**To Predict the Business Profit using the Regression Algorithms**

**To Find the Best Algorithm based on the R2 Score Value**

1. **) MULTIPLE LINEAR REGRESSION**

Using multiple linear regression algorithm, we achieved the R2 score value as **R2 Score : 0.93**

1. **) SUPPORT VECTOR MACHINE**

Using support vector machine algorithm, we achieved the R2 score value as **R2 Score : 0.9**

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| **SNO** | **HYPER**  **PARAMETER** | **LINEAR**  **(R VALUE)** | **RBF**  **(R VALUE)** | **POLY**  **(R VALUE)** | **SIGMOID**  **(R VALUE)** |
| 1 | C10 | -0.04 | -0.06 | -0.05 | -0.05 |
| 2 | C100 | 0.11 | -0.05 | -0.02 | -0.03 |
| 3 | C500 | 0.59 | -0.02 | 0.11 | 0.07 |
| 4 | C1000 | 0.78 | 0.01 | 0.27 | 0.19 |
| 5 | C2000 | 0.88 | 0.07 | 0.48 | 0.4 |
| 6 | C3000 | 0.9 | 0.12 | 0.64 | 0.59 |

1. **)DECISION TREE:**

Using Decision Tree algorithm, we achieved the R2 score value as **R2 Score : 0.94**

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| --- | --- | --- | --- | --- |
| **SL\_NO** | **CRITERION** | **MAX FEATURES** | **SPLITTER** | **R VALUE** |
| 1 | SQUARED\_ERROR | NONE | BEST | 0.92 |
| 2 | SQUARED\_ERROR | NONE | RANDOM | 0.75 |
| 3 | SQUARED\_ERROR | SQRT | BEST | 0.74 |
| 4 | SQUARED\_ERROR | SQRT | RANDOM | 0.76 |
| 5 | SQUARED\_ERROR | LOG2 | BEST | 0.73 |
| 6 | SQUARED\_ERROR | LOG2 | RANDOM | -0.86 |
| 7 | ABSOLUTE\_ERROR | NONE | BEST | 0.94 |
| 8 | ABSOLUTE\_ERROR | NONE | RANDOM | 0.91 |
| 9 | ABSOLUTE\_ERROR | SQRT | BEST | 0.78 |
| 10 | ABSOLUTE\_ERROR | SQRT | RANDOM | 0.61 |
| 11 | ABSOLUTE\_ERROR | LOG2 | BEST | 0.37 |
| 12 | ABSOLUTE\_ERROR | LOG2 | RANDOM | 0.64 |
| 13 | FRIEDMAN\_MSE | NONE | BEST | 0.93 |
| 14 | FRIEDMAN\_MSE | NONE | RANDOM | 0.9 |
| 15 | FRIEDMAN\_MSE | SQRT | BEST | 0.36 |
| 16 | FRIEDMAN\_MSE | SQRT | RANDOM | 0.55 |
| 17 | FRIEDMAN\_MSE | LOG2 | BEST | 0.75 |
| 18 | FRIEDMAN\_MSE | LOG2 | RANDOM | 0.92 |
| 19 | POISSON | NONE | BEST | 0.92 |
| 20 | POISSON | NONE | RANDOM | 0.88 |
| 21 | POISSON | SQRT | BEST | 0.72 |
| 22 | POISSON | SQRT | RANDOM | 0.69 |
| 23 | POISSON | LOG2 | BEST | 0.46 |
| 24 | POISSON | LGO2 | RANDOM | 0.19 |