**Comparative Result Analysis for Profit Prediction from Different Algorithms**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **SI.NO** | **Algorithm** | | | **R Score** |
| 1. | Multiple Linear Regression | | | 0.9358680970046241 |
| 2. | Support Vector Machine | Linear kernel | | 0.8950779234313312 |
| 3. | Decision Tree | criterion | MAE | 0.9503414782173804 |
| Splitter | best |
| Max features | Auto |
| 4. | Random Forest Regression |  |  | 0.944633639431341 |

1

**1. SUPPORT VECTOR MACHINE (SVM)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **SI.NO** | **Behavior** |  | | **R SCORE** |
| 1. | LINEAR | Kernel-linear | | 0.8950779234313312 |
| 2. | NON-LINEAR | KERNEL | PENALTY/CORRECTION |  |
| RBF | C=10 | -0.05680759285862336 |
| 3. | C=100 | -0.05072602278128757 |
| 4. | C=1000 | 0.0067683444800727965 |
| 5. | POLY | | -0.05710387514922144 |
| 6. | SIGMOID | | -0.057209358534722865 |

**2. Decision Tree**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Hyper tuning parameters** | | | | |
| **Criterion** | **Splitter** | | **Max features** | **R score** |
| Squared error | best | | Auto | 0.9150938384543168 |
| Sqrt | 0.540663707027337 |
| Log2 | 0.739250587783949 |
| random | | Auto | 0.8373550227472532 |
| Sqrt | 0.17611387134918743 |
| Log2 | 0.38150335497681365 |
| Friedman error | best | Auto | | 0.9145622678524992 |
| Sqrt | | 0.7792305925475496 |
| Log2 | | 0.44796293104077933 |
| random | Auto | | 0.9051700311169436 |
| Sqrt | | 0.47666128144639164 |
| Log2 | | 0.7975687193232506 |
| MSE | best | Auto | | 0.9225870646229677 |
| Sqrt | | 0.5129475888016513 |
| Log2 | | -0.140207238655792 |
| random | Auto | | 0.747785175797653 |
| Sqrt | | 0.6602707180296344 |
| Log2 | | -0.2498358446205493 |
| MAE | best | Auto | | 0.9503414782173804 |
| Sqrt | | 0.36337193224788567 |
| Log2 | | 0.5069842572262286 |
| random | Auto | | 0.7338088837786806 |
| Sqrt | | 0.7139948686056028 |
| Log2 | | 0.5208599000127916 |