File - hw3

```
C:\Users\allis\AppData\Local\Programs\Python\Python39\python.exe D:/School/ECE472_DeepLearning/hw/ECE472_DeepLearning/hw3/main.py --sample_size 1000 --batch_size 32 --num_iters 10 --random_seed 31415
2022-09-21 18:58:42.689188: E tensorflow/stream_executor/cuda/cuda_driver.cc:265] failed call to cuInit: CUDA_ERROR_NO_DEVICE: no CUDA-capable device is detected
2022-09-21 18:58:42.692451: I tensorflow/stream_executor/cuda/cuda_diagnostics.cc:169] retrieving CUDA diagnostic information for host: PC-Arristar
2022-09-21 18:58:42.692596: I tensorflow/stream_executor/cuda/cuda_diagnostics.cc:176] hostname: PC-Arristar
2022-09-21 18:58:42.693009: I tensorflow/core/platform/cpu_feature_guard.cc:193] This TensorFlow binary is optimized with oneAPI Deep Neural Network Library (oneDNN) to use the following CPU instructions in performance-critical operations:  AVX AVX2
To enable them in other operations, rebuild TensorFlow with the appropriate compiler flags.
Model: "sequential"
_________________________________________________________________
Layer (type)                 Output Shape              Param #
=================================================================
conv2d (Conv2D)              (None, 26, 26, 32)        320
_________________________________________________________________
max_pooling2d (MaxPooling2D) (None, 13, 13, 32)        0
_________________________________________________________________
conv2d_1 (Conv2D)            (None, 11, 11, 64)        18496
_________________________________________________________________
dropout (Dropout)            (None, 11, 11, 64)        0
_________________________________________________________________
flatten (Flatten)            (None, 7744)              0
_________________________________________________________________
dense (Dense)                (None, 128)               991360
_________________________________________________________________
dropout_1 (Dropout)          (None, 128)               0
_________________________________________________________________
dense_1 (Dense)              (None, 10)                1290
=================================================================
Total params: 1,011,466
Trainable params: 1,011,466
Non-trainable params: 0
_________________________________________________________________
None
Epoch 1/10
1500/1500 [==============================] - 20s 13ms/step - loss: 0.2085 - accuracy: 0.9395 - val_loss: 0.0636 - val_accuracy: 0.9833
Epoch 2/10
1500/1500 [==============================] - 17s 12ms/step - loss: 0.0950 - accuracy: 0.9761 - val_loss: 0.0588 - val_accuracy: 0.9862
Epoch 3/10
1500/1500 [==============================] - 17s 12ms/step - loss: 0.0816 - accuracy: 0.9807 - val_loss: 0.0590 - val_accuracy: 0.9883
Epoch 4/10
1500/1500 [==============================] - 19s 13ms/step - loss: 0.0722 - accuracy: 0.9848 - val_loss: 0.0567 - val_accuracy: 0.9899
Epoch 5/10
1500/1500 [==============================] - 20s 13ms/step - loss: 0.0700 - accuracy: 0.9866 - val_loss: 0.0664 - val_accuracy: 0.9883
Epoch 6/10
1500/1500 [==============================] - 20s 13ms/step - loss: 0.0673 - accuracy: 0.9874 - val_loss: 0.0643 - val_accuracy: 0.9892
Epoch 7/10
1500/1500 [==============================] - 19s 12ms/step - loss: 0.0656 - accuracy: 0.9894 - val_loss: 0.0606 - val_accuracy: 0.9902
Epoch 8/10
1500/1500 [==============================] - 18s 12ms/step - loss: 0.0628 - accuracy: 0.9897 - val_loss: 0.0608 - val_accuracy: 0.9912
Epoch 9/10
1500/1500 [==============================] - 18s 12ms/step - loss: 0.0638 - accuracy: 0.9904 - val_loss: 0.0646 - val_accuracy: 0.9907
Epoch 10/10
1500/1500 [==============================] - 18s 12ms/step - loss: 0.0613 - accuracy: 0.9909 - val_loss: 0.0686 - val_accuracy: 0.9906
313/313 [==============================] - 1s 3ms/step - loss: 0.0685 - accuracy: 0.9908
Test loss       : 0.06848642230033875
Test accuracy   : 0.9908000230789185

Process finished with exit code 0
```