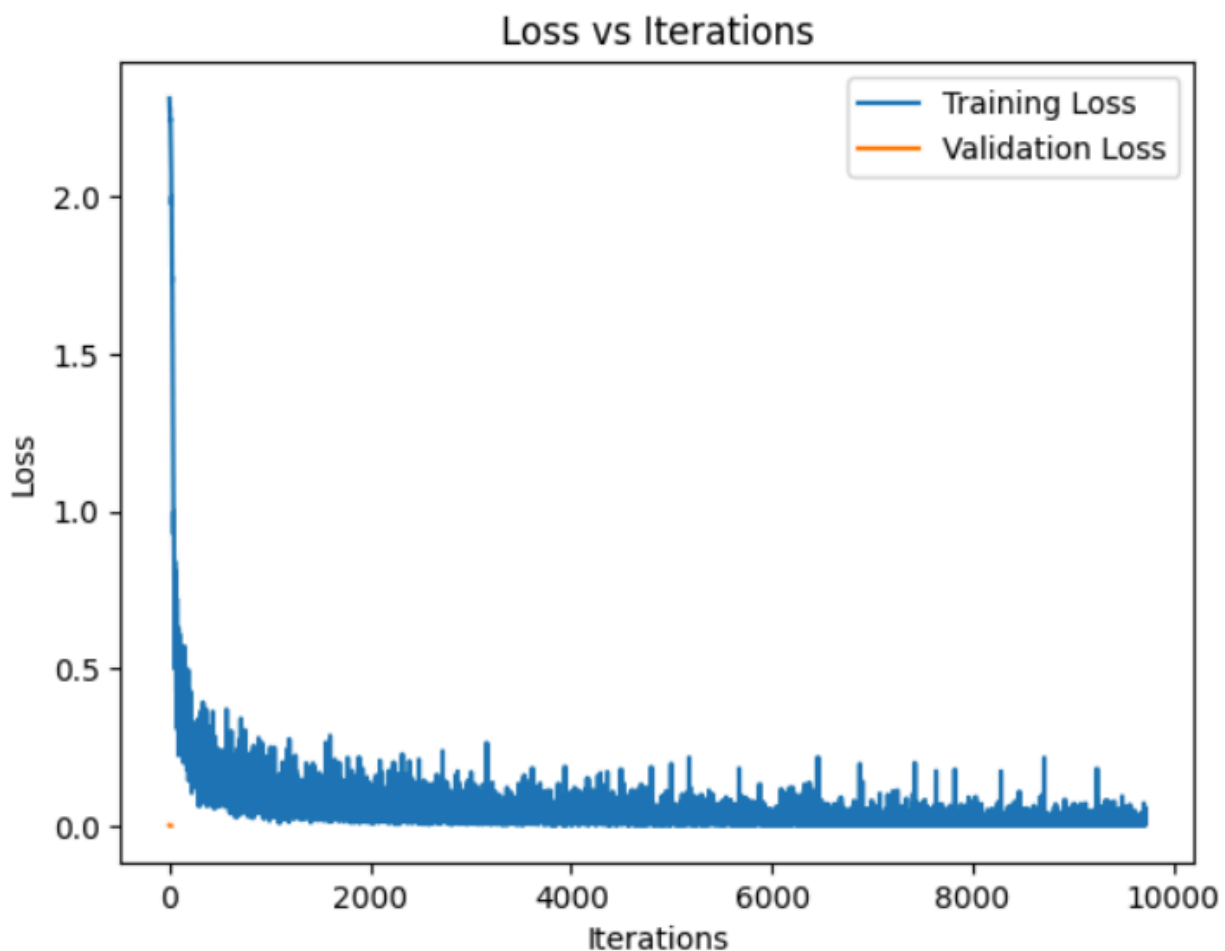# Task 16 (Improved)

Changes made

1. Removed dropout

2. Added and tuned weight decay

3. Added early stopping

4. Created Validation set of 6000 images

Results

Early stopping at 18 epochs

Training Accuracy: 99.59%
Validation set: Average loss: 0.0004, Accuracy: 5933/6000 (98.883333%)

Loss vs Iterations

Test Accuracy: 0.990200
Class 0: Precision=0.997942, Recall=0.989796, F1-score=0.993852
Class 1: Precision=0.995610, Recall=0.999119, F1-score=0.997361
Class 2: Precision=0.985605, Recall=0.995155, F1-score=0.990357
Class 3: Precision=0.987179, Recall=0.991089, F1-score=0.989130
Class 4: Precision=0.985887, Recall=0.995927, F1-score=0.990881
Class 5: Precision=0.989865, Recall=0.985426, F1-score=0.987640
Class 6: Precision=0.995812, Recall=0.992693, F1-score=0.994250
Class 7: Precision=0.990148, Recall=0.977626, F1-score=0.983847
Class 8: Precision=0.991744, Recall=0.986653, F1-score=0.989192
Class 9: Precision=0.982249, Recall=0.987116, F1-score=0.984676

Confusion Matrix