Ames, IA:
A Favorable Market for
Tech Expansion?

Maria Flores

Zillow's Factors That Could Suggest Tech Growth:

- Housing Affordability

- Market "Hotness"

- Demographics & Labor Market

- Tech Availability

- Livability

Focus: Housing Affordability

- Zillow needs help assessing whether or not Ames, IA would make a favorable market (in terms of affordability) for tech companies looking to expand.
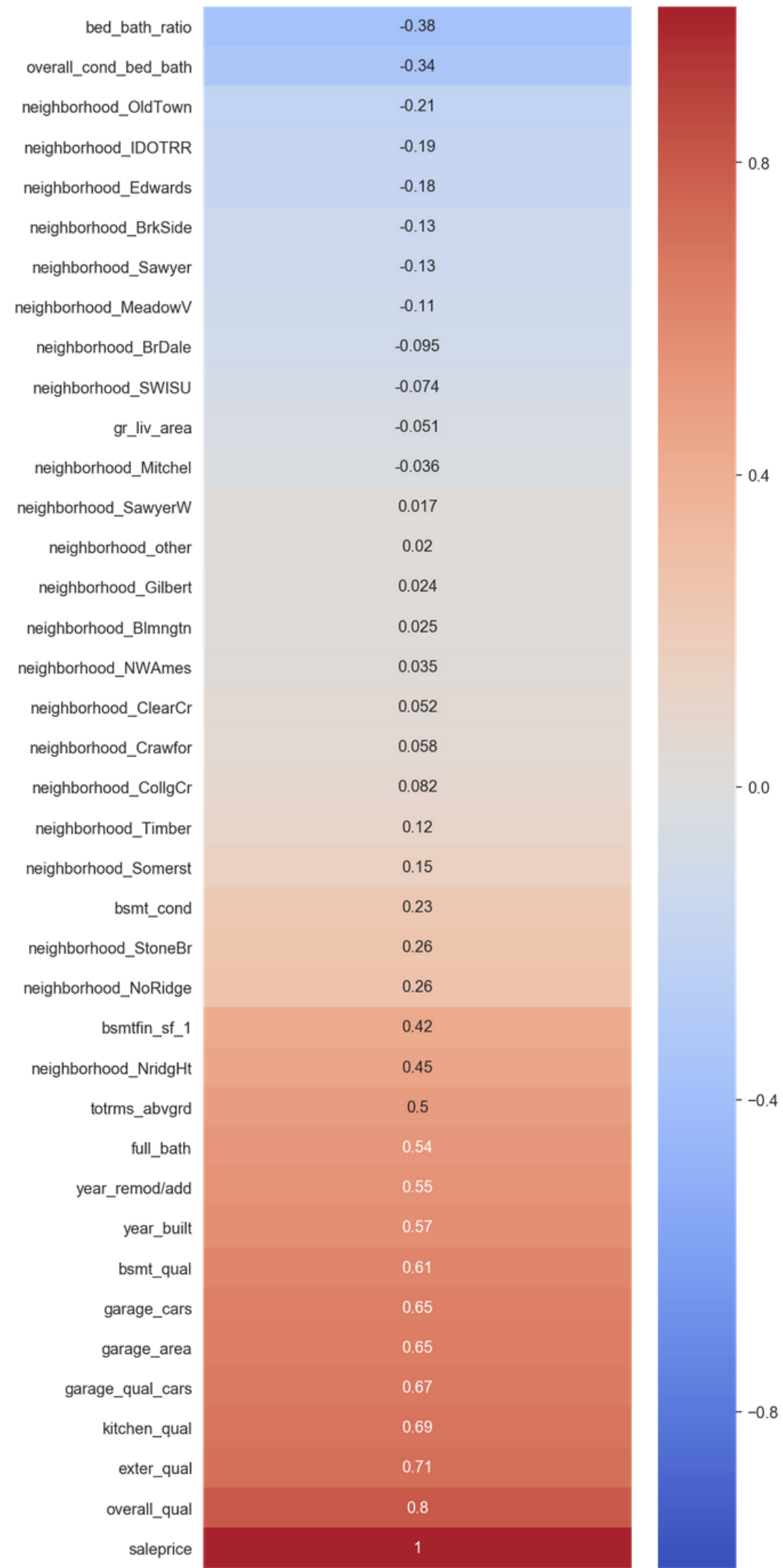
Approach

- Let's use Linear Regression, Ridge, and Lasso to find the best model that will predict housing prices and be implemented over the course of a few years (long-term goal).

- Compare R2 scores for each model.

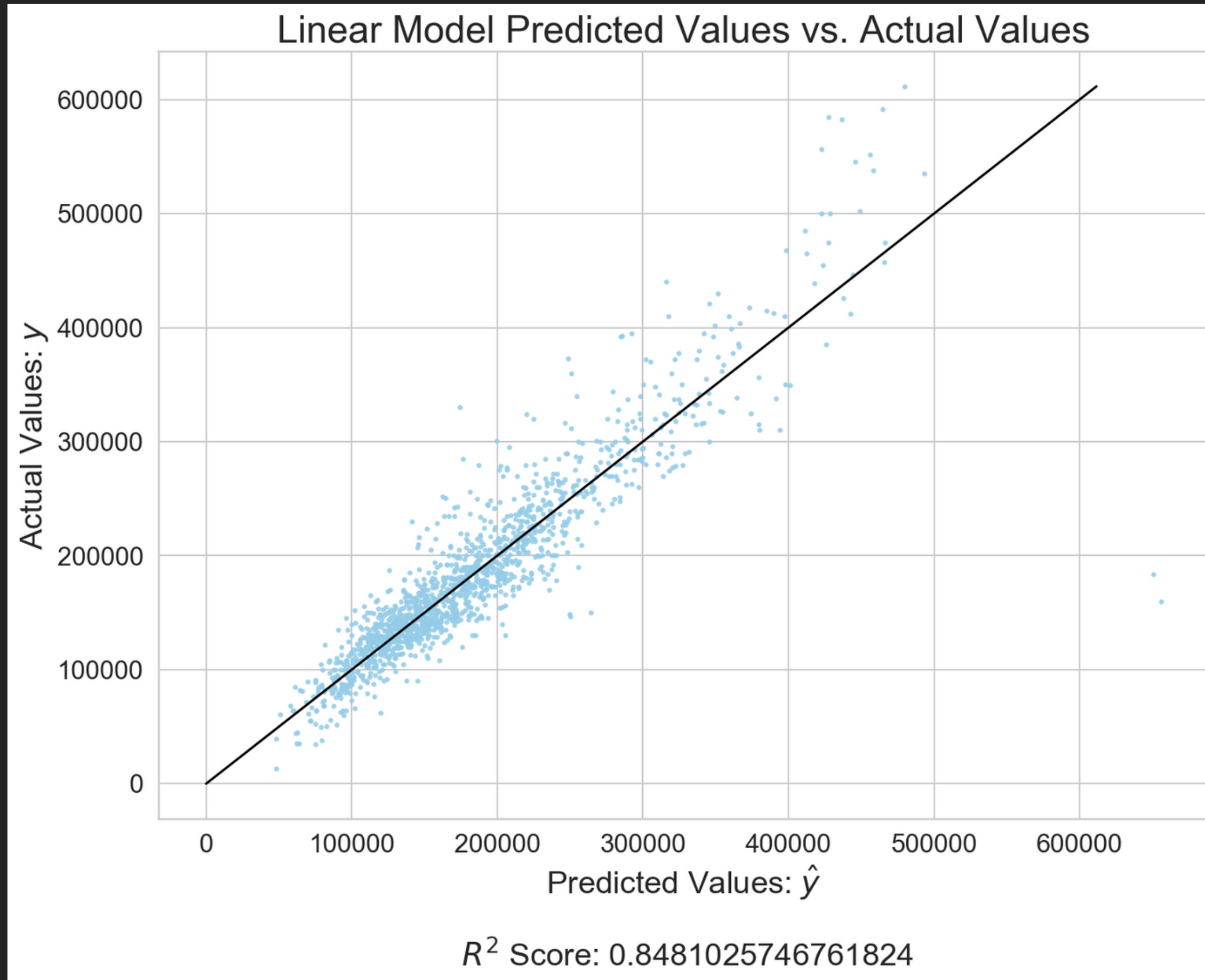# What's Happening to Housing in Current Tech-Dominant Markets (LA, SF)?

EXTREMELY UNAFFORDABLE
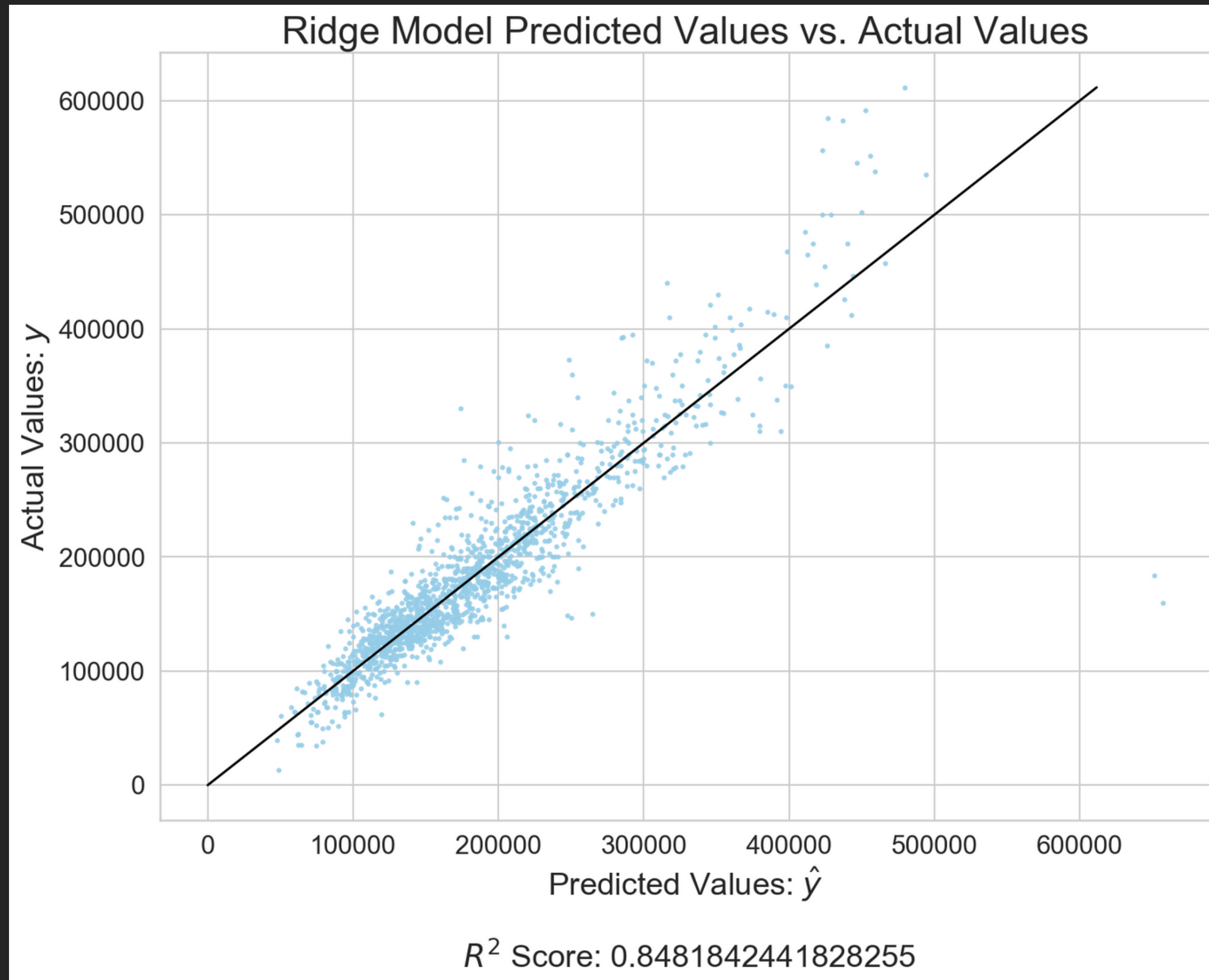
Feature & Sale Price Correlation

Feature	Correlation
bed_bath_ratio	-0.38
overall_cond_bed_bath	-0.34
neighborhood_OldTown	-0.21
neighborhood_IDOTRR	-0.19
neighborhood_Edwards	-0.18
neighborhood_BrkSide	-0.13
neighborhood_Sawyer	-0.13
neighborhood_MeadowV	-0.11
neighborhood_BrDale	-0.095
neighborhood_SWISU	-0.074
gr_liv_area	-0.051
neighborhood_Mitchel	-0.036
neighborhood_SawyerW	0.017
neighborhood_other	0.02
neighborhood_Gilbert	0.024
neighborhood_Blmngtn	0.025
neighborhood_NWAmes	0.035
neighborhood_ClearCr	0.052
neighborhood_Crawfor	0.058
neighborhood_CollgCr	0.082
neighborhood_Timber	0.12
neighborhood_Somerst	0.15
bsmt_cond	0.23
neighborhood_StoneBr	0.26
neighborhood_NoRidge	0.26
bsmtfin_sf_1	0.42
neighborhood_NridgHt	0.45
totrms_abvgrd	0.5
full_bath	0.54
year_remod/add	0.55
year_built	0.57
bsmt_qual	0.61
garage_cars	0.65
garage_area	0.65
garage_qual_cars	0.67
kitchen_qual	0.69
exter_qual	0.71
overall_qual	0.8
saleprice	1

Selected model features and their correlation to sale price.

Linear Regression Model

Linear Model Predicted Values vs. Actual Values

R^2 Score: 0.8481025746761824

Ridge Model

Ridge Model Predicted Values vs. Actual Values

R^2 Score: 0.8481842441828255

Lasso Model

Lasso Model Predicted Values vs. Actual Values

R^2 Score: 0.8472182666173325
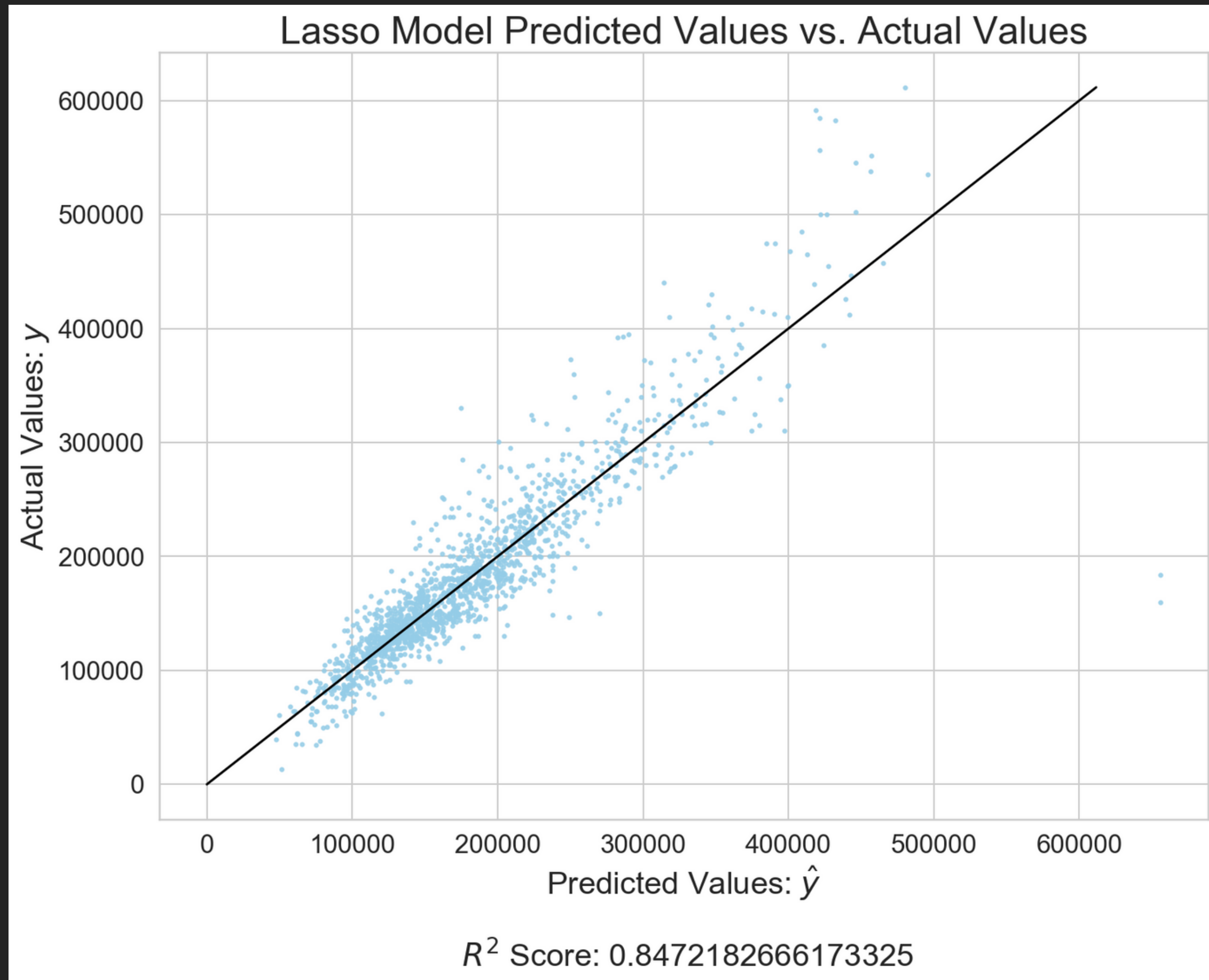
Based on my Linear Regression, the model can predict the house's price is within ~$32,000 on average.
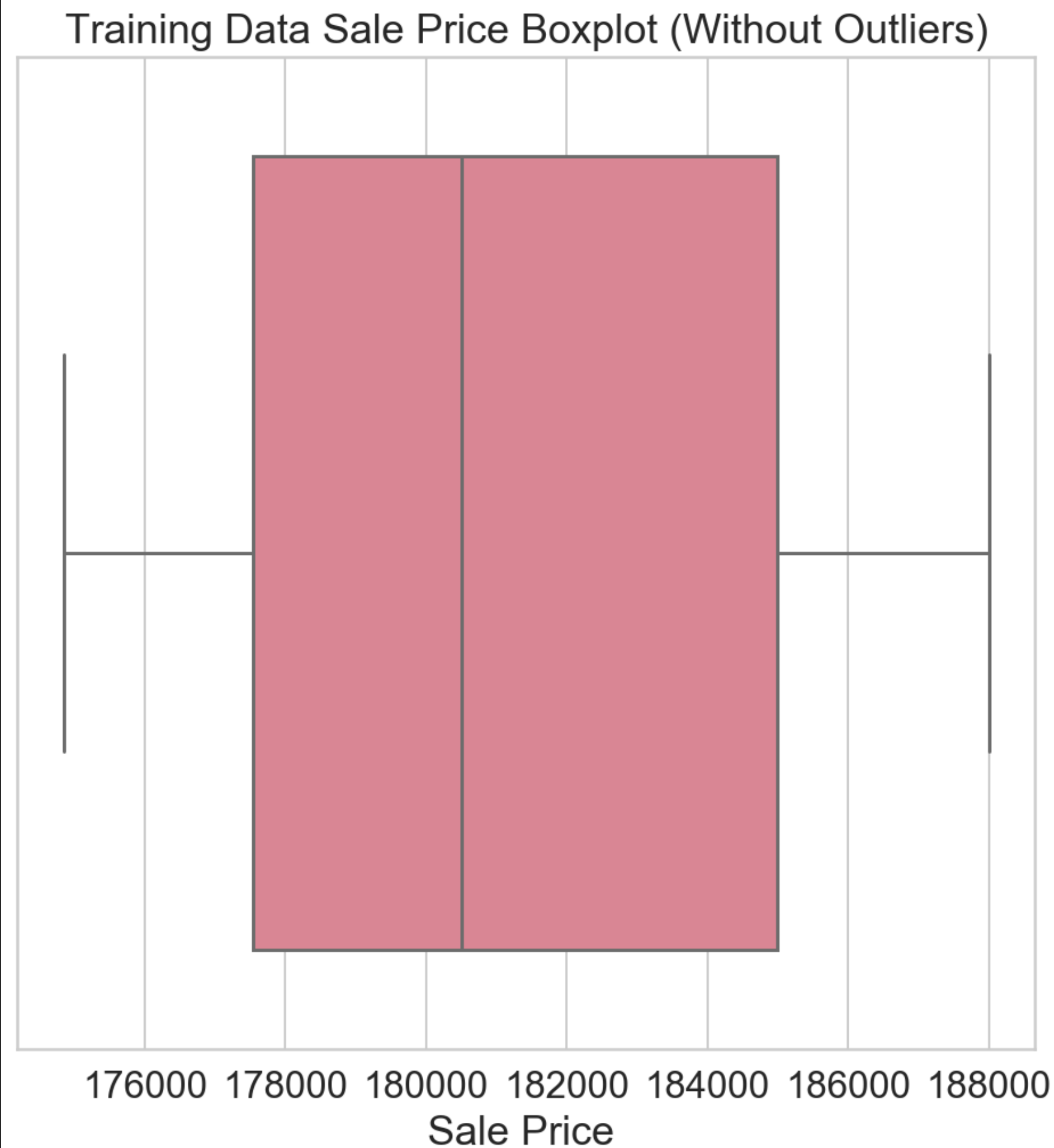
RMSE: KAGGLE
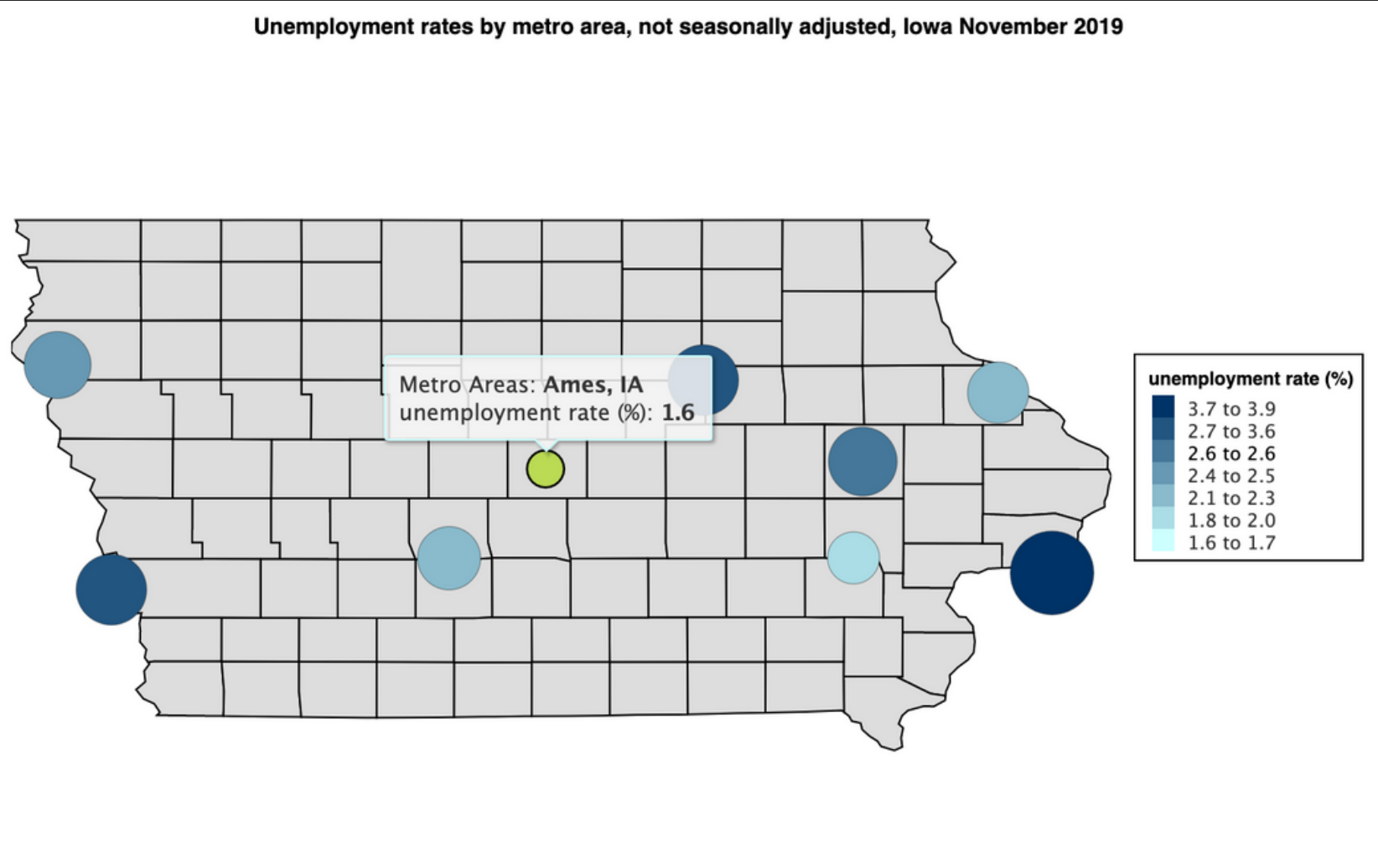
RMSE: MODEL

$30,116

$32,331

Suggestions

Other Factors to Analyze: Tech Skills

What is the measure of potential tech talent in residents over the age of 25 that have a bachelor's degree?
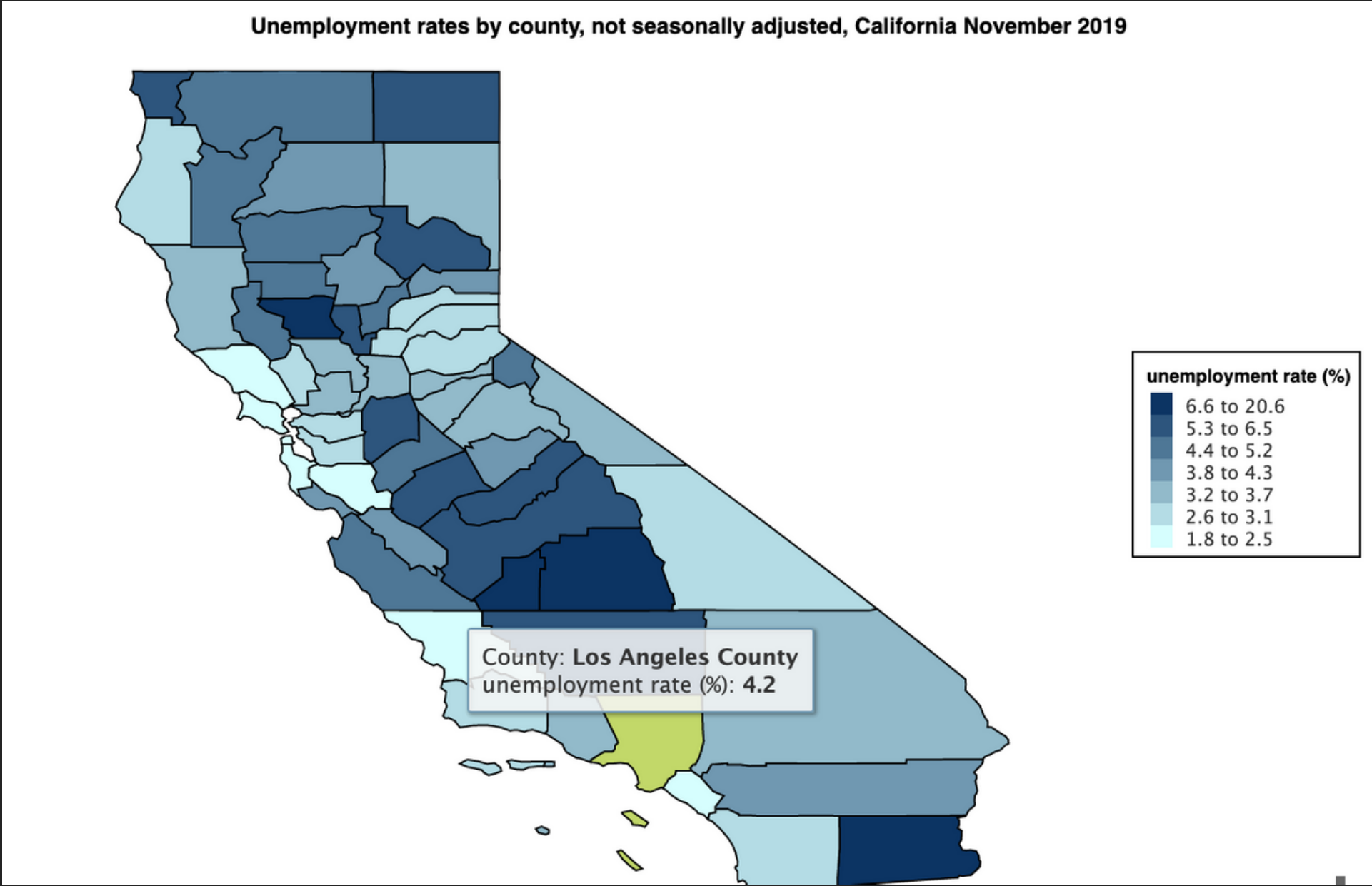
Source: U.S. Census, American Community Survey

FIELD OF BACHELOR'S DEGREE FOR FIRST MAJOR

Survey/Program: American Community Survey
TableID: S1502

Product: 201

	Total	
	Estimate	**Margin of Error**
∨ Total population 25 year...	26,076	+/-2,025
Science and Engineeri...	10,992	+/-1,640
Science and Engineeri...	2,199	+/-750
Business	3,734	+/-1,030
Education	4,810	+/-991
Arts, Humanities and ...	4,341	+/-847

Other Factors to Analyze: Unemployment Rates

Unemployment rates by metro area, not seasonally adjusted, Iowa November 2019

Metro Areas: **Ames, IA**
unemployment rate (%): **1.6**

unemployment rate (%)
3.7 to 3.9
2.7 to 3.6
2.6 to 2.6
2.4 to 2.5
2.1 to 2.3
1.8 to 2.0
1.6 to 1.7

Unemployment rates by county, not seasonally adjusted, California November 2019

County: **Los Angeles County**
unemployment rate (%): **4.2**

unemployment rate (%)
6.6 to 20.6
5.3 to 6.5
4.4 to 5.2
3.8 to 4.3
3.2 to 3.7
2.6 to 3.1
1.8 to 2.5

- Ames: 1.6%
- LA: 4.2%

Source: U.S. Bureau of Labor Statistics