```
import torch
torch.manual_seed(17)

import numpy as np
from torchsummary import summary
from tqdm import tqdm
import matplotlib.pyplot as plt

from DatasetLoader import DatasetFetcher
from project_model import *

# if torch.backends.mps.is_available():
#     mps_device = torch.device("mps")
#     x = torch.ones(1, device=mps_device)
#     print (x)
# else:
#     print ("MPS device not found.")

device = torch.device("cuda" if torch.cuda.is_available() else "cpu")
print(device)
```

```
cuda
```

```
# Fetching Dataset
df = DatasetFetcher(dataset = "CIFAR10", batch_size = 128)
df.addHorizontalFlipping()
#df.addVerticalFlipping()
df.addRandomCrop(size = 32, padding = 4)
#df.addAutoAugmentation()
#df.addHistogramEqualization()
df.addNormalizer()
#df.addGaussianNoise()
trainLoader, testLoader = df.getLoaders()
```

```
Initializing fetching CIFAR10 dataset using torchvision
Files already downloaded and verified
Files already downloaded and verified
Files already downloaded and verified
```

```
# Get Model
#model = ResNet(BasicBlock, 32, 4, [4, 4, 4, 2], 10, bias=True)
model = project1_model()
model = model.to(device)
print(summary(model, input_size = (3, 32, 32)))
```

```
----------------------------------------------------------------
        Layer (type)               Output Shape         Param #
================================================================
            Conv2d-1          [-1, 32, 32, 32]             896
       BatchNorm2d-2          [-1, 32, 32, 32]              64
            Conv2d-3          [-1, 32, 32, 32]           9,248
```

BatchNorm2d-4	[-1, 32, 32, 32]	64
Conv2d-5	[-1, 32, 32, 32]	9,248
BatchNorm2d-6	[-1, 32, 32, 32]	64
BasicBlock-7	[-1, 32, 32, 32]	0
Conv2d-8	[-1, 32, 32, 32]	9,248
BatchNorm2d-9	[-1, 32, 32, 32]	64
Conv2d-10	[-1, 32, 32, 32]	9,248
BatchNorm2d-11	[-1, 32, 32, 32]	64
BasicBlock-12	[-1, 32, 32, 32]	0
Conv2d-13	[-1, 32, 32, 32]	9,248
BatchNorm2d-14	[-1, 32, 32, 32]	64
Conv2d-15	[-1, 32, 32, 32]	9,248
BatchNorm2d-16	[-1, 32, 32, 32]	64
BasicBlock-17	[-1, 32, 32, 32]	0
Conv2d-18	[-1, 32, 32, 32]	9,248
BatchNorm2d-19	[-1, 32, 32, 32]	64
Conv2d-20	[-1, 32, 32, 32]	9,248
BatchNorm2d-21	[-1, 32, 32, 32]	64
BasicBlock-22	[-1, 32, 32, 32]	0
Conv2d-23	[-1, 64, 16, 16]	18,496
BatchNorm2d-24	[-1, 64, 16, 16]	128
Conv2d-25	[-1, 64, 16, 16]	36,928
BatchNorm2d-26	[-1, 64, 16, 16]	128
Conv2d-27	[-1, 64, 16, 16]	2,112
BatchNorm2d-28	[-1, 64, 16, 16]	128
BasicBlock-29	[-1, 64, 16, 16]	0
Conv2d-30	[-1, 64, 16, 16]	36,928
BatchNorm2d-31	[-1, 64, 16, 16]	128
Conv2d-32	[-1, 64, 16, 16]	36,928
BatchNorm2d-33	[-1, 64, 16, 16]	128
BasicBlock-34	[-1, 64, 16, 16]	0
Conv2d-35	[-1, 64, 16, 16]	36,928
BatchNorm2d-36	[-1, 64, 16, 16]	128
Conv2d-37	[-1, 64, 16, 16]	36,928
BatchNorm2d-38	[-1, 64, 16, 16]	128
BasicBlock-39	[-1, 64, 16, 16]	0
Conv2d-40	[-1, 64, 16, 16]	36,928
BatchNorm2d-41	[-1, 64, 16, 16]	128
Conv2d-42	[-1, 64, 16, 16]	36,928
BatchNorm2d-43	[-1, 64, 16, 16]	128
BasicBlock-44	[-1, 64, 16, 16]	0
Conv2d-45	[-1, 128, 8, 8]	73,856
BatchNorm2d-46	[-1, 128, 8, 8]	256
Conv2d-47	[-1, 128, 8, 8]	147,584
BatchNorm2d-48	[-1, 128, 8, 8]	256
Conv2d-49	[-1, 128, 8, 8]	8,320
BatchNorm2d-50	[-1, 128, 8, 8]	256
BasicBlock-51	[-1, 128, 8, 8]	0
Conv2d-52	[-1, 128, 8, 8]	147,584
BatchNorm2d-53	[-1, 128, 8, 8]	256

```
           Conv2d-54            [-1, 128, 8, 8]         147,584
      BatchNorm2d-55            [-1, 128, 8, 8]             256
       BasicBlock-56            [-1, 128, 8, 8]               0
           Conv2d-57            [-1, 128, 8, 8]         147,584
      BatchNorm2d-58            [-1, 128, 8, 8]             256
           Conv2d-59            [-1, 128, 8, 8]         147,584
      BatchNorm2d-60            [-1, 128, 8, 8]             256
       BasicBlock-61            [-1, 128, 8, 8]               0
           Conv2d-62            [-1, 128, 8, 8]         147,584
      BatchNorm2d-63            [-1, 128, 8, 8]             256
           Conv2d-64            [-1, 128, 8, 8]         147,584
      BatchNorm2d-65            [-1, 128, 8, 8]             256
       BasicBlock-66            [-1, 128, 8, 8]               0
           Conv2d-67            [-1, 256, 4, 4]         295,168
      BatchNorm2d-68            [-1, 256, 4, 4]             512
           Conv2d-69            [-1, 256, 4, 4]         590,080
      BatchNorm2d-70            [-1, 256, 4, 4]             512
           Conv2d-71            [-1, 256, 4, 4]          33,024
      BatchNorm2d-72            [-1, 256, 4, 4]             512
       BasicBlock-73            [-1, 256, 4, 4]               0
           Conv2d-74            [-1, 256, 4, 4]         590,080
      BatchNorm2d-75            [-1, 256, 4, 4]             512
           Conv2d-76            [-1, 256, 4, 4]         590,080
      BatchNorm2d-77            [-1, 256, 4, 4]             512
       BasicBlock-78            [-1, 256, 4, 4]               0
           Linear-79                  [-1, 10]           2,570
================================================================
Total params: 3,576,842
Trainable params: 3,576,842
Non-trainable params: 0
----------------------------------------------------------------
Input size (MB): 0.01
Forward/backward pass size (MB): 10.00
Params size (MB): 13.64
Estimated Total Size (MB): 23.66
----------------------------------------------------------------
None
```

```
EPOCHS = 300
globalBestAccuracy = 0.0
trainingLoss = []
testingLoss = []
trainingAccuracy = []
testingAccuracy = []

# Defining Loss Function, Learning Rate, Weight Decay, Optimizer)
lossFunction = torch.nn.CrossEntropyLoss(reduction = 'sum')
learningRate = 0.1
weightDecay = 0.0001
# optimizer = torch.optim.Adam(model.parameters(), lr=learningRate,
weight_decay=weightDecay)
```

```
# optimizer = torch.optim.Adagrad(model.parameters(), lr=learningRate,
weight_decay=weightDecay)
optimizer = torch.optim.Adadelta(model.parameters(), lr =
learningRate, weight_decay = weightDecay)
scheduler = torch.optim.lr_scheduler.CosineAnnealingLR(optimizer,
EPOCHS, eta_min = learningRate/10.0)
print(model.eval())
trainable_parameters = sum(p.numel() for p in model.parameters() if
p.requires_grad)
print("Total Trainable Parameters : %s"%(trainable_parameters))
if trainable_parameters > 5 * (10 ** 6):
    raise Exception("Model not under budget!")
```

```
ResNet(
  (conv1): Conv2d(3, 32, kernel_size=(3, 3), stride=(1, 1),
padding=(1, 1))
  (bn1): BatchNorm2d(32, eps=1e-05, momentum=0.1, affine=True,
track_running_stats=True)
  (layer1): Sequential(
    (0): BasicBlock(
      (conv1): Conv2d(32, 32, kernel_size=(3, 3), stride=(1, 1),
padding=(1, 1))
      (bn1): BatchNorm2d(32, eps=1e-05, momentum=0.1, affine=True,
track_running_stats=True)
      (conv2): Conv2d(32, 32, kernel_size=(3, 3), stride=(1, 1),
padding=(1, 1))
      (bn2): BatchNorm2d(32, eps=1e-05, momentum=0.1, affine=True,
track_running_stats=True)
      (shortcut): Sequential()
    )
    (1): BasicBlock(
      (conv1): Conv2d(32, 32, kernel_size=(3, 3), stride=(1, 1),
padding=(1, 1))
      (bn1): BatchNorm2d(32, eps=1e-05, momentum=0.1, affine=True,
track_running_stats=True)
      (conv2): Conv2d(32, 32, kernel_size=(3, 3), stride=(1, 1),
padding=(1, 1))
      (bn2): BatchNorm2d(32, eps=1e-05, momentum=0.1, affine=True,
track_running_stats=True)
      (shortcut): Sequential()
    )
    (2): BasicBlock(
      (conv1): Conv2d(32, 32, kernel_size=(3, 3), stride=(1, 1),
padding=(1, 1))
      (bn1): BatchNorm2d(32, eps=1e-05, momentum=0.1, affine=True,
track_running_stats=True)
      (conv2): Conv2d(32, 32, kernel_size=(3, 3), stride=(1, 1),
padding=(1, 1))
      (bn2): BatchNorm2d(32, eps=1e-05, momentum=0.1, affine=True,
track_running_stats=True)
```

```
      (shortcut): Sequential()
    )
    (3): BasicBlock(
      (conv1): Conv2d(32, 32, kernel_size=(3, 3), stride=(1, 1),
padding=(1, 1))
      (bn1): BatchNorm2d(32, eps=1e-05, momentum=0.1, affine=True,
track_running_stats=True)
      (conv2): Conv2d(32, 32, kernel_size=(3, 3), stride=(1, 1),
padding=(1, 1))
      (bn2): BatchNorm2d(32, eps=1e-05, momentum=0.1, affine=True,
track_running_stats=True)
      (shortcut): Sequential()
    )
  )
  (layer2): Sequential(
    (0): BasicBlock(
      (conv1): Conv2d(32, 64, kernel_size=(3, 3), stride=(2, 2),
padding=(1, 1))
      (bn1): BatchNorm2d(64, eps=1e-05, momentum=0.1, affine=True,
track_running_stats=True)
      (conv2): Conv2d(64, 64, kernel_size=(3, 3), stride=(1, 1),
padding=(1, 1))
      (bn2): BatchNorm2d(64, eps=1e-05, momentum=0.1, affine=True,
track_running_stats=True)
      (shortcut): Sequential(
        (0): Conv2d(32, 64, kernel_size=(1, 1), stride=(2, 2))
        (1): BatchNorm2d(64, eps=1e-05, momentum=0.1, affine=True,
track_running_stats=True)
      )
    )
    (1): BasicBlock(
      (conv1): Conv2d(64, 64, kernel_size=(3, 3), stride=(1, 1),
padding=(1, 1))
      (bn1): BatchNorm2d(64, eps=1e-05, momentum=0.1, affine=True,
track_running_stats=True)
      (conv2): Conv2d(64, 64, kernel_size=(3, 3), stride=(1, 1),
padding=(1, 1))
      (bn2): BatchNorm2d(64, eps=1e-05, momentum=0.1, affine=True,
track_running_stats=True)
      (shortcut): Sequential()
    )
    (2): BasicBlock(
      (conv1): Conv2d(64, 64, kernel_size=(3, 3), stride=(1, 1),
padding=(1, 1))
      (bn1): BatchNorm2d(64, eps=1e-05, momentum=0.1, affine=True,
track_running_stats=True)
      (conv2): Conv2d(64, 64, kernel_size=(3, 3), stride=(1, 1),
padding=(1, 1))
      (bn2): BatchNorm2d(64, eps=1e-05, momentum=0.1, affine=True,
track_running_stats=True)
```

```
      (shortcut): Sequential()
    )
    (3): BasicBlock(
      (conv1): Conv2d(64, 64, kernel_size=(3, 3), stride=(1, 1),
padding=(1, 1))
      (bn1): BatchNorm2d(64, eps=1e-05, momentum=0.1, affine=True,
track_running_stats=True)
      (conv2): Conv2d(64, 64, kernel_size=(3, 3), stride=(1, 1),
padding=(1, 1))
      (bn2): BatchNorm2d(64, eps=1e-05, momentum=0.1, affine=True,
track_running_stats=True)
      (shortcut): Sequential()
    )
  )
  (layer3): Sequential(
    (0): BasicBlock(
      (conv1): Conv2d(64, 128, kernel_size=(3, 3), stride=(2, 2),
padding=(1, 1))
      (bn1): BatchNorm2d(128, eps=1e-05, momentum=0.1, affine=True,
track_running_stats=True)
      (conv2): Conv2d(128, 128, kernel_size=(3, 3), stride=(1, 1),
padding=(1, 1))
      (bn2): BatchNorm2d(128, eps=1e-05, momentum=0.1, affine=True,
track_running_stats=True)
      (shortcut): Sequential(
        (0): Conv2d(64, 128, kernel_size=(1, 1), stride=(2, 2))
        (1): BatchNorm2d(128, eps=1e-05, momentum=0.1, affine=True,
track_running_stats=True)
      )
    )
    (1): BasicBlock(
      (conv1): Conv2d(128, 128, kernel_size=(3, 3), stride=(1, 1),
padding=(1, 1))
      (bn1): BatchNorm2d(128, eps=1e-05, momentum=0.1, affine=True,
track_running_stats=True)
      (conv2): Conv2d(128, 128, kernel_size=(3, 3), stride=(1, 1),
padding=(1, 1))
      (bn2): BatchNorm2d(128, eps=1e-05, momentum=0.1, affine=True,
track_running_stats=True)
      (shortcut): Sequential()
    )
    (2): BasicBlock(
      (conv1): Conv2d(128, 128, kernel_size=(3, 3), stride=(1, 1),
padding=(1, 1))
      (bn1): BatchNorm2d(128, eps=1e-05, momentum=0.1, affine=True,
track_running_stats=True)
      (conv2): Conv2d(128, 128, kernel_size=(3, 3), stride=(1, 1),
padding=(1, 1))
      (bn2): BatchNorm2d(128, eps=1e-05, momentum=0.1, affine=True,
track_running_stats=True)
```

```
      (shortcut): Sequential()
    )
    (3): BasicBlock(
      (conv1): Conv2d(128, 128, kernel_size=(3, 3), stride=(1, 1),
padding=(1, 1))
      (bn1): BatchNorm2d(128, eps=1e-05, momentum=0.1, affine=True,
track_running_stats=True)
      (conv2): Conv2d(128, 128, kernel_size=(3, 3), stride=(1, 1),
padding=(1, 1))
      (bn2): BatchNorm2d(128, eps=1e-05, momentum=0.1, affine=True,
track_running_stats=True)
      (shortcut): Sequential()
    )
  )
  (layer4): Sequential(
    (0): BasicBlock(
      (conv1): Conv2d(128, 256, kernel_size=(3, 3), stride=(2, 2),
padding=(1, 1))
      (bn1): BatchNorm2d(256, eps=1e-05, momentum=0.1, affine=True,
track_running_stats=True)
      (conv2): Conv2d(256, 256, kernel_size=(3, 3), stride=(1, 1),
padding=(1, 1))
      (bn2): BatchNorm2d(256, eps=1e-05, momentum=0.1, affine=True,
track_running_stats=True)
      (shortcut): Sequential(
        (0): Conv2d(128, 256, kernel_size=(1, 1), stride=(2, 2))
        (1): BatchNorm2d(256, eps=1e-05, momentum=0.1, affine=True,
track_running_stats=True)
      )
    )
    (1): BasicBlock(
      (conv1): Conv2d(256, 256, kernel_size=(3, 3), stride=(1, 1),
padding=(1, 1))
      (bn1): BatchNorm2d(256, eps=1e-05, momentum=0.1, affine=True,
track_running_stats=True)
      (conv2): Conv2d(256, 256, kernel_size=(3, 3), stride=(1, 1),
padding=(1, 1))
      (bn2): BatchNorm2d(256, eps=1e-05, momentum=0.1, affine=True,
track_running_stats=True)
      (shortcut): Sequential()
    )
  )
  (linear): Linear(in_features=256, out_features=10, bias=True)
)
Total Trainable Parameters : 3576842
```

```
# Training
for i in tqdm(range(EPOCHS)):
    for phase in ['train', 'test']:
        if phase == "train":
```

```
            loader = trainLoader
            model.train()
            optimizer.zero_grad()
        else:
            loader = testLoader
            model.eval()
        runningLoss = 0.0
        runningCorrects = 0
        for images, labels in loader:
            images = images.to(device)
            labels = labels.to(device)
            output = model(images)
            loss = lossFunction(output, labels)
            predicted_labels = torch.argmax(output, dim=1)
            #runningLoss += loss.item()*images.size(0)
            runningLoss += loss.item()
            runningCorrects += torch.sum(predicted_labels ==
labels).float().item()
            if phase == "train":
                loss.backward()
                optimizer.step()
        epochLoss = runningLoss/len(loader.dataset)
        epochAccuracy = runningCorrects/len(loader.dataset)
        if phase == "train":
            scheduler.step()
            trainingLoss.append(epochLoss)
            trainingAccuracy.append(epochAccuracy)
        else:
            testingLoss.append(epochLoss)
            testingAccuracy.append(epochAccuracy)
            if epochAccuracy > globalBestAccuracy:
                globalBestAccuracy = epochAccuracy
                model.saveToDisk()
    print("Training Loss : %s, Testing Loss : %s, Training Accuracy :
%s, Testing Accuracy : %s"\
          %(trainingLoss[-1], testingLoss[-1], trainingAccuracy[-1],
testingAccuracy[-1]))
```

```
  0%|          | 1/300 [00:10<54:13, 10.88s/it]

Training Loss : 1.7951411358642577, Testing Loss : 1.692746573638916,
Training Accuracy : 0.33054, Testing Accuracy : 0.3636

   1%|          | 2/300 [00:21<52:49, 10.64s/it]

Training Loss : 1.5612297006225586, Testing Loss : 1.520288737487793,
Training Accuracy : 0.42178, Testing Accuracy : 0.4466

   1%|          | 3/300 [00:31<52:03, 10.52s/it]
```

```
Training Loss : 1.3706410510253906, Testing Loss : 1.238365475463867,
Training Accuracy : 0.4968, Testing Accuracy : 0.5507

   1%|▏         | 4/300 [00:42<52:02, 10.55s/it]

Training Loss : 1.1678458337402344, Testing Loss : 1.088767654800415,
Training Accuracy : 0.57888, Testing Accuracy : 0.6174

   2%|▏         | 5/300 [00:52<51:06, 10.40s/it]

Training Loss : 1.0163759162902832, Testing Loss : 1.0836276762008668,
Training Accuracy : 0.63632, Testing Accuracy : 0.6355

   2%|▏         | 6/300 [01:02<50:45, 10.36s/it]

Training Loss : 0.9053661726379395, Testing Loss : 0.9289018844604492,
Training Accuracy : 0.68032, Testing Accuracy : 0.6741

   2%|▏         | 7/300 [01:12<50:11, 10.28s/it]

Training Loss : 0.8196306411743164, Testing Loss : 0.8591903965950012,
Training Accuracy : 0.7128, Testing Accuracy : 0.711

   3%|▎         | 8/300 [01:23<50:19, 10.34s/it]

Training Loss : 0.7506084398651123, Testing Loss : 0.7945321262359619,
Training Accuracy : 0.73998, Testing Accuracy : 0.7349

   3%|▎         | 9/300 [01:33<50:02, 10.32s/it]

Training Loss : 0.6904887577056885, Testing Loss : 0.7432852933883667,
Training Accuracy : 0.75912, Testing Accuracy : 0.7482

   3%|▎         | 10/300 [01:43<49:36, 10.26s/it]

Training Loss : 0.6427746990203858, Testing Loss : 0.6883741483688355,
Training Accuracy : 0.77634, Testing Accuracy : 0.7641

   4%|▎         | 11/300 [01:54<49:44, 10.33s/it]

Training Loss : 0.5997042231750488, Testing Loss : 0.6699274181365967,
Training Accuracy : 0.79074, Testing Accuracy : 0.7691

   4%|▍         | 12/300 [02:04<49:40, 10.35s/it]

Training Loss : 0.5718974800872803, Testing Loss : 0.6717713607788086,
Training Accuracy : 0.80272, Testing Accuracy : 0.7793

   4%|▍         | 13/300 [02:14<49:22, 10.32s/it]

Training Loss : 0.5494639170074462, Testing Loss : 0.6019368977069854,
Training Accuracy : 0.81146, Testing Accuracy : 0.7902

   5%|▍         | 14/300 [02:25<49:46, 10.44s/it]
```

Training Loss : 0.5093515206146241, Testing Loss : 0.5906686375617981, Training Accuracy : 0.82332, Testing Accuracy : 0.8015

5%|▌ | 15/300 [02:35<49:20, 10.39s/it]

Training Loss : 0.4893463910675049, Testing Loss : 0.5556375025749206, Training Accuracy : 0.8315, Testing Accuracy : 0.8108

5%|▌ | 16/300 [02:46<49:12, 10.39s/it]

Training Loss : 0.4802028091049194, Testing Loss : 0.5778368944168091, Training Accuracy : 0.83282, Testing Accuracy : 0.8029

6%|▌ | 17/300 [02:56<48:42, 10.33s/it]

Training Loss : 0.4649479853057861, Testing Loss : 0.5361324464797974, Training Accuracy : 0.84054, Testing Accuracy : 0.8216

6%|▌ | 18/300 [03:07<48:59, 10.43s/it]

Training Loss : 0.44515217693328857, Testing Loss : 0.5465827699184418, Training Accuracy : 0.84754, Testing Accuracy : 0.8182

6%|▋ | 19/300 [03:17<48:46, 10.42s/it]

Training Loss : 0.4268755629730225, Testing Loss : 0.5290700602054595, Training Accuracy : 0.851, Testing Accuracy : 0.82

7%|▋ | 20/300 [03:27<48:38, 10.42s/it]

Training Loss : 0.4150568953323364, Testing Loss : 0.5136801736831665, Training Accuracy : 0.85782, Testing Accuracy : 0.8292

7%|▋ | 21/300 [03:38<48:15, 10.38s/it]

Training Loss : 0.3922425633239746, Testing Loss : 0.5079901860237122, Training Accuracy : 0.866, Testing Accuracy : 0.8295

7%|▋ | 22/300 [03:48<47:51, 10.33s/it]

Training Loss : 0.3817224591445923, Testing Loss : 0.5079442212104798, Training Accuracy : 0.87046, Testing Accuracy : 0.8345

8%|▊ | 23/300 [03:59<48:12, 10.44s/it]

Training Loss : 0.3665723796463013, Testing Loss : 0.4976572632789612, Training Accuracy : 0.87542, Testing Accuracy : 0.8357

8%|▊ | 24/300 [04:09<48:05, 10.45s/it]

Training Loss : 0.3605091110229492, Testing Loss : 0.5093645031929016, Training Accuracy : 0.8754, Testing Accuracy : 0.8403

8%|▊ | 25/300 [04:19<47:43, 10.41s/it]

Training Loss : 0.3437049884033203, Testing Loss : 0.4993387306213379,
Training Accuracy : 0.88046, Testing Accuracy : 0.8359

9%|▉ | 26/300 [04:30<47:41, 10.44s/it]

Training Loss : 0.3376126174545288, Testing Loss : 0.4996614948272705,
Training Accuracy : 0.88296, Testing Accuracy : 0.8396

9%|▉ | 27/300 [04:40<47:31, 10.44s/it]

Training Loss : 0.3269456971359253, Testing Loss : 0.456331943321228,
Training Accuracy : 0.88674, Testing Accuracy : 0.852

9%|▉ | 28/300 [04:51<47:04, 10.38s/it]

Training Loss : 0.3168454080581665, Testing Loss : 0.5142217005729676,
Training Accuracy : 0.8917, Testing Accuracy : 0.8442

10%|▉ | 29/300 [05:01<47:00, 10.41s/it]

Training Loss : 0.3120491421508789, Testing Loss : 0.4396510811805725,
Training Accuracy : 0.89232, Testing Accuracy : 0.8572

10%|▉ | 30/300 [05:11<46:28, 10.33s/it]

Training Loss : 0.29260259506225583, Testing Loss :
0.44834492931365966, Training Accuracy : 0.8996, Testing Accuracy :
0.8554

10%|▉ | 31/300 [05:22<46:24, 10.35s/it]

Training Loss : 0.28838824380874634, Testing Loss :
0.45911033511161803, Training Accuracy : 0.901, Testing Accuracy :
0.8491

11%|▉ | 32/300 [05:32<46:16, 10.36s/it]

Training Loss : 0.2823093529510498, Testing Loss :
0.44096882619857786, Training Accuracy : 0.90256, Testing Accuracy :
0.8591

11%|▉ | 33/300 [05:42<46:10, 10.38s/it]

Training Loss : 0.27531099365234374, Testing Loss :
0.4473881653308868, Training Accuracy : 0.90452, Testing Accuracy :
0.8602

11%|▉ | 34/300 [05:53<45:52, 10.35s/it]

Training Loss : 0.25677765813827513, Testing Loss :
0.4562482409954071, Training Accuracy : 0.9107, Testing Accuracy :
0.8573

12%|▉ | 35/300 [06:03<45:13, 10.24s/it]

```
Training Loss : 0.2519486199188232, Testing Loss :
0.42228871793746947, Training Accuracy : 0.9137, Testing Accuracy :
0.8669

  12%|█         | 36/300 [06:13<45:33, 10.35s/it]

Training Loss : 0.24814024290084838, Testing Loss :
0.4511760392189026, Training Accuracy : 0.91434, Testing Accuracy :
0.8584

  12%|█         | 37/300 [06:24<45:46, 10.44s/it]

Training Loss : 0.2508522618865967, Testing Loss : 0.4444340203046799,
Training Accuracy : 0.91342, Testing Accuracy : 0.8629

  13%|█         | 38/300 [06:34<45:35, 10.44s/it]

Training Loss : 0.23767660995483397, Testing Loss :
0.43273090069293974, Training Accuracy : 0.91814, Testing Accuracy :
0.8723

  13%|█         | 39/300 [06:45<45:01, 10.35s/it]

Training Loss : 0.22776288328170777, Testing Loss :
0.4276520311355591, Training Accuracy : 0.9208, Testing Accuracy :
0.8713

  13%|█         | 40/300 [06:55<44:51, 10.35s/it]

Training Loss : 0.22253683446884157, Testing Loss :
0.40925867705345154, Training Accuracy : 0.92306, Testing Accuracy :
0.8721

  14%|█         | 41/300 [07:05<44:27, 10.30s/it]

Training Loss : 0.22128228633880614, Testing Loss :
0.4435343227863312, Training Accuracy : 0.92314, Testing Accuracy :
0.866

  14%|█         | 42/300 [07:15<44:07, 10.26s/it]

Training Loss : 0.21207313062667846, Testing Loss :
0.4194082322239876, Training Accuracy : 0.92656, Testing Accuracy :
0.8721

  14%|█         | 43/300 [07:25<43:40, 10.19s/it]

Training Loss : 0.2005308526802063, Testing Loss : 0.4197782350540161,
Training Accuracy : 0.92978, Testing Accuracy : 0.8776

  15%|█         | 44/300 [07:36<43:41, 10.24s/it]
```

```
Training Loss : 0.19745427023887635, Testing Loss :
0.4279255210161209, Training Accuracy : 0.9307, Testing Accuracy :
0.8764

  15%|█         | 45/300 [07:46<44:00, 10.35s/it]

Training Loss : 0.19703816329956056, Testing Loss :
0.3765224381923676, Training Accuracy : 0.93066, Testing Accuracy :
0.8838

  15%|█         | 46/300 [07:57<43:46, 10.34s/it]

Training Loss : 0.18447426275253295, Testing Loss :
0.40295507211685183, Training Accuracy : 0.9365, Testing Accuracy :
0.8883

  16%|█         | 47/300 [08:07<44:00, 10.43s/it]

Training Loss : 0.17884826389312744, Testing Loss :
0.4192287038803101, Training Accuracy : 0.9382, Testing Accuracy :
0.8774

  16%|█         | 48/300 [08:18<43:48, 10.43s/it]

Training Loss : 0.17478482813835144, Testing Loss :
0.40099174585342406, Training Accuracy : 0.93922, Testing Accuracy :
0.8845

  16%|█         | 49/300 [08:28<43:38, 10.43s/it]

Training Loss : 0.16657859791755678, Testing Loss :
0.4147273742675781, Training Accuracy : 0.9412, Testing Accuracy :
0.8839

  17%|█         | 50/300 [08:39<43:34, 10.46s/it]

Training Loss : 0.16507603764533996, Testing Loss :
0.4095921042442322, Training Accuracy : 0.9426, Testing Accuracy :
0.8847

  17%|█         | 51/300 [08:49<43:26, 10.47s/it]

Training Loss : 0.16012362151145934, Testing Loss :
0.4226769399166107, Training Accuracy : 0.94454, Testing Accuracy :
0.8814

  17%|█         | 52/300 [08:59<42:58, 10.40s/it]

Training Loss : 0.16164628502845765, Testing Loss :
0.4531665635585785, Training Accuracy : 0.94348, Testing Accuracy :
0.8728

  18%|█         | 53/300 [09:10<42:38, 10.36s/it]
```

Training Loss : 0.1639312181663513, Testing Loss :
0.40102440576553344, Training Accuracy : 0.94186, Testing Accuracy :
0.8829

  18%|█ | 54/300 [09:20<42:49, 10.45s/it]

Training Loss : 0.15583972115516662, Testing Loss :
0.4414635854244232, Training Accuracy : 0.9462, Testing Accuracy :
0.8821

  18%|█ | 55/300 [09:31<42:42, 10.46s/it]

Training Loss : 0.14897018934249878, Testing Loss :
0.4192773984909058, Training Accuracy : 0.9476, Testing Accuracy :
0.8853

  19%|█ | 56/300 [09:41<41:52, 10.30s/it]

Training Loss : 0.15468348160743714, Testing Loss :
0.4211468006134033, Training Accuracy : 0.94544, Testing Accuracy :
0.8807

  19%|█ | 57/300 [09:51<42:08, 10.40s/it]

Training Loss : 0.1470262101173401, Testing Loss : 0.4664691264152527,
Training Accuracy : 0.94958, Testing Accuracy : 0.8834

  19%|█ | 58/300 [10:01<41:43, 10.35s/it]

Training Loss : 0.14114347593307494, Testing Loss :
0.43302310013771056, Training Accuracy : 0.95094, Testing Accuracy :
0.882

  20%|█ | 59/300 [10:12<41:50, 10.42s/it]

Training Loss : 0.13702902708053588, Testing Loss : 0.426473724257946,
Training Accuracy : 0.951, Testing Accuracy : 0.8848

  20%|█ | 60/300 [10:22<41:39, 10.42s/it]

Training Loss : 0.1353740165758133, Testing Loss : 0.4621371622085571,
Training Accuracy : 0.95334, Testing Accuracy : 0.8888

  20%|█ | 61/300 [10:33<41:42, 10.47s/it]

Training Loss : 0.13270662973880767, Testing Loss :
0.4086137737751007, Training Accuracy : 0.9536, Testing Accuracy :
0.8889

  21%|█ | 62/300 [10:44<41:39, 10.50s/it]

Training Loss : 0.12682408004283904, Testing Loss :
0.44298542346954345, Training Accuracy : 0.9562, Testing Accuracy :
0.8896

21%|██ | 63/300 [10:54<41:10, 10.42s/it]

Training Loss : 0.12239055022716522, Testing Loss :
0.45635451192855836, Training Accuracy : 0.9567, Testing Accuracy :
0.8863

21%|██ | 64/300 [11:04<40:53, 10.39s/it]

Training Loss : 0.12232946983337402, Testing Loss :
0.4155544451713562, Training Accuracy : 0.9567, Testing Accuracy :
0.8932

22%|██ | 65/300 [11:15<40:45, 10.41s/it]

Training Loss : 0.12149939393043518, Testing Loss :
0.4150404518604279, Training Accuracy : 0.95746, Testing Accuracy :
0.8923

22%|██ | 66/300 [11:25<40:45, 10.45s/it]

Training Loss : 0.11370071314811707, Testing Loss :
0.4280826301574707, Training Accuracy : 0.96058, Testing Accuracy :
0.8938

22%|██ | 67/300 [11:36<40:35, 10.45s/it]

Training Loss : 0.11585904398202897, Testing Loss : 0.425615607213974,
Training Accuracy : 0.95872, Testing Accuracy : 0.8855

23%|██ | 68/300 [11:46<40:50, 10.56s/it]

Training Loss : 0.11738001909732819, Testing Loss :
0.48051282548904417, Training Accuracy : 0.95834, Testing Accuracy :
0.8866

23%|██ | 69/300 [11:57<40:38, 10.56s/it]

Training Loss : 0.10771446712970734, Testing Loss :
0.4247633017539978, Training Accuracy : 0.96222, Testing Accuracy :
0.8942

23%|██ | 70/300 [12:07<40:06, 10.46s/it]

Training Loss : 0.1028798056268692, Testing Loss :
0.47549128332138063, Training Accuracy : 0.96408, Testing Accuracy :
0.8912

24%|██ | 71/300 [12:18<40:01, 10.49s/it]

Training Loss : 0.11563026232719421, Testing Loss :
0.43182140436172484, Training Accuracy : 0.959, Testing Accuracy :
0.8871

24%|██ | 72/300 [12:28<39:59, 10.53s/it]

Training Loss : 0.10941449004650115, Testing Loss :
0.4608970732688904, Training Accuracy : 0.96066, Testing Accuracy :
0.8948

  24%|██ | 73/300 [12:39<39:54, 10.55s/it]

Training Loss : 0.10456739436388016, Testing Loss :
0.44393473320007326, Training Accuracy : 0.96366, Testing Accuracy :
0.8937

  25%|██ | 74/300 [12:50<39:40, 10.54s/it]

Training Loss : 0.0989403601193428, Testing Loss : 0.4899861585617065,
Training Accuracy : 0.96532, Testing Accuracy : 0.892

  25%|██ | 75/300 [13:00<39:12, 10.46s/it]

Training Loss : 0.10325655776500701, Testing Loss :
0.41634567975997927, Training Accuracy : 0.9642, Testing Accuracy :
0.8934

  25%|██ | 76/300 [13:10<38:57, 10.43s/it]

Training Loss : 0.09928249005794525, Testing Loss :
0.4747619641304016, Training Accuracy : 0.96518, Testing Accuracy :
0.8981

  26%|██ | 77/300 [13:21<39:05, 10.52s/it]

Training Loss : 0.10011548398256302, Testing Loss :
0.43824130182266235, Training Accuracy : 0.9647, Testing Accuracy :
0.8913

  26%|██ | 78/300 [13:32<39:01, 10.55s/it]

Training Loss : 0.10007356414318085, Testing Loss :
0.4667572910308838, Training Accuracy : 0.96478, Testing Accuracy :
0.8932

  26%|██ | 79/300 [13:42<38:31, 10.46s/it]

Training Loss : 0.10310349433422089, Testing Loss :
0.4469586892127991, Training Accuracy : 0.96366, Testing Accuracy :
0.8933

  27%|██ | 80/300 [13:52<38:11, 10.42s/it]

Training Loss : 0.08935105565309524, Testing Loss :
0.5050864171028138, Training Accuracy : 0.96852, Testing Accuracy :
0.8928

  27%|██ | 81/300 [14:02<37:59, 10.41s/it]

```
Training Loss : 0.08772455331802369, Testing Loss :
0.43758429641723634, Training Accuracy : 0.96984, Testing Accuracy :
0.899

  27%|██        | 82/300 [14:13<37:41, 10.37s/it]

Training Loss : 0.0821779188990593, Testing Loss :
0.44722110080718996, Training Accuracy : 0.97068, Testing Accuracy :
0.9021

  28%|██        | 83/300 [14:23<37:33, 10.38s/it]

Training Loss : 0.08081072839140892, Testing Loss :
0.46186531188488006, Training Accuracy : 0.97194, Testing Accuracy :
0.8983

  28%|██        | 84/300 [14:34<37:42, 10.47s/it]

Training Loss : 0.09048836214303971, Testing Loss :
0.4746091826438904, Training Accuracy : 0.9689, Testing Accuracy :
0.8929

  28%|██        | 85/300 [14:44<37:36, 10.50s/it]

Training Loss : 0.07787074360609055, Testing Loss :
0.4616936924934387, Training Accuracy : 0.97276, Testing Accuracy :
0.899

  29%|██        | 86/300 [14:55<37:28, 10.51s/it]

Training Loss : 0.08415347850799561, Testing Loss :
0.4422626142501831, Training Accuracy : 0.97058, Testing Accuracy :
0.8911

  29%|██        | 87/300 [15:06<37:39, 10.61s/it]

Training Loss : 0.08641394812583923, Testing Loss :
0.4907865707397461, Training Accuracy : 0.96968, Testing Accuracy :
0.8925

  29%|██        | 88/300 [15:16<37:07, 10.51s/it]

Training Loss : 0.08884365726232529, Testing Loss :
0.4751924719810486, Training Accuracy : 0.96832, Testing Accuracy :
0.8908

  30%|██        | 89/300 [15:26<36:48, 10.47s/it]

Training Loss : 0.08249097654819489, Testing Loss :
0.47743217630386353, Training Accuracy : 0.97082, Testing Accuracy :
0.898

  30%|██        | 90/300 [15:37<36:28, 10.42s/it]
```

Training Loss : 0.07949387855052947, Testing Loss :
0.49930882625579837, Training Accuracy : 0.9728, Testing Accuracy :
0.8899

30%|███ | 91/300 [15:47<36:36, 10.51s/it]

Training Loss : 0.07800065594434738, Testing Loss :
0.4909558123588562, Training Accuracy : 0.97248, Testing Accuracy :
0.8979

31%|███ | 92/300 [15:58<36:08, 10.42s/it]

Training Loss : 0.07258285277962685, Testing Loss :
0.48015405139923095, Training Accuracy : 0.9749, Testing Accuracy :
0.8986

31%|███ | 93/300 [16:08<35:56, 10.42s/it]

Training Loss : 0.06569578203439713, Testing Loss :
0.47271319389343264, Training Accuracy : 0.97746, Testing Accuracy :
0.903

31%|███ | 94/300 [16:19<36:06, 10.52s/it]

Training Loss : 0.06174455142021179, Testing Loss : 0.499684951877594,
Training Accuracy : 0.9784, Testing Accuracy : 0.9027

32%|███ | 95/300 [16:29<35:59, 10.54s/it]

Training Loss : 0.06554986001014709, Testing Loss :
0.4421895939826965, Training Accuracy : 0.97672, Testing Accuracy :
0.9033

32%|███ | 96/300 [16:40<35:34, 10.47s/it]

Training Loss : 0.06330120646715164, Testing Loss :
0.48952414045333864, Training Accuracy : 0.97864, Testing Accuracy :
0.8999

32%|███ | 97/300 [16:50<35:16, 10.43s/it]

Training Loss : 0.06251455966114998, Testing Loss :
0.4553373227119446, Training Accuracy : 0.97836, Testing Accuracy :
0.8988

33%|███ | 98/300 [17:01<35:18, 10.49s/it]

Training Loss : 0.06727564886808396, Testing Loss :
0.5204562437057495, Training Accuracy : 0.97666, Testing Accuracy :
0.9014

33%|███ | 99/300 [17:11<35:10, 10.50s/it]

Training Loss : 0.0647773727247119, Testing Loss : 0.4808602416038513, Training Accuracy : 0.97814, Testing Accuracy : 0.9016

33%|███ | 100/300 [17:22<35:02, 10.51s/it]

Training Loss : 0.06526373510718346, Testing Loss : 0.4726143671989441, Training Accuracy : 0.97806, Testing Accuracy : 0.901

34%|███ | 101/300 [17:32<34:51, 10.51s/it]

Training Loss : 0.062107940980792045, Testing Loss : 0.49326655435562133, Training Accuracy : 0.97826, Testing Accuracy : 0.8978

34%|███ | 102/300 [17:43<34:45, 10.53s/it]

Training Loss : 0.06533310460805893, Testing Loss : 0.4809550436973572, Training Accuracy : 0.97698, Testing Accuracy : 0.9005

34%|███ | 103/300 [17:53<34:32, 10.52s/it]

Training Loss : 0.0646979412472248, Testing Loss : 0.4598232104301453, Training Accuracy : 0.9768, Testing Accuracy : 0.9023

35%|███ | 104/300 [18:04<34:07, 10.45s/it]

Training Loss : 0.053702492629885676, Testing Loss : 0.4985827211380005, Training Accuracy : 0.98146, Testing Accuracy : 0.9021

35%|███ | 105/300 [18:14<33:29, 10.30s/it]

Training Loss : 0.05467126385569573, Testing Loss : 0.5160320031166077, Training Accuracy : 0.98144, Testing Accuracy : 0.8957

35%|███ | 106/300 [18:24<33:44, 10.43s/it]

Training Loss : 0.05390193536758423, Testing Loss : 0.45773629188537596, Training Accuracy : 0.98106, Testing Accuracy : 0.9086

36%|███ | 107/300 [18:35<33:28, 10.41s/it]

Training Loss : 0.05012888917326927, Testing Loss : 0.49874521617889406, Training Accuracy : 0.98228, Testing Accuracy : 0.9012

36%|███ | 108/300 [18:45<33:32, 10.48s/it]

Training Loss : 0.04941538954705, Testing Loss : 0.4953697622299194, Training Accuracy : 0.98308, Testing Accuracy : 0.905

36%|███ | 109/300 [18:56<33:35, 10.55s/it]

Training Loss : 0.05024148705482483, Testing Loss :
0.49403362460136413, Training Accuracy : 0.98244, Testing Accuracy :
0.9018

37%|███ | 110/300 [19:06<33:18, 10.52s/it]

Training Loss : 0.04905869375944138, Testing Loss :
0.5112610824584961, Training Accuracy : 0.9826, Testing Accuracy :
0.9021

37%|███ | 111/300 [19:17<32:57, 10.46s/it]

Training Loss : 0.05098240814268589, Testing Loss : 0.492417001247406,
Training Accuracy : 0.98226, Testing Accuracy : 0.9058

37%|███ | 112/300 [19:27<32:39, 10.42s/it]

Training Loss : 0.052703899506926534, Testing Loss :
0.5643254614830017, Training Accuracy : 0.98216, Testing Accuracy :
0.8972

38%|███ | 113/300 [19:38<32:26, 10.41s/it]

Training Loss : 0.052903794271945956, Testing Loss :
0.48822369232177737, Training Accuracy : 0.98174, Testing Accuracy :
0.903

38%|███ | 114/300 [19:48<32:07, 10.36s/it]

Training Loss : 0.04730163665175438, Testing Loss :
0.5278284416198731, Training Accuracy : 0.9838, Testing Accuracy :
0.9036

38%|███ | 115/300 [19:58<32:14, 10.46s/it]

Training Loss : 0.04654518364846706, Testing Loss : 0.507647756576538,
Training Accuracy : 0.98382, Testing Accuracy : 0.9025

39%|███ | 116/300 [20:09<32:05, 10.46s/it]

Training Loss : 0.05089654639810324, Testing Loss :
0.4695054349899292, Training Accuracy : 0.98264, Testing Accuracy :
0.9043

39%|███ | 117/300 [20:20<32:11, 10.56s/it]

Training Loss : 0.04610621128201485, Testing Loss : 0.515940064239502,
Training Accuracy : 0.984, Testing Accuracy : 0.9058

39%|███ | 118/300 [20:30<31:59, 10.55s/it]

Training Loss : 0.04224279217541218, Testing Loss :
0.5253180205345154, Training Accuracy : 0.98596, Testing Accuracy :
0.9025

  40%|████ | 119/300 [20:41<31:48, 10.55s/it]

Training Loss : 0.04586281417876482, Testing Loss :
0.5474218700408936, Training Accuracy : 0.98454, Testing Accuracy :
0.9046

  40%|████ | 120/300 [20:51<31:29, 10.50s/it]

Training Loss : 0.04506816298544407, Testing Loss :
0.5218454277992248, Training Accuracy : 0.98428, Testing Accuracy :
0.905

  40%|████ | 121/300 [21:02<31:27, 10.55s/it]

Training Loss : 0.045039221791028976, Testing Loss :
0.49029720592498777, Training Accuracy : 0.98436, Testing Accuracy :
0.9108

  41%|████ | 122/300 [21:12<31:20, 10.56s/it]

Training Loss : 0.0411380924525857, Testing Loss : 0.539423429107666,
Training Accuracy : 0.98528, Testing Accuracy : 0.9057

  41%|████ | 123/300 [21:23<31:02, 10.52s/it]

Training Loss : 0.04152324782162905, Testing Loss :
0.45450494785308837, Training Accuracy : 0.986, Testing Accuracy :
0.9108

  41%|████ | 124/300 [21:33<30:40, 10.46s/it]

Training Loss : 0.035841013439893724, Testing Loss :
0.5624178886413574, Training Accuracy : 0.9878, Testing Accuracy :
0.9067

  42%|████ | 125/300 [21:44<30:56, 10.61s/it]

Training Loss : 0.03508053525328636, Testing Loss : 0.531000172996521,
Training Accuracy : 0.98832, Testing Accuracy : 0.9072

  42%|████ | 126/300 [21:55<30:42, 10.59s/it]

Training Loss : 0.042333534992933276, Testing Loss :
0.5480935493469238, Training Accuracy : 0.98626, Testing Accuracy :
0.9034

  42%|████ | 127/300 [22:05<30:17, 10.51s/it]

Training Loss : 0.044322222068905834, Testing Loss :
0.5277902843952179, Training Accuracy : 0.98514, Testing Accuracy :
0.903

  43%|████ | 128/300 [22:16<30:10, 10.53s/it]

Training Loss : 0.04143735721945763, Testing Loss :
0.5157088809967041, Training Accuracy : 0.98588, Testing Accuracy :
0.9083

  43%|████ | 129/300 [22:26<30:05, 10.56s/it]

Training Loss : 0.04365853654921055, Testing Loss :
0.5312006260871888, Training Accuracy : 0.98532, Testing Accuracy :
0.9049

  43%|████ | 130/300 [22:37<29:51, 10.54s/it]

Training Loss : 0.039823025320768354, Testing Loss :
0.4931180459022522, Training Accuracy : 0.98692, Testing Accuracy :
0.9115

  44%|████ | 131/300 [22:47<29:32, 10.49s/it]

Training Loss : 0.035671596021354196, Testing Loss :
0.5520699047088623, Training Accuracy : 0.9874, Testing Accuracy :
0.906

  44%|████ | 132/300 [22:58<29:23, 10.50s/it]

Training Loss : 0.03610202629119158, Testing Loss :
0.5016241855621338, Training Accuracy : 0.98756, Testing Accuracy :
0.9081

  44%|████ | 133/300 [23:08<29:30, 10.60s/it]

Training Loss : 0.03514769563853741, Testing Loss :
0.5388061421394348, Training Accuracy : 0.98778, Testing Accuracy :
0.9058

  45%|████ | 134/300 [23:19<29:25, 10.63s/it]

Training Loss : 0.03120402637884021, Testing Loss :
0.4861003609657288, Training Accuracy : 0.98888, Testing Accuracy :
0.9115

  45%|████ | 135/300 [23:30<29:20, 10.67s/it]

Training Loss : 0.03161607405766845, Testing Loss :
0.5560290719985962, Training Accuracy : 0.98944, Testing Accuracy :
0.9102

  45%|████ | 136/300 [23:41<29:13, 10.69s/it]

Training Loss : 0.03701100217476487, Testing Loss : 0.5077591492652893, Training Accuracy : 0.9876, Testing Accuracy : 0.9073

46%|████▌ | 137/300 [23:51<29:01, 10.68s/it]

Training Loss : 0.036058449229002, Testing Loss : 0.5777648651123047, Training Accuracy : 0.9882, Testing Accuracy : 0.9017

46%|████▌ | 138/300 [24:02<28:36, 10.60s/it]

Training Loss : 0.03816716629870236, Testing Loss : 0.5844620029449463, Training Accuracy : 0.98736, Testing Accuracy : 0.9017

46%|████▋ | 139/300 [24:12<28:18, 10.55s/it]

Training Loss : 0.03811684877216816, Testing Loss : 0.5508550009250641, Training Accuracy : 0.98712, Testing Accuracy : 0.9078

47%|████▋ | 140/300 [24:23<28:12, 10.58s/it]

Training Loss : 0.03009774752497673, Testing Loss : 0.5112321704864502, Training Accuracy : 0.98896, Testing Accuracy : 0.9109

47%|████▋ | 141/300 [24:33<27:55, 10.54s/it]

Training Loss : 0.033939419267624615, Testing Loss : 0.49380424547195434, Training Accuracy : 0.98822, Testing Accuracy : 0.9116

47%|████▋ | 142/300 [24:43<27:27, 10.43s/it]

Training Loss : 0.031053075257092715, Testing Loss : 0.5482474435806275, Training Accuracy : 0.98946, Testing Accuracy : 0.9062

48%|████▊ | 143/300 [24:54<27:08, 10.37s/it]

Training Loss : 0.027657176326811313, Testing Loss : 0.5325860420227051, Training Accuracy : 0.9904, Testing Accuracy : 0.9125

48%|████▊ | 144/300 [25:04<27:01, 10.39s/it]

Training Loss : 0.02821558553002775, Testing Loss : 0.5596128223419189, Training Accuracy : 0.98984, Testing Accuracy : 0.9065

48%|████▊ | 145/300 [25:15<27:03, 10.47s/it]

Training Loss : 0.03433033210545778, Testing Loss :
0.5269936986923218, Training Accuracy : 0.98836, Testing Accuracy :
0.9099

  49%|████▉ | 146/300 [25:25<26:56, 10.50s/it]

Training Loss : 0.030319943017214537, Testing Loss :
0.5576793291091919, Training Accuracy : 0.98992, Testing Accuracy :
0.9095

  49%|████▉ | 147/300 [25:36<26:45, 10.49s/it]

Training Loss : 0.03302248138397932, Testing Loss :
0.5533118278503418, Training Accuracy : 0.98886, Testing Accuracy :
0.9081

  49%|████▉ | 148/300 [25:46<26:45, 10.56s/it]

Training Loss : 0.027553071005046368, Testing Loss :
0.5645035910606384, Training Accuracy : 0.99058, Testing Accuracy :
0.9097

  50%|████▉ | 149/300 [25:57<26:32, 10.54s/it]

Training Loss : 0.03253713864207268, Testing Loss :
0.5962632811546326, Training Accuracy : 0.98864, Testing Accuracy :
0.9067

  50%|████▉ | 150/300 [26:08<26:29, 10.60s/it]

Training Loss : 0.03220954516530037, Testing Loss :
0.5085805082321166, Training Accuracy : 0.98906, Testing Accuracy :
0.9092

  50%|████▉ | 151/300 [26:18<26:15, 10.58s/it]

Training Loss : 0.024851522412598134, Testing Loss :
0.5368613164901733, Training Accuracy : 0.99118, Testing Accuracy :
0.9124

  51%|████▉ | 152/300 [26:29<26:04, 10.57s/it]

Training Loss : 0.023509142582267523, Testing Loss :
0.5533639475822448, Training Accuracy : 0.99194, Testing Accuracy :
0.9119

  51%|████▉ | 153/300 [26:39<25:49, 10.54s/it]

Training Loss : 0.022818923884108663, Testing Loss :
0.5464255746841431, Training Accuracy : 0.99244, Testing Accuracy :
0.9133

  51%|████▉ | 154/300 [26:50<25:40, 10.55s/it]

Training Loss : 0.023082254414111377, Testing Loss :
0.5328907950401306, Training Accuracy : 0.99192, Testing Accuracy :
0.9152

52%|█████ | 155/300 [27:01<25:38, 10.61s/it]

Training Loss : 0.02259839562743902, Testing Loss :
0.5337428987503052, Training Accuracy : 0.992, Testing Accuracy :
0.9129

52%|█████ | 156/300 [27:11<25:35, 10.66s/it]

Training Loss : 0.019843303605020048, Testing Loss :
0.5506405028343201, Training Accuracy : 0.99302, Testing Accuracy :
0.9173

52%|█████ | 157/300 [27:22<25:16, 10.60s/it]

Training Loss : 0.02036266613587737, Testing Loss :
0.5695293478965759, Training Accuracy : 0.99284, Testing Accuracy :
0.9114

53%|█████ | 158/300 [27:33<25:15, 10.67s/it]

Training Loss : 0.02467833195310086, Testing Loss :
0.5605770805358886, Training Accuracy : 0.9921, Testing Accuracy :
0.9118

53%|█████ | 159/300 [27:43<25:10, 10.71s/it]

Training Loss : 0.01955981247741729, Testing Loss :
0.5591262496948243, Training Accuracy : 0.99346, Testing Accuracy :
0.9154

53%|█████ | 160/300 [27:54<24:33, 10.53s/it]

Training Loss : 0.022903619346357883, Testing Loss :
0.5923359148025513, Training Accuracy : 0.99284, Testing Accuracy :
0.913

54%|█████ | 161/300 [28:04<24:09, 10.43s/it]

Training Loss : 0.02661269556198269, Testing Loss :
0.6145516822814941, Training Accuracy : 0.99148, Testing Accuracy :
0.9074

54%|█████ | 162/300 [28:14<23:59, 10.43s/it]

Training Loss : 0.02990596619665623, Testing Loss :
0.5798342037200928, Training Accuracy : 0.9907, Testing Accuracy :
0.912

54%|█████ | 163/300 [28:25<23:56, 10.49s/it]

Training Loss : 0.024543871113099157, Testing Loss :
0.547753005695343, Training Accuracy : 0.9921, Testing Accuracy :
0.9119

55%|█████ | 164/300 [28:36<24:05, 10.63s/it]

Training Loss : 0.021820413750186562, Testing Loss :
0.5669102788925171, Training Accuracy : 0.99308, Testing Accuracy :
0.913

55%|█████ | 165/300 [28:46<23:54, 10.62s/it]

Training Loss : 0.022262596890106796, Testing Loss :
0.5797731373786926, Training Accuracy : 0.99226, Testing Accuracy :
0.9135

55%|█████ | 166/300 [28:57<23:34, 10.55s/it]

Training Loss : 0.019355230863913893, Testing Loss :
0.6157128297805786, Training Accuracy : 0.99346, Testing Accuracy :
0.9094

56%|█████ | 167/300 [29:07<23:27, 10.59s/it]

Training Loss : 0.021861396309807896, Testing Loss :
0.5625106481552125, Training Accuracy : 0.99296, Testing Accuracy :
0.9134

56%|█████ | 168/300 [29:18<23:23, 10.63s/it]

Training Loss : 0.020585405491814018, Testing Loss : 0.54953147149086,
Training Accuracy : 0.99254, Testing Accuracy : 0.9113

56%|█████ | 169/300 [29:29<23:22, 10.70s/it]

Training Loss : 0.022212789538651703, Testing Loss :
0.5869031178951264, Training Accuracy : 0.99294, Testing Accuracy :
0.9135

57%|█████ | 170/300 [29:40<23:12, 10.71s/it]

Training Loss : 0.01874149847075343, Testing Loss :
0.5534638914108276, Training Accuracy : 0.99342, Testing Accuracy :
0.9109

57%|█████ | 171/300 [29:51<23:05, 10.74s/it]

Training Loss : 0.017816295091621578, Testing Loss :
0.5662877277374267, Training Accuracy : 0.99432, Testing Accuracy :
0.9184

57%|█████ | 172/300 [30:01<22:46, 10.67s/it]

Training Loss : 0.019023826525397598, Testing Loss :
0.5956320479631424, Training Accuracy : 0.99368, Testing Accuracy :
0.9146

58%|██████ | 173/300 [30:12<22:38, 10.69s/it]

Training Loss : 0.023169308650381863, Testing Loss :
0.5917501405715943, Training Accuracy : 0.99296, Testing Accuracy :
0.912

58%|██████ | 174/300 [30:22<22:23, 10.66s/it]

Training Loss : 0.023337050969451666, Testing Loss :
0.5601353805541992, Training Accuracy : 0.99238, Testing Accuracy :
0.9143

58%|██████ | 175/300 [30:33<22:05, 10.60s/it]

Training Loss : 0.020191553664244712, Testing Loss :
0.5903229419708252, Training Accuracy : 0.9933, Testing Accuracy :
0.9158

59%|██████ | 176/300 [30:43<21:51, 10.58s/it]

Training Loss : 0.018309353058934212, Testing Loss :
0.5542834953308106, Training Accuracy : 0.99386, Testing Accuracy :
0.914

59%|██████ | 177/300 [30:54<21:43, 10.60s/it]

Training Loss : 0.014199060499854387, Testing Loss :
0.6210329908370972, Training Accuracy : 0.99526, Testing Accuracy :
0.9126

59%|██████ | 178/300 [31:05<21:32, 10.60s/it]

Training Loss : 0.019664310270827264, Testing Loss :
0.5332844460487366, Training Accuracy : 0.99366, Testing Accuracy :
0.9146

60%|██████ | 179/300 [31:15<21:19, 10.57s/it]

Training Loss : 0.015875318112820388, Testing Loss :
0.5504199531555176, Training Accuracy : 0.99478, Testing Accuracy :
0.9148

60%|██████ | 180/300 [31:26<21:13, 10.61s/it]

Training Loss : 0.012549042334146797, Testing Loss :
0.5659787014961243, Training Accuracy : 0.99578, Testing Accuracy :
0.9168

60%|██████ | 181/300 [31:37<21:04, 10.62s/it]

Training Loss : 0.014620668222326785, Testing Loss :
0.5999748737335205, Training Accuracy : 0.99534, Testing Accuracy :
0.9106

61%|██████ | 182/300 [31:47<20:40, 10.51s/it]

Training Loss : 0.015425283446013927, Testing Loss :
0.6058494895935058, Training Accuracy : 0.99506, Testing Accuracy :
0.912

61%|██████ | 183/300 [31:57<20:31, 10.53s/it]

Training Loss : 0.01645755259629339, Testing Loss :
0.5900397596359253, Training Accuracy : 0.99456, Testing Accuracy :
0.9162

61%|██████ | 184/300 [32:08<20:15, 10.48s/it]

Training Loss : 0.016281310912705956, Testing Loss :
0.5545528377532959, Training Accuracy : 0.99472, Testing Accuracy :
0.9151

62%|██████ | 185/300 [32:18<19:59, 10.43s/it]

Training Loss : 0.013031478625778109, Testing Loss :
0.6119327692031861, Training Accuracy : 0.99572, Testing Accuracy :
0.918

62%|██████ | 186/300 [32:29<19:51, 10.45s/it]

Training Loss : 0.016035334941688927, Testing Loss :
0.5915566270828247, Training Accuracy : 0.9949, Testing Accuracy :
0.9137

62%|██████ | 187/300 [32:39<19:43, 10.48s/it]

Training Loss : 0.014954076404869556, Testing Loss :
0.6287109891891479, Training Accuracy : 0.9952, Testing Accuracy :
0.9121

63%|██████ | 188/300 [32:50<19:37, 10.51s/it]

Training Loss : 0.014858574645742775, Testing Loss :
0.5837700033187866, Training Accuracy : 0.99514, Testing Accuracy :
0.9118

63%|██████ | 189/300 [33:00<19:32, 10.56s/it]

Training Loss : 0.013176243981271983, Testing Loss : 0.58966273727417,
Training Accuracy : 0.9952, Testing Accuracy : 0.9165

63%|██████ | 190/300 [33:11<19:22, 10.57s/it]

Training Loss : 0.013223872141093015, Testing Loss :
0.6189485434532166, Training Accuracy : 0.99534, Testing Accuracy :
0.9153

64%|██████ | 191/300 [33:22<19:13, 10.59s/it]

Training Loss : 0.01437156482130289, Testing Loss : 0.585291563987732,
Training Accuracy : 0.99534, Testing Accuracy : 0.9182

64%|██████ | 192/300 [33:32<19:08, 10.63s/it]

Training Loss : 0.012858037488348783, Testing Loss :
0.5598062620162964, Training Accuracy : 0.99542, Testing Accuracy :
0.9234

64%|██████ | 193/300 [33:43<18:58, 10.64s/it]

Training Loss : 0.010860328802932053, Testing Loss :
0.5605626934051514, Training Accuracy : 0.9964, Testing Accuracy :
0.9216

65%|██████ | 194/300 [33:53<18:44, 10.61s/it]

Training Loss : 0.007497360742320307, Testing Loss :
0.6153565311431884, Training Accuracy : 0.99732, Testing Accuracy :
0.922

65%|██████ | 195/300 [34:04<18:23, 10.51s/it]

Training Loss : 0.008403031843784265, Testing Loss :
0.5986091514587403, Training Accuracy : 0.99688, Testing Accuracy :
0.9205

65%|██████ | 196/300 [34:14<18:08, 10.47s/it]

Training Loss : 0.009370295531912707, Testing Loss :
0.6594473140716552, Training Accuracy : 0.99696, Testing Accuracy :
0.9159

66%|██████ | 197/300 [34:25<18:11, 10.60s/it]

Training Loss : 0.010221626659627073, Testing Loss :
0.6200798406600952, Training Accuracy : 0.99656, Testing Accuracy :
0.9189

66%|██████ | 198/300 [34:36<18:07, 10.66s/it]

Training Loss : 0.009868215835560114, Testing Loss :
0.6418924785614014, Training Accuracy : 0.99654, Testing Accuracy :
0.9168

66%|██████ | 199/300 [34:46<17:56, 10.65s/it]

Training Loss : 0.009804630934624001, Testing Loss :
0.6618874740600585, Training Accuracy : 0.99666, Testing Accuracy :
0.9149

67%|██████▋ | 200/300 [34:57<17:41, 10.62s/it]

Training Loss : 0.010295515123580117, Testing Loss :
0.6182810845375061, Training Accuracy : 0.99652, Testing Accuracy :
0.9189

67%|██████▋ | 201/300 [35:08<17:36, 10.67s/it]

Training Loss : 0.009954366187914275, Testing Loss :
0.5943037052154541, Training Accuracy : 0.9967, Testing Accuracy :
0.9183

67%|██████▋ | 202/300 [35:18<17:18, 10.60s/it]

Training Loss : 0.007653957098117098, Testing Loss :
0.6007968494415283, Training Accuracy : 0.99736, Testing Accuracy :
0.9231

68%|██████▊ | 203/300 [35:29<17:00, 10.52s/it]

Training Loss : 0.009991252855258063, Testing Loss :
0.5950169282913208, Training Accuracy : 0.99648, Testing Accuracy :
0.9186

68%|██████▊ | 204/300 [35:39<16:46, 10.48s/it]

Training Loss : 0.008101954868193716, Testing Loss :
0.6113070685386658, Training Accuracy : 0.99708, Testing Accuracy :
0.9224

68%|██████▊ | 205/300 [35:49<16:32, 10.44s/it]

Training Loss : 0.008374103607670404, Testing Loss :
0.6137945404052735, Training Accuracy : 0.99702, Testing Accuracy :
0.9189

69%|██████▊ | 206/300 [36:00<16:29, 10.52s/it]

Training Loss : 0.00877115896217525, Testing Loss : 0.607623320388794,
Training Accuracy : 0.99718, Testing Accuracy : 0.919

69%|██████▊ | 207/300 [36:11<16:21, 10.55s/it]

Training Loss : 0.007460717585794628, Testing Loss :
0.6087352110862732, Training Accuracy : 0.99768, Testing Accuracy :
0.9183

69%|██████▊ | 208/300 [36:21<16:15, 10.60s/it]

Training Loss : 0.007228855999938678, Testing Loss :
0.6349373502731324, Training Accuracy : 0.99732, Testing Accuracy :
0.9182

70%|███████ | 209/300 [36:32<16:01, 10.56s/it]

Training Loss : 0.006947328785203863, Testing Loss :
0.6030913227081299, Training Accuracy : 0.99774, Testing Accuracy :
0.9199

70%|███████ | 210/300 [36:42<15:51, 10.58s/it]

Training Loss : 0.005866306060228962, Testing Loss :
0.6096400207519531, Training Accuracy : 0.9982, Testing Accuracy :
0.9234

70%|███████ | 211/300 [36:53<15:49, 10.67s/it]

Training Loss : 0.004578584581410978, Testing Loss :
0.6343196849822998, Training Accuracy : 0.9986, Testing Accuracy :
0.9194

71%|███████ | 212/300 [37:04<15:50, 10.80s/it]

Training Loss : 0.005012833395441994, Testing Loss :
0.605440069103241, Training Accuracy : 0.9984, Testing Accuracy :
0.9241

71%|███████ | 213/300 [37:15<15:34, 10.74s/it]

Training Loss : 0.004783937839767895, Testing Loss :
0.6415939667701721, Training Accuracy : 0.9984, Testing Accuracy :
0.9222

71%|███████ | 214/300 [37:25<15:12, 10.61s/it]

Training Loss : 0.0055207914926548255, Testing Loss :
0.6456813081741333, Training Accuracy : 0.9984, Testing Accuracy :
0.9231

72%|███████ | 215/300 [37:36<14:58, 10.57s/it]

Training Loss : 0.005694677346005338, Testing Loss :
0.6706639318466187, Training Accuracy : 0.998, Testing Accuracy :
0.9198

72%|███████ | 216/300 [37:46<14:45, 10.54s/it]

Training Loss : 0.007018512426745146, Testing Loss :
0.6071983038902282, Training Accuracy : 0.99776, Testing Accuracy :
0.9207

72%|███████ | 217/300 [37:57<14:41, 10.62s/it]

Training Loss : 0.006005277557215886, Testing Loss :
0.6399565509796142, Training Accuracy : 0.9981, Testing Accuracy :
0.9197

  73%|███████ | 218/300 [38:08<14:27, 10.58s/it]

Training Loss : 0.005433217450710945, Testing Loss :
0.6409245986938477, Training Accuracy : 0.99816, Testing Accuracy :
0.9218

  73%|███████ | 219/300 [38:18<14:07, 10.47s/it]

Training Loss : 0.006418359112539329, Testing Loss :
0.6261017376899719, Training Accuracy : 0.99802, Testing Accuracy :
0.9197

  73%|███████ | 220/300 [38:29<14:05, 10.57s/it]

Training Loss : 0.004313509408631362, Testing Loss :
0.6284490768432617, Training Accuracy : 0.9984, Testing Accuracy :
0.92

  74%|███████ | 221/300 [38:40<14:05, 10.70s/it]

Training Loss : 0.006006784595845966, Testing Loss :
0.6450272802352905, Training Accuracy : 0.99796, Testing Accuracy :
0.9188

  74%|███████ | 222/300 [38:50<13:50, 10.65s/it]

Training Loss : 0.004535201211844106, Testing Loss :
0.6220713689804077, Training Accuracy : 0.99844, Testing Accuracy :
0.9236

  74%|███████ | 223/300 [39:01<13:39, 10.64s/it]

Training Loss : 0.004334498240879038, Testing Loss :
0.6564293197631836, Training Accuracy : 0.99848, Testing Accuracy :
0.9214

  75%|███████ | 224/300 [39:11<13:25, 10.60s/it]

Training Loss : 0.004328273901350039, Testing Loss :
0.6406211153030396, Training Accuracy : 0.99866, Testing Accuracy :
0.9211

  75%|███████ | 225/300 [39:22<13:19, 10.66s/it]

Training Loss : 0.003348705334519036, Testing Loss :
0.660543180847168, Training Accuracy : 0.9989, Testing Accuracy :
0.9202

  75%|███████ | 226/300 [39:33<13:10, 10.68s/it]

Training Loss : 0.0034311644304572835, Testing Loss :
0.669997787284851, Training Accuracy : 0.99892, Testing Accuracy :
0.9222

  76%|███████▌ | 227/300 [39:43<12:55, 10.62s/it]

Training Loss : 0.004327456300202757, Testing Loss :
0.7110143815040588, Training Accuracy : 0.99868, Testing Accuracy :
0.9178

  76%|███████▌ | 228/300 [39:54<12:41, 10.58s/it]

Training Loss : 0.005072202655478614, Testing Loss :
0.6530016794204712, Training Accuracy : 0.99832, Testing Accuracy :
0.9214

  76%|███████▌ | 229/300 [40:04<12:31, 10.58s/it]

Training Loss : 0.004889911127025261, Testing Loss :
0.6692982824325562, Training Accuracy : 0.99846, Testing Accuracy :
0.9213

  77%|███████▋ | 230/300 [40:15<12:20, 10.58s/it]

Training Loss : 0.006608723901812918, Testing Loss :
0.665765728378296, Training Accuracy : 0.99788, Testing Accuracy :
0.9216

  77%|███████▋ | 231/300 [40:26<12:14, 10.64s/it]

Training Loss : 0.004614046034662751, Testing Loss :
0.670952924656868, Training Accuracy : 0.99846, Testing Accuracy :
0.922

  77%|███████▋ | 232/300 [40:36<12:05, 10.66s/it]

Training Loss : 0.004439698069539736, Testing Loss :
0.6680715223312378, Training Accuracy : 0.99856, Testing Accuracy :
0.9224

  78%|███████▊ | 233/300 [40:47<11:55, 10.67s/it]

Training Loss : 0.005693977831221418, Testing Loss :
0.6202858960151673, Training Accuracy : 0.99808, Testing Accuracy :
0.9246

  78%|███████▊ | 234/300 [40:58<11:43, 10.66s/it]

Training Loss : 0.003460405481081616, Testing Loss :
0.6139679820060729, Training Accuracy : 0.99884, Testing Accuracy :
0.9243

  78%|███████▊ | 235/300 [41:09<11:35, 10.70s/it]

Training Loss : 0.0029953826414770447, Testing Loss :
0.6331447923660278, Training Accuracy : 0.99908, Testing Accuracy :
0.9247

  79%|███████▉ | 236/300 [41:19<11:14, 10.55s/it]

Training Loss : 0.0032185905188822 65, Testing Loss :
0.6517652108192444, Training Accuracy : 0.99884, Testing Accuracy :
0.9241

  79%|███████▉ | 237/300 [41:29<10:58, 10.46s/it]

Training Loss : 0.0029505501518351956, Testing Loss :
0.6801687836647033, Training Accuracy : 0.99904, Testing Accuracy :
0.9252

  79%|███████▉ | 238/300 [41:40<10:52, 10.52s/it]

Training Loss : 0.0027916843069520835, Testing Loss :
0.6855707646369934, Training Accuracy : 0.99904, Testing Accuracy :
0.9253

  80%|███████▉ | 239/300 [41:50<10:43, 10.55s/it]

Training Loss : 0.0021461803490525925, Testing Loss :
0.7139354527950287, Training Accuracy : 0.99934, Testing Accuracy :
0.9233

  80%|███████▉ | 240/300 [42:01<10:33, 10.55s/it]

Training Loss : 0.0030750698548588844, Testing Loss :
0.6840100963592529, Training Accuracy : 0.99888, Testing Accuracy :
0.925

  80%|████████ | 241/300 [42:11<10:21, 10.54s/it]

Training Loss : 0.002322234452994162, Testing Loss :
0.6974223138809205, Training Accuracy : 0.99914, Testing Accuracy :
0.9259

  81%|████████ | 242/300 [42:22<10:08, 10.49s/it]

Training Loss : 0.0021181029651412974, Testing Loss :
0.6865064368247986, Training Accuracy : 0.99936, Testing Accuracy :
0.9249

  81%|████████ | 243/300 [42:32<10:00, 10.54s/it]

Training Loss : 0.002247165391948074, Testing Loss :
0.7020595391273499, Training Accuracy : 0.99944, Testing Accuracy :
0.9279

  81%|████████ | 244/300 [42:43<09:54, 10.62s/it]

Training Loss : 0.004358576229137543, Testing Loss :
0.6977179088592529, Training Accuracy : 0.99878, Testing Accuracy :
0.9222

  82%|████████ | 245/300 [42:54<09:42, 10.59s/it]

Training Loss : 0.002966730061821872, Testing Loss :
0.7042644309043884, Training Accuracy : 0.99888, Testing Accuracy :
0.924

  82%|████████ | 246/300 [43:04<09:30, 10.57s/it]

Training Loss : 0.0021231674262697925, Testing Loss :
0.6799435651779174, Training Accuracy : 0.99936, Testing Accuracy :
0.926

  82%|████████ | 247/300 [43:15<09:19, 10.55s/it]

Training Loss : 0.002718313317790744, Testing Loss :
0.7008372272491455, Training Accuracy : 0.99914, Testing Accuracy :
0.9213

  83%|████████ | 248/300 [43:25<09:10, 10.58s/it]

Training Loss : 0.0029655165151981056, Testing Loss :
0.6803134250640869, Training Accuracy : 0.99892, Testing Accuracy :
0.9239

  83%|████████ | 249/300 [43:36<09:03, 10.65s/it]

Training Loss : 0.001966050218895252, Testing Loss :
0.6799083614349365, Training Accuracy : 0.99936, Testing Accuracy :
0.9257

  83%|████████ | 250/300 [43:47<08:51, 10.63s/it]

Training Loss : 0.0026901182316575434, Testing Loss :
0.6806409291267395, Training Accuracy : 0.99916, Testing Accuracy :
0.924

  84%|████████ | 251/300 [43:57<08:42, 10.66s/it]

Training Loss : 0.002104837479799753, Testing Loss :
0.6624509864807129, Training Accuracy : 0.9992, Testing Accuracy :
0.9242

  84%|████████ | 252/300 [44:08<08:33, 10.70s/it]

Training Loss : 0.0021892782083561177, Testing Loss :
0.6886193513870239, Training Accuracy : 0.99922, Testing Accuracy :
0.9227

  84%|████████ | 253/300 [44:19<08:20, 10.65s/it]

Training Loss : 0.0021092672442420734, Testing Loss :
0.7268855834007263, Training Accuracy : 0.9993, Testing Accuracy :
0.9243

  85%|████████▌ | 254/300 [44:29<08:06, 10.57s/it]

Training Loss : 0.0026734760252914566, Testing Loss :
0.7413781808853149, Training Accuracy : 0.99908, Testing Accuracy :
0.9202

  85%|████████▌ | 255/300 [44:40<07:58, 10.64s/it]

Training Loss : 0.003938747790297202, Testing Loss :
0.7038817778587342, Training Accuracy : 0.9987, Testing Accuracy :
0.923

  85%|████████▌ | 256/300 [44:51<07:52, 10.74s/it]

Training Loss : 0.002049463821478712, Testing Loss :
0.673087542629242, Training Accuracy : 0.9994, Testing Accuracy :
0.9239

  86%|████████▌ | 257/300 [45:02<07:39, 10.69s/it]

Training Loss : 0.001339727563021588, Testing Loss :
0.6697250447273254, Training Accuracy : 0.99958, Testing Accuracy :
0.9258

  86%|████████▌ | 258/300 [45:12<07:27, 10.66s/it]

Training Loss : 0.0017259477034326847, Testing Loss :
0.6789915334701538, Training Accuracy : 0.99936, Testing Accuracy :
0.9276

  86%|████████▌ | 259/300 [45:23<07:18, 10.69s/it]

Training Loss : 0.0025893674963517696, Testing Loss :
0.789631985092163, Training Accuracy : 0.99914, Testing Accuracy :
0.9222

  87%|████████▌ | 260/300 [45:34<07:11, 10.79s/it]

Training Loss : 0.0021113778620178345, Testing Loss :
0.715043902015686, Training Accuracy : 0.99934, Testing Accuracy :
0.9249

  87%|████████▌ | 261/300 [45:44<06:56, 10.69s/it]

Training Loss : 0.003180597405923763, Testing Loss :
0.7165358580589295, Training Accuracy : 0.99916, Testing Accuracy :
0.9248

  87%|████████▌ | 262/300 [45:55<06:45, 10.66s/it]

Training Loss : 0.0023620192673774725, Testing Loss :
0.7087872091293335, Training Accuracy : 0.99914, Testing Accuracy :
0.9251

88%|████████▊ | 263/300 [46:06<06:36, 10.71s/it]

Training Loss : 0.0027050196472302194, Testing Loss :
0.7495484649658203, Training Accuracy : 0.99912, Testing Accuracy :
0.9244

88%|████████▊ | 264/300 [46:17<06:27, 10.76s/it]

Training Loss : 0.002463576397375873, Testing Loss :
0.7080701793670654, Training Accuracy : 0.99926, Testing Accuracy :
0.9238

88%|████████▊ | 265/300 [46:27<06:12, 10.66s/it]

Training Loss : 0.002791607378357785, Testing Loss :
0.8177758689880371, Training Accuracy : 0.999, Testing Accuracy :
0.9199

89%|████████▉ | 266/300 [46:38<06:03, 10.68s/it]

Training Loss : 0.002763239527784608, Testing Loss :
0.7092774951934815, Training Accuracy : 0.9989, Testing Accuracy :
0.925

89%|████████▉ | 267/300 [46:48<05:51, 10.65s/it]

Training Loss : 0.0022275635585703277, Testing Loss :
0.7214059362411499, Training Accuracy : 0.9994, Testing Accuracy :
0.9253

89%|████████▉ | 268/300 [46:59<05:42, 10.69s/it]

Training Loss : 0.0011813482824071253, Testing Loss :
0.7046825630187988, Training Accuracy : 0.9997, Testing Accuracy :
0.9258

90%|████████▉ | 269/300 [47:10<05:32, 10.74s/it]

Training Loss : 0.0015519271382365332, Testing Loss :
0.6800782596588135, Training Accuracy : 0.99956, Testing Accuracy :
0.9271

90%|████████▉ | 270/300 [47:20<05:18, 10.62s/it]

Training Loss : 0.0013513400670684497, Testing Loss :
0.7301723167419434, Training Accuracy : 0.99954, Testing Accuracy :
0.9251

90%|████████▉ | 271/300 [47:31<05:07, 10.61s/it]

Training Loss : 0.0012426077786959649, Testing Loss :
0.7091697622299195, Training Accuracy : 0.99962, Testing Accuracy :
0.924

91%|████████ | 272/300 [47:41<04:53, 10.48s/it]

Training Loss : 0.001033820427040555, Testing Loss :
0.7468312557220459, Training Accuracy : 0.99966, Testing Accuracy :
0.9267

91%|████████ | 273/300 [47:52<04:43, 10.49s/it]

Training Loss : 0.0019255688693541014, Testing Loss :
0.7131293327331543, Training Accuracy : 0.99938, Testing Accuracy :
0.9246

91%|████████ | 274/300 [48:02<04:32, 10.47s/it]

Training Loss : 0.001732293624924132, Testing Loss :
0.7389542999267578, Training Accuracy : 0.99954, Testing Accuracy :
0.9251

92%|████████ | 275/300 [48:13<04:22, 10.51s/it]

Training Loss : 0.001265438890014757, Testing Loss :
0.7139170114517212, Training Accuracy : 0.99962, Testing Accuracy :
0.9256

92%|████████ | 276/300 [48:24<04:15, 10.67s/it]

Training Loss : 0.0012273705314643575, Testing Loss :
0.7299147993087769, Training Accuracy : 0.99958, Testing Accuracy :
0.9253

92%|████████ | 277/300 [48:34<04:05, 10.69s/it]

Training Loss : 0.000873761272434931, Testing Loss :
0.703447363948822, Training Accuracy : 0.9997, Testing Accuracy :
0.926

93%|████████ | 278/300 [48:45<03:55, 10.72s/it]

Training Loss : 0.0015650471885849402, Testing Loss :
0.7222392267227172, Training Accuracy : 0.9994, Testing Accuracy :
0.9266

93%|████████ | 279/300 [48:56<03:43, 10.63s/it]

Training Loss : 0.0018849183908810482, Testing Loss :
0.7290979468345642, Training Accuracy : 0.99944, Testing Accuracy :
0.9224

93%|████████ | 280/300 [49:06<03:30, 10.54s/it]

Training Loss : 0.0016061302428591261, Testing Loss :
0.7523344957351684, Training Accuracy : 0.99952, Testing Accuracy :
0.9247

94%|▉ | 281/300 [49:16<03:19, 10.52s/it]

Training Loss : 0.0013939552844107674, Testing Loss :
0.7118843271255493, Training Accuracy : 0.99952, Testing Accuracy :
0.9271

94%|▉ | 282/300 [49:27<03:09, 10.54s/it]

Training Loss : 0.0008424424977037415, Testing Loss :
0.7166346347808837, Training Accuracy : 0.99974, Testing Accuracy :
0.9249

94%|▉ | 283/300 [49:38<02:59, 10.57s/it]

Training Loss : 0.0007196545346212952, Testing Loss :
0.7169658664703369, Training Accuracy : 0.9998, Testing Accuracy :
0.9274

95%|▉ | 284/300 [49:48<02:49, 10.56s/it]

Training Loss : 0.0007344427402694054, Testing Loss :
0.7002014616966248, Training Accuracy : 0.99978, Testing Accuracy :
0.9273

95%|▉ | 285/300 [49:58<02:36, 10.41s/it]

Training Loss : 0.0015772935467007847, Testing Loss :
0.7510047171592712, Training Accuracy : 0.99942, Testing Accuracy :
0.9266

95%|▉ | 286/300 [50:09<02:26, 10.43s/it]

Training Loss : 0.0017113231322968205, Testing Loss :
0.7327078096389771, Training Accuracy : 0.99948, Testing Accuracy :
0.9266

96%|▉ | 287/300 [50:20<02:17, 10.60s/it]

Training Loss : 0.0011653459265407219, Testing Loss :
0.7542648092269898, Training Accuracy : 0.99964, Testing Accuracy :
0.9262

96%|▉ | 288/300 [50:30<02:07, 10.63s/it]

Training Loss : 0.0011805188643602014, Testing Loss :
0.7058351989746093, Training Accuracy : 0.99964, Testing Accuracy :
0.9272

96%|▉ | 289/300 [50:41<01:56, 10.59s/it]

Training Loss : 0.0008388197685254636, Testing Loss :
0.7633283512115479, Training Accuracy : 0.99966, Testing Accuracy :
0.9273

97%|▉| 290/300 [50:52<01:45, 10.59s/it]

Training Loss : 0.001062932323465593, Testing Loss :
0.7218064067840576, Training Accuracy : 0.99968, Testing Accuracy :
0.9275

97%|▉| 291/300 [51:02<01:34, 10.47s/it]

Training Loss : 0.0004920763430395028, Testing Loss :
0.7609466243743896, Training Accuracy : 0.99982, Testing Accuracy :
0.9273

97%|▉| 292/300 [51:12<01:23, 10.46s/it]

Training Loss : 0.0010747286196899767, Testing Loss :
0.7455421255111694, Training Accuracy : 0.99972, Testing Accuracy :
0.9273

98%|▉| 293/300 [51:22<01:12, 10.37s/it]

Training Loss : 0.0005278936909855111, Testing Loss :
0.7492936027526855, Training Accuracy : 0.99984, Testing Accuracy :
0.9276

98%|▉| 294/300 [51:33<01:03, 10.55s/it]

Training Loss : 0.0006388792331062132, Testing Loss :
0.7269719631195068, Training Accuracy : 0.99982, Testing Accuracy :
0.9264

98%|▉| 295/300 [51:44<00:52, 10.59s/it]

Training Loss : 0.0010010864237351416, Testing Loss :
0.741774842453003, Training Accuracy : 0.99968, Testing Accuracy :
0.9267

99%|▉| 296/300 [51:55<00:42, 10.59s/it]

Training Loss : 0.0007294997713513294, Testing Loss :
0.7431567365646362, Training Accuracy : 0.99974, Testing Accuracy :
0.9282

99%|▉| 297/300 [52:05<00:31, 10.56s/it]

Training Loss : 0.001231356870869531, Testing Loss :
0.7239690279006958, Training Accuracy : 0.99964, Testing Accuracy :
0.9272

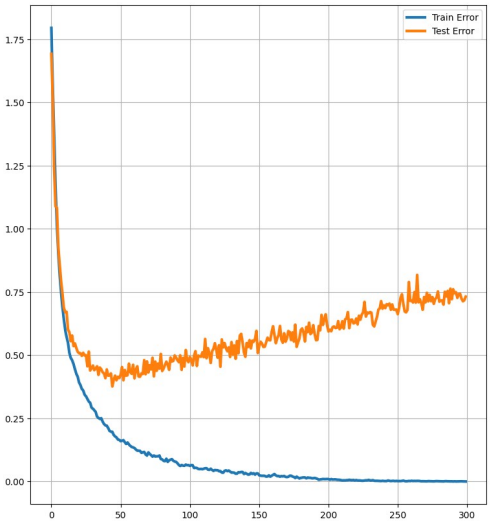
99%|▉| 298/300 [52:16<00:21, 10.65s/it]

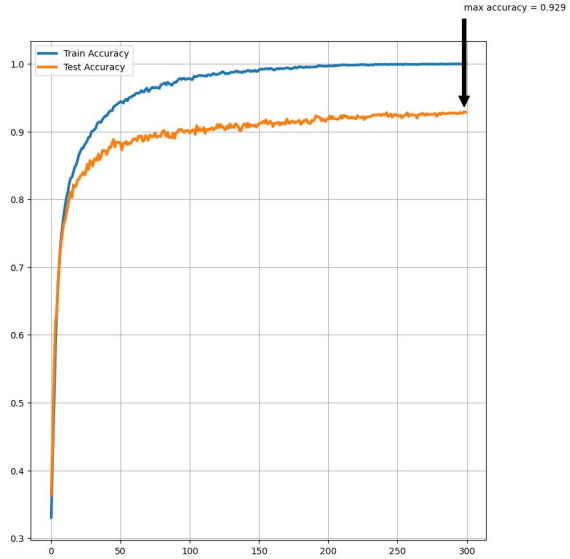
```
Training Loss : 0.000788473485184295, Testing Loss :
0.7135993432998657, Training Accuracy : 0.99974, Testing Accuracy :
0.9277

 100%|██████████| 299/300 [52:27<00:10, 10.63s/it]

Training Loss : 0.0007418263730793115, Testing Loss :
0.7173068384170532, Training Accuracy : 0.99982, Testing Accuracy :
0.929

100%|██████████| 300/300 [52:37<00:00, 10.53s/it]

Training Loss : 0.0004799298918014756, Testing Loss :
0.7319734848022461, Training Accuracy : 0.99984, Testing Accuracy :
0.9285
```

```
print("Maximum Testing Accuracy Achieved: %s"%(max(testingAccuracy)))
xmax = np.argmax(testingAccuracy)
ymax = max(testingAccuracy)
```

```
Maximum Testing Accuracy Achieved: 0.929
```

```
f, (ax1, ax2) = plt.subplots(1, 2, figsize = (20, 10))
n = len(trainingLoss)
ax1.plot(range(n), trainingLoss, '-', linewidth = '3', label = 'Train
Error')
ax1.plot(range(n), testingLoss, '-', linewidth = '3', label = 'Test
Error')
ax2.plot(range(n), trainingAccuracy, '-', linewidth = '3', label =
'Train Accuracy')
ax2.plot(range(n), testingAccuracy, '-', linewidth  = '3', label =
'Test Accuracy')
ax2.annotate('max accuracy = %s'%(ymax), xy = (xmax, ymax), xytext =
(xmax, ymax+0.15), arrowprops = dict(facecolor = 'black', shrink =
0.05))
ax1.grid(True)
ax2.grid(True)
ax1.legend()
ax2.legend()
f.savefig("./trainTestCurve.png")
```


Train Error
Test Error
1.75
1.50
1.25
1.00
0.75
0.50
0.25
0.00
0
50
100
150
200
250
300


max accuracy = 0.929
Train Accuracy
Test Accuracy
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0
50
100
150
200
250
300