

Before EDA and feature engineering I trained a simple extreme gradient boosting model on data. Thanks to this I can assess in future my feature engineering and hyperparameter tuning. I got an average error on cross validation 30640,22. I used a root mean squared error as a metric.

After feature engineering:

1. Linear regression:

Without PCA	With PCA
474832331895487.2	36286.07

2. Elastic Net regression:

Without PCA	With PCA
36112.65	36537.8

3. SVM regression:

Without PCA	With PCA
81435.96	81435.7

4. XGB regression:

Without PCA	With PCA
28929.2	37579.95

5. LGBM regression:

Without PCA	With PCA
28661.01	34835.56

Every model was assessed on default hyperparameters. PCA was conducted with 95% variance. After that I chose two best models and I used hyperopt to hyperparameter tuning.

XGB regression	LGBM regression
28702.24	28046.85

Better error had LGBM regression, so I chose it to do a final test on test set. Final error on test data was 20564.06.