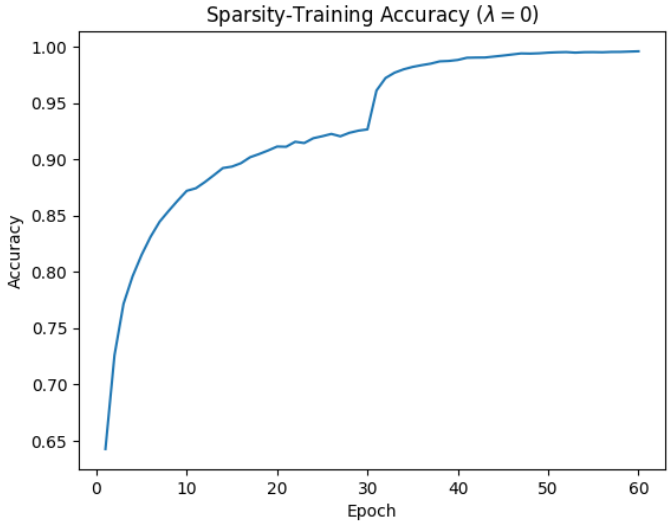
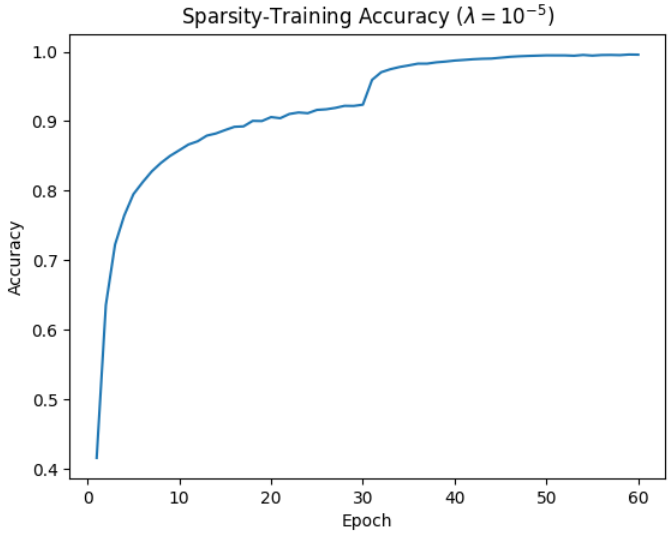
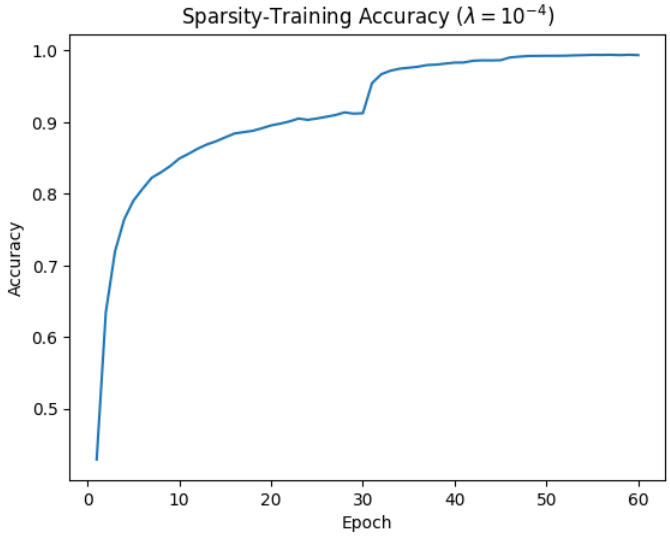
Lab 4 - Model Pruning

Sparsity Training Accuracy over Epochs

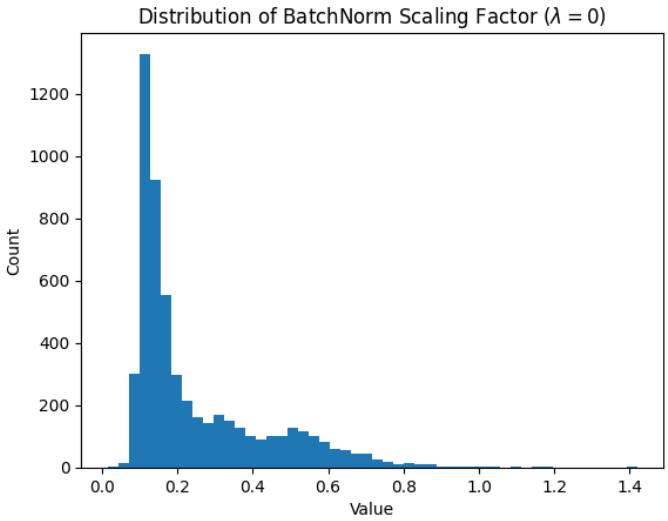




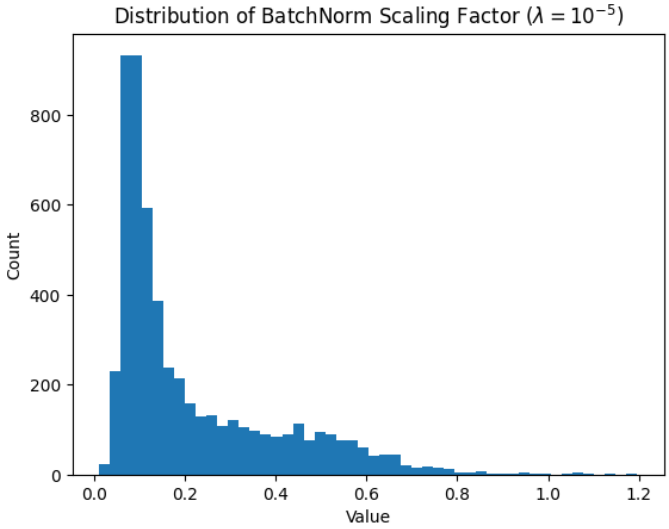


Sparsity Regularization

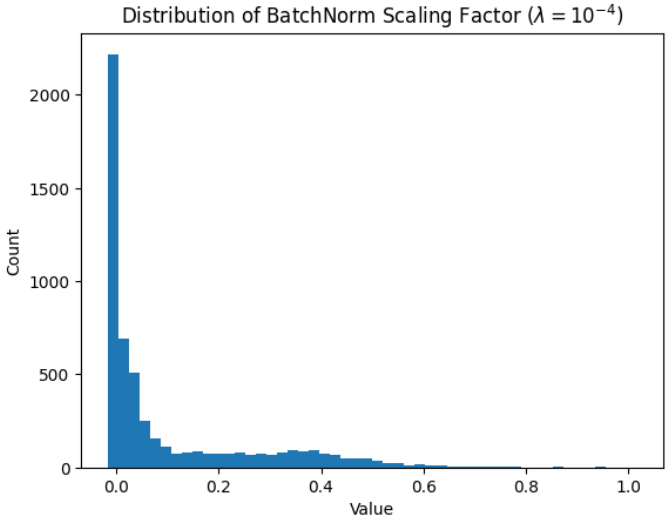
Scaling Factor Distribution of $\lambda = 0$



Scaling Factor Distribution of $\lambda = 10^{-5}$



Scaling Factor Distribution of $\lambda = 10^{-4}$



Test Accuracy with Prune Ratio 50%

Take $\lambda = 10^{-4}$ for example

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Test set: Accuracy: 1000/10000 (10.0%)
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Test Accuracy with Prune Ratio 90%

Take $\lambda = 10^{-4}$ for example

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Test set: Accuracy: 1000/10000 (10.0%)
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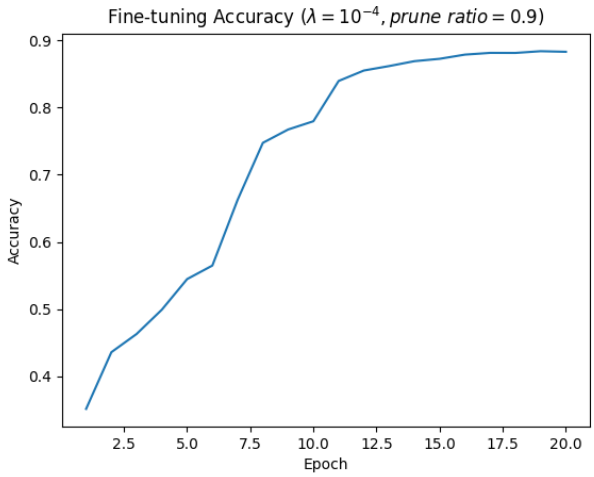
Fine Tuning Accuracy over Epochs

Take $\lambda = 10^{-4}$ and prune ratio 90% for example



Problem Encountered and Solution

這次 lab 最大的挑戰在於理論與實作的落差，雖然我大致理解助教在影片中講解的 pruning 概念，但在實際動手時卻卡住了，助教雖然提供了程式碼註解，但這些註解過於細碎，往往只解釋單行程式碼的作用，卻無法串連起整體運行的邏輯，讓我對應到理論的部分感到困難。

最後，我參考了《Learning Efficient Convolutional Networks through Network Slimming》這篇論文作者公開的程式碼實作 ([1], [2])，才逐漸釐清這次 lab 的實作細節並完成了這個 lab 的作業。

[1] liuzhuang13/slimming: Learning Efficient Convolutional Networks through Network Slimming, In ICCV 2017.

[2] Eric-mingjie/network-slimming: Network Slimming (Pytorch) (ICCV 2017)