

To find best model by using r2 value the following are algorithms

1. MULTIPLE LINEAR REGRESSION: r2 value= 0.93

2. SUPPORT VECTOR MACHINE:

S.No	Hyperparameter	Linear	rbf	poly	sigmoid
1	C=0.1	0.92	-0.0016	-0.0016	-0.0016
2	C=10	-4.56	-0.004	-0.0014	-0.0015
3	C=100	-167.5	0.010	0.200	-0.0008
4	C=1000	-	0.091	0.49	0.006
5	C=2000	-	0.17	0.56	0.013
6	C=10000	-	0.62	0.66	0.05

The SVM Regression uses r2 value (kernel-linear, hyperparameter C=0.1) = 0.92

3. DECISION TREE:

S.No	Criterion	Splitter	Max_features	R2 Value
1	Squared_error	Best	Sqrt	0.80
2	Squared_error	Best	Log2	0.64
3	Squared_error	Random	Sqrt	0.31
4	Squared_error	Random	Log2	0.68
5	Friedman_mse	Best	Sqrt	0.40
6	Friedman_mse	Best	Log2	-0.128
7	Friedman_mse	Random	Sqrt	-0.79
8	Friedman_mse	Random	Log2	-0.53
9	Absolute_error	Best	Sqrt	0.26
10	Absolute_error	Best	Log2	0.105
11	Absolute_error	Random	Sqrt	0.105
12	Absolute_error	Random	Log2	0.48
13	Poisson	Best	Sqrt	0.70
14	Poisson	Best	Log2	-0.67
15	Poisson	Random	Sqrt	-0.44
16	Poisson	Random	Log2	-0.32

The Decision Tree Regression uses r2 value (Criterion=Squared_error, Splitter= Best, Max_features = Sqrt) = 0.80

4. RANDOM FOREST:

S.No	Criterion	Max_features	N_Estimators	R2 Value
1	Squared_error	Sqrt	10	0.78
2	Squared_error	Sqrt	100	0.81
3	Squared_error	Log2	10	0.78
4	Squared_error	Log2	100	0.81

5	Friedman_mse	Sqrt	10	0.78
6	Friedman_mse	Sqrt	100	0.81
7	Friedman_mse	Log2	10	0.78
8	Friedman_mse	Log2	100	0.81
9	Absolute_error	Sqrt	10	0.70
10	Absolute_error	Sqrt	100	0.82
11	Absolute_error	Log2	10	0.70
12	Absolute_error	Log2	100	0.82
13	Poisson	Sqrt	10	0.67
14	Poisson	Sqrt	100	0.80
15	Poisson	Log2	10	0.67
16	Poisson	Log2	100	0.80

The Random Forest Regression uses r2 value (Criterion=Absolute_error, Max_features = Sqrt, n_estimators=100) = 0.82