Project 2:
Ames Housing Data & Kaggle Challenge

General Assembly
DSI8

Problem Statement

Create and tune a Linear Regression model to predict housing prices at sale in Ames, IA. The Ames Housing Dataset includes over 70 features. Detailed documentation can be found here:

http://jse.amstat.org/v19n3/decock/DataDocumentation.txt

Top 10 Features Correlated to Sale Price:

- Overall Quality
- Gross Living Area
- Garage Cars
- Year Built
- Garage Area
- Full Bath
- Total Basement SF
- Year of Remodel
- Foundation
- 1st Floor SF

Modeling Process

- Train / Test Split data
- Standardize features
- Cross Validate models (Linear Regression, Lasso, Ridge)
- Fit Train data to model with best CV score (Ridge)
- Evaluate & Compare Train / Test Scores
- Predict Sale Price & model evaluation score (R2)

Conclusions: *Model is Overfit*

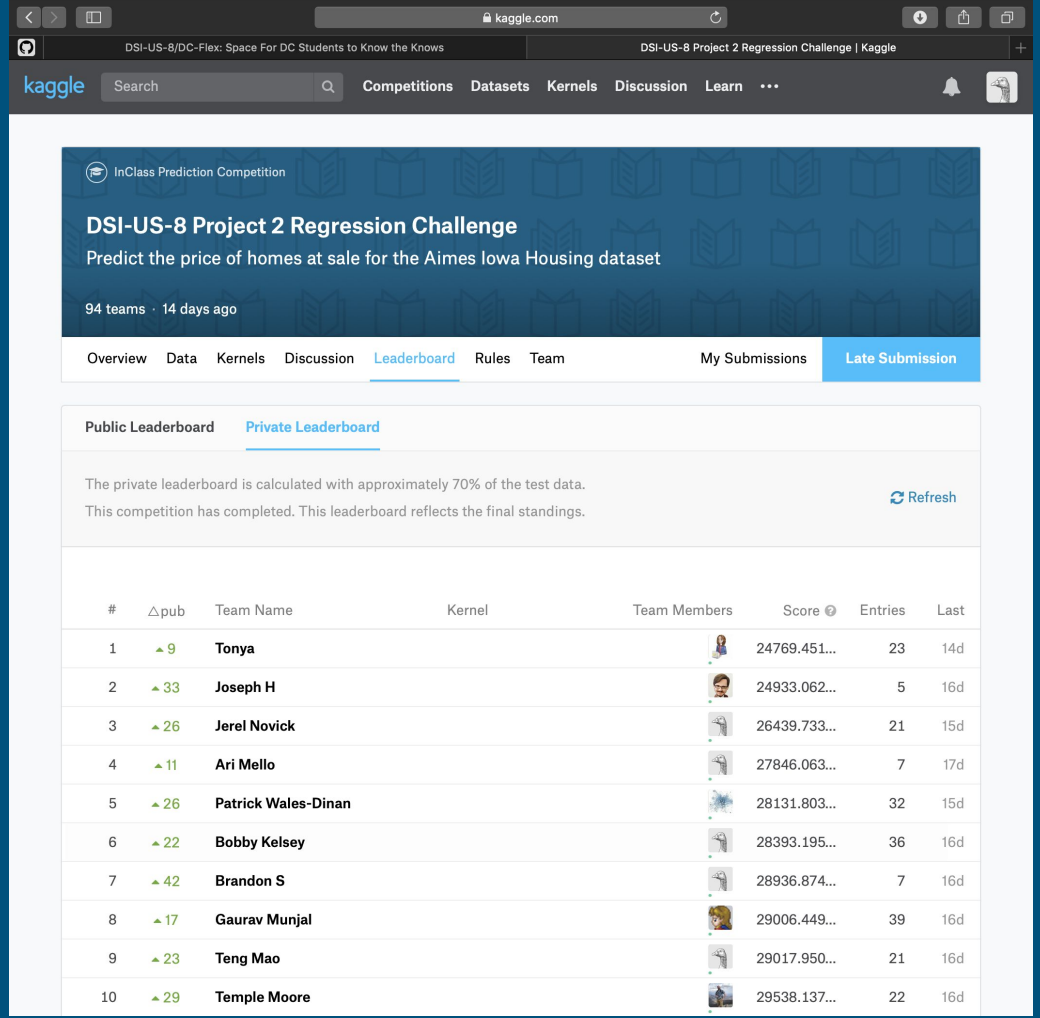
- Training Score: 92%
- Testing Score: 90%

Recommendations:

Apply feature engineering to reduce model variance.

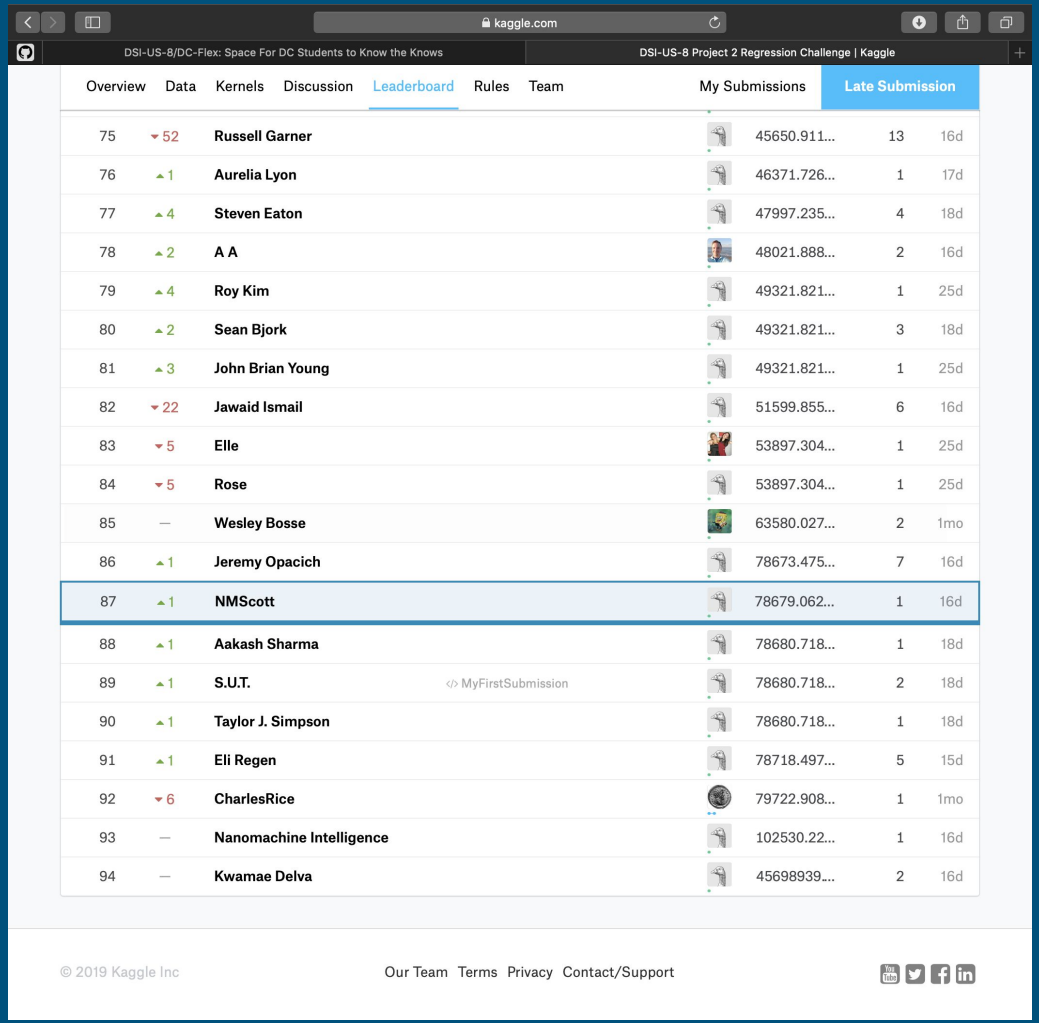
Remove some less important noisy features and combine others to create new high-value features.

Kaggle Competition



#	△pub	Team Name	Kernel	Team Members	Score	Entries	Last
1	▲ 9	**Tonya**			24769.451...	23	14d
2	▲ 33	**Joseph H**			24933.062...	5	16d
3	▲ 26	**Jerel Novick**			26439.733...	21	15d
4	▲ 11	**Ari Mello**			27846.063...	7	17d
5	▲ 26	**Patrick Wales-Dinan**			28131.803...	32	15d
6	▲ 22	**Bobby Kelsey**			28393.195...	36	16d
7	▲ 42	**Brandon S**			28936.874...	7	16d
8	▲ 17	**Gaurav Munjal**			29006.449...	39	16d
9	▲ 23	**Teng Mao**			29017.950...	21	16d
10	▲ 29	**Temple Moore**			29538.137...	22	16d

Kaggle Leaderboard



Kaggle Conclusions:

- R2 Score: 90.7%
- Model evaluation metric is not aligned with Kaggle

Recommendations:

Re-evaluate model based on RMSE evaluation metric used by Kaggle in order to improve Leaderboard position.