

## REGRESSION ASSIGNMENT

SIMPLE LINEAR REGRESSION :R2 SCORE=0.78

MULTIPLE LINEAR REGRESSION:R2 SCORE=0.78

Decision Tree Parameters Values:

R2 SCORE=0.74(POISSON,RANDOM,AUTO)

| criterion      | splitter | max_features | R2 score |
|----------------|----------|--------------|----------|
| absolute_error | best     | sqrt         | 0.58     |
| absolute_error | best     | auto         | 0.67     |
| friedman_mse   | best     | auto         | 0.71     |
| friedman_mse   | randam   | auto         | 0.68     |
| friedman_mse   | randam   | sqrt         | 0.70     |
| friedman_mse   | randam   | Log2         | 0.62     |
| friedman_mse   | best     | sqrt         | 0.73     |
| friedman_mse   | best     | Log2         | 0.71     |
| absolute_error | best     | Log2         | 0.68     |
| poisson        | best     | sqrt         | 0.58     |
| poisson        | best     | Log2         | 0.57     |
| poisson        | best     | auto         | 0.68     |
| Poisson        | random   | auto         | 0.74     |
| poisson        | random   | Log2         | 0.63     |
| poisson        | random   | sqrt         | 0.65     |

Random Forest:

R2 SCORE=0.87(criterion=squared\_error, max\_features= sqrt,  
n\_estimators=50)

| criterion      | bootstr<br>ap | max_features | n_estimators | random_sta<br>te | R2 score |
|----------------|---------------|--------------|--------------|------------------|----------|
| squared_error  | True          | 1.0          | 50           | 0                | 0.84     |
| squared_error  | True          | 1.0          | 100          | 0                | 0.85     |
| squared_error  | True          | sqrt         | 50           | 0                | 0.87     |
| squared_error  | True          | Log2         | 50           | 0                | 0.87     |
| poisson        | True          | 1.0          | 50           | 0                | 0.78     |
| poisson        | True          | 1.0          | 100          | 0                | 0.78     |
| poisson        | bool          | 1.0          | 100          | 0                | 0.78     |
| friedman_mse   | True          | 1.0          | 50           | 0                | 0.84     |
| friedman_mse   | True          | sqrt         | 50           | 0                | 0.87     |
| friedman_mse   | True          | sqrt         | 100          | 0                | 0.87     |
| friedman_mse   | True          | Log2         | 100          | 0                | 0.87     |
| friedman_mse   | True          | Log2         | 50           | 0                | 0.87     |
| absolute_error | True          | 1.0          | 50           | 0                | 0.85     |

|                              |      |      |     |   |      |
|------------------------------|------|------|-----|---|------|
| <b><i>absolute_error</i></b> | True | 1.0  | 100 | 0 | 0.85 |
| <b><i>absolute_error</i></b> | True | sqrt | 100 | 0 | 0.87 |
| <b><i>absolute_error</i></b> | True | sqrt | 50  | 0 | 0.87 |
| <b><i>absolute_error</i></b> | True | Log2 | 50  | 0 | 0.87 |
| <b><i>absolute_error</i></b> | True | Log2 | 100 | 0 | 0.87 |

Best Model :Random Forest

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