**Regression Assignment**

1.**Problem Statement**

Machine Learning

Supervised learning

Regression

2.**Total No of Rows** : 1338 rows

**Total No of Columns** : 6 columns

3.**Data Preprocessing** : Since the dataset has categorical data, of nominal type- Preprocessed the data using get\_dummies from pandas library.

4.**R2Score:** Random Forest Algorithm has given highest accuracy comparing to all other model

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| --- | --- | --- | --- |
| 12 | absolute\_error,log2min\_samples\_leaf=5, Random Forest  min\_samples\_split=8,  n\_estimators= 25 |  | 0.891288272 |

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| --- | --- | --- | --- |
| S.No | Hyper Tuning Parameter | Algorithm | R\_Score |
| 1 | Default parameter | MLR | 0.789479035 |
| 2 | Default parameter | Decision Tree | 0.681920389 |
| 3 | Default parameter | Support Vector Machine | -0.088427328 |
| 4 | Default parameter | Random Forest | 0.85084853 |
| 5 | squared\_error,Sqrt | Random Forest | 0.870475135 |
| 6 | squared\_error,log2 | Random Forest | 0.872233714 |
| 7 | absolute\_error,log2 | Random Forest | 0.875462943 |
| 8 | absolute\_error,sqrt | Random Forest | 0.875429641 |
| 9 | friedman\_mse,sqrt | Random Forest | 0.86990326 |
| 10 | friedman\_mse,log2 | Random Forest | 0.871361136 |
| 11 |  |  |  |
| 12 | criterion="absolute\_error", max\_depth= 25,  max\_features= 3,  min\_samples\_leaf=5,  min\_samples\_split=12,  n\_estimators= 40) |  | 0.891288272 |
| 13 | poisson,log2 | Random Forest | 0.829193484 |
| 14 | poisson,sqrt | Random Forest | 0.831896615 |
| 15 | friedman\_mse,best,auto | Decision Tree | 0.691864895 |
| 16 | absolute\_error,best,auto | Decision Tree | 0.651904145 |
| 17 | absolute\_error,random,auto | Decision Tree | 0.752889961 |
| 18 | absolute\_error,random,sqrt | Decision Tree | 0.666889674 |
| 19 | absolute\_error,random,log2 | Decision Tree | 0.714780849 |
| 20 | absolute\_error,best,log3 | Decision Tree | 0.669096553 |
| 21 | friedman\_mse,best,sqrt | Decision Tree | 0.688717679 |
| 22 | friedman\_mse,random,sqrt | Decision Tree | 0.678037724 |
| 23 | poisson, best,auto | Decision Tree | 0.675617582 |
| 24 | poisson, random,auto | Decision Tree | 0.615248685 |
| 25 | poisson,best,log2 | Decision Tree | 0.678446283 |

Hence Random Forest Algorithm is saved and sent for Deployment.