

Assignment-Regression Algorithm

1. Multi Linear Regression(**R^2 Score**)= 0.7894

2. Support Vector Machine

SL No	HYPER PARAMETER	LINEAR (r value)	RBF(Non Linear) (r value)	POLY (r value)	SIGMOID (r value)
1	C10	-0.0016	-0.0819	-0.0931	-0.0907
2	C100	0.5432	-0.1248	-0.0997	-0.1181
3	C500	0.6270	-0.1246	-0.0820	-0.4562
4	C1000	0.6340	-0.1174	-0.0555	-1.6659
5	C2000	0.6893	-0.1077	-0.0027	-5.6164
6	C3000	0.7590	-0.0962	0.0489	-12.0190

R^2 value (Linear and Hyper Parameter=C3000)=0.7590

3.Decision Tree

SL No	Criterion	Splitter	Max_Features	R score
1	squared_error	best	sqrt	0.7025
2	squared_error	best	log2	0.7652
3	squared_error	random	sqrt	0.6508
4	squared_error	random	Log2	0.7043
5	friedman_mse	best	sqrt	0.6973
6	friedman_mse	best	log2	0.6395
7	friedman_mse	random	sqrt	0.7205
8	friedman_mse	random	log2	0.6986
9	absolute_error	best	sqrt	0.7101
10	absolute_error	best	log2	0.7026
11	absolute_error	random	sqrt	0.6391
12	absolute_error	random	log2	0.6802
13	poisson	best	sqrt	0.6544
14	poisson	best	log2	0.7534
15	poisson	random	sqrt	0.6791
16	poisson	random	log2	0.6333

R² value(criterion=squared_error, max_feature=log2)=0.7652

4.Random Forest

SL NO	Criterion	Max_Features	N_Estimators	R_Value
1	squared_error	sqrt	10	0.8440
2	squared_error	sqrt	100	0.8669
3	squared_error	Log2	10	0.8408
4	squared_error	Log2	100	0.8688
5	absolute_error	sqrt	10	0.8513
6	absolute_error	sqrt	100	0.8674
7	absolute_error	Log2	10	0.8485
8	absolute_error	Log2	100	0.8725
9	friedman_mse	sqrt	10	0.8590
10	friedman_mse	sqrt	100	0.8719
11	friedman_mse	Log2	10	0.8614
12	friedman_mse	Log2	100	0.8739
13	poisson	sqrt	10	0.8602
14	poisson	sqrt	100	0.8698
15	poisson	Log2	10	0.8581
16	poisson	Log2	100	0.8706

R² value(criterion=friedman_mse,n_estimators=100)=0.8739

The final Machine Learning model of Regression

Random forest model and it's **R²** value is (friedman_mse,log2,100)=**0.8739**