Given data set is a numeric values so using Machine Learning

Stage 1 – Machine Learning

Stage 2 – Supervised Learning

Stage 3 – Regression

Why supervised Learning –> Requirement is clear and given sample data input and output is clear

Why Regression –> Data is continuous

Checked the **Multiple Linear Regression** algorithm with the hyper tuning parameters

fit_intercept	copy_X	n_jobs	positive	R2_score Value
TRUE	TRUE	None	FALSE	0.789479035
FALSE	TRUE	None	FALSE	0.762372328
TRUE	TRUE	-1	FALSE	0.789479035
TRUE	TRUE	None	TRUE	0.789442939

SupportVectorMachine Regressor result with hyper tuning parameters

kernel	gamma	epsilon	R2_Score Value
No params			-0.088427328
linear	scale	0.1	-0.111661287
poly	scale	0.1	-0.064292584
rbf	scale	0.1	-0.088427328
sigmoid	scale	0.1	-0.089941217
linear	auto	0.1	-0.111661287
poly	**auto**	**0.1**	**0.86545489**
rbf	auto	0.1	-0.089473602
sigmoid	auto	0.1	-0.089709005

Decision Tree Regressor result with the hyper tuning parameters

criterion	splitter	max_features	max_depth	R2_score Value
No params				0.698757409
squared_error	best	sqrt	None	0.758469393
friedman_mse	best	sqrt	None	0.717137921
absolute_error	best	sqrt	None	0.694774064

poisson	best	sqrt	None	0.727263762
squared_error	random	sqrt	None	0.657568365
friedman_mse	random	sqrt	None	0.617552543
absolute_error	random	sqrt	None	0.738035383
poisson	random	sqrt	None	0.625864795
squared_error	best	log2	None	0.731240001
friedman_mse	best	log3	None	0.753395387
absolute_error	best	log4	None	0.716138144
poisson	best	log5	None	0.674536889
squared_error	random	log6	None	0.629679608
friedman_mse	random	log7	None	0.681601317
absolute_error	random	log8	None	0.554369545
poisson	random	log9	None	0.658349493

RandomForest Regressor results with the hypertuning parameters

n_estimators	**criterion**	**random_state**	**max_features**	**R2_score Value**
No params				0.851794996
100	**squared_error**	**None**	**sqrt**	**0.8730874**
50	squared_error	None	log2	0.871943348
10	squared_error	None	None	0.84737137
100	absolute_error	None	sqrt	0.871628974
50	absolute_error	None	log2	0.867258653
10	absolute_error	None	None	0.822678338
100	friedman_mse	None	sqrt	0.870233429
50	friedman_mse	None	log2	0.867173931
10	friedman_mse	None	None	0.836291623
100	poisson	None	sqrt	0.870183471
50	poisson	None	log2	0.872009969
10	poisson	None	None	0.83657462

Summary:

RandomForest show the best result with the hyper tuning parameter (n_estimators=100, criterion=squared_error, random_state = None, max_features = sqrt), R2_score is 0.8730 which is nearly to the 1.