**Hyper Tuning parameter**

**To find the R2 value for Machine Learning in following parameters:**

1. **Single Linear Regression:**

**R2 value=0.97409**

**2.Multi Linear Regression:**

**R2 Value=0.9358**

**3.Support Vector Machine:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S.No** | **C Value** | **Linear** | **Rbf** | **Poly** | **Sigmoid** |
| **1.** | **10** | **-0.03964** | **-0.05680** | **-0.05366** | **-0.05471** |
| **2.** | **100** | **0.10646** | **-0.05072** | **-0.019802** | **-0.03045** |
| **3.** | **1000** | **0.78028** | **0.00676** | **0.26616** | **0.18506** |
| **4.** | **2000** | **0.87677** | **0.06751** | **0.48100** | **0.39706** |
| **5.** | **3000** | **0.89567** | **0.12322** | **0.63700** | **0.59136** |
| **6.** | **5000** | **0.90037** | **0.21242** | **0.79365** | **0.73065** |

**R2 Value is high (0.90037) in the following parameters**

**(kernel="linear",C=5000)**

**4.Decision Tree Regression:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S.No** | **Criterion** | **splitter** | **Max-features** | **R2 value** |
| **1.** | **MSE** | **Best** | **Auto** | **0.94281** |
| **2.** | **MSE** | **Best** | **Sqrt** | **0.51685** |
| **3.** | **MSE** | **Best** | **Log2** | **0.69379** |
| **4.** | **MSE** | **Random** | **Auto** | **0.91273** |
| **5.** | **MSE** | **Random** | **Sqrt** | **0.52838** |
| **6.** | **MSE** | **Random** | **Log2** | **0.77946** |
| **7.** | **MAE** | **Best** | **Auto** | **0.95281** |
| **8.** | **MAE** | **Best** | **Sqrt** | **0.83942** |
| **9.** | **MAE** | **Best** | **Log2** | **0.75610** |
| **10.** | **MAE** | **Random** | **Auto** | **0.57565** |
| **11.** | **MAE** | **Random** | **Sqrt** | **0.45478** |
| **12.** | **MAE** | **Random** | **Log2** | **0.59333** |
| **13.** | ***Friedman\_mse*** | **Best** | **Auto** | **0.90859** |
| **14.** | ***Friedman\_mse*** | **Best** | **Sqrt** | **0.73359** |
| **15.** | ***Friedman\_mse*** | **Best** | **Log2** | **0.74967** |
| **16.** | ***Friedman\_mse*** | **Random** | **Auto** | **0.92623** |
| **17.** | ***Friedman\_mse*** | **Random** | **Sqrt** | **0.86354** |
| **18.** | ***Friedman\_mse*** | **Random** | **Log2** | **0.20119** |

**R2 Value is high (0.94281) in the following parameters**

**criterion='squared\_error', splitter='best',**

**max\_features="auto")**