**Assignment Regression**

**Multiple Regression R2 \_value: 0.7894790**

**2.SUPPORT VECTOR MACHINE:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| S.NO | HYPER  PARAMETER | LINEAR | POLY (R\_VALUE) | RBF(NON-LINEAR)  (R\_VALUE) | SIGMAID  (R\_VALUE) |
| 1 | C=10 | 0.46246 | 0.03871 | -0.03227 | 0.03930 |
| 2 | C=100 | 0.62887 | 0.61795 | -0.32003 | 0.52761 |
| 3 | C=1000 | 0.76493 | 0.85664 | 0.81020 | 0.28747 |
| 4 | C=2000 | 0.74404 | 0.86055 | 0.85477 | -0.59395 |
| 5 | C=3000 | 0.74142 | 0.85989 | 0.86633 | -2.12441 |
| 6 | C=4000 | 0.74141 | 0.86000 | 0.87174 | -5.51033 |

**Support vector machine R2\_value: 0.87174**

**Decision Tree Regressor**

|  |  |  |  |
| --- | --- | --- | --- |
| S.NO | CRITERION | SPETTER | R\_VALUE |
| 1 | squared\_error | BEST | 0.692372 |
| 2 | squared\_error | RANDOM | 0.762595 |
| 3 | friedman\_mse | BEST | 0.700001 |
| 4 | friedman\_mse | RANDOM | 0.73593 |
| 5 | absolute\_error | BEST | 0.69148 |
| 6 | absolute\_error | RANDOM | 0.73190 |
| 7 | poisson | BEST | 0.71701 |
| 8 | poisson | RANDOM | 0.73684 |

**DECISION TREE REGRESSOR R2 VALUE**: 0.762595

**Random Forest**

|  |  |  |  |
| --- | --- | --- | --- |
| **S.no** | **Criterion** | **n\_estimators** | **R2 value** |
| **1** | ***squared\_error*** | **10** | **0.83312464** |
| **2** | ***squared\_error*** | **100** | **0.85355216** |
| **3** | ***absolute\_error*** | **10** | **0.83483252** |
| **4** | ***absolute\_error*** | **100** | **0.85266421** |
| **5** | ***friedman\_mse*** | **10** | **0.83230313** |
| **6** | ***friedman\_mse*** | **100** | **0.85375186** |
| **7** | ***poisson*** | **10** | **0.83137944** |
| **8** | ***poisson*** | **100** | **0.85277513** |
|  |  |  |  |

**Random Forest R2 Value: 0.85375186**

**The final machine learning best method of Regression:**

**Support vector machine R2 Value: 0.87174**

**Random Forest R2 Value: 0.85375186**