**Cleavland dataset**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Logistic Regression** | **Decision Tree** | **Gaussian Naives Bayes** | **KNN** | **Random Forest** | **SVM** |
| **Multiple Algorithms** | **92.86** | 75.41 | **94.29** | 83.61 | 86.89 | 90.00 |
| **Multiple Algorithms with correlation** | **92.86** | 78.69 | 85.25 | 86.89 | 81.97 | 90.16 |
| **Multiple Algorithms with PCA** | **92.86** | 78.69 | 88.52 | 83.61 | 88.52 | 90.16 |
| **Multiple Algorithms with PCA and Correlation** | **92.86** | 80.33 | 86.89 | 86.89 | 83.61 | 90.16 |
| **Multiple Algorithms with Class Imbalance** | **94.29** | 75.71 | 90.00 | 82.86 | 90.00 | 90.00 |

**Heardiseaseall dataset**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Logistic Regression** | **Decision Tree** | **Gaussian Naives Bayes** | **KNN** | **Random Forest** | **SVM** |
| **Multiple Algorithms** | 91.23 | 77.19 | **94.74** | 85.96 | 85.96 | 87.72 |
| **Multiple Algorithms with correlation** | 89.47 | 78.95 | 87.72 | **92.98** | 84.21 | 91.23 |
| **Multiple Algorithms with PCA** | **91.23** | 73.68 | 89.47 | 85.96 | 89.47 | 87.72 |
| **Multiple Algorithms with PCA and Correlation** | 89.47 | 84.21 | 85.96 | **92.98** | 80.70 | 91.23 |

**Hungarian dataset**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Logistic Regression** | **Decision Tree** | **Gaussian Naives Bayes** | **KNN** | **Random Forest** | **SVM** |
| **Multiple Algorithms** | **91.07** | 78.57 | 83.93 | 82.14 | 83.93 | 82.14 |
| **Multiple Algorithms with correlation** | **91.07** | 66.07 | 78.57 | 73.21 | 78.57 | 85.71 |
| **Multiple Algorithms with PCA** | **91.07** | 78.57 | 87.50 | 82.14 | 83.93 | 82.14 |
| **Multiple Algorithms with PCA and Correlation** | **91.07** | 66.07 | 85.71 | 73.21 | 73.21 | 85.71 |

**LongBeach dataset**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Logistic Regression** | **Decision Tree** | **Gaussian Naives Bayes** | **KNN** | **Random Forest** | **SVM** |
| **Multiple Algorithms** | 86.11 | 83.33 | 11.11 | 86.11 | **91.67** | 80.56 |
| **Multiple Algorithms with correlation** | 77.78 | 69.44 | 11.11 | **86.11** | 80.56 | 80.56 |
| **Multiple Algorithms with PCA** | **86.11** | 77.78 | 83.33 | **86.11** | 72.22 | 80.56 |
| **Multiple Algorithms with PCA and Correlation** | 77.78 | 66.67 | 77.78 | **86.11** | 80.56 | 80.56 |

**Switzerland dataset**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Logistic Regression** | **Decision Tree** | **Gaussian Naives Bayes** | **KNN** | **Random Forest** | **SVM** |
| **Multiple Algorithms** | 86.96 | **91.30** | 65.22 | **91.30** | **91.30** | **91.30** |
| **Multiple Algorithms with correlation** | 86.96 | 86.96 | 65.22 | **91.30** | 86.96 | **91.30** |
| **Multiple Algorithms with PCA** | 86.96 | 82.61 | 82.61 | **91.30** | 86.96 | **91.30** |
| **Multiple Algorithms with PCA and Correlation** | 86.96 | **91.30** | 86.96 | **91.30** | **91.30** | **91.30** |

Basic Evaluation f eatures

**Cleavland dataset**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Logistic Regression** | **Decision Tree** | **Gaussian Naives Bayes** | **KNN** | **Random Forest** |
| **Error Rate** | **0.0571** | 0.242 | **0.1** | 0.18 | 0.1 |
| **Accuracy** | **0.9428** | 0.7571 | 0.9 | 0.82 | 0.9 |
| **Sensitivity (Recall or True positive rate)** | **0.9268** | 0.7804 | 0.9268 | 0.829 | 0.90 |
| **Specificity (True negative rate)** | **0.9655** | 0.724 | 0.8620 | 0.8275 | 0.8965 |
| **Precision (Positive predictive value)** | **2.0** | 9.0 | 5.0 | 6.0 | 4.0 |
| **False positive rate** | **1.03571** | 8.3809 | 4.16 | 5.2083 | 3.115 |
| **Confusion matrix** | **[[38 3]**  **[ 1 28]]** | [[32 9]  [ 8 21]] | [[38 3]  [ 4 25]] | [[34 7]  [ 5 24]] | [[37 4]  [ 3 26]] |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Before SMOTE Technique** | **Logistic Regression** | **Decision Tree** | **Gaussian Naives Bayes** | **KNN** | **Random Forest** |
| **Error Rate** | **0.0714** | 0.2428 | **0.0571** | 0.1571 | 0.1285 |
| **Accuracy** | 0.9285 | 0.7571 | 0.9428 | 0.8428 | 0.8714 |
| **Sensitivity (Recall or True positive rate)** | 0.9268 | 0.7804 | 0.9756 | 0.8780 | 0.8536 |
| **Specificity (True negative rate)** | 0.9310 | 0.724 | 0.8965 | 0.7931 | 0.8965 |
| **Precision (Positive predictive value)** | **3.0** | 9.0 | 4.0 | 7.0 | 4.0 |
| **False positive rate** | **2.0740** | 8.3809 | 3.1153 | 6.2608 | 3.1153 |
| **Confusion matrix** | **[[38 3]**  **[ 2 27]]** | [[32 9]  [ 8 21]] | [[40 1]  [ 3 26]] | [[36 5]  [ 6 23]] | [[35 6]  [ 3 26]] |