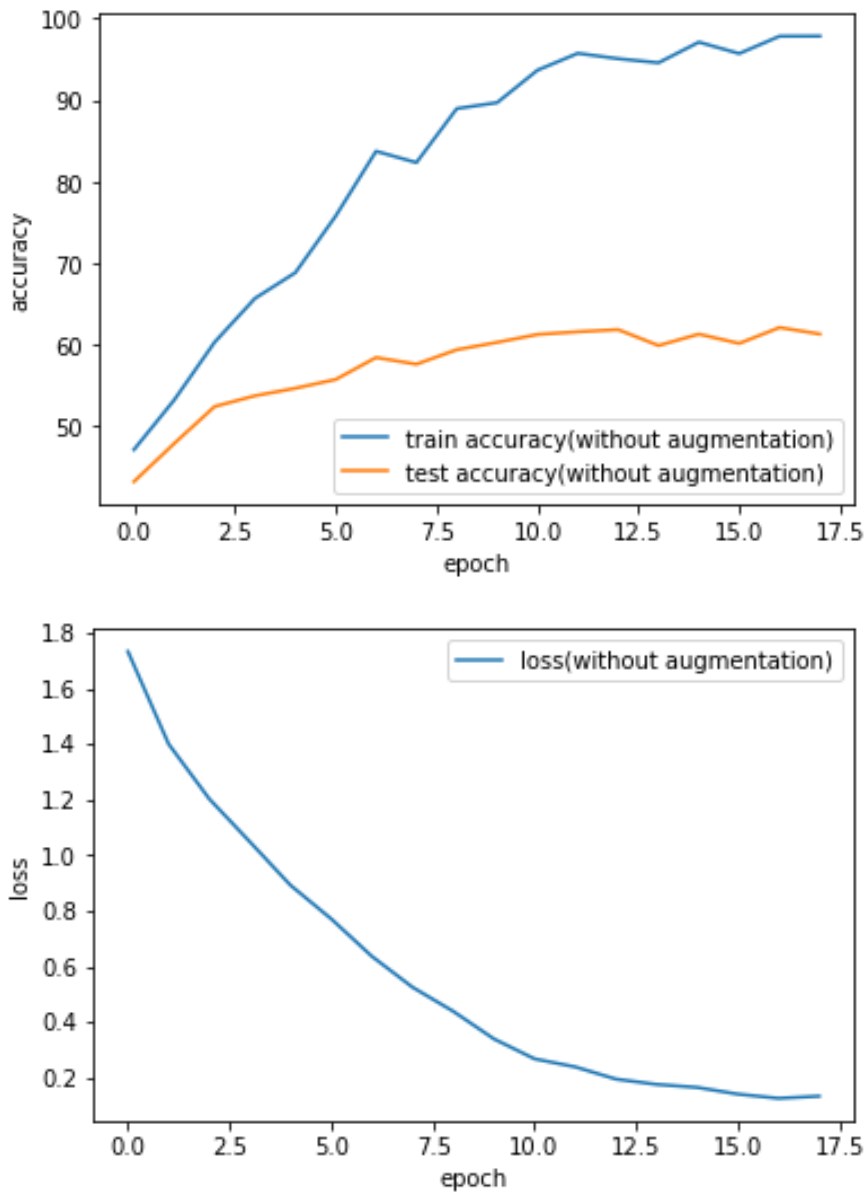# EE 228 HW#4 - Data Augmentation

Yin_Yu Chang

I add early stop determination in my code. The model should train 100 epoch. But if the loss stop decrease, the model would stop training.
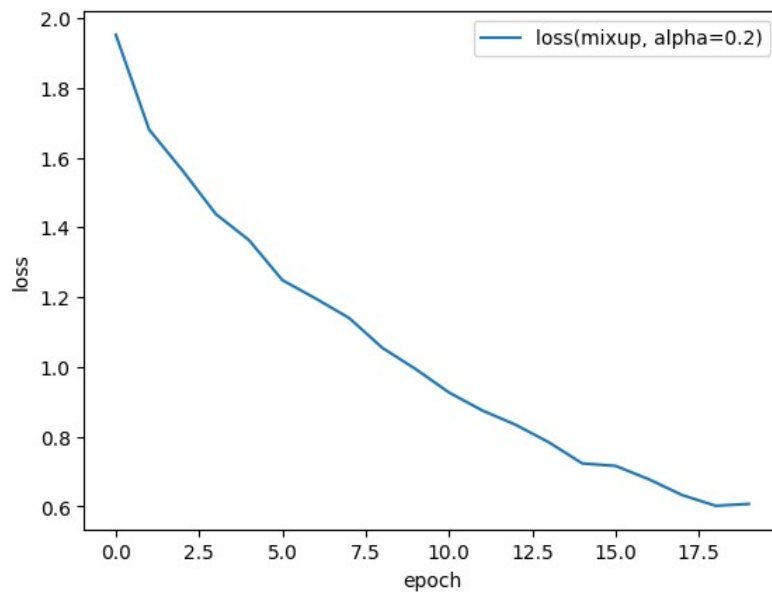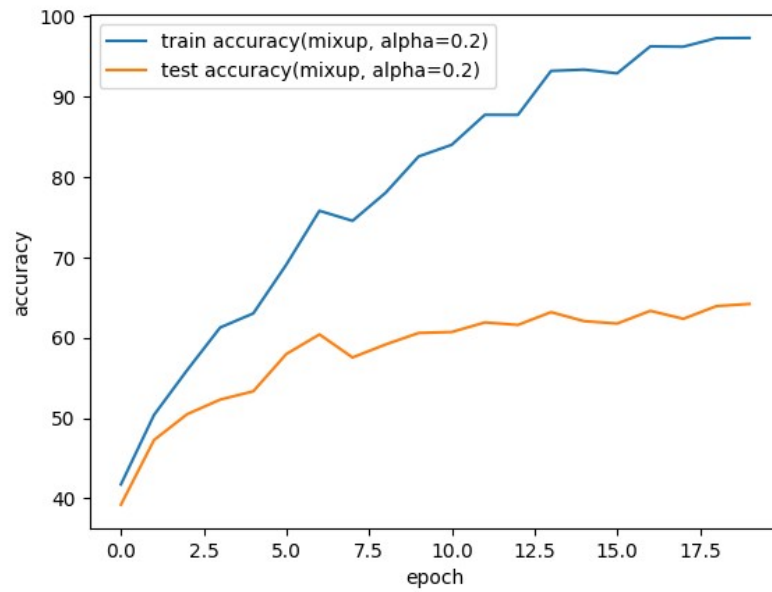
1. Without augmentation

Final test accuracy: 61.3
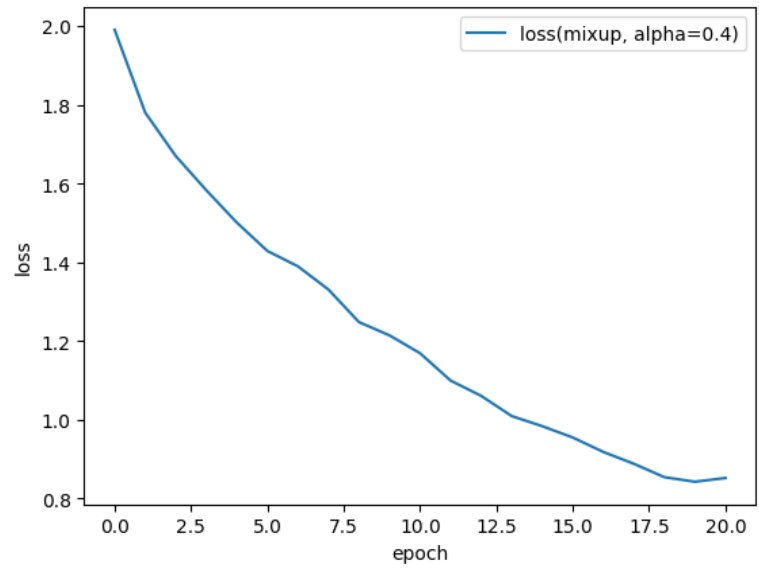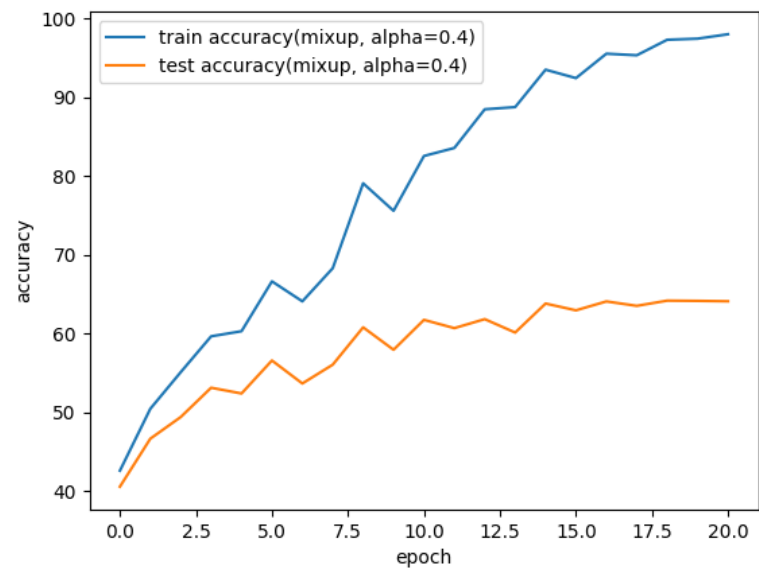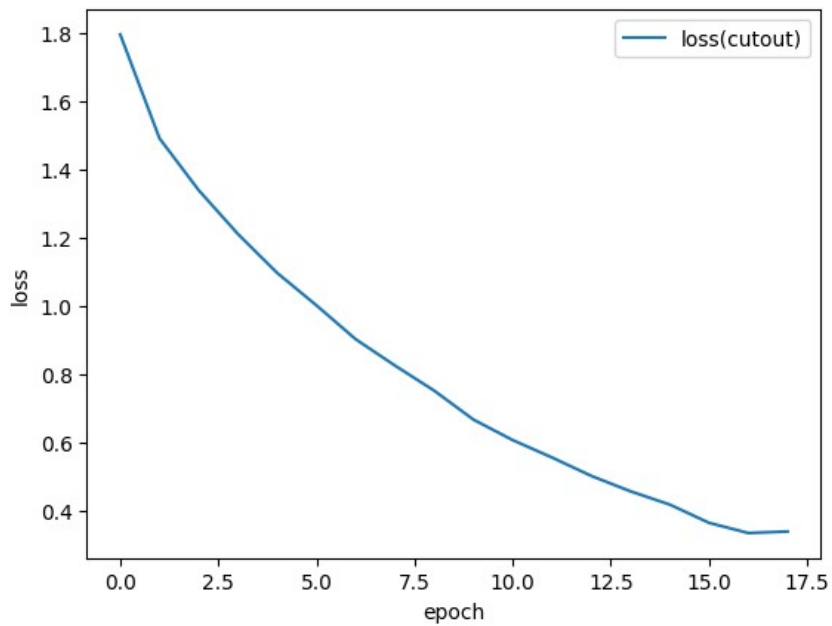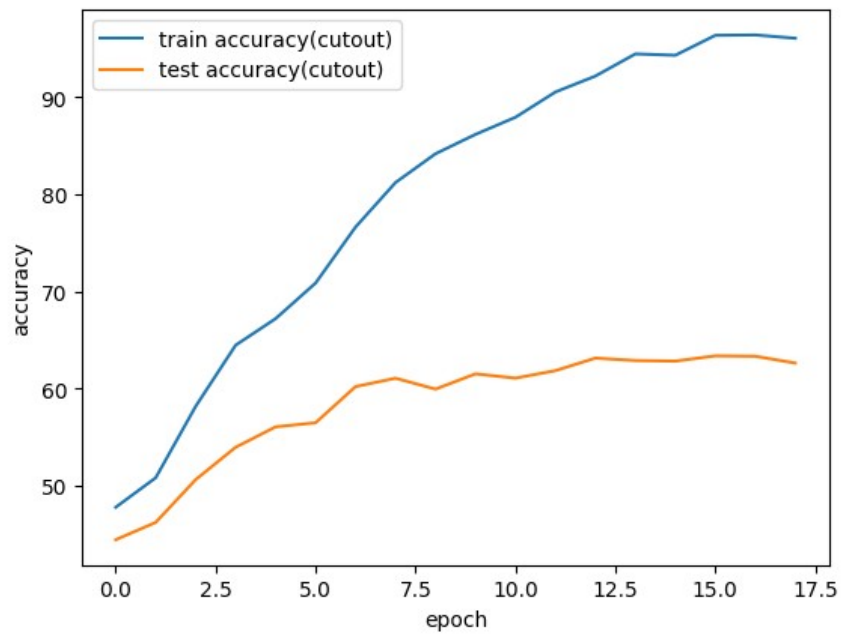
2. Mixup

- ● alpha=0.2
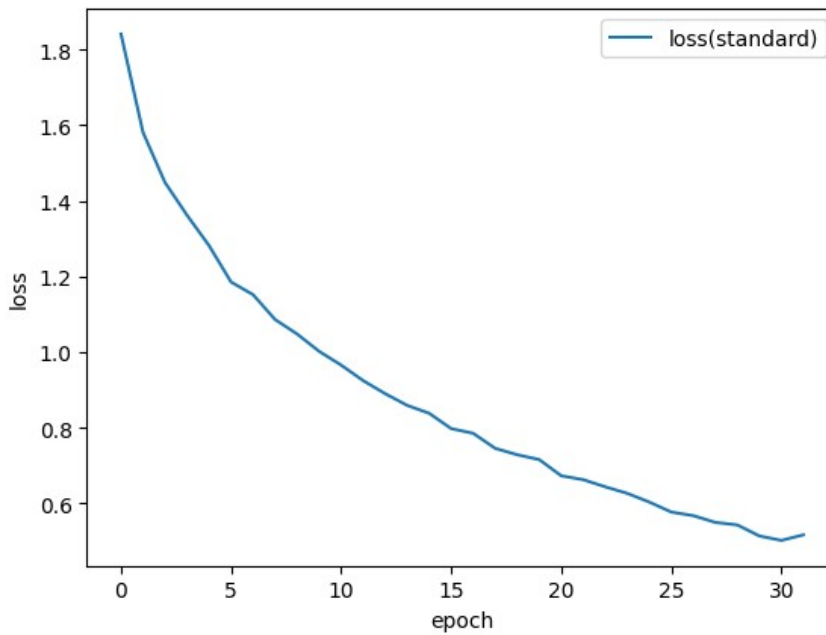

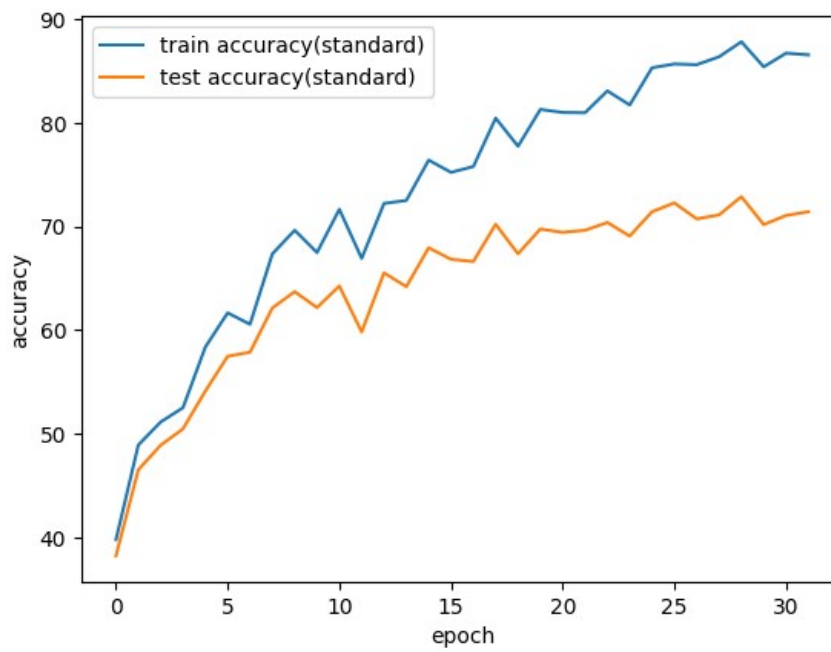Final test accuracy: 64.19

- alpha=0.4

Final test accuracy: 64.17

3. Cutout

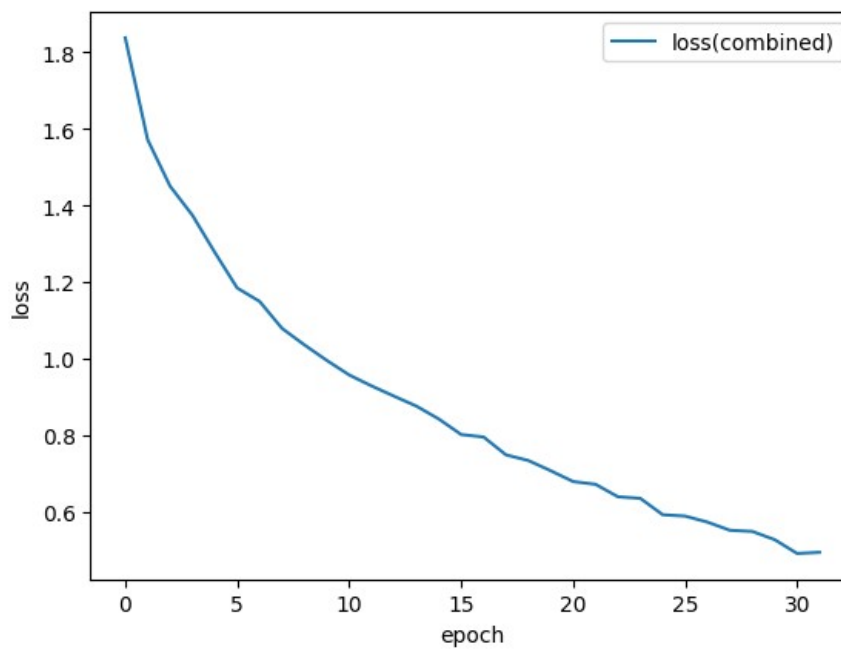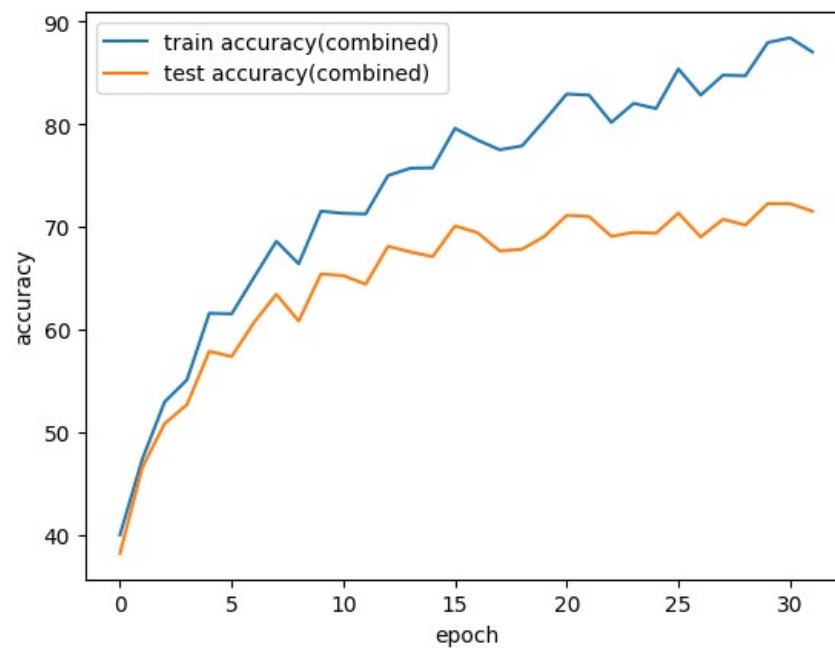

Final test accuracy: 63.36

4. Standard

Final test accuracy: 72.86

5. Combine all

Final test accuracy: 72.26

6. Comment on the role of data augmentation. How does it affect test accuracy, train accuracy and the convergence of optimization? Is test accuracy higher? Does training loss converge faster?

   Data augmentation expand the training dataset. This help model generalize better to unseen data. After augmentation, I got better test accuracy, because the model becomes less sensitive to specific characteristics of the training data, and focus on more general features. After the augmentation, the training accuracy decrease because the augmentation prevent model from fit perfectly to the training data. With data augmentation, it took longer for the training loss to converge. This is because the the increased complexity and variability in the training dataset.