**To find following the machine learning regression method using in r2 value**

**Customer Requirement is Profit Prediction.**

**1.MULTIPLE LINEAR REGRESSION**

**R²value=** 0.9358680892466282

**2. SUPPORT VECTOR MACHINE:**

**SVR(kernel=** **"linear",C=0.1) = 0.940879882**

**3.DECISION TREE:**

**i.**

|  |  |  |  |
| --- | --- | --- | --- |
| **SL.NO** | **CRITERION** | **SPLITTER** | **R\_VALUE** |
| 01. | Squared error | Best | 0.9500940933132571 |
| 02. | Friedman\_mse | Best | 0.9430885976866211 |
| 03. | Absolute error | Best | 0.9674049674690902 |
| 04. | Poisson | Best | 0.9327038603462823 |
| 05. | Squared error | Random | 0.9569480691474833 |
| 06. | Friedman\_mse | Random | 0.8972703308150793 |
| 07. | Absolute error | Random | 0.958557055454426 |
| 08. | Poisson | Random | 0.934689136684058 |

**ii.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **SL.NO** | **CRITERION** | **SPLITTER** | **MAX\_FEATURES** | **R\_VALUE** |
| 01. | Squared error | Best | sqrt | 0.927668519 |
| 02. | Squared error | Best | log2 | 0.963312966 |
| 03. | Friedman\_mse | Best | sqrt | 0.671958519 |
| 04. | Friedman\_mse | Best | log2 | 0.696981693 |
| 05. | Absolute error | Best | sqrt | 0.669468968 |
| 06. | Absolute error | Best | log2 | 0.356167957 |
| 07. | Poisson | Best | sqrt | 0.780846374 |
| 08. | Poisson | Best | log2 | 0.193278773 |
| 09. | Squared error | Random | sqrt | 0.376908570 |
| 10. | Squared error | Random | log2 | 0.400313602 |
| 11. | Friedman\_mse | Random | sqrt | 0.810112327 |
| 12. | Friedman\_mse | Random | log2 | 0.291448128 |
| 13. | Absolute error | Random | sqrt | -0.113459056 |
| 14. | Absolute error | Random | log2 | 0.103756108 |
| 15. | Poisson | Random | sqrt | 0.794946701 |
| 16. | Poisson | Random | log2 | -0.259585128 |

**Finally Decision Tree output in this Dataset:**

**Decision Tree (criterion='squared\_error', splitter='best') =** 0.9674049674690902