By Makena Jones
December 23, 2022

Selling High

• • •

Predicting sales prices using housing data from Ames, Idaho

A General Assemby - DSI 1128 Project

What types of housing features are associated with higher prices on the real estate market?

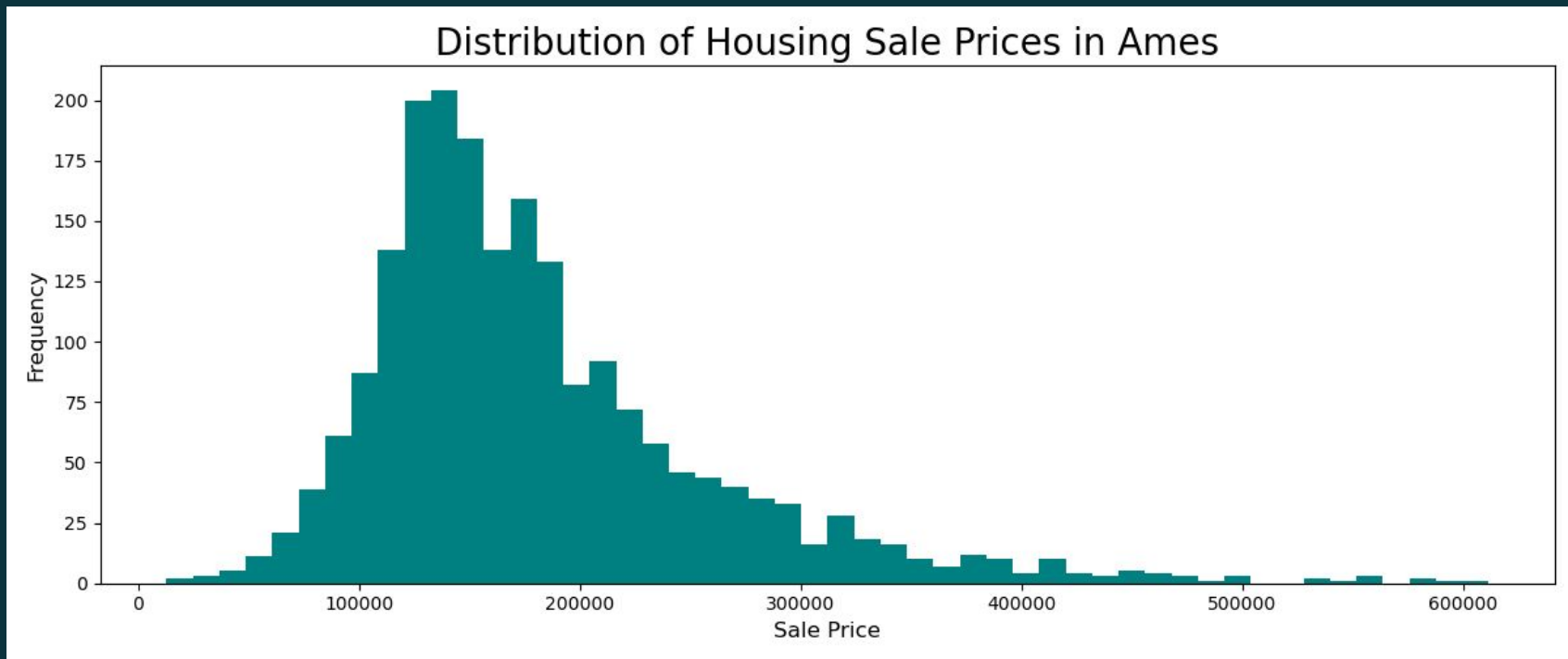Can homeowners modify or add any of theses features to sell at a higher price?
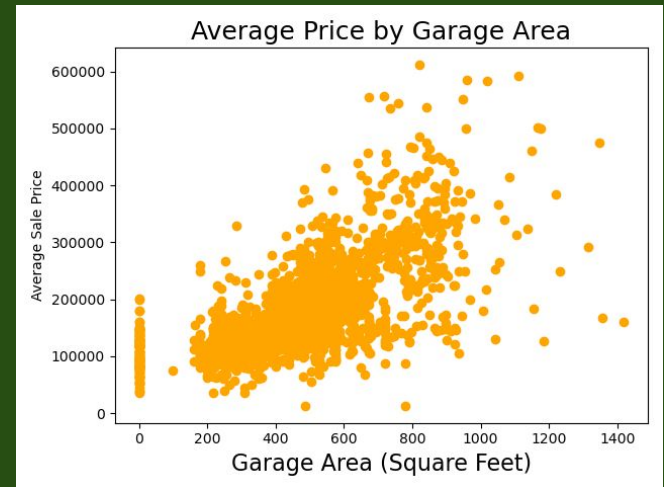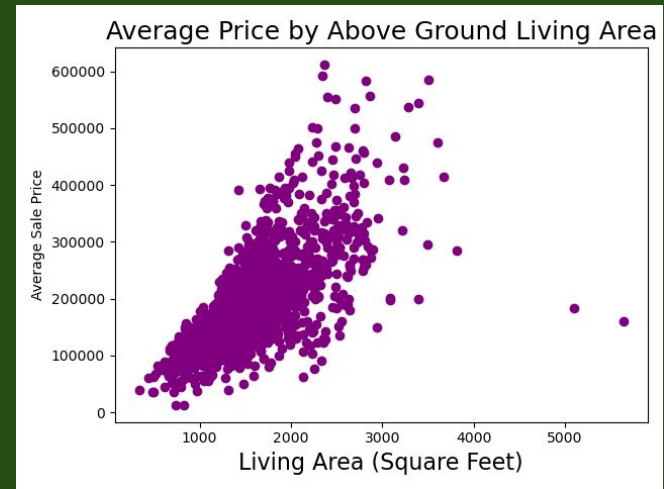
OVERVIEW

- Explore sales data in Ames, Idaho

- Identify attractive housing features

- Create a predictive model

- Provide feature-specific insight

- Conclude with recommendations to go further

Data Exploration

Distribution of Housing Sale Prices in Ames

Picking Features

3 most correlated numeric features with Sales Price

Picking Features
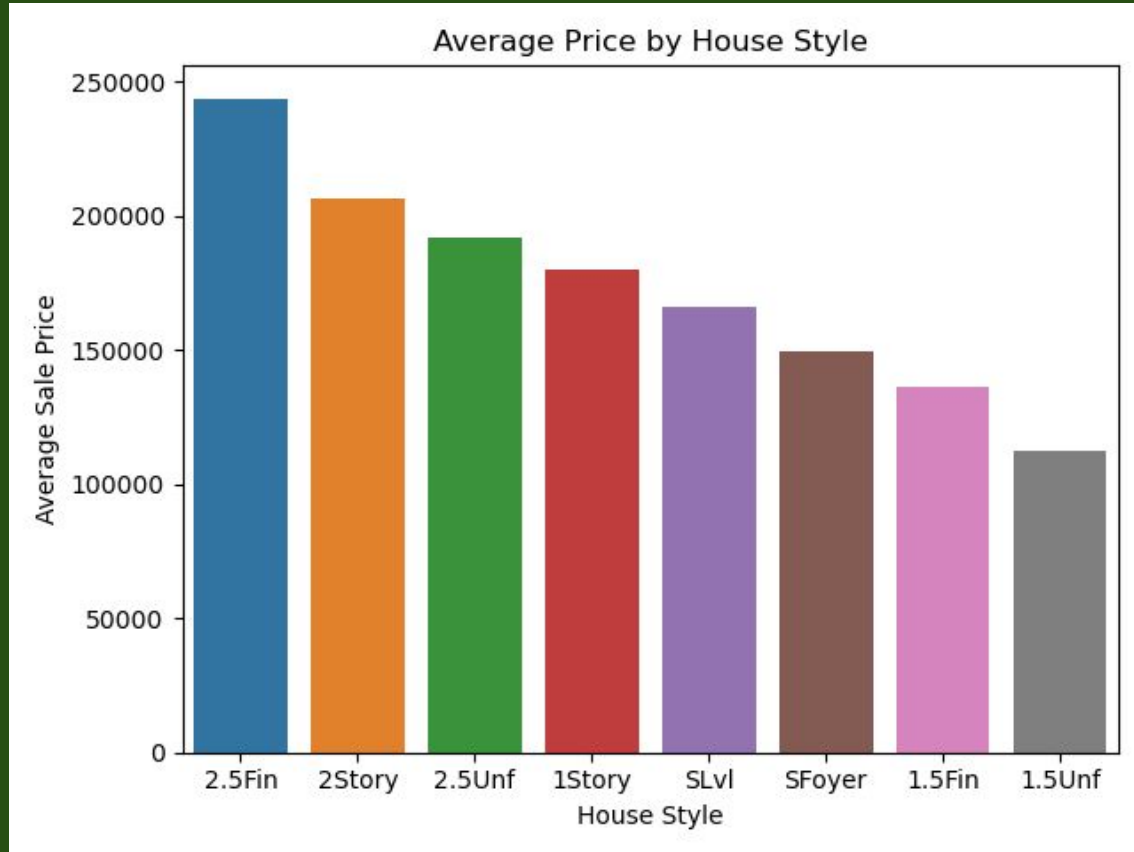
Average Price by House Style

Picking Features
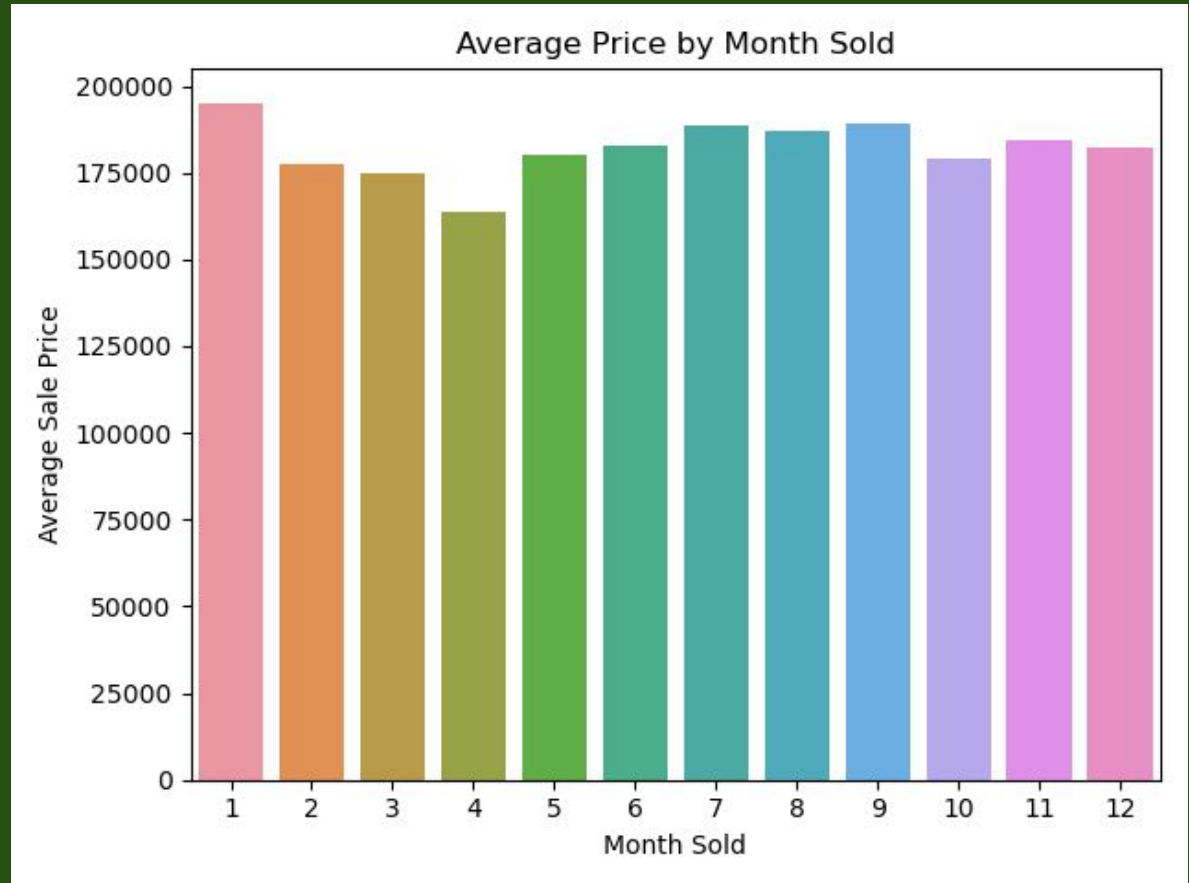

Average Price by Building Types

Picking Features

Lowest mean sale price :
- April

Highest mean sale price:
- January

Picking Features

Lowest mean sale price :
- April

Highest mean sale price:
- January

Average Price by Month Sold

Feature	saleprice
saleprice	1
overall_qual	0.8
gr_liv_area	0.7
garage_area	0.65
garage_cars	0.65
total_bsmt_sf	0.63
1st_flr_sf	0.62
year_built	0.57
year_remod/add	0.55
full_bath	0.54
garage_yr_blt	0.51
mas_vnr_area	0.51
totrms_abvgrd	0.5
fireplaces	0.47
bsmtfin_sf_1	0.42
open_porch_sf	0.33
wood_deck_sf	0.33
lot_area	0.3
bsmt_full_bath	0.28
half_bath	0.28
2nd_flr_sf	0.25
bsmt_unf_sf	0.19
lot_frontage	0.18
bedroom_abvgr	0.14
screen_porch	0.13
3ssn_porch	0.049
mo_sold	0.033
pool_area	0.023
bsmtfin_sf_2	0.016
misc_val	-0.0074
yr_sold	-0.015
low_qual_fin_sf	-0.042
bsmt_half_bath	-0.045
id	-0.051
ms_subclass	-0.087
overall_cond	-0.097
kitchen_abvgr	-0.13
enclosed_porch	-0.14
pid	-0.26

# Creating a Regression Model

Features Included:

- Housing styles
- Building Type
- Remodeled (Yes or No)
- Fireplace
- Age of House
- Lot Area
- Basement Area
- Garage Area
- Above Ground Living Area
- Overall Quality
- Pool!
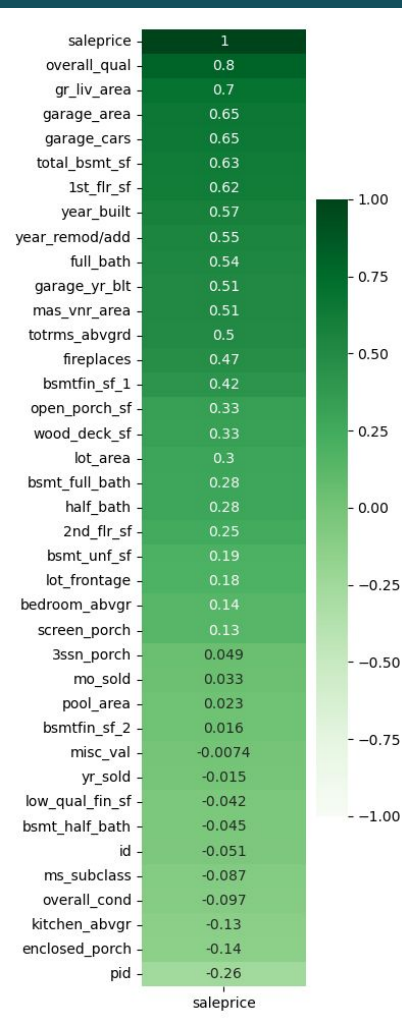
Model Evaluation

Feature	Coefficient
Duplex	-18050.06
Town House Inside Unit	-15613.69588
Town House End Unit	-10751.10071
No Remodel	-9856.513834
No Fireplace	-9745.074356
2.5 story: 2nd Level Unfinished	-9010.192718
2 Family Conversion	-2405.863749
2 Story	-550.681044
Age of House	-432.350415
Lot Area	0.834023
Total Basement Area	12.278061
Garage Area	38.976527
Above Ground Living Area	51.283077
Split Level	3732.275411
One Story	12567.13946
2nd Level Unfinished	16761.10779
Split Foyer	19042.81634
Overall Quality	21775.8039
2.5 story: 2nd Finished	26262.94304
No Pool	76587.81033

Coefficients of Housing Features in Multiple Linear Regression Model Predic...
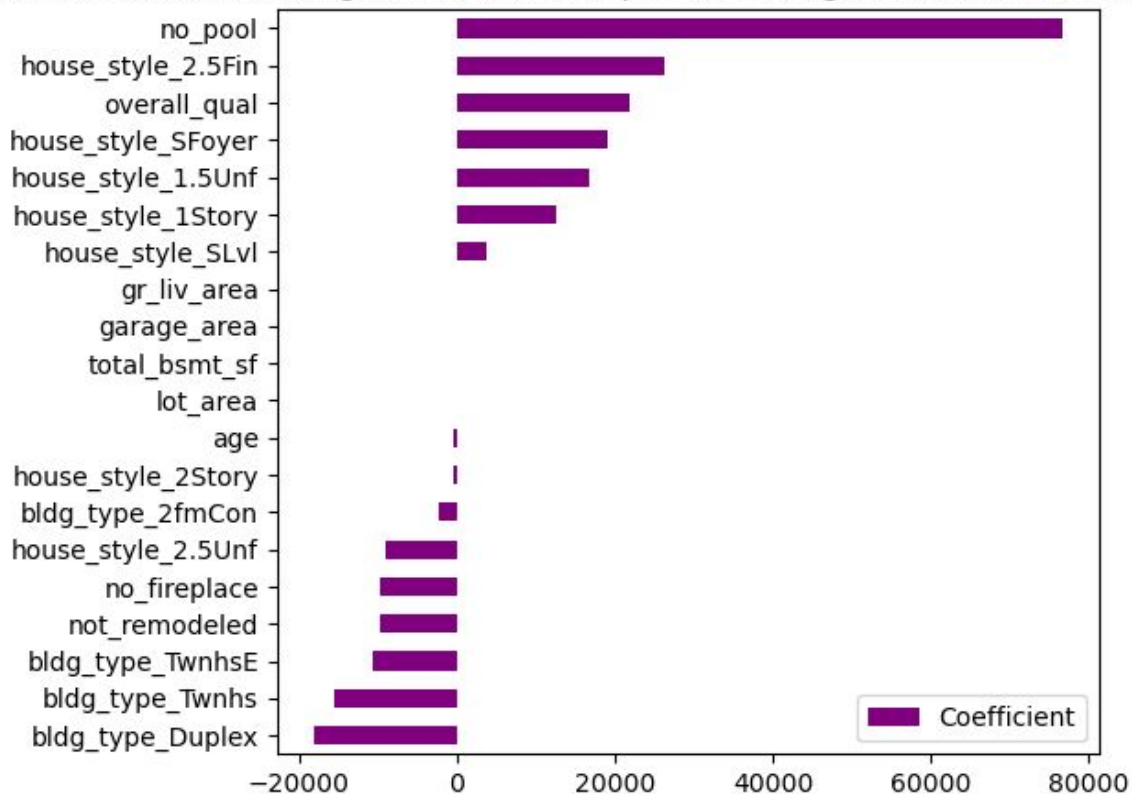
Insights and Recommendations

- Type and style of house closely linked to house prices

- Further study on non-structural features that can increase market price

- Cost of additions/changing home features needs to be considered in coost-benefit analysis

Thank you and Happy Holidays!