计算机科学与技术学院神经网络与深度学习课程实验报告

实验题目： 华为云的基本使用方法		学号：201600181073
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实验目的：

掌握华为云训练模型的基本流程和方法。

实验软件和硬件环境：

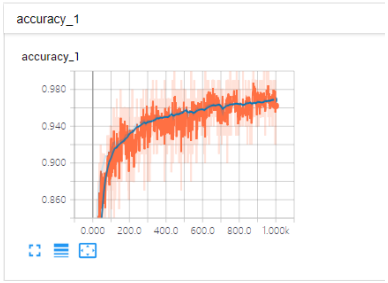
华为云&pycharm

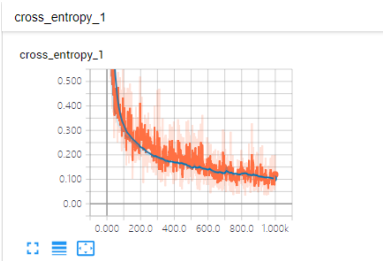
实验步骤：（不要求罗列完整源代码）

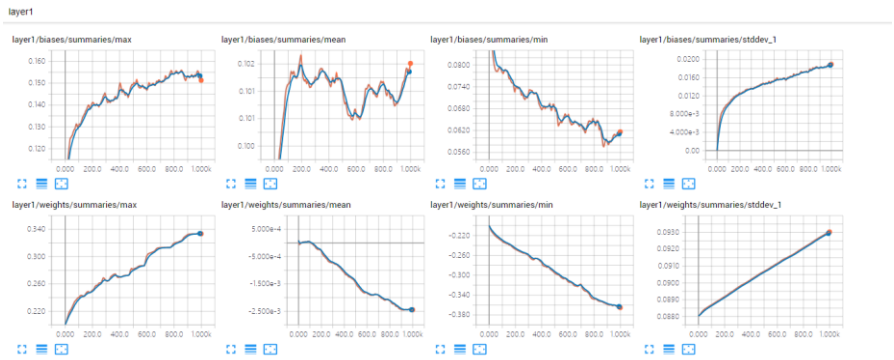
1. 训练数据
2. 代码调试
3. 训练模型
4. 再使用 pytorch 框架再 ModelArts 上完成 MNIST

结论分析与体会：

Tensorflow 在 MNIST 上的训练结果：







Pytorch 在 MNIST 上的训练：

```
Train Epoch: 3 [28160/60000 (47%)]      Loss: 0.057241
Train Epoch: 3 [28800/60000 (48%)]      Loss: 0.065398
Train Epoch: 3 [29440/60000 (49%)]      Loss: 0.007582
Train Epoch: 3 [30080/60000 (50%)]      Loss: 0.079954
Train Epoch: 3 [30720/60000 (51%)]      Loss: 0.083349
Train Epoch: 3 [31360/60000 (52%)]      Loss: 0.091316
Train Epoch: 3 [32000/60000 (53%)]      Loss: 0.028387
Train Epoch: 3 [32640/60000 (54%)]      Loss: 0.021545
Train Epoch: 3 [33280/60000 (55%)]      Loss: 0.029848
Train Epoch: 3 [33920/60000 (57%)]      Loss: 0.043709
Train Epoch: 3 [34560/60000 (58%)]      Loss: 0.042561
Train Epoch: 3 [35200/60000 (59%)]      Loss: 0.076382
Train Epoch: 3 [35840/60000 (60%)]      Loss: 0.046256
Train Epoch: 3 [36480/60000 (61%)]      Loss: 0.027359
Train Epoch: 3 [37120/60000 (62%)]      Loss: 0.020977
Train Epoch: 3 [37760/60000 (63%)]      Loss: 0.052974
Train Epoch: 3 [38400/60000 (64%)]      Loss: 0.021661
Train Epoch: 3 [39040/60000 (65%)]      Loss: 0.026136
Train Epoch: 3 [39680/60000 (66%)]      Loss: 0.078350
Train Epoch: 3 [40320/60000 (67%)]      Loss: 0.082385
Train Epoch: 3 [40960/60000 (68%)]      Loss: 0.014897
Train Epoch: 3 [41600/60000 (69%)]      Loss: 0.147838
Train Epoch: 3 [42240/60000 (70%)]      Loss: 0.088518
Train Epoch: 3 [42880/60000 (71%)]      Loss: 0.031680
Train Epoch: 3 [43520/60000 (72%)]      Loss: 0.040140
Train Epoch: 3 [44160/60000 (74%)]      Loss: 0.036225
Train Epoch: 3 [44800/60000 (75%)]      Loss: 0.062954
Train Epoch: 3 [45440/60000 (76%)]      Loss: 0.166012
Train Epoch: 3 [46080/60000 (77%)]      Loss: 0.036110
Train Epoch: 3 [46720/60000 (78%)]      Loss: 0.050815
Train Epoch: 3 [47360/60000 (79%)]      Loss: 0.137706
Train Epoch: 3 [48000/60000 (80%)]      Loss: 0.119454
Train Epoch: 3 [48640/60000 (81%)]      Loss: 0.044965
Train Epoch: 3 [49280/60000 (82%)]      Loss: 0.057113
Train Epoch: 3 [49920/60000 (83%)]      Loss: 0.136251
Train Epoch: 3 [50560/60000 (84%)]      Loss: 0.010203
Train Epoch: 3 [51200/60000 (85%)]      Loss: 0.047752
Train Epoch: 3 [51840/60000 (86%)]      Loss: 0.058534
Train Epoch: 3 [52480/60000 (87%)]      Loss: 0.035447
Train Epoch: 3 [53120/60000 (88%)]      Loss: 0.014844
Train Epoch: 3 [53760/60000 (90%)]      Loss: 0.027868
Train Epoch: 3 [54400/60000 (91%)]      Loss: 0.058276
Train Epoch: 3 [55040/60000 (92%)]      Loss: 0.052562
Train Epoch: 3 [55680/60000 (93%)]      Loss: 0.017844
Train Epoch: 3 [56320/60000 (94%)]      Loss: 0.072829
Train Epoch: 3 [56960/60000 (95%)]      Loss: 0.004986
Train Epoch: 3 [57600/60000 (96%)]      Loss: 0.015616
Train Epoch: 3 [58240/60000 (97%)]      Loss: 0.022478
Train Epoch: 3 [58880/60000 (98%)]      Loss: 0.037333
Train Epoch: 3 [59520/60000 (99%)]      Loss: 0.023604

Test set: Average loss: 0.0561, Accuracy: 9813/10000 (98%)
```

就实验过程中遇到和出现的问题，你是如何解决和处理的，自拟 1－3 道问答题：

在使用 pytorch 训练 MNIST 时出错，通过在代码中应用下载数据集的函数解决了这一问题。