

## Linear Regression Models

	Linear Regression	Ransac regressor	Ridge(alpha=1.0)	Lasso (alpha=0.5)
Training-MSE	0.39	4.53	0.39	0.78
Testing-MSE	0.40	21.92	0.41	0.76
Running Time	0.035112619sec	0.074055433 sec	0.0459437 sec	0.0379331 sec

Non Linear Regression \_Run time - 0.23794126510620117 sec

	Linear	Quadratic	Cubic
Training	0.517	0.418	0.344
Test	0.543	2.137	282683.451

Whether my model is over fitting or not ?

1. Linear Regression is over fitting as the testing error is higher than the training error.
2. RANSAC Regressor is overfitting as the testing error is higher than the training error.
3. Ridge is over fitting as the testing error is higher than the training error.
4. Lasso is not over fitting as the testing error is not higher than the training error.
5. Non linear regression is over fitting as the testing error is higher than the training error.

->When I changed alpha values of ridge there is no change in the error rate

It showing the same error rate for the following alpha values 1.0,1.5,0.1,4.0 .

->But there is some changes when I changed alpha value for LASSO when alpha value is decreasing MSE is decreased and alpha value is increasing MSE is increasing.

For alpha value is 1.0

Mean squared error for training data Lasso: 1.00

Mean squared error for testing data Lasso: 0.97