C:\Users\61666\Anaconda3\python.exe C:/Users/61666/Desktop/public_version-txc注释版_v2精简数据读取部分_4_25/
public_version-txc注释版/Main_of_features_selection.py
Top 10 features:
```
        col       xgb
6     乳酸脱氢酶   0.320236
19    淋巴细胞(%)  0.075429
39    超敏C反应蛋白  0.037950
38        钠    0.036009
35        氯    0.031769
41    国际标准化比值  0.028761
10    嗜酸细胞(#)  0.028181
21    嗜酸细胞(%)  0.026354
33    单核细胞(%)  0.023962
22       白蛋白   0.022234
```
['乳酸脱氢酶']
5-Fold CV:
Train AUC-score is 0.9427 ; Validation AUC-score is 0.9229
Train AUC-score-std is 0.0082 ; Validation AUC-score-std is 0.0262
['乳酸脱氢酶''淋巴细胞(%)']
5-Fold CV:
Train AUC-score is 0.9674 ; Validation AUC-score is 0.9440
Train AUC-score-std is 0.0045 ; Validation AUC-score-std is 0.0231
['乳酸脱氢酶''淋巴细胞(%)''超敏C反应蛋白']
5-Fold CV:
Train AUC-score is 0.9784 ; Validation AUC-score is 0.9506
Train AUC-score-std is 0.0037 ; Validation AUC-score-std is 0.0221
['乳酸脱氢酶''淋巴细胞(%)''超敏C反应蛋白''钠']
5-Fold CV:
Train AUC-score is 0.9783 ; Validation AUC-score is 0.9503
Train AUC-score-std is 0.0038 ; Validation AUC-score-std is 0.0218
Selected features: ['乳酸脱氢酶''淋巴细胞(%)''超敏C反应蛋白']
single_tree:

	precision	recall	f1-score	support
0.0	1.00	0.98	0.99	135
1.0	0.97	1.00	0.99	110
accuracy			0.99	245
macro avg	0.99	0.99	0.99	245
weighted avg	0.99	0.99	0.99	245

	precision	recall	f1-score	support
0.0	0.95	0.96	0.96	57
1.0	0.96	0.94	0.95	49
accuracy			0.95	106
macro avg	0.95	0.95	0.95	106
weighted avg	0.95	0.95	0.95	106

```
True test label: [0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 1 0 0 0 0 0 0 0 0
 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 0 1 0 0 1 1 0 0 0 0 0 1 0 0 0 0 1 0 0 0 0 1 0 0 0 0 0 0 0 0 0 1 0 0 1 0]
Predict test label: [0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 1 1 0 0 0 0 0 0 0 0
 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0
 0 1 0 0 1 1 0 0 0 0 0 1 0 0 0 0 1 0 0 0 0 1 0 0 0 0 0 0 0 0 0 1 0 0 1 1]
```

	precision	recall	f1-score	support
0	1.00	0.97	0.98	97
1	0.81	1.00	0.90	13

```
      accuracy                          0.97      110
     macro avg      0.91     0.98       0.94      110
  weighted avg      0.98     0.97       0.97      110
```

Compare with other methods
Model:Multi-tree XGBoost with all features
AUC of Train:1.000000 with std:0.0000
AUC of Validation:0.997354 with std:0.0039
AUC socre: 0.9974937343358395
Model:Decision tree with all features
AUC of Train:0.998637 with std:0.0018
AUC of Validation:0.940673 with std:0.0295
AUC socre: 0.9138918725384891
Model:Random Forest with all features
AUC of Train:1.000000 with std:0.0000
AUC of Validation:0.996883 with std:0.0037
AUC socre: 0.9942713927676334
Model:Logistic regression with all features with regularization parameter = 1 (by default)
AUC of Train:0.999962 with std:0.0001
AUC of Validation:0.969530 with std:0.0227
AUC socre: 0.9627640529896169
Model:Logistic regression with all features with regularization parameter = 10
AUC of Train:0.999904 with std:0.0002
AUC of Validation:0.971278 with std:0.0221
AUC socre: 0.9634801288936627
ModelSingle-tree XGBoost with three features
AUC of Train:0.992410 with std:0.0028
AUC of Validation:0.977695 with std:0.0182
AUC socre: 0.9863945578231292
ModelDecision tree with three features
AUC of Train:0.993589 with std:0.0036
AUC of Validation:0.961002 with std:0.0259
AUC socre: 0.9557823129251702
ModelRandom Forest with a single tree constraint with three features
AUC of Train:0.982073 with std:0.0077
AUC of Validation:0.966284 with std:0.0232
AUC socre: 0.9421768707482994

Process finished with exit code 0