

Ames, IA:

A Favorable Market for Tech Expansion?



Maria Flores

Zillow's Factors That Could Suggest Tech Growth:

Housing Affordability

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- 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.

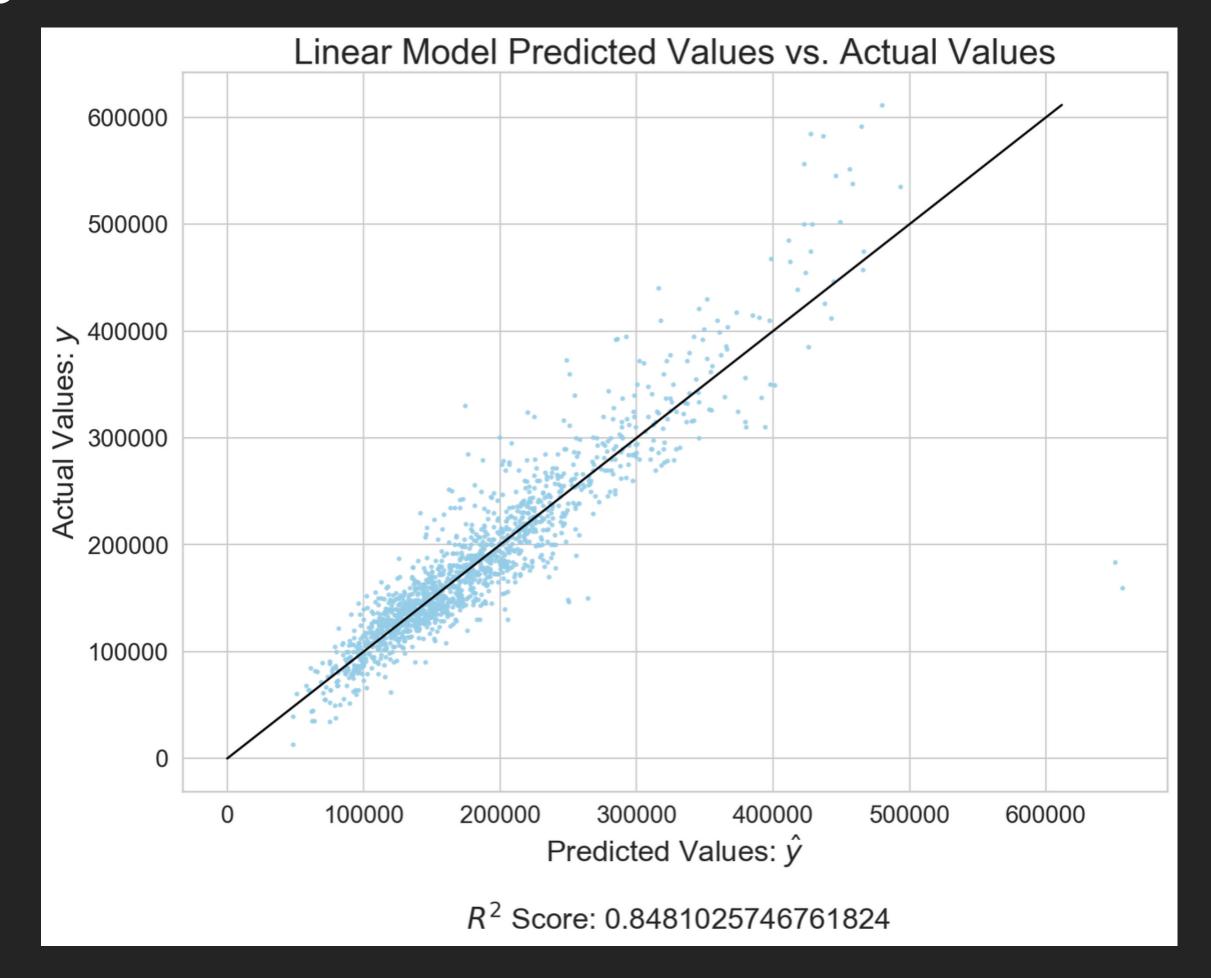
What's Happening to Housing in Current Tech-Dominant Markets (LA, SF)?

EXTREMELY UNAFFORDABLE

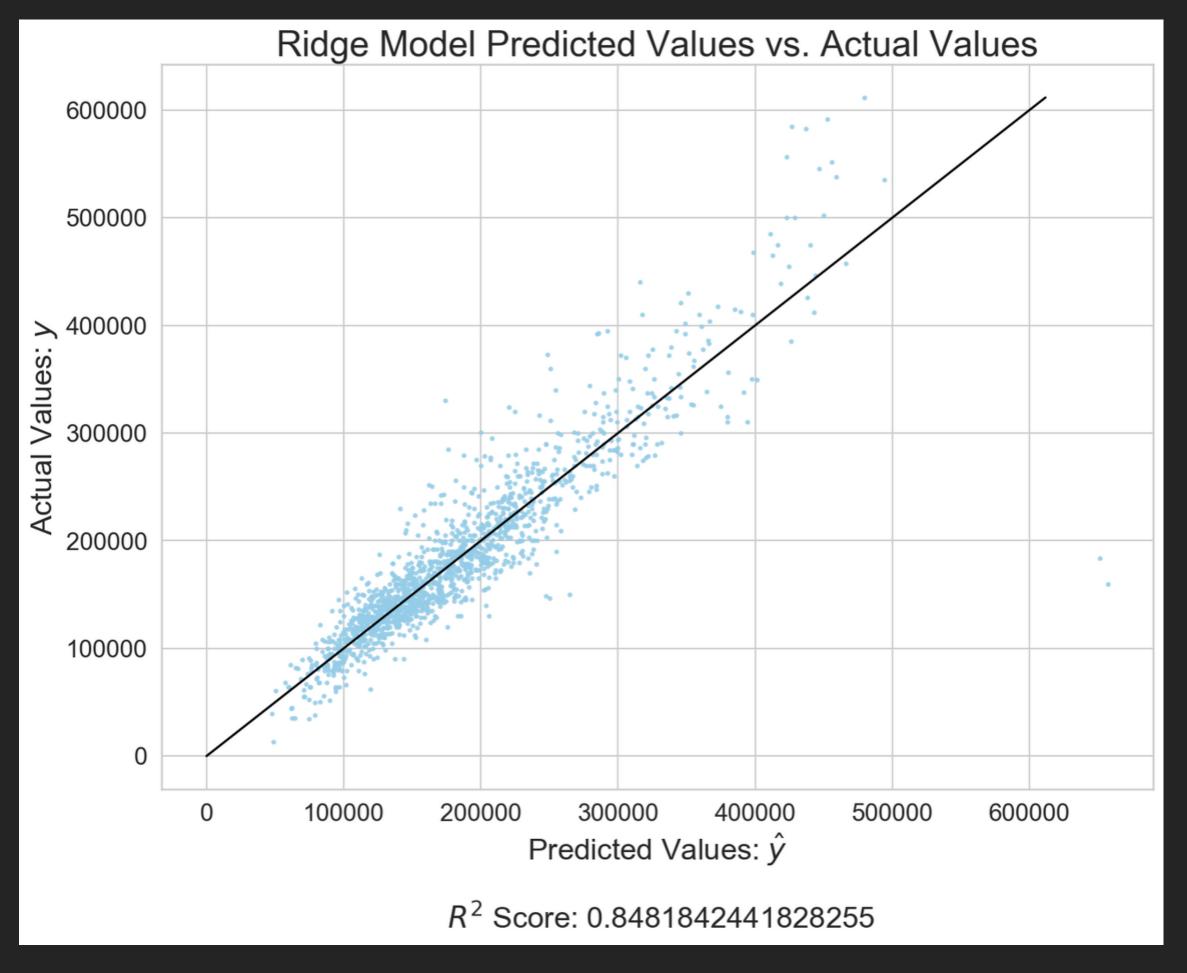
Feature & Sale Price Correla			
bed_bath_ratio	-0.38		
overall_cond_bed_bath	-0.34		
neighborhood_OldTown	-0.21		
neighborhood_IDOTRR	-0.19		
neighborhood_Edwards	-0.18		
neighborhood_BrkSide	-0.13		
neighborhood_Sawyer	-0.13		
neighborhood_MeadowV	-0.11		
neighborhood_BrDale	-0.095		
neighborhood_SWISU	-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.

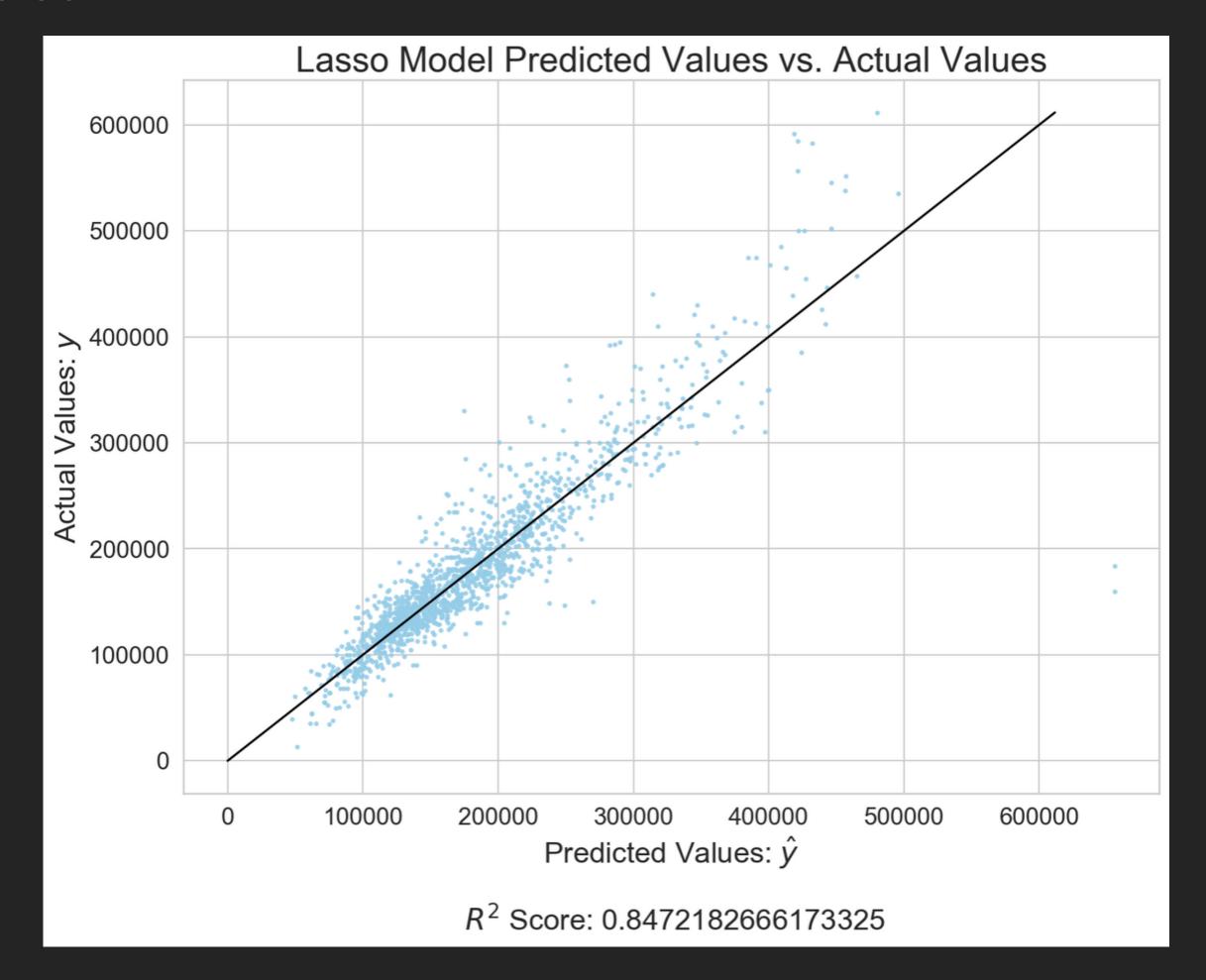
Linear Regression Model



Ridge Model



Lasso Model



Based on my Linear Regression, the model can predict the house's price is within ~\$32,000 on average.

RMSE: KAGGLE

\$30,116

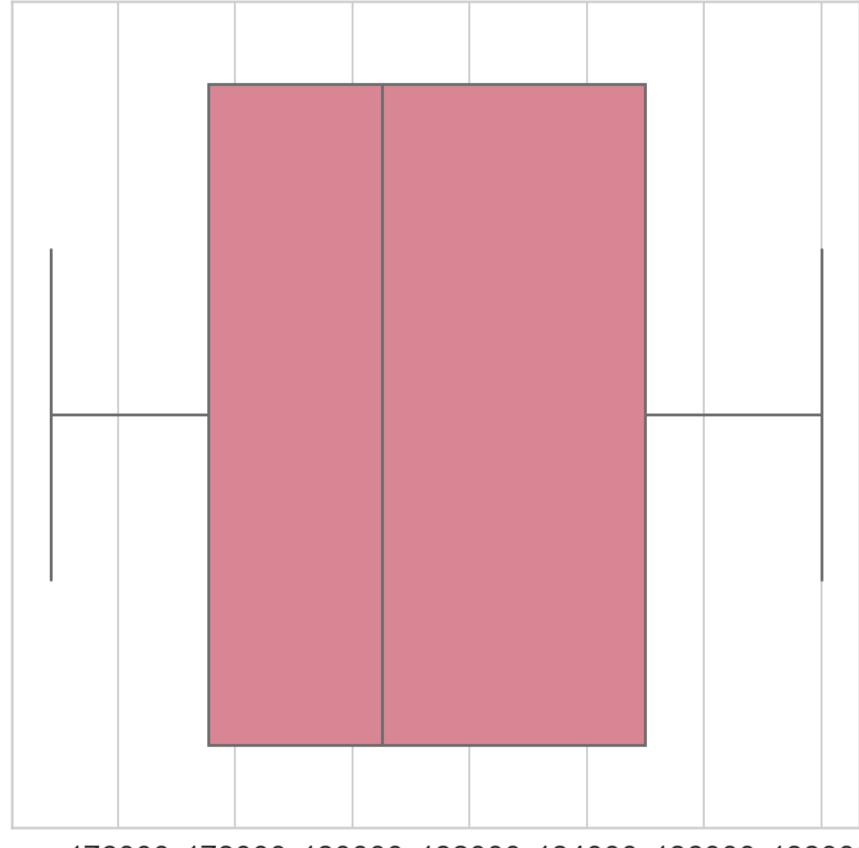
RMSE: MODEL

\$32,331

Ames Sale Price Distribution

- Ames (median): \$180, 500
- LA (median): \$717,583
- SF (median): \$1,387,263

Training Data Sale Price Boxplot (Without Outliers)



176000 178000 180000 182000 184000 186000 188000 Sale Price

Median: 180500.0

Mean: 181175.2105263158

- 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?

FIELD OF BACHELOR'S DEGREE FOR FIRST MAJOR

Survey/Program: American Community Survey

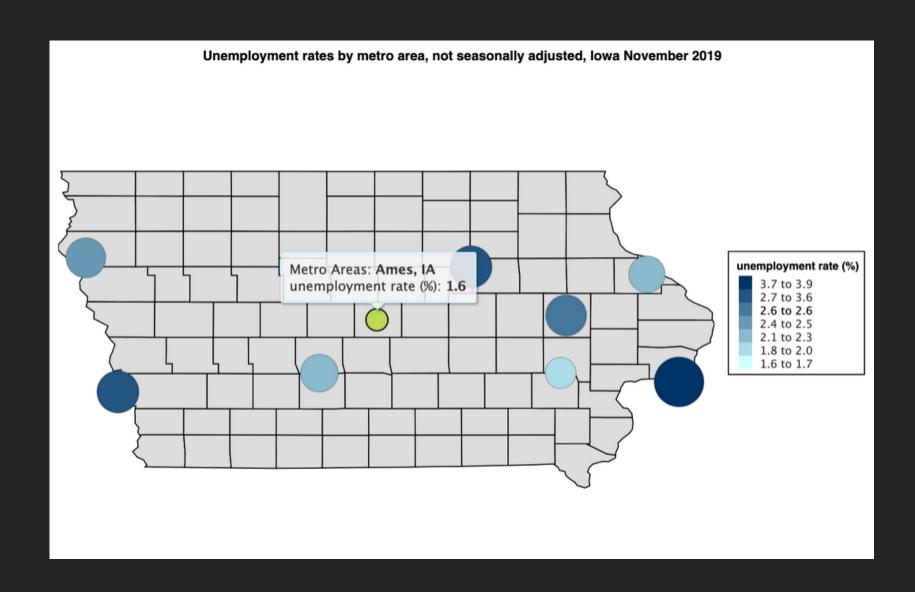
TableID: S1502

	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

Product: 201

Source: U.S. Census, American Community Survey

Other Factors to Analyze: Unemployment Rates



- Ames: 1.6%
- LA: 4.2%

