|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| S.NO | HYPER  PARAMETER | LINEAR  (r\_score) | POLY  (r\_score) | SIGMOID  (r\_score) | RBF (NON-LINEAR)  (r\_score) |
| 1 | C=10 | -0.0396 | -0.0536 | -0.0547 | -0.0568 |
| 2 | C=100 | 0.1064 | -0.0198 | -0.0304 | -0.0507 |
| 3 | C=500 | 0.5928 | 0.1146 | 0.0705 | -0.0243 |
| 4 | C=1000 | 0.7802 | 0.2661 | 0.1850 | 0.0067 |
| 5 | C=2000 | 0.8767 | 0.4810 | 0.3970 | 0.0675 |
| 6 | C=10000 | 0.9239 | 0.8129 | 0.8535 | 0.3718 |

1. Multiple Linear Regression (R2\_scour)=0.9358  
2.SVM(Simple Vector Machine):

The SVM Regerssion use R2value(nonlinear{linear}and hyper parameter(C=10000)=0.9239

3.DECISION TREE:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| SL.NO | CRITERION | MAX FEATURES | SPLITTER | R VALUE |
| 1 | ***friedman\_mse*** | auto | best | 0.9162 |
| 2 | ***friedman\_mse*** | auto | random | 0.8712 |
| 3 | ***friedman\_mse*** | Log2 | best | -0.2626 |
| 4 | ***friedman\_mse*** | ***sqrt*** | best | 0.6850 |
| 5 | ***friedman\_mse*** | sqrt | random | -0.3590 |
| 6 | ***friedman\_mse*** | none | Best | 0.9276 |
| 7 | ***friedman\_mse*** | none | random | 0.9120 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| SL.NO | CRITERION | CLASS | SPLITTER | R VALUE |
| 1 | friedman\_mse | MAX depth =none | best | 0.8943 |
| 2 | friedman\_mse | MAX depth =none | randoom | 0.8006 |
| 3 | friedman\_mse | min\_samples\_split=2 | random | 0.7406 |
| 4 | friedman\_mse | min\_samples\_split=2 | best | 0.9173 |
| 5 | friedman\_mse | *min\_samples\_leaf=1* | best | 0.9107 |
| 6 | friedman\_mse | *min\_samples\_leaf=1* | random | 0.8512 |
| 7 | friedman\_mse | *min\_weight\_fraction\_leaf=0.0* | random | 0.9130 |
| 8 | friedman\_mse | *min\_weight\_fraction\_leaf=0.0* | best | 0.9033 |
| 9 | friedman\_mse | *random\_state=None* | random | 0.8932 |
| 10 | friedman\_mse | *random\_state=None* | best | 0.8904 |
| 11 | friedman\_mse | *max\_leaf\_nodes=None* | best | 0.9064 |
| 12 | friedman\_mse | *max\_leaf\_nodes=None* | random | 0.9013 |
| 13 | friedman\_mse | *min\_impurity\_decrease=0.0* | random | 0.6181 |
| 14 | friedman\_mse | *min\_impurity\_decrease=0.0* | best | 0.9203 |

The Decision tree use R2value (friedman max\_features,best )and hyper parameter=0.9276

4.RandomForest

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| SL.NO | CRITERION | CLASS | Parameter/*n\_estimators* | R VALUE |
| 1 | friedman\_mse | MAX depth =none | *n\_estimators=50* | 0.9426 |
| 2 | friedman\_mse | MAX depth =none | *n\_estimators=100* | 0.9367 |
| 3 | friedman\_mse | min\_samples\_split=2 | *n\_estimators=50* | 0.9501 |
| 4 | friedman\_mse | min\_samples\_split=2 | *n\_estimators=100* | 0.9370 |
| 5 | friedman\_mse | *min\_samples\_leaf=1* | *n\_estimators=50* | 0.9370 |
| 6 | friedman\_mse | *min\_samples\_leaf=1* | *n\_estimators=100* | 0.9437 |
| 7 | friedman\_mse | *min\_weight\_fraction\_leaf=0.0* | *n\_estimators=50* | 0.9472 |
| 8 | friedman\_mse | *min\_weight\_fraction\_leaf=0.0* | *n\_estimators=100* | 0.9428 |
| 9 | friedman\_mse | *random\_state=None* | *n\_estimators=50* | 0.9377 |
| 10 | friedman\_mse | *random\_state=None* | *n\_estimators=100* | 0.9417 |
| 11 | friedman\_mse | *max\_leaf\_nodes=None* | *n\_estimators=50* | 0.9370 |
| 12 | friedman\_mse | *max\_leaf\_nodes=None* | *n\_estimators=100* | 0.9429 |
| 13 | friedman\_mse | *min\_impurity\_decrease=0.0* | *n\_estimators=50* | 0.9451 |
| 14 | friedman\_mse | *min\_impurity\_decrease=0.0* | *n\_estimators=100* | 0.9386 |
| 15 | friedman\_mse | *max\_features=1.0* | *n\_estimators=50* | 0.9425 |
| 16 | friedman\_mse | *max\_features=1.0* | *n\_estimators=100* | 0.9447 |
| 17 | friedman\_mse | *bootstrap=True* | *n\_estimators=50* | 0.9371 |
| 18 | friedman\_mse | *bootstrap=True* | *n\_estimators=100* | 0.9291 |
| 19 | friedman\_mse | *oob\_score=False* | *n\_estimators=50* | 0.9410 |
| 20 | friedman\_mse | *oob\_score=False* | *n\_estimators=100* | 0.9383 |
| 21 | friedman\_mse | *n\_jobs=None* | *n\_estimators=50* | 0.9349 |
| 22 | friedman\_mse | *n\_jobs=None* | *n\_estimators=100* | 0.9223 |
| 23 | friedman\_mse | *verbose=0* | *n\_estimators=50* | 0.9331 |
| 24 | friedman\_mse | *verbose=0* | *n\_estimators=100* | 0.9364 |
| 25 | friedman\_mse | *warm\_start=False* | *n\_estimators=50* | 0.9278 |
| 26 | friedman\_mse | *warm\_start=False* | *n\_estimators=100* | 0.9394 |

The RandomForest use R2value (friedman mes, min\_samples\_split=2, *n\_estimators=50*); hyper parameter=0.9501