**Regression-Algorithm-Insurance**

Answers:

1. The problem statement is to identify the insurance charges for the client.
2. Total numner of rows and columns are

1338 rows × 6 columns.

Columns are 'age', 'sex', 'bmi', 'children', 'smoker', 'charges'

1. The good model is ‘SLR and MLR’ because it gives the R\_score value as 1.

**INSURANCE**

**R\_Score value for Decission Tree**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S.NO** | **CRITERION** | **MAX\_FEATURES** | **SPLITTER** | **R\_SCORE** |
| 1 | Squarred\_error | sqrt | best | 0.96208 |
| 2 | Squarred\_error | Log2 | best | 0.938548 |
| 3 | Squarred\_error | sqrt | random | 0.960695 |
| 4 | Squarred\_error | Log2 | random | 0.965617 |
| 5 | Friedman\_mse | sqrt | best | 0.95169 |
| 6 | Friedman\_mse | sqrt | random | 0.93097 |
| 7 | Friedman\_mse | Log2 | best | 0.9870 |
| 8 | Friedman\_mse | Log2 | random | 0.9554 |
| 9 | Absolute\_error | sqrt | best | 0.99010 |
| 10 | Absolute\_error | sqrt | random | 0.95845 |
| 11 | Absolute\_error | Log2 | best | 0.99538 |
| 12 | Absolute\_error | Log2 | random | 0.92505 |
| 13 | Poisson | sqrt | best | 0.93784 |
| 14 | Poisson | sqrt | random | 0.96208 |
| 15 | Poisson | Log2 | best | 0.942230 |
| 16 | Poisson | Log2 | random | 0.98396 |

The highest R\_score value is found using criterion for decision 0.99538

**R\_Score value for SLR,MLR,Decission Tree,Random Forest**

|  |  |  |
| --- | --- | --- |
| **S.No** | **Algorithm** | **R\_Score value** |
| 1 | SLR | 1.0 |
| 2 | MLR | 1.0 |
| 3 | DecissionTree | 0.99538 |
| 4 | Random Forest | 0.999823 |