**Final Val Method**

**1. Simple Linear Regression**

SLR of r2 value = **0.974**

**2. Multiple Linear Regression**

MLR of r2 value = **0.9358**

**3. Support Vector Machine**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| SNO | Hyper Parameter | Linear(rvalue) | Rbf(Non linear value) | Poly(r value) | Sigmoid(r value) |
| 1. | C10 | -0.039 | -0.056 | -0.05 | -0.054 |
| 2. | C100 | 0.0106 | -0.056 | -0.019 | -0.030 |
| 3. | C500 | 0.592 | -0.024 | 0.114 | 0.070 |
| 4. | C1000 | 0.7802 | 0.006 | 0.266 | 0.185 |
| 5. | C2000 | 0.876 | 0.067 | 0.481 | 0.397 |
| 6. | C3000 | 0.895 | 0.123 | 0.637 | 0.591 |

The SVM Regression use r2 value, Linear value and Hyper Parameter(c=3000)=**0.895**

**4. Decision Tree**

**criterion*{“squared\_error”, “friedman\_mse”, “absolute\_error”, “poisson”}, default=”squared\_error”***

**splitter*{“best”, “random”}, default=”best”***

**max\_features*int, float or {“sqrt”, “log2”}, default=None***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S.No** | **CRITERION** | **MAXFEATURES** | **SPLITTER** | **RVALUE r2** |
| 1. | Squared\_error | sqrt | best | -0.41 |
| 2. | Squared\_error | log2 | Best | 0.337 |
| 3. | Squared\_error | sqrt | random | -0.02 |
| 4. | Squared\_error | log2 | random | -0.245 |
| 5. | Friedman\_mse | sqrt | best | 0.672 |
| 6. | Friedman\_mse | log2 | Best | 0.406 |
| 7. | Friedman\_mse | sqrt | random | 0.641 |
| 8. | Friedman\_mse | log2 | random | 0.809 |
| 9. | absolute\_error | sqrt | best | 0.88 |
| 10. | absolute\_error | log2 | Best | -0.752 |
| 11. | absolute\_error | sqrt | random | 0.507 |
| 12. | absolute\_error | log2 | random | 0.40 |
| 13. | poisson | sqrt | best | -0.36 |
| 14. | poisson | log2 | Best | 0.08 |
| 15. | poisson | sqrt | random | 0.44 |
| 16. | poisson | log2 | random | 0.53 |

The Decision Tree use r2 value, criterion=absolute error ,Maxfeatures = sqrt, splitter = best = **0.88**