To Find Following the Machine learning regression method using in r2 value

1.Multiple linear regression ( R2 value) = 0.93

2.Support vector Machine :

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| --- | --- | --- | --- | --- | --- |
| S.No | Hyper Parameter | Linear (r Value) | RBF ( Non linear value) | Poly ( r value) | Sigmoid ( r value) |
| 1 | C10 | -0.03 | -0.056 | -0.053 | -0.054 |
| 2 | C100 | 0.106 | -0.0507 | -0.019 | -0.030 |
| 3 | C500 | 0.592 | -0.024 | 0.114 | 0.070 |
| 4 | C1000 | 0.780 | 0.006 | 0.266 | 0.185 |
| 5 | C2000 | 0.876 | 0.067 | 0.481 | 0.397 |
| 6 | C3000 | 0.895 | 0.123 | 0.63 | 0.59 |

The SVM Regreesion use R2 value ( Linear value c=3000)=0.895

3.Descision Tree:

|  |  |  |  |
| --- | --- | --- | --- |
| S.no | Criterion | Spliter | R.Value |
| 1 | Squared\_error | best | 0.929 |
| 2 | Squared \_error | Random | 0.82 |
| 3 | Friedman\_mse | Best | 0.92 |
| 4 | Friedman\_mse | Random | 0.94 |
| 5 | Absolute\_error | Best | 0.93 |
| 6 | Absolute\_error | Random | 0.86 |
| 7 | poission | Best | 0.93 |
| 8 | poission | Random | 0.88 |

4.Random Forest:-

|  |  |  |  |
| --- | --- | --- | --- |
| S.no | Criterion | n\_estimator | R2 value |
| 1 | Squared\_Error | 10 | 0.93 |
| 2 | Squared\_error | 50 | 0.93 |
| 3 | Squared\_error | 100 | 0.94 |
| 4 | Absolute\_error | 10 | 0.93 |
| 5 | Absolute\_error | 50 | 0.92 |
| 6 | Absolute\_error | 100 | 0.948 |
| 7 | Friedman\_mse | 10 | 0.952 |
| 8 | Friedman\_mse | 50 | 0.94 |
| 9 | Friedman\_mse | 100 | 0.94 |
| 10 | poisson | 10 | 0.91 |
| 11 | poisson | 50 | 0.931 |
| 12 | poisson | 100 | 0.938 |

Justification for choosing R2 value is random forest ( 0.952)