R2 score of following models by changing the hyper tuning parameter

1.Multiple Linear Regression-0.93586 (r2\_score)

2.SVM

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| S.No | Hypertuning parameter | Linear | RBF | Sigmoid | Poly |
| 1 | C=1 | -0.05569 | -0.05741 | -0.05720 | -0.05710 |
| 2 | C=10 | -0.03964 | -0.05680 | -0.05471 | -0.05366 |
| 3 | C=100 | 0.10646 | -0.05072 | -0.03045 | -0.01980 |
| 4 | C=500 | 0.59289 | -0.02432 | 0.07057 | 0.11468 |
| 5 | C=1000 | 0.78028 | 0.00676 | 0.18506 | 0.26616 |
| 6 | C=1500 | 0.85685 | 0.03776 | 0.29490 | 0.38751 |
| 7 | C=2000 | 0.87677 | 0.06751 | 0.39706 | 0.48100 |
| 8 | C=3000 | 0.89567 | 0.12322 | 0.59136 | 0.63700 |

SVM uses r2\_score(linear and hypertuning c=3000)=0.89567

3.Decision Tree

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| S.No | Criterion | Max Features | Splitter | R2\_score |
| 1 | Squared error | sqrt | best | 0.54286 |
| 2 | Squared error | sqrt | random | 0.82773 |
| 3 | Squared error | log | best | 0.23491 |
| 4 | Squared error | log | random | -0.08411 |
| 5 | Friedman mse | sqrt | best | 0.95342 |
| 6 | Friedman mse | sqrt | random | 0.50017 |
| 7 | Friedman mse | log | best | 0.37547 |
| 8 | Friedman mse | log | random | -1.9174 |
| 9 | Absolute error | sqrt | best | 0.86685 |
| 10 | Absolute error | sqrt | random | -0.47303 |
| 11 | Absolute error | log | best | 0.88732 |
| 12 | Absolute error | log | random | -0.08922 |
| 13 | Poisson | sqrt | best | 0.63380 |
| 14 | Poisson | sqrt | random | 0.13663 |
| 15 | Poisson | log | best | 0.41884 |
| 16 | Poisson | log | random | 0.93105 |

Decision tree uses r2\_score (friedman mse- criterion , sqrt -max feature ,best splitter )=0.95342