1. Data Normalization of Continious Attributes ( 0-1)

2. Dataset Without Time Attribute

3. Train(70%) Test(30%) Split

4. Feature Selection

a. RFE-RF

i. Top 2 Feature: ejection\_fraction, serum\_creatinine

Variables Accuracy Kappa Selected

1 0.6794 0.1384

2 0.7225 0.3313 \*

b. mRMR

Top 2 Features

Feature Name Score

ejection\_fraction 0.03760527

serum\_creatinine 0.01689575

Attribute Index score:

[1,] 3 0.037605275

[2,] 5 0.016895754

[3,] 1 0.013134613

[4,] 9 0.004090882

[5,] 2 0.002854237

[6,] 8 -0.001278114

[7,] 7 -0.001473184

[8,] 6 -0.001001121

[9,] 4 -0.002441136

[10,] 11 -0.002279581

[11,] 10 -0.014413065

5. SVM (20 times)

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | ACC | SD | Sen | SD | Spe | SD | MCC | SD | F1 | SD | AUC | SD |
| All | 0.745 | 0.0146 | 0.3948 | 0.1390 | 0.9115 | 0.0491 | 0.3737 | 0.0481 | 0.4820 | 0.1237 | 0.6532 | 0.046 |
| Selected | 0.7411 | 0.0177 | 0.4034 | 0.1130 | 0.9016 | 0.0349 | 0.3591 | 0.0596 | 0.4911 | 0.0950 | 0.6525 | 0.0412 |

6. DT

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Acc | Sen | Spe | MCC | F1 | AUC |
| All(0,5,20) | 0.844444 | 0.758621 | 0.885246 | 0.643867 | 0.758621 | 0.821933 |
| Selected(0.01,6,11) | 0.8 | 0.517241 | 0.934426 | 0.517222 | 0.625 | 0.725834 |

7. NB

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | ACC | Sen | Spe | MCC | F1 | Auc |
| All | 0.711 | 0.2759 | 0.918 | 0.2577 | 0.3809 | 0.5959 |
| Selected | 0.744 | 0.3448 | 0.9344 | 0.3601 | 0.4651 | 0.6396 |

8. LR

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | ACC | Sen | Spe | MCC | F1 | Auc |
| All | 0.766 | 0.5517 | 0.8688 | 0.4444 | 0.6038 | 0.7103 |
| Selected | 0.733 | 0.3448 | 0.9180 | 0.3296 | 0.4545 | 0.6314 |

9. knn

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | ACC | Sen | Spe | MCC | F1 | Auc |
| All (k=13) | 0.6778 | 0.10344 | 0.9508 | 0.1017 | 0.1714 | 0.5271 |
| Selected(k=19) | 0.722 | 0.4138 | 0.8688 | 0.3177 | 0.4898 | 0.6413 |