

To Find the Validating Parameter - R^2 for same dataset use with following algorithms:

1. Multiple Linear Regression

2. Support Vector Machine

3. Decision Tree

Dataset File Name: 50_Startups.csv

1. Multiple Linear Regression

R^2 Value: **0.9358**

2. Support Vector Machine:

S.NO	Hyper Tuning Parameter			R^2 Value
	kernel	gamma	C' paramter	
1	Linear	scale	0.1	0.937
2	rbf	scale	5000	0.503
3	poly	scale	5000	0.766
4	sigmoid	scale	5000	-0.129
5	Linear	auto	0.1	0.937
6	rbf	auto	0.1	-0.057
7	poly	auto	5000	-0.057
8	sigmoid	auto	0.01	-0.057

R^2 Value for SVM is **I. (Kernel "linear", gamma "scale", C=0.1) =0.937**

II. (Kernel "linear", gamma "auto", C=0.1) =0.937

3. Decision Tree:

S.NO	Hyper Tuning Parameter			R ² Value
	Criterion	Splitter	Max_Features	
1	squared_error	best	sqrt	0.722
2	friedman_mse	best	sqrt	0.603
3	absolute_error	best	sqrt	0.493
4	poisson	best	sqrt	0.765
5	squared_error	random	sqrt	0.443
6	friedman_mse	random	sqrt	0.308
7	absolute_error	random	sqrt	0.587
8	poisson	random	sqrt	0.94
9	squared_error	best	log2	0.305
10	friedman_mse	best	log2	0.541
11	absolute_error	best	log2	0.373
12	poisson	best	log2	0.915
13	squared_error	random	log2	0.845
14	friedman_mse	random	log2	0.652
15	absolute_error	random	log2	0.629
16	poisson	random	log2	0.648

R² Value for Decision Tree is (Criterion "squared_error" , Splitter "best" , Max_Features "sqrt") = 0.94