

An aerial photograph of a sports complex, likely the University of Iowa's Kinnick Stadium. The stadium is a large, dark-colored structure with a prominent scoreboard. To its left is a large, white, arched-roof building, possibly a practice field or indoor arena. In front of the stadium is a green soccer field. The surrounding area is filled with trees showing autumn foliage in shades of yellow, orange, and red. A multi-lane road curves through the bottom right of the image. The background shows a dense forest of trees under a clear sky.

PREDICTING AMES HOUSING PRICES

PROJECT 2

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PROBLEM STATEMENT

How can we predict the sale price of houses in Ames?

- Which features increase or decrease the value of a house?
- What features can homeowners add or improve on to increase the value of their house?
- What features should investors look out for when buying a house for investment?



BACKGROUND



2051 residential properties

81 house features

2006 - 2010

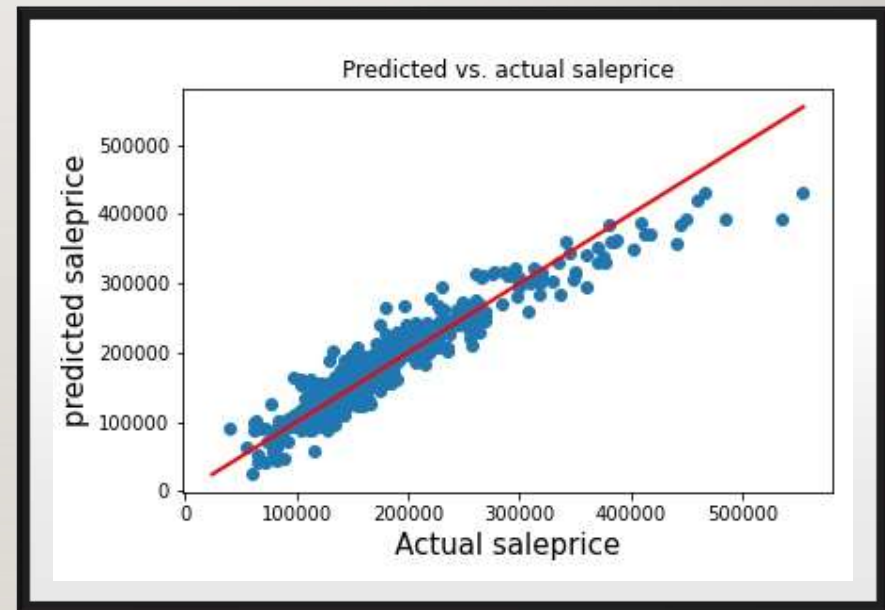
BACKGROUND

	SALE PRICE
MOST EXPENSIVE	\$611,657
AVERAGE	\$181,469
CHEAPEST	\$12,789

	AREA (SF)
LARGEST	5642
AVERAGE	1499
SMALLEST	334

PRODUCTION MODEL PERFORMANCE

- Reasonably well predictions
- Slight deviation for higher prices
- No overfit

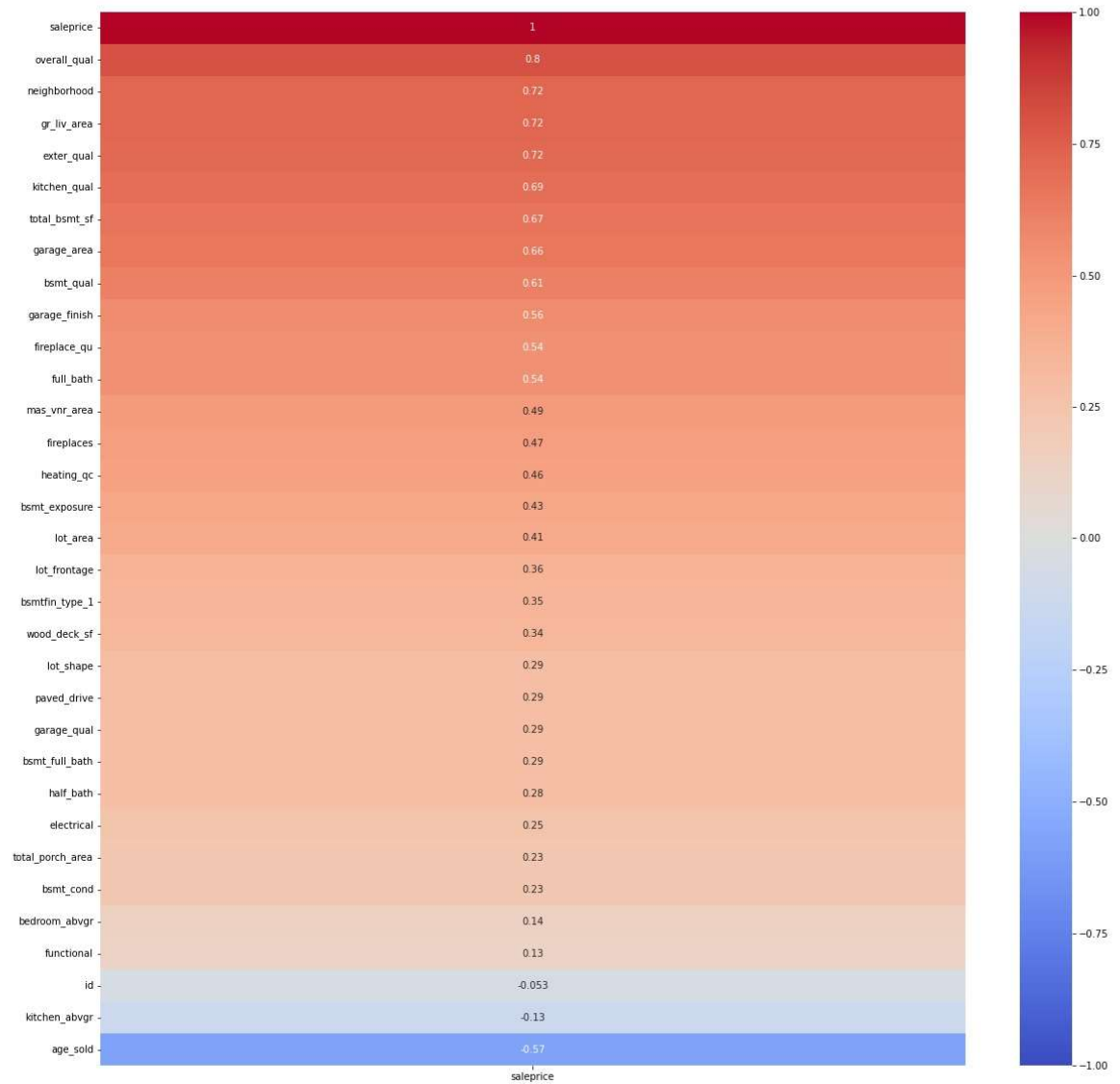




DESIRABLE
NEIGHBORHOODS
TOP FEATURES
BOTTOM FEATURES

CONSIDERATIONS FOR REAL ESTATE AGENTS

CORRELATION HEATMAP



DESIRABLE NEIGHBORHOODS

TOP 5
STONE BROOKE
NORTHRIDGE HEIGHTS
NORTHRIDGE
GREEN HILLS
VEENKER

BOTTOM 5
BROOK SIDE
OLD TOWN
BRIARDALE
IOWA DOT AND RAILROAD
MEADOW VILLAGE

TOP FEATURES

- Top features that we are including into our production model

	Feature	Coef	Abs Coef
0	gr_liv_area	26442.475440	26442.475440
1	overall_qual	13806.951825	13806.951825
2	total_bsmt_sf	11235.386428	11235.386428
3	exter_qual	8318.171748	8318.171748
4	lot_area	7780.658024	7780.658024
5	neighborhood	6773.247420	6773.247420
6	kitchen_qual	6750.080679	6750.080679
7	garage_area	6210.841857	6210.841857
8	bsmt_exposure	6198.768469	6198.768469
9	functional	4382.939053	4382.939053
10	bsmt_full_bath	4305.262468	4305.262468
11	bsmt_cond	-4159.611725	4159.611725
12	kitchen_abvgr	-4145.089450	4145.089450
13	foundation_Slab	4036.494240	4036.494240
14	bsmt_qual	3997.786441	3997.786441
15	bedroom_abvgr	-3556.858974	3556.858974
16	fireplace_qu	3010.820449	3010.820449
17	heating_qc	2583.698405	2583.698405
18	mas_vnr_area	2480.487846	2480.487846
19	bsmtfin_type_1	2093.362315	2093.362315
20	garage_qual	-1962.406202	1962.406202
21	total_porch_area	1738.230695	1738.230695
22	wood_deck_sf	1530.932337	1530.932337
23	age_sold	1117.363618	1117.363618
24	paved_drive	962.554246	962.554246

BOTTOM FEATURES

- Bottom features that we are excluding from our production model

25	foundation_PConc	928.122551	928.122551
26	full_bath	-787.385606	787.385606
27	foundation_CBlock	698.148863	698.148863
28	lot_shape	-492.663315	492.663315
29	foundation_Stone	450.638217	450.638217
30	garage_finish	-364.499393	364.499393
31	electrical	-347.199330	347.199330
32	half_bath	226.131254	226.131254
33	fireplaces	165.464524	165.464524
34	id	-139.008943	139.008943
35	foundation_Wood	-91.560518	91.560518
36	lot_frontage	9.607500	9.607500



RECOMMENDATIONS

FOR HOME-SEEKERS

- Smaller houses (take a pick)
 - Small living area
 - Small basement
 - Small garage
- An older house
- Less desirable neighborhood
- Lesser masonry area

FOR INVESTORS

- Look at top 3 most desirable neighborhoods
 1. Stone Brooke
 2. Northridge Heights
 3. Northridge
- Buy low, sell high method, buy without certain features, but install them after purchase
 - Masonry veneers
 - Porch areas
- Sell as soon as possible

FUTURE IMPROVEMENTS

- Small time frame limits annual patterns in sale price from external factors like economy or policy changes
- Sale prices most likely were not adjusted based on inflation
- Dataset is 12 years old

Need more data from a wider time frame



THANK YOU