**HOPE ARTIFICIAL INTELLIGENCE**

***Assignment***

**To find out the best Machine Learning Regression method using in r2 value**

1. **MULTIPLE LINEAR REGRESSION (R2 Value)= 0.93586**
2. **SUPPORT VECTOR MACHINE**

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| **S.NO** | **HYPER PARAMETER** | **LINEAR**  **(r value)** | **RBF(NON LINEAR)**  **(r value)** | **POLY**  **(r value)** | **SIGMOID**  **(r value)** | **REMARKS** |
| 1 | C=0.01 | -0.05746 | -0.57418 | -0.57418 | -0.05748 |  |
| 2 | C=100 | 0.10646 | -0.05072 | -0.01980 | -0.03045 |  |
| 3 | C=500 | 0.59289 | -0.02432 | 0.11468 | 0.07057 |  |
| 4 | C=1000 | 0.78028 | 0.00676 | 0.26616 | 0.18506 |  |
| 5 | C=10000 | 0.92399 | 0.37189 | 0.81296 | 0.85353 |  |

**The SVM Regression use R2 value (linear and hyper parameter (C=10000)=0.92399**

1. **DECISION TREE**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S.NO** | **CRITERION** | **MAX FEATURES** | **SPLITTER** | **R VALUE** | **REMARKS** |
| 1 | Squared\_error |  | best | 0.92552 |  |
| 2 | Squared\_error |  | random | 0.81687 |  |
| 3 | friedman\_mse |  | best | 0.91593 |  |
| 4 | friedman\_mse |  | random | 0.92436 |  |
| 5 | absolute\_error |  | best | 0.95073 |  |
| 6 | absolute\_error |  | random | 0.89508 |  |
| 7 | poisson |  | best | 0.94494 |  |
| 8 | poisson |  | random | 0.74246 |  |

**The Decision Tree Regression use R2 value(poisson,best)=0.94494**