Hyper turning Parameter

for ML Algorithm

Dataset = 50_Startup

1. Multiple Linear Regression – R^2 value = 0.935

2. Support Vector Machine

C-Support Vector Classification.

C: *float, default=1.0*

Kernel: *{'linear', 'poly', 'rbf', 'sigmoid', 'precomputed'} or callable, default='rbf'*

S. No	Hyper parameter 'C'	Linear R^2 value	rbf R^2 value	Poly R^2 value	Sigmoid R^2 value
1	10	-9774	-0.057	-7.853	-0.052
2	100	-7624	-0.057	-7.853	-0.018
3	1000	-2028	-0.059	-7.372	-0.322
4	2000	-2795	-0.055	-2.446	-1.729
5	3000	-2381	-0.050	-4.164	-3.489

Here **R^2 value** is not upto mark.

This model is **Not Good** for this data.

3. Decision Tree

Criterion: *{"squared_error", "friedman_mse", "absolute_error", "poisson"}, default="squared_error"*

Splitter: *{"best", "random"}, default="best"*

max_features : *int, float or {"sqrt", "log2","auto"}, default=None*

S. No	Criterion	Splitter	max_features	R^2 value
1				0.916
2	squared_error	best		0.882
3	squared_error	best	sqrt	0.234
4	squared_error	best	Log2	0.638
5	squared_error	best	auto	0.903
6	squared_error	random		0.845
7	squared_error	random	sqrt	0.473
8	squared_error	random	Log2	0.216
9	squared_error	random	auto	0.281
10	friedman_mse	best		0.926
11	friedman_mse	best	sqrt	0.925
12	friedman_mse	best	Log2	-0.236
13	friedman_mse	best	auto	0.921
14	friedman_mse	random		0.904
15	friedman_mse	random	sqrt	0.746
16	friedman_mse	random	Log2	0.458
17	friedman_mse	random	auto	0.861
18	*absolute_error*	best		0.935
19	*absolute_error*	best	sqrt	0.560
20	*absolute_error*	best	Log2	0.561
21	*absolute_error*	best	auto	0.941
22	*absolute_error*	random		0.934
23	*absolute_error*	random	sqrt	0.713
24	*absolute_error*	random	Log2	0.629
25	*absolute_error*	random	auto	0.925
26	*poisson*	best		0.712
27	*poisson*	best	sqrt	0.896
28	*poisson*	best	Log2	0.701
29	*poisson*	best	auto	0.926
30	*poisson*	random		0.879
31	*poisson*	random	sqrt	0.847
32	*poisson*	random	Log2	0.156
33	*poisson*	random	auto	0.933

Here **R^2 value** is upto mark.

This model (*absolute_error*, best, auto) is **Good** for this data.