Feature Descriptor: LBP\_hf

1. Feature Selection: CFS

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Algorithm | AUC | AC | SN | SP | PR | FM | TIME |
| J48 | 0.539 | 0.511 | 0.511 | 0.519 | 0.517 | 0.506 | 0 |
| J48 binary tree | 0.701 | 0.672 | 0.672 | 0.678 | 0.681 | 0.67 | 0 |
| AODE | 0.721 | 0.664 | 0.664 | 0.671 | 0.675 | 0.662 | 0 |
| Bayes network | 0.72 | 0.672 | 0.672 | 0.681 | 0.687 | 0.668 | 0 |
| Naïve bay | 0.722 | 0.672 | 0.672 | 0.682 | 0.691 | 0.667 | 0 |
| SVM | 0.654 | 0.649 | 0.649 | 0.658 | 0.665 | 0.644 | 0 |
| Logistic | 0.636 | 0.634 | 0.634 | 0.633 | 0.634 | 0.634 | 0 |
| SMO | 0.69 | 0.687 | 0.687 | 0.694 | 0.697 | 0.685 | 0 |
| Muti layer | 0.688 | 0.634 | 0.634 | 0.635 | 0.635 | 0.634 | 2.14 |

1. Feature Selection: Chi-Square

K=10

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Algorithm | AUC | AC | SN | SP | PR | FM | TIME |
| J48 | 0.603 | 0.611 | 0.611 | 0.616 | 0.616 | 0.609 | 0 |
| J48 binary tree | 0.579 | 0.557 | 0.557 | 0.552 | 0.556 | 0.556 | 0 |
| AODE | 0.669 | 0.634 | 0.634 | 0.638 | 0.639 | 0.633 | 0 |
| Bayes network | 0.649 | 0.641 | 0.641 | 0.651 | 0.658 | 0.636 | 0 |
| Naïve bay | 0.645 | 0.634 | 0.634 | 0.645 | 0.655 | 0.625 | 0 |
| SVM | 0.493 | 0.511 | 0.511 | 0.474 | 0.268 | 0.351 | 0 |
| Logistic | 0.616 | 0.588 | 0.588 | 0.584 | 0.587 | 0.587 | 0.25 |
| SMO | 0.501 | 0.504 | 0.504 | 0.498 | 0.502 | 0.501 | 0.03 |
| Muti layer |  |  |  |  |  |  |  |

K=20

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Algorithm | AUC | AC | SN | SP | PR | FM | TIME |
| J48 | 0.603 | 0.611 | 0.611 | 0.616 | 0.616 | 0.609 | 0 |
| J48 binary tree | 0.579 | 0.557 | 0.557 | 0.552 | 0.556 | 0.556 | 0 |
| AODE | 0.669 | 0.634 | 0.634 | 0.638 | 0.639 | 0.633 | 0 |
| Bayes network | 0.649 | 0.641 | 0.641 | 0.651 | 0.658 | 0.636 | 0 |
| Naïve bay | 0.645 | 0.634 | 0.634 | 0.645 | 0.655 | 0.625 | 0 |
| SVM | 0.493 | 0.511 | 0.511 | 0.474 | 0.268 | 0.351 | 0 |
| Logistic | 0.616 | 0.588 | 0.588 | 0.584 | 0.587 | 0.587 | 0.25 |
| SMO | 0.501 | 0.504 | 0.504 | 0.498 | 0.502 | 0.501 | 0.03 |
| Muti layer |  |  |  |  |  |  |  |

K=30

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Algorithm | AUC | AC | SN | SP | PR | FM | TIME |
| J48 | 0.603 | 0.611 | 0.611 | 0.616 | 0.616 | 0.609 | 0 |
| J48 binary tree | 0.579 | 0.557 | 0.557 | 0.552 | 0.556 | 0.556 | 0 |
| AODE | 0.669 | 0.634 | 0.634 | 0.638 | 0.639 | 0.633 | 0 |
| Bayes network | 0.649 | 0.641 | 0.641 | 0.651 | 0.658 | 0.636 | 0 |
| Naïve bay | 0.645 | 0.634 | 0.634 | 0.645 | 0.655 | 0.625 | 0 |
| SVM | 0.493 | 0.511 | 0.511 | 0.474 | 0.268 | 0.351 | 0 |
| Logistic | 0.616 | 0.588 | 0.588 | 0.584 | 0.587 | 0.587 | 0.25 |
| SMO | 0.501 | 0.504 | 0.504 | 0.498 | 0.502 | 0.501 | 0.03 |
| Muti layer |  |  |  |  |  |  |  |

K=39

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Algorithm | AUC | AC | SN | SP | PR | FM | TIME |
| J48 | 0.603 | 0.611 | 0.611 | 0.616 | 0.616 | 0.609 | 0 |
| J48 binary tree | 0.579 | 0.557 | 0.557 | 0.552 | 0.556 | 0.556 | 0 |
| AODE | 0.669 | 0.634 | 0.634 | 0.638 | 0.639 | 0.633 | 0 |
| Bayes network | 0.649 | 0.641 | 0.641 | 0.651 | 0.658 | 0.636 | 0 |
| Naïve bay | 0.645 | 0.634 | 0.634 | 0.645 | 0.655 | 0.625 | 0 |
| SVM | 0.493 | 0.511 | 0.511 | 0.474 | 0.268 | 0.351 | 0 |
| Logistic | 0.616 | 0.588 | 0.588 | 0.584 | 0.587 | 0.587 | 0.19 |
| SMO | 0.501 | 0.504 | 0.504 | 0.498 | 0.502 | 0.501 | 0.03 |
| Muti layer |  |  |  |  |  |  |  |

1. Feature Selection: Gain Ratio

K=10

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Algorithm | AUC | AC | SN | SP | PR | FM | TIME |
| J48 | 0.594 | 0.611 | 0.611 | 0.616 | 0.616 | 0.609 | 0 |
| J48 binary tree | 0.575 | 0.55 | 0.55 | 0.544 | 0.548 | 0.547 | 0 |
| AODE | 0.669 | 0.634 | 0.634 | 0.638 | 0.639 | 0.633 | 0 |
| Bayes network | 0.649 | 0.641 | 0.641 | 0.651 | 0.658 | 0.636 | 0 |
| Naïve bay | 0.645 | 0.634 | 0.634 | 0.645 | 0.655 | 0.625 | 0 |
| SVM | 0.493 | 0.511 | 0.511 | 0.474 | 0.268 | 0.351 | 0 |
| Logistic | 0.616 | 0.588 | 0.588 | 0.584 | 0.587 | 0.587 | 0.21 |
| SMO | 0.501 | 0.504 | 0.504 | 0.498 | 0.502 | 0.501 | 0.03 |
| Muti layer |  |  |  |  |  |  |  |

K=20

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Algorithm | AUC | AC | SN | SP | PR | FM | TIME |
| J48 | 0.594 | 0.611 | 0.611 | 0.616 | 0.616 | 0.609 | 0 |
| J48 binary tree | 0.575 | 0.55 | 0.55 | 0.544 | 0.548 | 0.547 | 0 |
| AODE | 0.669 | 0.634 | 0.634 | 0.638 | 0.639 | 0.633 | 0 |
| Bayes network | 0.649 | 0.641 | 0.641 | 0.651 | 0.658 | 0.636 | 0 |
| Naïve bay | 0.645 | 0.634 | 0.634 | 0.645 | 0.655 | 0.625 | 0 |
| SVM | 0.493 | 0.511 | 0.511 | 0.474 | 0.268 | 0.351 | 0 |
| Logistic | 0.616 | 0.588 | 0.588 | 0.584 | 0.587 | 0.587 | 0.21 |
| SMO | 0.501 | 0.504 | 0.504 | 0.498 | 0.502 | 0.501 | 0.03 |
| Muti layer |  |  |  |  |  |  |  |

K=30

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Algorithm | AUC | AC | SN | SP | PR | FM | TIME |
| J48 | 0.594 | 0.611 | 0.611 | 0.616 | 0.616 | 0.609 | 0 |
| J48 binary tree | 0.575 | 0.55 | 0.55 | 0.544 | 0.548 | 0.547 | 0 |
| AODE | 0.669 | 0.634 | 0.634 | 0.638 | 0.639 | 0.633 | 0 |
| Bayes network | 0.649 | 0.641 | 0.641 | 0.651 | 0.658 | 0.636 | 0 |
| Naïve bay | 0.645 | 0.634 | 0.634 | 0.645 | 0.655 | 0.625 | 0 |
| SVM | 0.493 | 0.511 | 0.511 | 0.474 | 0.268 | 0.351 | 0 |
| Logistic | 0.616 | 0.588 | 0.588 | 0.584 | 0.587 | 0.587 | 0.21 |
| SMO | 0.501 | 0.504 | 0.504 | 0.498 | 0.502 | 0.501 | 0.03 |
| Muti layer |  |  |  |  |  |  |  |

K=39

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Algorithm | AUC | AC | SN | SP | PR | FM | TIME |
| J48 | 0.594 | 0.611 | 0.611 | 0.616 | 0.616 | 0.609 | 0 |
| J48 binary tree | 0.575 | 0.55 | 0.55 | 0.544 | 0.548 | 0.547 | 0 |
| AODE | 0.669 | 0.634 | 0.634 | 0.638 | 0.639 | 0.633 | 0 |
| Bayes network | 0.649 | 0.641 | 0.641 | 0.651 | 0.658 | 0.636 | 0 |
| Naïve bay | 0.645 | 0.634 | 0.634 | 0.645 | 0.655 | 0.625 | 0 |
| SVM | 0.493 | 0.511 | 0.511 | 0.474 | 0.268 | 0.351 | 0 |
| Logistic | 0.616 | 0.588 | 0.588 | 0.584 | 0.587 | 0.587 | 0.21 |
| SMO | 0.501 | 0.504 | 0.504 | 0.498 | 0.502 | 0.501 | 0.03 |
| Muti layer |  |  |  |  |  |  |  |

1. Feature Selection: Information Gain

K=10

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Algorithm | AUC | AC | SN | SP | PR | FM | TIME |
| J48 | 0.603 | 0.611 | 0.611 | 0.616 | 0.616 | 0.609 | 0 |
| J48 binary tree | 0.579 | 0.557 | 0.557 | 0.552 | 0.556 | 0.556 | 0 |
| AODE | 0.669 | 0.634 | 0.634 | 0.638 | 0.639 | 0.633 | 0 |
| Bayes network | 0.649 | 0.641 | 0.641 | 0.651 | 0.658 | 0.636 | 0 |
| Naïve bay | 0.645 | 0.634 | 0.634 | 0.645 | 0.655 | 0.625 | 0 |
| SVM | 0.493 | 0.511 | 0.511 | 0.474 | 0.268 | 0.351 | 0 |
| Logistic | 0.616 | 0.588 | 0.588 | 0.584 | 0.587 | 0.587 | 0.21 |
| SMO | 0.501 | 0.504 | 0.504 | 0.498 | 0.502 | 0.501 | 0.03 |
| Muti layer |  |  |  |  |  |  |  |

K=20

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Algorithm | AUC | AC | SN | SP | PR | FM | TIME |
| J48 | 0.603 | 0.611 | 0.611 | 0.616 | 0.616 | 0.609 | 0 |
| J48 binary tree | 0.579 | 0.557 | 0.557 | 0.552 | 0.556 | 0.556 | 0 |
| AODE | 0.669 | 0.634 | 0.634 | 0.638 | 0.639 | 0.633 | 0 |
| Bayes network | 0.649 | 0.641 | 0.641 | 0.651 | 0.658 | 0.636 | 0 |
| Naïve bay | 0.645 | 0.634 | 0.634 | 0.645 | 0.655 | 0.625 | 0 |
| SVM | 0.493 | 0.511 | 0.511 | 0.474 | 0.268 | 0.351 | 0 |
| Logistic | 0.616 | 0.588 | 0.588 | 0.584 | 0.587 | 0.587 | 0.21 |
| SMO | 0.501 | 0.504 | 0.504 | 0.498 | 0.502 | 0.501 | 0.03 |
| Muti layer |  |  |  |  |  |  |  |

K=30

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Algorithm | AUC | AC | SN | SP | PR | FM | TIME |
| J48 | 0.603 | 0.611 | 0.611 | 0.616 | 0.616 | 0.609 | 0 |
| J48 binary tree | 0.579 | 0.557 | 0.557 | 0.552 | 0.556 | 0.556 | 0 |
| AODE | 0.669 | 0.634 | 0.634 | 0.638 | 0.639 | 0.633 | 0 |
| Bayes network | 0.649 | 0.641 | 0.641 | 0.651 | 0.658 | 0.636 | 0 |
| Naïve bay | 0.645 | 0.634 | 0.634 | 0.645 | 0.655 | 0.625 | 0 |
| SVM | 0.493 | 0.511 | 0.511 | 0.474 | 0.268 | 0.351 | 0 |
| Logistic | 0.616 | 0.588 | 0.588 | 0.584 | 0.587 | 0.587 | 0.21 |
| SMO | 0.501 | 0.504 | 0.504 | 0.498 | 0.502 | 0.501 | 0.03 |
| Muti layer |  |  |  |  |  |  |  |

K=39

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Algorithm | AUC | AC | SN | SP | PR | FM | TIME |
| J48 | 0.603 | 0.611 | 0.611 | 0.616 | 0.616 | 0.609 | 0 |
| J48 binary tree | 0.579 | 0.557 | 0.557 | 0.552 | 0.556 | 0.556 | 0 |
| AODE | 0.669 | 0.634 | 0.634 | 0.638 | 0.639 | 0.633 | 0 |
| Bayes network | 0.649 | 0.641 | 0.641 | 0.651 | 0.658 | 0.636 | 0 |
| Naïve bay | 0.645 | 0.634 | 0.634 | 0.645 | 0.655 | 0.625 | 0 |
| SVM | 0.493 | 0.511 | 0.511 | 0.474 | 0.268 | 0.351 | 0 |
| Logistic | 0.616 | 0.588 | 0.588 | 0.584 | 0.587 | 0.587 | 0.21 |
| SMO | 0.501 | 0.504 | 0.504 | 0.498 | 0.502 | 0.501 | 0.03 |
| Muti layer |  |  |  |  |  |  |  |

1. Feature Selection: Relief

K=10

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Algorithm | AUC | AC | SN | SP | PR | FM | TIME |
| J48 | 0.594 | 0.611 | 0.611 | 0.616 | 0.616 | 0.609 | 0 |
| J48 binary tree | 0.6 | 0.595 | 0.595 | 0.591 | 0.595 | 0.594 | 0 |
| AODE | 0.669 | 0.634 | 0.634 | 0.638 | 0.639 | 0.633 | 0 |
| Bayes network | 0.649 | 0.641 | 0.641 | 0.651 | 0.658 | 0.636 | 0 |
| Naïve bay | 0.645 | 0.634 | 0.634 | 0.645 | 0.655 | 0.625 | 0 |
| SVM | 0.493 | 0.511 | 0.511 | 0.474 | 0.268 | 0.351 | 0 |
| Logistic | 0.616 | 0.588 | 0.588 | 0.584 | 0.587 | 0.587 | 0.18 |
| SMO | 0.501 | 0.504 | 0.504 | 0.498 | 0.502 | 0.501 | 0.03 |
| Muti layer |  |  |  |  |  |  |  |

K=20

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Algorithm | AUC | AC | SN | SP | PR | FM | TIME |
| J48 | 0.594 | 0.611 | 0.611 | 0.616 | 0.616 | 0.609 | 0 |
| J48 binary tree | 0.6 | 0.595 | 0.595 | 0.591 | 0.595 | 0.594 | 0 |
| AODE | 0.669 | 0.634 | 0.634 | 0.638 | 0.639 | 0.633 | 0 |
| Bayes network | 0.649 | 0.641 | 0.641 | 0.651 | 0.658 | 0.636 | 0 |
| Naïve bay | 0.645 | 0.634 | 0.634 | 0.645 | 0.655 | 0.625 | 0 |
| SVM | 0.493 | 0.511 | 0.511 | 0.474 | 0.268 | 0.351 | 0 |
| Logistic | 0.616 | 0.588 | 0.588 | 0.584 | 0.587 | 0.587 | 0.18 |
| SMO | 0.501 | 0.504 | 0.504 | 0.498 | 0.502 | 0.501 | 0.03 |
| Muti layer |  |  |  |  |  |  |  |

K=30

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Algorithm | AUC | AC | SN | SP | PR | FM | TIME |
| J48 | 0.594 | 0.611 | 0.611 | 0.616 | 0.616 | 0.609 | 0 |
| J48 binary tree | 0.6 | 0.595 | 0.595 | 0.591 | 0.595 | 0.594 | 0 |
| AODE | 0.669 | 0.634 | 0.634 | 0.638 | 0.639 | 0.633 | 0 |
| Bayes network | 0.649 | 0.641 | 0.641 | 0.651 | 0.658 | 0.636 | 0 |
| Naïve bay | 0.645 | 0.634 | 0.634 | 0.645 | 0.655 | 0.625 | 0 |
| SVM | 0.493 | 0.511 | 0.511 | 0.474 | 0.268 | 0.351 | 0 |
| Logistic | 0.616 | 0.588 | 0.588 | 0.584 | 0.587 | 0.587 | 0.18 |
| SMO | 0.501 | 0.504 | 0.504 | 0.498 | 0.502 | 0.501 | 0.03 |
| Muti layer |  |  |  |  |  |  |  |

K=39

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Algorithm | AUC | AC | SN | SP | PR | FM | TIME |
| J48 | 0.594 | 0.611 | 0.611 | 0.616 | 0.616 | 0.609 | 0 |
| J48 binary tree | 0.6 | 0.595 | 0.595 | 0.591 | 0.595 | 0.594 | 0 |
| AODE | 0.669 | 0.634 | 0.634 | 0.638 | 0.639 | 0.633 | 0 |
| Bayes network | 0.649 | 0.641 | 0.641 | 0.651 | 0.658 | 0.636 | 0 |
| Naïve bay | 0.645 | 0.634 | 0.634 | 0.645 | 0.655 | 0.625 | 0 |
| SVM | 0.493 | 0.511 | 0.511 | 0.474 | 0.268 | 0.351 | 0 |
| Logistic | 0.616 | 0.588 | 0.588 | 0.584 | 0.587 | 0.587 | 0.18 |
| SMO | 0.501 | 0.504 | 0.504 | 0.498 | 0.502 | 0.501 | 0.03 |
| Muti layer |  |  |  |  |  |  |  |