

# PS9

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## 1 data

the training data is 404 observations of 450 features

## 2 lasso

The in sample RMSE is 0.178, out of sample is RMSE 0.1899799, The optimal value of lambda is 0.00457.

## 3 ridge

The in sample RMSE is 0.164, out of sample is RMSE 0.1872715, The optimal value of lambda is 0.3.

## 4 elastic net

The in sample RMSE is 0.163, out of sample is RMSE 0.1844383, The optimal value of lambda is 0.132.

## 5

Traditional OLS is useless for this data because there are so many columns. The curse of dimensionality prevents us from making a viable model with all features. The error in the out of sample is only a little higher than in sample.