

To find out the r score value using the hyper tuning parameters in Decision Tree

Multiple Linear Regression **r score is 0.9358680970046243**

1. Support Vector Machine

S.No	Hyper Parameter	Linear	Rbf (Non Linear)	Poly	Sigmoid
1	C0.05	-0.0573	-0.0574	-0.0574	-0.0574
2	C10	-0.0396	-0.0568	-0.0536	-0.0547
3	C100	0.1064	-0.0507	-0.0198	-0.0304
4	C500	0.5928	-0.0243	0.1146	0.0705
5	C1000	0.7802	0.0067	0.2661	0.1850
6	C2000	0.8767	0.0675	0.4810	0.3970
7	C3000	0.8956	0.1232	0.6370	0.5913
8	C4000	0.8972	0.1723	0.7326	0.6282
9	C5000	0.9003	0.2124	0.7936	0.7306
10	C10000	0.9301	0.3718	0.8129	0.8535
11	C30000	0.9301	0.5821	0.6068	0.8143
12	C50000	0.9301	0.6660	0.5885	0.0881

The parameters for Decision tree is Linear with C10000, r score is 0.9301

2. Decision Tree

S. No	Criterion	Splitter	r score
1	<i>squared_error</i>	<i>best</i>	0.9126
2	<i>squared_error</i>	<i>random</i>	0.9126
3	<i>friedman_mse</i>	<i>best</i>	0.9193
4	<i>friedman_mse</i>	<i>random</i>	0.8309
5	<i>absolute_error</i>	<i>best</i>	0.9619
6	<i>absolute_error</i>	<i>random</i>	0.7497
7	<i>poisson</i>	<i>best</i>	0.9199
8	<i>poisson</i>	<i>random</i>	0.9603

The hyper tuning parameters for Decision tree is *absolute_error* with *best*, r score is 0.9619

The Decision is the best model among all others.

3. Random Forest

S.no	Criterion	Max_features	n_estimators	r score
1	squared_error	sqrt	10	0.8234
2	squared_error	sqrt	50	0.8065
3	squared_error	sqrt	100	0.8119
4	squared_error	log2	10	0.6560
5	squared_error	log2	50	0.7514
6	squared_error	log2	100	0.8413
7	absolute_error	sqrt	10	0.8093
8	absolute_error	sqrt	50	0.7906
9	absolute_error	sqrt	100	0.8059
10	absolute_error	log2	10	0.7990
11	absolute_error	log2	50	0.7722
12	absolute_error	log2	100	0.8215
13	friedman_mse	sqrt	10	0.7354
14	friedman_mse	sqrt	50	0.7557
15	friedman_mse	sqrt	100	0.8361
16	friedman_mse	log2	10	0.8152
17	friedman_mse	log2	50	0.7309
18	friedman_mse	log2	100	0.7781
19	poisson	sqrt	10	0.5849
20	poisson	sqrt	50	0.7921
21	poisson	sqrt	100	0.7773
22	poisson	log2	10	0.6308
23	poisson	log2	50	0.7851
24	poisson	log2	100	0.7831
25	squared_error		50	0.9446
26	absolute_error		50	0.9401
27	friedman_mse		50	0.9388
28	poisson		50	0.9463