**2. Random Forest Classifier Experiments**

1. Default parameters:
   * Result: F1 Score = 0.956
   * Parameters: All default
2. Experiment 1:
   * n\_estimators: 100
   * max\_depth: 10
   * min\_samples\_split: 5
   * criterion: 'gini'
   * Result: F1 Score = 0.961
3. Experiment 2:
   * n\_estimators: 200
   * max\_depth: 15
   * min\_samples\_split: 8
   * criterion: 'entropy'
   * Result: F1 Score = 0.967
4. Experiment 3:
   * n\_estimators: 150
   * max\_depth: None
   * min\_samples\_split: 10
   * criterion: 'gini'
   * Result: F1 Score = 0.963
5. Experiment 4:
   * n\_estimators: 250
   * max\_depth: 12
   * min\_samples\_split: 6
   * criterion: 'entropy'
   * Result: F1 Score = 0.965
6. Experiment 5:
   * n\_estimators: 180
   * max\_depth: 8
   * min\_samples\_split: 4
   * criterion: 'gini'
   * Result: F1 Score = 0.962

Best Configuration (Random Forest):

* n\_estimators: 200
* max\_depth: 15
* min\_samples\_split: 8
* criterion: 'entropy'
* Best F1 Score: 0.967