A client’s requirement is, he wants to predict the insurance charges based on the several parameters. The Client has provided the dataset of the same

Here I have checked multiple Machine learning algorithm. Eachone ends with certain r\_score.

1.Multiple linear regression- r\_score 0.78947

2.Support vector machine(without standardsation)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | Algorithm | Type(parameter) | r\_score | Model |  |  |  |
| 1. | Svm | linear | -0.116 | Poor |  |  |  |
| 2. | svm | rbf | -0.088 | Poor |  |  |  |

Support vector machine( standardsation)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Algorithm | parameter | C value | r\_score | Model |
| Svm | sigmoid | 10 | 0.03 | Poor |
| Svm | sigmoid | 100 | 0.5279 | Poor |
| svm | poly | 10 | 0.6179 | Poor |
| Svm | poly | 100 | 0.6179 | Poor |
| svm | linear | 10 | 0.4624 | Poor |
| svm | linear | 100 | 0.6288 | Poor |
|  |  |  |  |  |

Here in this with and without standardsation r\_score values are low.so it’s a poor model

3.Decision tree

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| S.no | CRITERION | Max Features | Splitter | R\_Score |
| 1 | Squared error | None | Best | 0.6914 |
| 2 | Squared error | None | random | 0.7014 |
| 3 | Squared error | sqrt | Best | 0.5564 |
| 4 | Squared error | sqrt | random | 0.67466857 |
| 5 | Squared error | log2 | Best | 0.6874 |
| 6 | Squared error | log2 | random | 0.6321 |
| 7 | friedman\_mse | None | Best | 0.701111 |
| 8 | friedman\_mse | None | random | 0.66285326 |
| 9 | friedman\_mse | sqrt | Best | 0.73524 |
| 10 | friedman\_mse | sqrt | random | 0.6466 |
| 11 | friedman\_mse | log2 | Best | 0.72149 |
| 12 | friedman\_mse | log2 | random | 0..6832 |
| 13 | absolute\_error | None | Best | 0.68448 |
| 14 | absolute\_error | None | random | 0.751363 |
| 15 | absolute\_error | sqrt | Best | 0.699939 |
| 16 | absolute\_error | sqrt | random | 0.6644 |
| 17 | absolute\_error | log2 | Best | 0.7096 |
| 18 | absolute\_error | log2 | random | 0.71075 |
| 19 | Poisson | None | Best | 0.712 |
| 20 | Poisson | None | random | 0.6868 |
| 21 | Poisson | sqrt | Best | 0.671 |
| 22 | Poisson | sqrt | random | 0.6773 |
| 23 | Poisson | log2 | Best | 0.7337 |
| 24 | Poisson | log2 | random | 0.61659 |

Compare with Multi linear regression the r\_score value is bit lower.

So for this problem statement MULTI LINEAR REGRESSION TO BE CONSIDERD AS A FINAL MODEL.