428/14428 [=====] - 6s 418us/sample - loss: 0.0353
- accuracy: 0.9940
Epoch 282/500
14428/14428 [=====] - 4s 258us/sample - loss: 0.0353
- accuracy: 0.9940
Epoch 283/500
14428/14428 [=====] - 2s 158us/sample - loss: 0.0354
- accuracy: 0.9940
Epoch 284/500
14428/14428 [=====] - 3s 227us/sample - loss: 0.0351
- accuracy: 0.9940
Epoch 285/500
14428/14428 [=====] - 5s 378us/sample - loss: 0.0353
```

```
- accuracy: 0.9940
Epoch 286/500
14428/14428 [=====] - 5s 337us/sample - loss: 0.0353
- accuracy: 0.9940
Epoch 287/500
14428/14428 [=====] - 4s 280us/sample - loss: 0.0354
- accuracy: 0.9940
Epoch 288/500
14428/14428 [=====] - 4s 298us/sample - loss: 0.0353
- accuracy: 0.9940
Epoch 289/500
14428/14428 [=====] - 4s 291us/sample - loss: 0.0352
- accuracy: 0.9940
Epoch 290/500
14428/14428 [=====] - 4s 307us/sample - loss: 0.0355
- accuracy: 0.9940
Epoch 291/500
14428/14428 [=====] - 5s 314us/sample - loss: 0.0352
- accuracy: 0.9940
Epoch 292/500
14428/14428 [=====] - 4s 275us/sample - loss: 0.0354
- accuracy: 0.9940
Epoch 293/500
14428/14428 [=====] - 4s 255us/sample - loss: 0.0353
- accuracy: 0.9940
```



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Epoch 294/500
14428/14428 [=====] - 3s 230us/sample - loss: 0.0353
- accuracy: 0.9940
Epoch 295/500
14428/14428 [=====] - 4s 254us/sample - loss: 0.0354
- accuracy: 0.9940
Epoch 296/500
14428/14428 [=====] - 4s 249us/sample - loss: 0.0353
- accuracy: 0.9940
Epoch 297/500
14428/14428 [=====] - 4s 245us/sample - loss: 0.0353
- accuracy: 0.9940
Epoch 298/500
14428/14428 [=====] - 4s 265us/sample - loss: 0.0351
- accuracy: 0.9940
Epoch 299/500
14428/14428 [=====] - 4s 244us/sample - loss: 0.0353
- accuracy: 0.9940
Epoch 300/500
14428/14428 [=====] - 4s 245us/sample - loss: 0.0352
- accuracy: 0.9940
Epoch 301/500
14428/14428 [=====] - 4s 257us/sample - loss: 0.0352
- accuracy: 0.9940
Epoch 302/500
```

```
14428/14428 [=====] - 3s 239us/sample - loss: 0.0352
- accuracy: 0.9940
Epoch 303/500
14428/14428 [=====] - 4s 261us/sample - loss: 0.0352
- accuracy: 0.9940
Epoch 304/500
14428/14428 [=====] - 4s 258us/sample - loss: 0.0354
- accuracy: 0.9940
Epoch 305/500
14428/14428 [=====] - 4s 253us/sample - loss: 0.0354
- accuracy: 0.9940
Epoch 306/500
14428/14428 [=====] - 4s 258us/sample - loss: 0.0353
- accuracy: 0.9940
Epoch 307/500
14428/14428 [=====] - 3s 235us/sample - loss: 0.0353
- accuracy: 0.9940
Epoch 308/500
14428/14428 [=====] - 4s 252us/sample - loss: 0.0350
- accuracy: 0.9940
Epoch 309/500
14428/14428 [=====] - 4s 246us/sample - loss: 0.0353
- accuracy: 0.9940
Epoch 310/500
14428/14428 [=====] - 3s 237us/sample - loss: 0.0352
```

```
- accuracy: 0.9940
Epoch 311/500
14428/14428 [=====] - 4s 251us/sample - loss: 0.0353
- accuracy: 0.9940
Epoch 312/500
14428/14428 [=====] - 3s 236us/sample - loss: 0.0354
- accuracy: 0.9940
Epoch 313/500
14428/14428 [=====] - 4s 249us/sample - loss: 0.0352
- accuracy: 0.9940
Epoch 314/500
14428/14428 [=====] - 4s 246us/sample - loss: 0.0352
- accuracy: 0.9940
Epoch 315/500
14428/14428 [=====] - 3s 237us/sample - loss: 0.0352
- accuracy: 0.9940
Epoch 316/500
14428/14428 [=====] - 4s 255us/sample - loss: 0.0352
- accuracy: 0.9940
Epoch 317/500
14428/14428 [=====] - 4s 288us/sample - loss: 0.0352
- accuracy: 0.9940
Epoch 318/500
14428/14428 [=====] - 3s 238us/sample - loss: 0.0353
- accuracy: 0.9940
```

```
Epoch 319/500
14428/14428 [=====] - 4s 248us/sample - loss: 0.0351
- accuracy: 0.9940
Epoch 320/500
14428/14428 [=====] - 3s 240us/sample - loss: 0.0352
- accuracy: 0.9940
Epoch 321/500
14428/14428 [=====] - 4s 270us/sample - loss: 0.0352
- accuracy: 0.9940
Epoch 322/500
14428/14428 [=====] - 4s 247us/sample - loss: 0.0351
- accuracy: 0.9940
Epoch 323/500
14428/14428 [=====] - 3s 237us/sample - loss: 0.0352
- accuracy: 0.9940
Epoch 324/500
14428/14428 [=====] - 4s 257us/sample - loss: 0.0352
- accuracy: 0.9940
Epoch 325/500
14428/14428 [=====] - 3s 226us/sample - loss: 0.0353
- accuracy: 0.9940
Epoch 326/500
14428/14428 [=====] - 4s 258us/sample - loss: 0.0353
- accuracy: 0.9940
Epoch 327/500
```

```
14428/14428 [=====] - 4s 255us/sample - loss: 0.0351
- accuracy: 0.9940
Epoch 328/500
14428/14428 [=====] - 4s 244us/sample - loss: 0.0355
- accuracy: 0.9940
Epoch 329/500
14428/14428 [=====] - 4s 262us/sample - loss: 0.0351
- accuracy: 0.9940
Epoch 330/500
14428/14428 [=====] - 3s 236us/sample - loss: 0.0354
- accuracy: 0.9940
Epoch 331/500
14428/14428 [=====] - 4s 252us/sample - loss: 0.0350
- accuracy: 0.9940
Epoch 332/500
14428/14428 [=====] - 4s 253us/sample - loss: 0.0349
- accuracy: 0.9940
Epoch 333/500
14428/14428 [=====] - 4s 246us/sample - loss: 0.0353
- accuracy: 0.9940
Epoch 334/500
14428/14428 [=====] - 4s 270us/sample - loss: 0.0349
- accuracy: 0.9940
Epoch 335/500
14428/14428 [=====] - 4s 247us/sample - loss: 0.0351
```

```
- accuracy: 0.9940
Epoch 336/500
14428/14428 [=====] - 3s 236us/sample - loss: 0.0352
- accuracy: 0.9940
Epoch 337/500
14428/14428 [=====] - 4s 257us/sample - loss: 0.0353
- accuracy: 0.9940
Epoch 338/500
14428/14428 [=====] - 3s 235us/sample - loss: 0.0351
- accuracy: 0.9940
Epoch 339/500
14428/14428 [=====] - 4s 267us/sample - loss: 0.0352
- accuracy: 0.9940
Epoch 340/500
14428/14428 [=====] - 4s 246us/sample - loss: 0.0349
- accuracy: 0.9940
Epoch 341/500
14428/14428 [=====] - 3s 238us/sample - loss: 0.0348
- accuracy: 0.9940
Epoch 342/500
14428/14428 [=====] - 4s 266us/sample - loss: 0.0352
- accuracy: 0.9940
Epoch 343/500
14428/14428 [=====] - 4s 250us/sample - loss: 0.0351
- accuracy: 0.9940
```

```
Epoch 344/500
14428/14428 [=====] - 4s 248us/sample - loss: 0.0351
- accuracy: 0.9940
Epoch 345/500
14428/14428 [=====] - 4s 248us/sample - loss: 0.0350
- accuracy: 0.9940
Epoch 346/500
14428/14428 [=====] - 3s 240us/sample - loss: 0.0351
- accuracy: 0.9940
Epoch 347/500
14428/14428 [=====] - 4s 260us/sample - loss: 0.0350
- accuracy: 0.9940
Epoch 348/500
14428/14428 [=====] - 4s 255us/sample - loss: 0.0351
- accuracy: 0.9940
Epoch 349/500
14428/14428 [=====] - 3s 238us/sample - loss: 0.0351
- accuracy: 0.9940
Epoch 350/500
14428/14428 [=====] - 4s 260us/sample - loss: 0.0351
- accuracy: 0.9940
Epoch 351/500
14428/14428 [=====] - 3s 238us/sample - loss: 0.0351
- accuracy: 0.9940
Epoch 352/500
```

```
14428/14428 [=====] - 4s 258us/sample - loss: 0.0350
- accuracy: 0.9940
Epoch 353/500
14428/14428 [=====] - 4s 250us/sample - loss: 0.0350
- accuracy: 0.9940
Epoch 354/500
14428/14428 [=====] - 3s 234us/sample - loss: 0.0351
- accuracy: 0.9940
Epoch 355/500
14428/14428 [=====] - 4s 266us/sample - loss: 0.0351
- accuracy: 0.9940
Epoch 356/500
14428/14428 [=====] - 3s 238us/sample - loss: 0.0351
- accuracy: 0.9940
Epoch 357/500
14428/14428 [=====] - 4s 244us/sample - loss: 0.0350
- accuracy: 0.9940
Epoch 358/500
14428/14428 [=====] - 4s 246us/sample - loss: 0.0350
- accuracy: 0.9940
Epoch 359/500
14428/14428 [=====] - 3s 239us/sample - loss: 0.0353
- accuracy: 0.9940
Epoch 360/500
14428/14428 [=====] - 4s 287us/sample - loss: 0.0349
```



```
- accuracy: 0.9940
Epoch 361/500
14428/14428 [=====] - 4s 249us/sample - loss: 0.0350
- accuracy: 0.9940
Epoch 362/500
14428/14428 [=====] - 3s 236us/sample - loss: 0.0349
- accuracy: 0.9940
Epoch 363/500
14428/14428 [=====] - 4s 245us/sample - loss: 0.0350
- accuracy: 0.9940
Epoch 364/500
14428/14428 [=====] - 3s 232us/sample - loss: 0.0350
- accuracy: 0.9940
Epoch 365/500
14428/14428 [=====] - 4s 260us/sample - loss: 0.0351
- accuracy: 0.9940
Epoch 366/500
14428/14428 [=====] - 4s 244us/sample - loss: 0.0349
- accuracy: 0.9940
Epoch 367/500
14428/14428 [=====] - 3s 237us/sample - loss: 0.0350
- accuracy: 0.9940
Epoch 368/500
14428/14428 [=====] - 4s 255us/sample - loss: 0.0350
- accuracy: 0.9940
```

```
Epoch 369/500
14428/14428 [=====] - 3s 237us/sample - loss: 0.0349
- accuracy: 0.9940
Epoch 370/500
14428/14428 [=====] - 4s 258us/sample - loss: 0.0350
- accuracy: 0.9940
Epoch 371/500
14428/14428 [=====] - 4s 250us/sample - loss: 0.0350
- accuracy: 0.9940
Epoch 372/500
14428/14428 [=====] - 3s 235us/sample - loss: 0.0350
- accuracy: 0.9940
Epoch 373/500
14428/14428 [=====] - 4s 243us/sample - loss: 0.0350
- accuracy: 0.9940
Epoch 374/500
14428/14428 [=====] - 3s 193us/sample - loss: 0.0350
- accuracy: 0.9940
Epoch 375/500
14428/14428 [=====] - 4s 251us/sample - loss: 0.0351
- accuracy: 0.9940
Epoch 376/500
14428/14428 [=====] - 3s 241us/sample - loss: 0.0349
- accuracy: 0.9940
Epoch 377/500
```

```
14428/14428 [=====] - 4s 244us/sample - loss: 0.0349
- accuracy: 0.9940
Epoch 378/500
14428/14428 [=====] - 4s 247us/sample - loss: 0.0350
- accuracy: 0.9940
Epoch 379/500
14428/14428 [=====] - 3s 237us/sample - loss: 0.0350
- accuracy: 0.9940
Epoch 380/500
14428/14428 [=====] - 4s 262us/sample - loss: 0.0350
- accuracy: 0.9940
Epoch 381/500
14428/14428 [=====] - 4s 251us/sample - loss: 0.0350
- accuracy: 0.9940
Epoch 382/500
14428/14428 [=====] - 3s 238us/sample - loss: 0.0350
- accuracy: 0.9940
Epoch 383/500
14428/14428 [=====] - 4s 251us/sample - loss: 0.0349
- accuracy: 0.9940
Epoch 384/500
14428/14428 [=====] - 3s 233us/sample - loss: 0.0350
- accuracy: 0.9940
Epoch 385/500
14428/14428 [=====] - 4s 256us/sample - loss: 0.0349
```

```
- accuracy: 0.9940
Epoch 386/500
14428/14428 [=====] - 4s 251us/sample - loss: 0.0351
- accuracy: 0.9940
Epoch 387/500
14428/14428 [=====] - 3s 233us/sample - loss: 0.0349
- accuracy: 0.9940
Epoch 388/500
14428/14428 [=====] - 4s 257us/sample - loss: 0.0349
- accuracy: 0.9940
Epoch 389/500
14428/14428 [=====] - 4s 244us/sample - loss: 0.0349
- accuracy: 0.9940
Epoch 390/500
14428/14428 [=====] - 4s 257us/sample - loss: 0.0349
- accuracy: 0.9940
Epoch 391/500
14428/14428 [=====] - 4s 244us/sample - loss: 0.0350
- accuracy: 0.9940
Epoch 392/500
14428/14428 [=====] - 3s 241us/sample - loss: 0.0350
- accuracy: 0.9940
Epoch 393/500
14428/14428 [=====] - 4s 252us/sample - loss: 0.0349
- accuracy: 0.9940
```

```
Epoch 394/500
14428/14428 [=====] - 3s 232us/sample - loss: 0.0349
- accuracy: 0.9940
Epoch 395/500
14428/14428 [=====] - 4s 266us/sample - loss: 0.0349
- accuracy: 0.9940
Epoch 396/500
14428/14428 [=====] - 4s 257us/sample - loss: 0.0348
- accuracy: 0.9940
Epoch 397/500
14428/14428 [=====] - 4s 243us/sample - loss: 0.0349
- accuracy: 0.9940
Epoch 398/500
14428/14428 [=====] - 4s 270us/sample - loss: 0.0348
- accuracy: 0.9940
Epoch 399/500
14428/14428 [=====] - 4s 257us/sample - loss: 0.0349
- accuracy: 0.9940
Epoch 400/500
14428/14428 [=====] - 3s 240us/sample - loss: 0.0347
- accuracy: 0.9940
Epoch 401/500
14428/14428 [=====] - 4s 262us/sample - loss: 0.0348
- accuracy: 0.9940
Epoch 402/500
```

```
14428/14428 [=====] - 3s 234us/sample - loss: 0.0350
- accuracy: 0.9940
Epoch 403/500
14428/14428 [=====] - 4s 258us/sample - loss: 0.0349
- accuracy: 0.9940
Epoch 404/500
14428/14428 [=====] - 4s 254us/sample - loss: 0.0350
- accuracy: 0.9940
Epoch 405/500
14428/14428 [=====] - 3s 242us/sample - loss: 0.0351
- accuracy: 0.9940
Epoch 406/500
14428/14428 [=====] - 4s 265us/sample - loss: 0.0348
- accuracy: 0.9940
Epoch 407/500
14428/14428 [=====] - 3s 236us/sample - loss: 0.0348
- accuracy: 0.9940
Epoch 408/500
14428/14428 [=====] - 4s 244us/sample - loss: 0.0348
- accuracy: 0.9940
Epoch 409/500
14428/14428 [=====] - 4s 247us/sample - loss: 0.0349
- accuracy: 0.9940
Epoch 410/500
14428/14428 [=====] - 3s 239us/sample - loss: 0.0347
```

```
- accuracy: 0.9940
Epoch 411/500
14428/14428 [=====] - 4s 264us/sample - loss: 0.0349
- accuracy: 0.9940
Epoch 412/500
14428/14428 [=====] - 4s 252us/sample - loss: 0.0349
- accuracy: 0.9940
Epoch 413/500
14428/14428 [=====] - 3s 235us/sample - loss: 0.0348
- accuracy: 0.9940
Epoch 414/500
14428/14428 [=====] - 4s 256us/sample - loss: 0.0348
- accuracy: 0.9940
Epoch 415/500
14428/14428 [=====] - 3s 238us/sample - loss: 0.0350
- accuracy: 0.9940
Epoch 416/500
14428/14428 [=====] - 4s 262us/sample - loss: 0.0348
- accuracy: 0.9940
Epoch 417/500
14428/14428 [=====] - 4s 249us/sample - loss: 0.0347
- accuracy: 0.9940
Epoch 418/500
14428/14428 [=====] - 3s 236us/sample - loss: 0.0347
- accuracy: 0.9940
```

```
Epoch 419/500
14428/14428 [=====] - 4s 262us/sample - loss: 0.0348
- accuracy: 0.9940
Epoch 420/500
14428/14428 [=====] - 3s 228us/sample - loss: 0.0349
- accuracy: 0.9940
Epoch 421/500
14428/14428 [=====] - 4s 260us/sample - loss: 0.0348
- accuracy: 0.9940
Epoch 422/500
14428/14428 [=====] - 4s 244us/sample - loss: 0.0348
- accuracy: 0.9940
Epoch 423/500
14428/14428 [=====] - 3s 237us/sample - loss: 0.0348
- accuracy: 0.9940
Epoch 424/500
14428/14428 [=====] - 4s 258us/sample - loss: 0.0348
- accuracy: 0.9940
Epoch 425/500
14428/14428 [=====] - 3s 239us/sample - loss: 0.0348
- accuracy: 0.9940
Epoch 426/500
14428/14428 [=====] - 4s 257us/sample - loss: 0.0347
- accuracy: 0.9940
Epoch 427/500
```



```
14428/14428 [=====] - 4s 245us/sample - loss: 0.0347
- accuracy: 0.9940
Epoch 428/500
14428/14428 [=====] - 3s 235us/sample - loss: 0.0348
- accuracy: 0.9940
Epoch 429/500
14428/14428 [=====] - 4s 265us/sample - loss: 0.0347
- accuracy: 0.9940
Epoch 430/500
14428/14428 [=====] - 3s 235us/sample - loss: 0.0347
- accuracy: 0.9940
Epoch 431/500
14428/14428 [=====] - 4s 247us/sample - loss: 0.0347
- accuracy: 0.9940
Epoch 432/500
14428/14428 [=====] - 4s 247us/sample - loss: 0.0346
- accuracy: 0.9940
Epoch 433/500
14428/14428 [=====] - 3s 238us/sample - loss: 0.0348
- accuracy: 0.9940
Epoch 434/500
14428/14428 [=====] - 4s 258us/sample - loss: 0.0347
- accuracy: 0.9940
Epoch 435/500
14428/14428 [=====] - 4s 245us/sample - loss: 0.0348
```

```
- accuracy: 0.9940
Epoch 436/500
14428/14428 [=====] - 3s 238us/sample - loss: 0.0348
- accuracy: 0.9940
Epoch 437/500
14428/14428 [=====] - 4s 252us/sample - loss: 0.0350
- accuracy: 0.9940
Epoch 438/500
14428/14428 [=====] - 3s 238us/sample - loss: 0.0348
- accuracy: 0.9940
Epoch 439/500
14428/14428 [=====] - 4s 253us/sample - loss: 0.0346
- accuracy: 0.9940
Epoch 440/500
14428/14428 [=====] - 4s 245us/sample - loss: 0.0348
- accuracy: 0.9940
Epoch 441/500
14428/14428 [=====] - 3s 237us/sample - loss: 0.0348
- accuracy: 0.9940
Epoch 442/500
14428/14428 [=====] - 3s 242us/sample - loss: 0.0350
- accuracy: 0.9940
Epoch 443/500
14428/14428 [=====] - 3s 231us/sample - loss: 0.0347
- accuracy: 0.9940
```

```
Epoch 444/500
14428/14428 [=====] - 4s 261us/sample - loss: 0.0347
- accuracy: 0.9940
Epoch 445/500
14428/14428 [=====] - 4s 247us/sample - loss: 0.0350
- accuracy: 0.9940
Epoch 446/500
14428/14428 [=====] - 3s 236us/sample - loss: 0.0347
- accuracy: 0.9940
Epoch 447/500
14428/14428 [=====] - 3s 241us/sample - loss: 0.0346
- accuracy: 0.9940
Epoch 448/500
14428/14428 [=====] - 3s 236us/sample - loss: 0.0347
- accuracy: 0.9940
Epoch 449/500
14428/14428 [=====] - 4s 261us/sample - loss: 0.0347
- accuracy: 0.9940
Epoch 450/500
14428/14428 [=====] - 4s 243us/sample - loss: 0.0348
- accuracy: 0.9940
Epoch 451/500
14428/14428 [=====] - 3s 239us/sample - loss: 0.0347
- accuracy: 0.9940
Epoch 452/500
```

```
14428/14428 [=====] - 4s 247us/sample - loss: 0.0347
- accuracy: 0.9940
Epoch 453/500
14428/14428 [=====] - 4s 246us/sample - loss: 0.0348
- accuracy: 0.9940
Epoch 454/500
14428/14428 [=====] - 4s 258us/sample - loss: 0.0347
- accuracy: 0.9940
Epoch 455/500
14428/14428 [=====] - 4s 247us/sample - loss: 0.0348
- accuracy: 0.9940
Epoch 456/500
14428/14428 [=====] - 3s 238us/sample - loss: 0.0346
- accuracy: 0.9940
Epoch 457/500
14428/14428 [=====] - 4s 245us/sample - loss: 0.0346
- accuracy: 0.9940
Epoch 458/500
14428/14428 [=====] - 3s 230us/sample - loss: 0.0346
- accuracy: 0.9940
Epoch 459/500
14428/14428 [=====] - 4s 256us/sample - loss: 0.0347
- accuracy: 0.9940
Epoch 460/500
14428/14428 [=====] - 4s 248us/sample - loss: 0.0348
```

```
- accuracy: 0.9940
Epoch 461/500
14428/14428 [=====] - 3s 241us/sample - loss: 0.0347
- accuracy: 0.9940
Epoch 462/500
14428/14428 [=====] - 5s 347us/sample - loss: 0.0347
- accuracy: 0.9940
Epoch 463/500
14428/14428 [=====] - 3s 234us/sample - loss: 0.0347
- accuracy: 0.9940
Epoch 464/500
14428/14428 [=====] - 9s 592us/sample - loss: 0.0348
- accuracy: 0.9940
Epoch 465/500
14428/14428 [=====] - 5s 376us/sample - loss: 0.0348
- accuracy: 0.9940
Epoch 466/500
14428/14428 [=====] - 7s 477us/sample - loss: 0.0349
- accuracy: 0.9940
Epoch 467/500
14428/14428 [=====] - 3s 203us/sample - loss: 0.0347
- accuracy: 0.9940
Epoch 468/500
14428/14428 [=====] - 3s 219us/sample - loss: 0.0347
- accuracy: 0.9940
```

```
Epoch 469/500
14428/14428 [=====] - 4s 296us/sample - loss: 0.0345
- accuracy: 0.9940
Epoch 470/500
14428/14428 [=====] - 3s 220us/sample - loss: 0.0348
- accuracy: 0.9940
Epoch 471/500
14428/14428 [=====] - 5s 314us/sample - loss: 0.0346
- accuracy: 0.9940
Epoch 472/500
14428/14428 [=====] - 3s 205us/sample - loss: 0.0346
- accuracy: 0.9940
Epoch 473/500
14428/14428 [=====] - 5s 358us/sample - loss: 0.0346
- accuracy: 0.9940
Epoch 474/500
14428/14428 [=====] - 3s 232us/sample - loss: 0.0347
- accuracy: 0.9940
Epoch 475/500
14428/14428 [=====] - 6s 405us/sample - loss: 0.0349
- accuracy: 0.9940
Epoch 476/500
14428/14428 [=====] - 3s 219us/sample - loss: 0.0345
- accuracy: 0.9940
Epoch 477/500
```

```
14428/14428 [=====] - 5s 325us/sample - loss: 0.0346
- accuracy: 0.9940
Epoch 478/500
14428/14428 [=====] - 6s 405us/sample - loss: 0.0348
- accuracy: 0.9940
Epoch 479/500
14428/14428 [=====] - 3s 221us/sample - loss: 0.0347
- accuracy: 0.9940
Epoch 480/500
14428/14428 [=====] - 5s 352us/sample - loss: 0.0346
- accuracy: 0.9940
Epoch 481/500
14428/14428 [=====] - 3s 215us/sample - loss: 0.0347
- accuracy: 0.9940
Epoch 482/500
14428/14428 [=====] - 5s 381us/sample - loss: 0.0346
- accuracy: 0.9940
Epoch 483/500
14428/14428 [=====] - 4s 244us/sample - loss: 0.0345
- accuracy: 0.9940
Epoch 484/500
14428/14428 [=====] - 3s 192us/sample - loss: 0.0345
- accuracy: 0.9940
Epoch 485/500
14428/14428 [=====] - 6s 408us/sample - loss: 0.0346
```

```
- accuracy: 0.9940
Epoch 486/500
14428/14428 [=====] - 5s 379us/sample - loss: 0.0347
- accuracy: 0.9940
Epoch 487/500
14428/14428 [=====] - 4s 274us/sample - loss: 0.0346
- accuracy: 0.9940
Epoch 488/500
14428/14428 [=====] - 3s 192us/sample - loss: 0.0345
- accuracy: 0.9940
Epoch 489/500
14428/14428 [=====] - 7s 474us/sample - loss: 0.0346
- accuracy: 0.9940
Epoch 490/500
14428/14428 [=====] - 3s 231us/sample - loss: 0.0347
- accuracy: 0.9940
Epoch 491/500
14428/14428 [=====] - 4s 294us/sample - loss: 0.0347
- accuracy: 0.9940
Epoch 492/500
14428/14428 [=====] - 5s 329us/sample - loss: 0.0346
- accuracy: 0.9940
Epoch 493/500
14428/14428 [=====] - 3s 177us/sample - loss: 0.0345
- accuracy: 0.9940
```



```
Epoch 494/500
14428/14428 [=====] - 5s 331us/sample - loss: 0.0346
- accuracy: 0.9940
Epoch 495/500
14428/14428 [=====] - 4s 305us/sample - loss: 0.0347
- accuracy: 0.9940
Epoch 496/500
14428/14428 [=====] - 4s 309us/sample - loss: 0.0347
- accuracy: 0.9940
Epoch 497/500
14428/14428 [=====] - 3s 228us/sample - loss: 0.0345
- accuracy: 0.9940
Epoch 498/500
14428/14428 [=====] - 5s 345us/sample - loss: 0.0344
- accuracy: 0.9940
Epoch 499/500
14428/14428 [=====] - 2s 156us/sample - loss: 0.0344
- accuracy: 0.9940
Epoch 500/500
14428/14428 [=====] - 4s 260us/sample - loss: 0.0345
- accuracy: 0.9940
3594/3594 [=====] - 1s 142us/sample
```



confusion\_matrix FinalTest:

True Negatives: 3562

False Positives: 0

False Negatives: 32

True Positives: 0

Average threshold\_rt Final Test: 0.02

Average precision\_rt Final Test: 0.02

Average recall\_rt Final Test: 0.2

End running time FinalTest Evaluation: 210508\_004912  
, \*\*\*\*\*.

Process finished with exit code 0