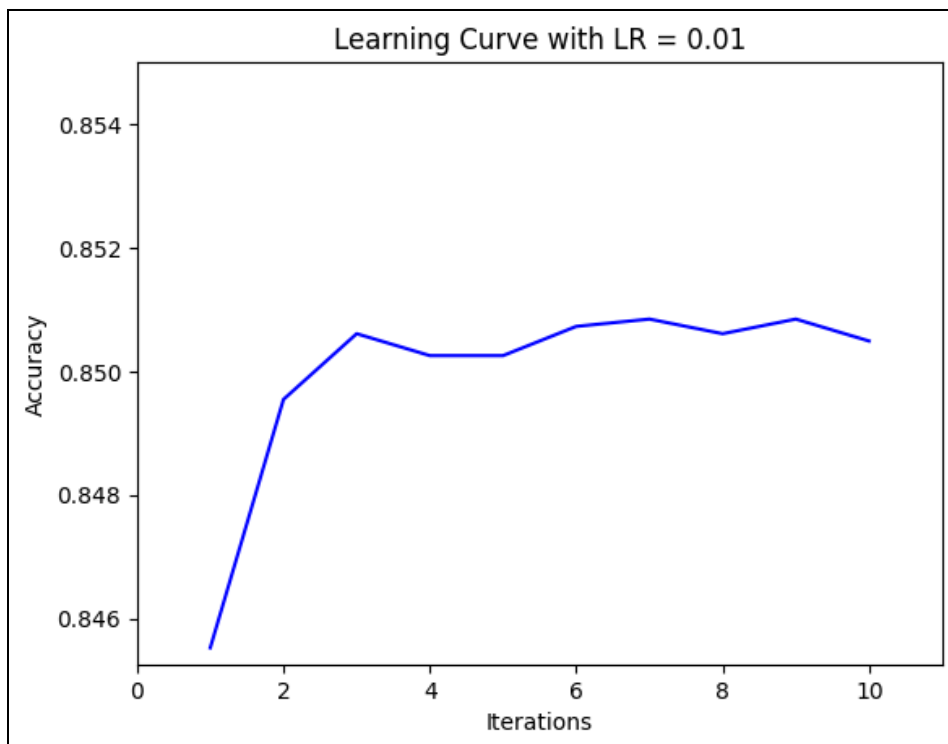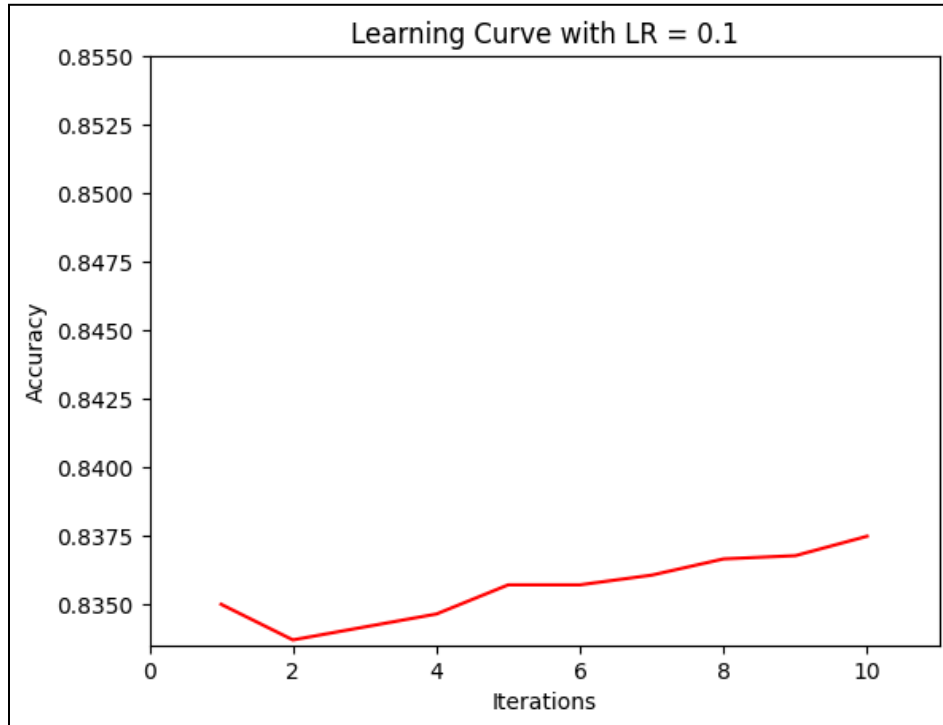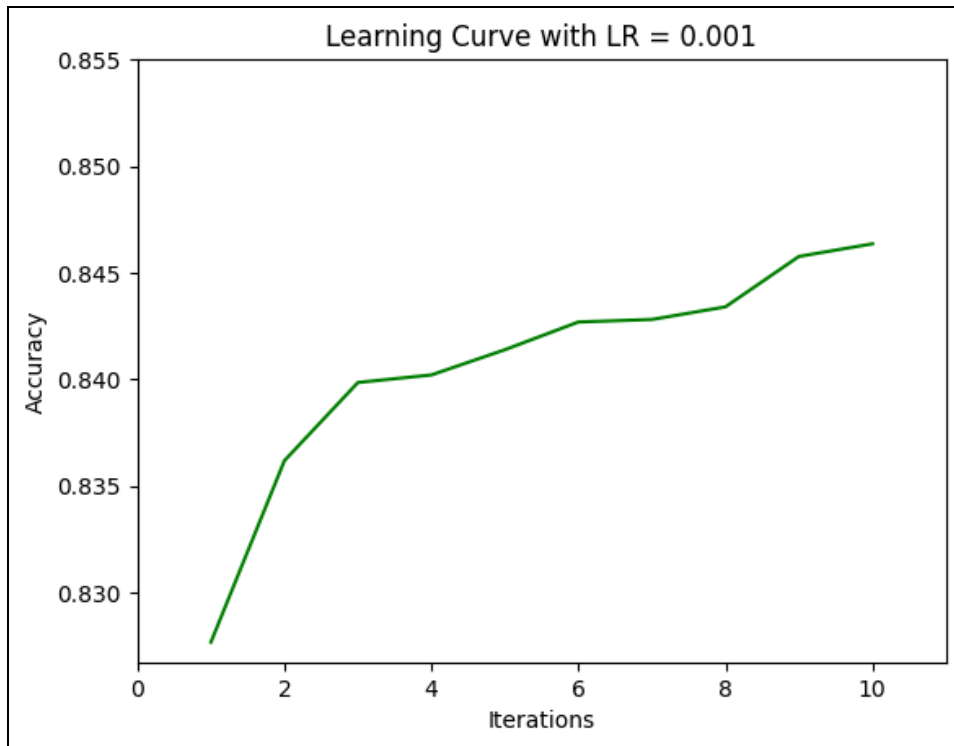# Learning Curve of Accuracy vs Updates

💡Summary: Learning Curve converges to **0.85** for all Learning rates and Iterations. However, at Learning rate = 0.01, there is overfitting beyond the 10th iteration.

Testing with N = 10 iterations

Learning Curve with LR = 0.1

Learning Curve with LR = 0.01
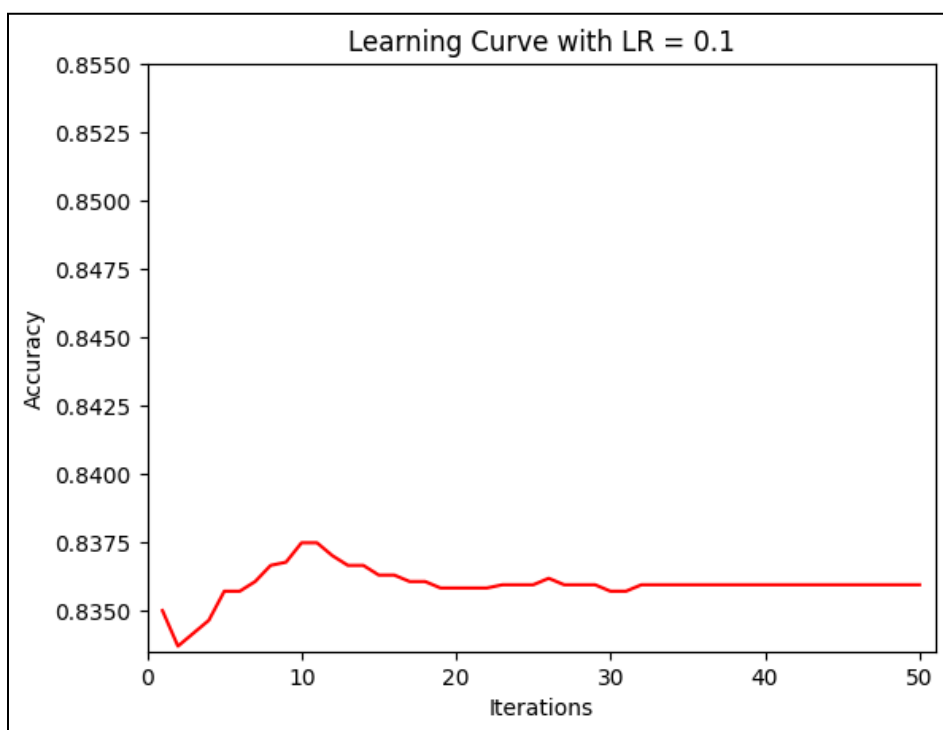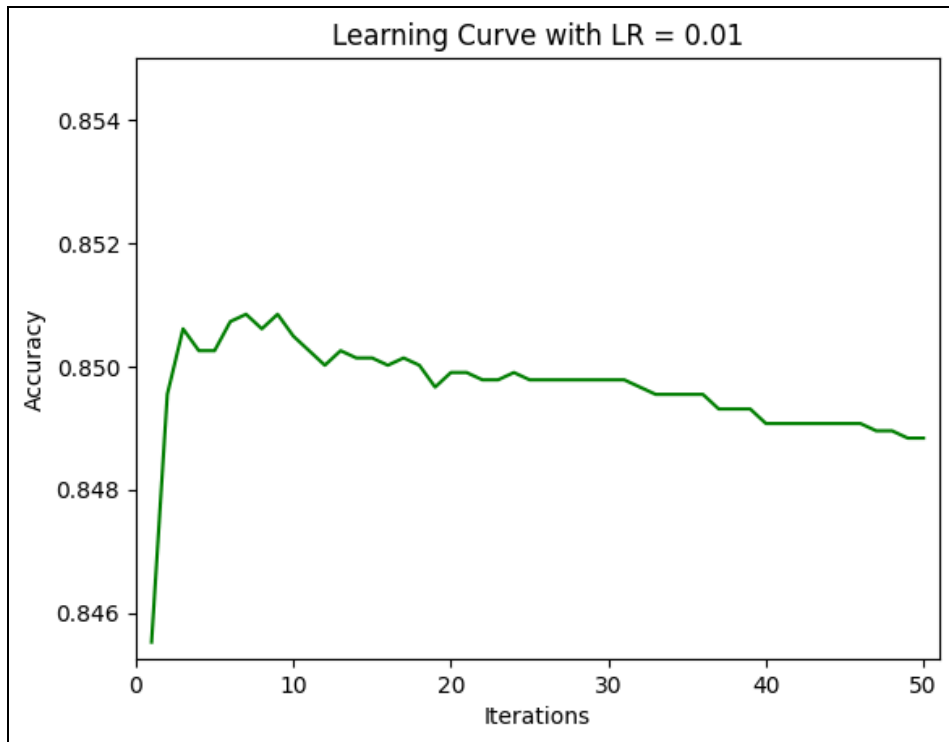
Learning Curve with LR = 0.001

Accuracy converges to 0.85 at LR = 0.01 and Iterations = 10 (Best performing)
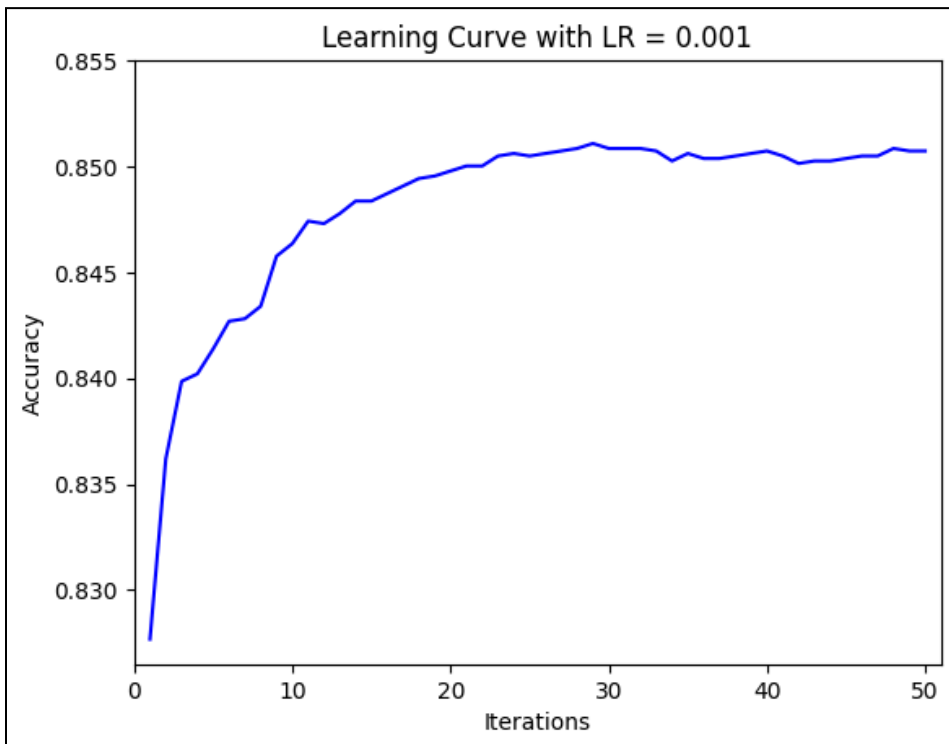
- There is no overfitting here since model performance has not degraded yet.

Testing with N = 50 iterations

Learning Curve with LR = 0.1
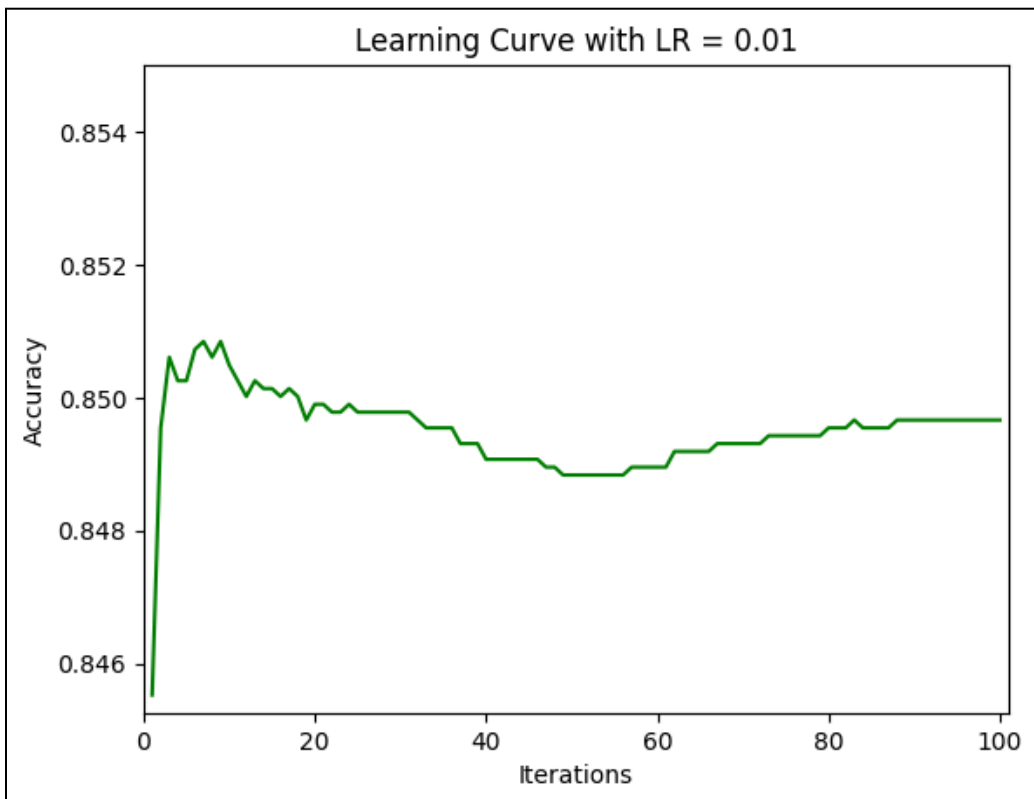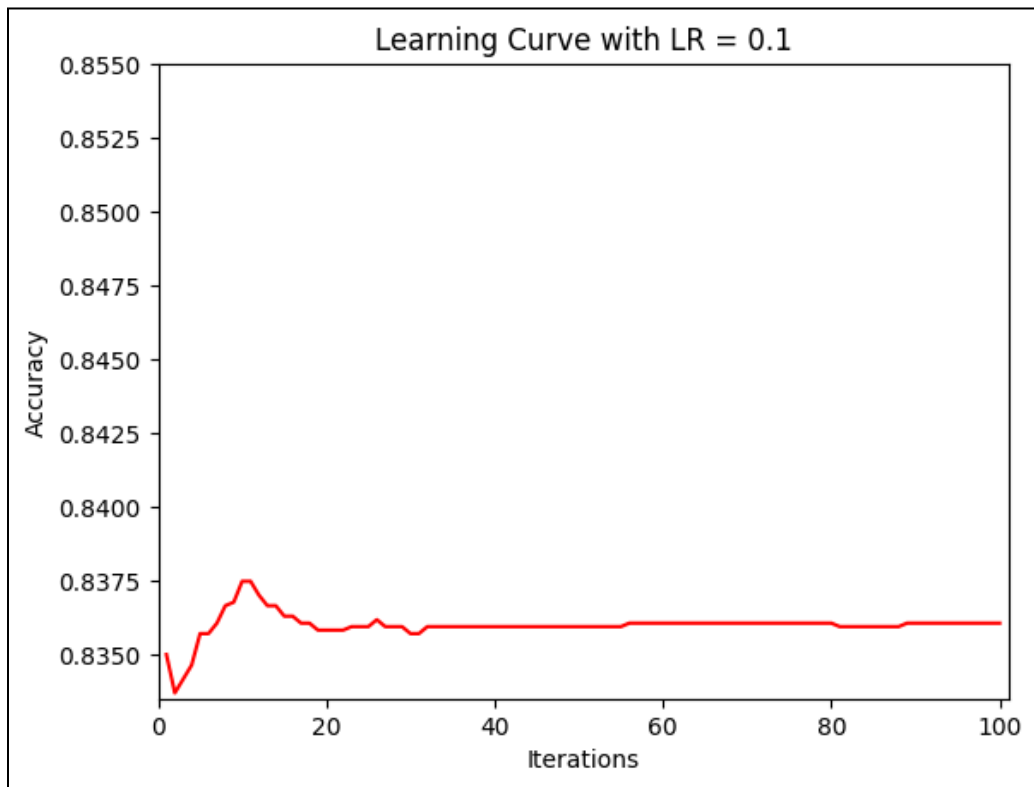
Learning Curve with LR = 0.01

- Here, we notice **overfitting** happening after 10 iterations since accuracy on test data has fallen.
- Hence, the best iteration is 10 for LR = 0.01

Learning Curve with LR = 0.001

Here, too, the curve converges toward 0.85 and model performance on test data has not degraded yet.

Testing with N = 100 iteration

- **Overfitting happens between iterations 10 and 80 since model accuracy dips.**

Learning Curve with LR = 0.001