|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| XGOOST results for different databases | | | | | | |
|  | DB1 | DB2 | DB3 | DB4 | DB5 | DB6 |
| Cv=10 | 97.58% (+/- 0.36%) | 91.68% (+/- 32.79%) |  |  |  |  |
| Train/test=80/20 | 96.83% | 95.64% |  |  |  |  |

cv = RepeatedKFold(n\_splits=10, n\_repeats=3, random\_state=1)

XGBOOST : csvlist1.txt

Accuracy: 96.83%

Cross validation score: 97.58% (+/- 0.36%)

>>> Metrics

Recall : 84.83%

Precision :88.76%

MSE :42365.63%

F1 Score :96.68%

Thresh=0.117, number of features=8, Accuracy: 96.83%

Thresh=0.119, n=7, Accuracy: 33.23%

Thresh=0.123, n=6, Accuracy: 20.48%

Thresh=0.124, n=5, Accuracy: 15.32%

Thresh=0.125, n=4, Accuracy: 8.25%

Thresh=0.130, n=3, Accuracy: 6.06%

Csvlist2.txt

Accuracy: 95.64%

Cross validation score: 91.68% (+/- 32.79%)

>>> Metrics

Recall : 81.52%

Precision :87.83%

MSE :43155.26%

F1 Score :95.42

% Thresh=0.028, n=8, Accuracy: 95.64%

Thresh=0.029, n=7, Accuracy: 38.30%

Thresh=0.031, n=6, Accuracy: 30.97%

Thresh=0.120, n=5, Accuracy: 21.58%

Thresh=0.130, n=4, Accuracy: 2.58%

Thresh=0.141, n=3, Accuracy: 11.31%

Thresh=0.240, n=2, Accuracy: 3.22%

Thresh=0.282, n=1, Accuracy: 13.32%

Csvlist3.txt

Accuracy: 96.41%

Cross validation score: 96.98% (+/- 0.43%)

>>> Metrics

Recall : 83.33%

Precision :87.85%

MSE :42547.26%

F1 Score :96.24%

Thresh=0.052, n=16, Accuracy: 96.41%

Thresh=0.056, n=15, Accuracy: 29.90%

Thresh=0.057, n=14, Accuracy: 35.17%

Thresh=0.057, n=13, Accuracy: 18.07%

Thresh=0.059, n=12, Accuracy: 9.84%

Thresh=0.060, n=11, Accuracy: 7.58%

Thresh=0.061, n=10, Accuracy: 9.73%

Thresh=0.063, n=9, Accuracy: 11.45%

Thresh=0.065, n=8, Accuracy: 7.37%

Thresh=0.065, n=7, Accuracy: 5.81%

Thresh=0.065, n=6, Accuracy: 4.42%

Thresh=0.066, n=5, Accuracy: 3.29%

Thresh=0.067, n=4, Accuracy: 3.34%

Thresh=0.068, n=3, Accuracy: 3.34%

Thresh=0.069, n=2, Accuracy: 2.32%

Thresh=0.070, n=1, Accuracy: 2.16%

Csvlist4.txt

Accuracy Tr/ts: 96.32%

Cross validation score: 96.94% (+/- 0.51%)

>>> Metrics

Recall2 : 82.27%

Precision2 :87.24%

MSE2 :33350.69%

F1 Score2 :96.11%

Thresh=0.057, n=16, Accuracy: 96.32%

Thresh=0.057, n=15, Accuracy: 33.80%

Thresh=0.057, n=14, Accuracy: 36.20%

Thresh=0.058, n=13, Accuracy: 20.24%

Thresh=0.058, n=12, Accuracy: 15.29%

Thresh=0.059, n=11, Accuracy: 15.58%

Thresh=0.061, n=10, Accuracy: 17.65%

Thresh=0.061, n=9, Accuracy: 16.12%

Thresh=0.061, n=8, Accuracy: 15.79%

Thresh=0.064, n=7, Accuracy: 15.44%

Csvlist5.txt

Accuracy: 91.86%

Cross validation score: 89.29% (+/- 32.20%)

>>> Metrics

Recall : 80.96%

Precision :87.14%

MSE :49674.15%

F1 Score :91.69%

Thresh=0.023, n=8, Accuracy: 91.86%

Thresh=0.027, n=7, Accuracy: 37.83%

Thresh=0.028, n=6, Accuracy: 25.71%

Thresh=0.035, n=5, Accuracy: 22.07%

Thresh=0.166, n=4, Accuracy: 1.46%

Thresh=0.225, n=3, Accuracy: 13.48%

Thresh=0.233, n=2, Accuracy: 13.89%

Thresh=0.263, n=1, Accuracy: 13.48%

Csvlist6.txt

Accuracy: 96.13%

Cross validation score: 96.89% (+/- 0.51%)

>>> Metrics

Recall : 84.37%

Precision :89.71%

MSE :31500.57%

F1 Score :95.94%

Thresh=0.050, n=16, Accuracy: 96.13%

Thresh=0.052, n=15, Accuracy: 32.95%

Thresh=0.056, n=14, Accuracy: 18.10%

Thresh=0.056, n=13, Accuracy: 23.77%

Thresh=0.063, n=12, Accuracy: 20.15%

Thresh=0.063, n=11, Accuracy: 24.07%

Thresh=0.064, n=10, Accuracy: 21.52%

Thresh=0.064, n=9, Accuracy: 16.60%

Thresh=0.064, n=8, Accuracy: 15.82%

Thresh=0.065, n=7, Accuracy: 13.75%

Thresh=0.066, n=6, Accuracy: 13.47%

Thresh=0.066, n=5, Accuracy: 13.48%

Thresh=0.066, n=4, Accuracy: 13.48%

Thresh=0.066, n=3, Accuracy: 13.48%

Thresh=0.067, n=2, Accuracy: 13.48%

Thresh=0.071, n=1, Accuracy: 13.48%

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| DB NAME | CV Accuracy (folds=10, n repeats=3) | Accuracy(train/test=80/20) | Recall | Precision | F1 score |
| DB1 | 97.58% | 96.83% | 84.83% | 88.76% | 96.68% |
| DB2 | 91.68% | 95.64% | 81.52% | 87.83% | 95.42% |
| DB3 | 96.98% | 96.41% | 83.33% | 87.85% | 96.24% |
| DB4 | 96.94% | 96.32% | 82.27% | 87.24% | 96.11% |
| DB5 | 89.29% | 91.86% | 80.96% | 87.14% | 91.69% |
| DB6 | 96.89% | 96.13% | 84.37 | 89.71% | 95.94% |

<https://www.geeksforgeeks.org/ml-bagging-classifier/?ref=lbp>

<https://www.geeksforgeeks.org/ml-voting-classifier-using-sklearn/>