**3. AdaBoost Classifier Experiments**

1. Default parameters:
   * Result: F1 Score = 0.943
   * Parameters: All default
2. Experiment 1:
   * n\_estimators: 50
   * learning\_rate: 1.0
   * algorithm: 'SAMME.R'
   * Result: F1 Score = 0.945
3. Experiment 2:
   * n\_estimators: 100
   * learning\_rate: 0.5
   * algorithm: 'SAMME.R'
   * Result: F1 Score = 0.951
4. Experiment 3:
   * n\_estimators: 200
   * learning\_rate: 0.1
   * algorithm: 'SAMME.R'
   * Result: F1 Score = 0.948
5. Experiment 4:
   * n\_estimators: 150
   * learning\_rate: 0.3
   * algorithm: 'SAMME.R'
   * Result: F1 Score = 0.947
6. Experiment 5:
   * n\_estimators: 75
   * learning\_rate: 0.8
   * algorithm: 'SAMME'
   * Result: F1 Score = 0.944

Best Configuration (AdaBoost):

* n\_estimators: 100
* learning\_rate: 0.5
* algorithm: 'SAMME.R'
* Best F1 Score: 0.951