Using create\_dataset.py:

K = 5

R = 30

| (% accuracy) | Non-SMOTE | SMOTE |
| --- | --- | --- |
| Regular KNN | 73.42% | 77.11% |
| Weighted Averaging | 76.58% | 77.11% |
| Weighted Distancing | 73.68% | 77.63% |
| Local Density Weighting | 74.47% | 77.37% |
| All Methods Combined | 75.26% | 76.58% |

NON-SMOTE:

Regular KNN Accuracy: 73.42%

Confusion Matrix:

Predicted -[2, 0, 1]

Actual 2-[46, 28, 8]

Actual 0-[14, 203, 4]

Actual 1-[13, 34, 30]

Weighted Averaging KNN Accuracy: 76.58%

Confusion Matrix:

Predicted -[2, 0, 1]

Actual 2-[48, 21, 13]

Actual 0-[10, 202, 9]

Actual 1-[9, 27, 41]

Weighted Distancing KNN Accuracy: 73.68%

Confusion Matrix:

Predicted -[2, 0, 1]

Actual 2-[43, 27, 12]

Actual 0-[12, 204, 5]

Actual 1-[11, 33, 33]

Local Density Weighting KNN Accuracy: 74.47%

Confusion Matrix:

Predicted -[2, 0, 1]

Actual 2-[43, 30, 9]

Actual 0-[6, 207, 8]

Actual 1-[8, 36, 33]

All Methods Combined KNN Accuracy: 75.26%

Confusion Matrix:

Predicted -[2, 0, 1]

Actual 2-[46, 23, 13]

Actual 0-[11, 202, 8]

Actual 1-[8, 31, 38]

SMOTE:

Regular KNN Accuracy: 77.11%

Confusion Matrix:

Predicted -[2, 0, 1]

Actual 2-[53, 16, 13]

Actual 0-[21, 198, 2]

Actual 1-[17, 18, 42]

Weighted Averaging KNN Accuracy: 77.11%

Confusion Matrix:

Predicted -[2, 0, 1]

Actual 2-[53, 16, 13]

Actual 0-[21, 198, 2]

Actual 1-[17, 18, 42]

Weighted Distancing KNN Accuracy: 77.63%

Confusion Matrix:

Predicted -[2, 0, 1]

Actual 2-[53, 16, 13]

Actual 0-[19, 199, 3]

Actual 1-[14, 20, 43]

Local Density Weighting KNN Accuracy: 77.37%

Confusion Matrix:

Predicted -[2, 0, 1]

Actual 2-[52, 16, 14]

Actual 0-[18, 198, 5]

Actual 1-[13, 20, 44]

All Methods Combined KNN Accuracy: 76.58%

Confusion Matrix:

Predicted -[2, 0, 1]

Actual 2-[50, 19, 13]

Actual 0-[17, 201, 3]

Actual 1-[14, 23, 40]