

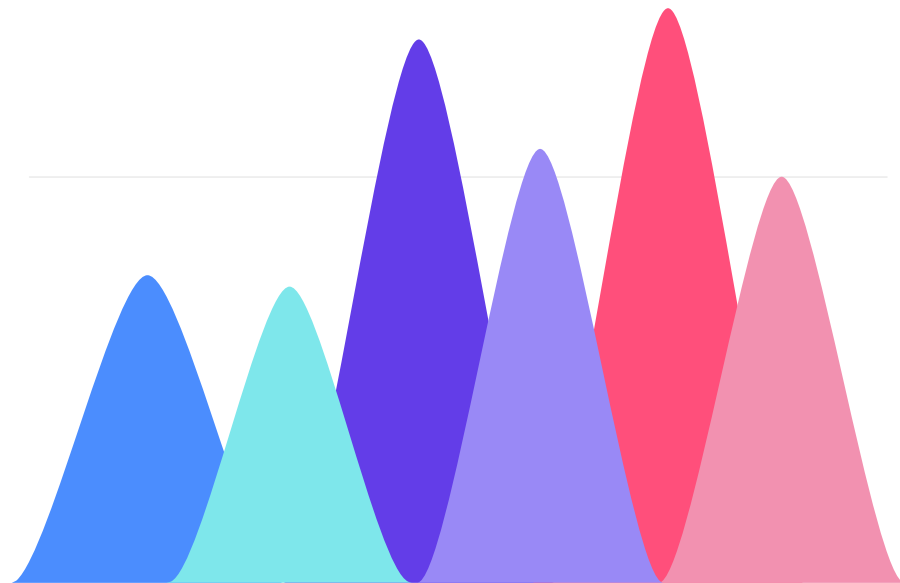


Ames Housing Research Report

By J.S. Consultancy LLP

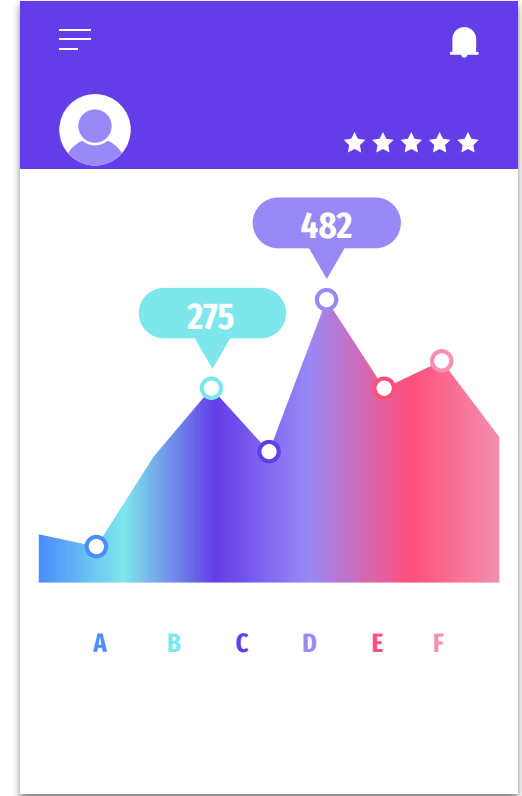
Agenda

- Background
- Problem Statement
- Methodology
- Recommendations
- Conclusion



Some background...

- J.S. Consultancy LLP specialises in real estate consultancy services in the United States (the U.S.). We are committed to provide quality advisory services and provision of independent market research related to the real estate industry where we have significant expertise.
- Iowa Real Estate (IRE) marketing team has engaged our dedicated consultants to aid in its expansion of its services into Ames, Iowa.



Our Problem Statement

- As part of our agreement, our points of focus are as follows:
 - To predict the sale price of the houses in Ames;
 - To identify the neighborhood in Ames that commands the highest sale price of housing;
 - To recommend features that would lead to the greatest fluctuation in sale prices of the houses.
 - Our engagement has concluded as of 13 May 2021 and we are pleased to present our findings:
 - Methodology
 - House Prediction Model
 - Recommendations of neighbourhood and features to focus on
-

What do you think are some features used to predict housing price?



Living Area



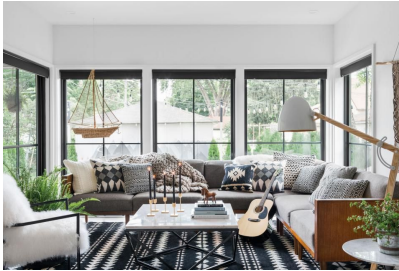
No. of Bathrooms



Age of house



Neighborhood



Overall Quality



Presence of porch

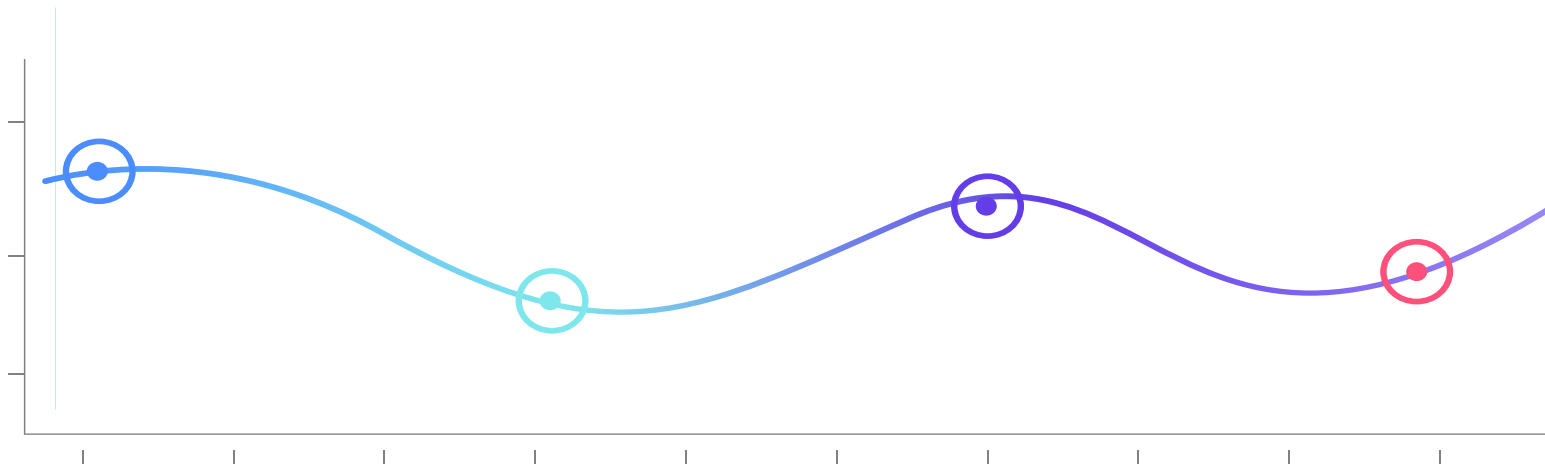


Presence of basement



Type of heating

Our Methodology



Data Gathering

- Source: Ames, Iowa Assessor's Office
- 82 features
- 3K properties

Data Cleansing

- Handling missing data
- Removing outliers
- Featuring engineering

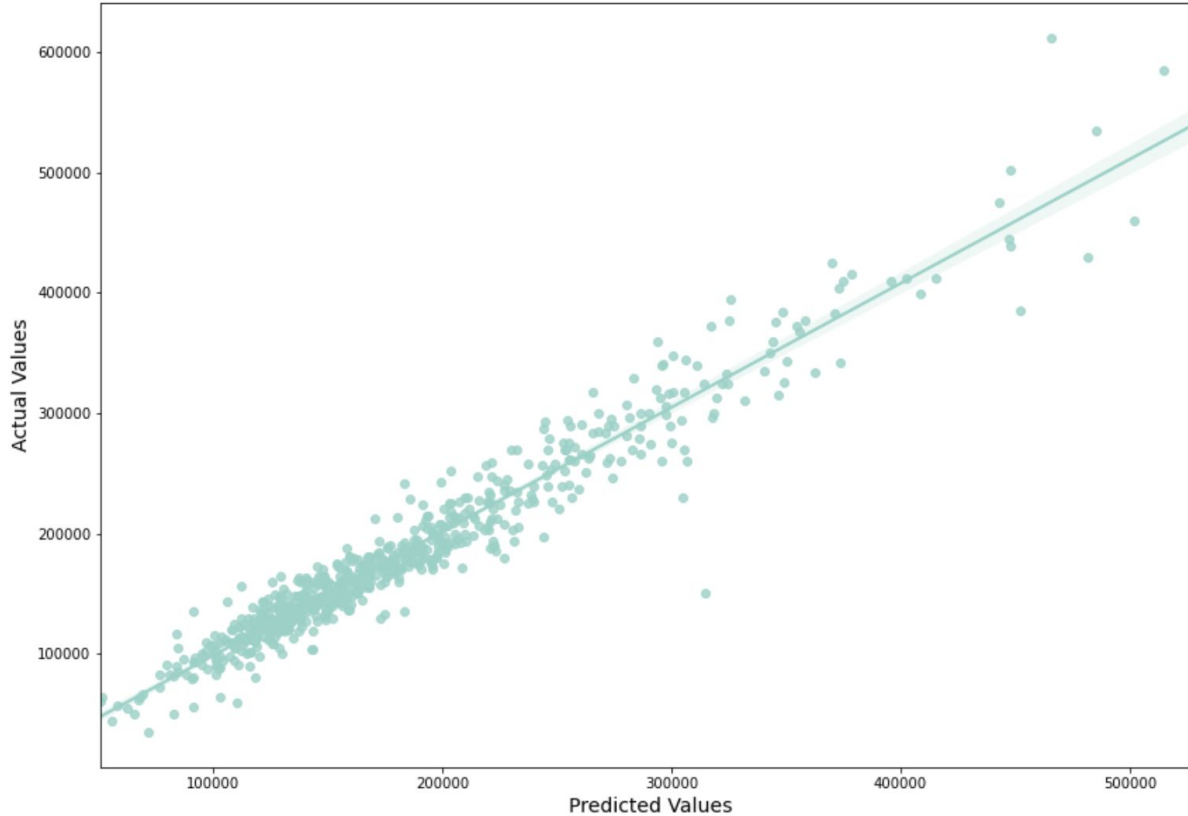
Modeling

- Defining a baseline
- Train, test, and refine our final model

Evaluation

- Recommendations on neighborhoods and features

Our House Prediction Model



20K USD

Root Mean Square Error

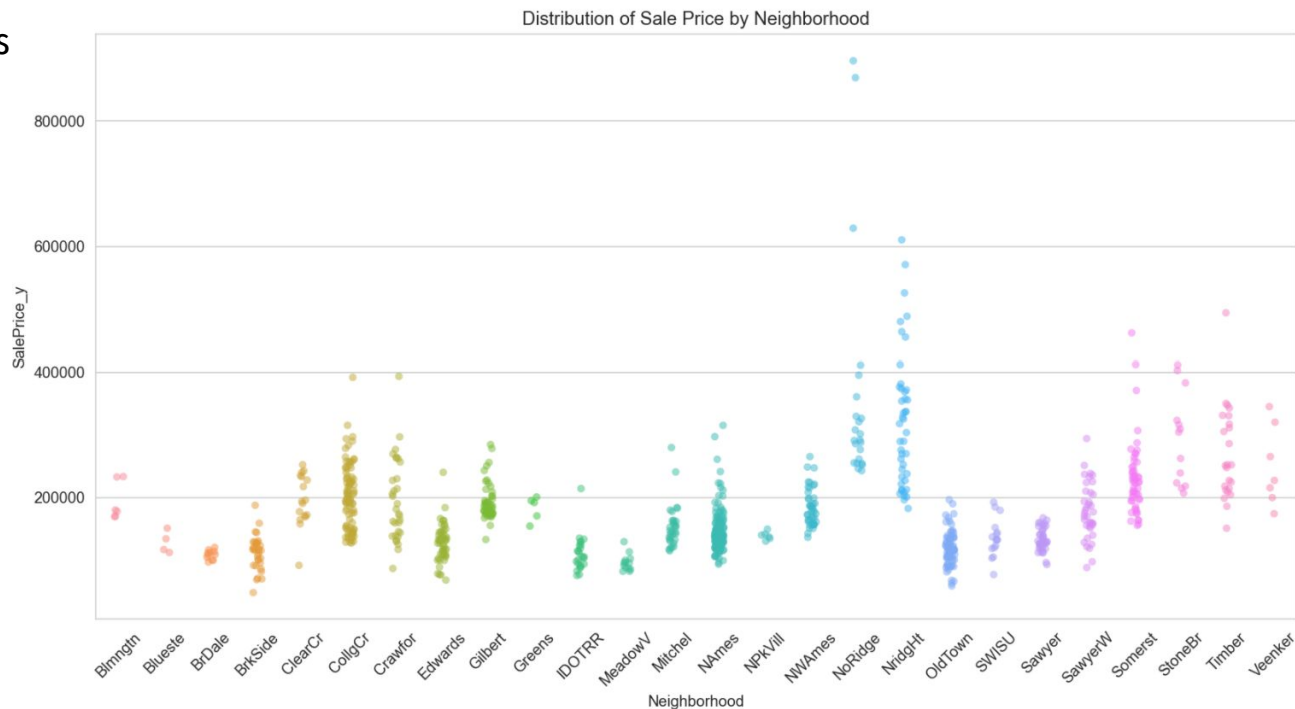
92.4%

R2 Score

Our recommendations for the top neighborhoods are...

- The top 5 neighborhoods that command the highest sale price of houses include:

- Northridge
- Northridge Heights
- Stone Brook
- Timberland
- Veenker



Our recommendations for the top features are...

- For every unit increase in the following features, the expected fluctuations in sale prices are:

+ 12K USD



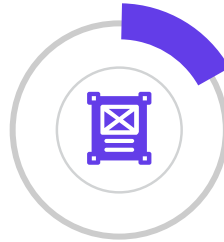
**Overall
Quality**

+ 35 USD



**Above Grade
(Ground)
Living Area (in
square feet)**

+ 22 USD



**Total
Basement (in
square feet)**

- 83 USD



**Age of
Remodelling/
Addition**

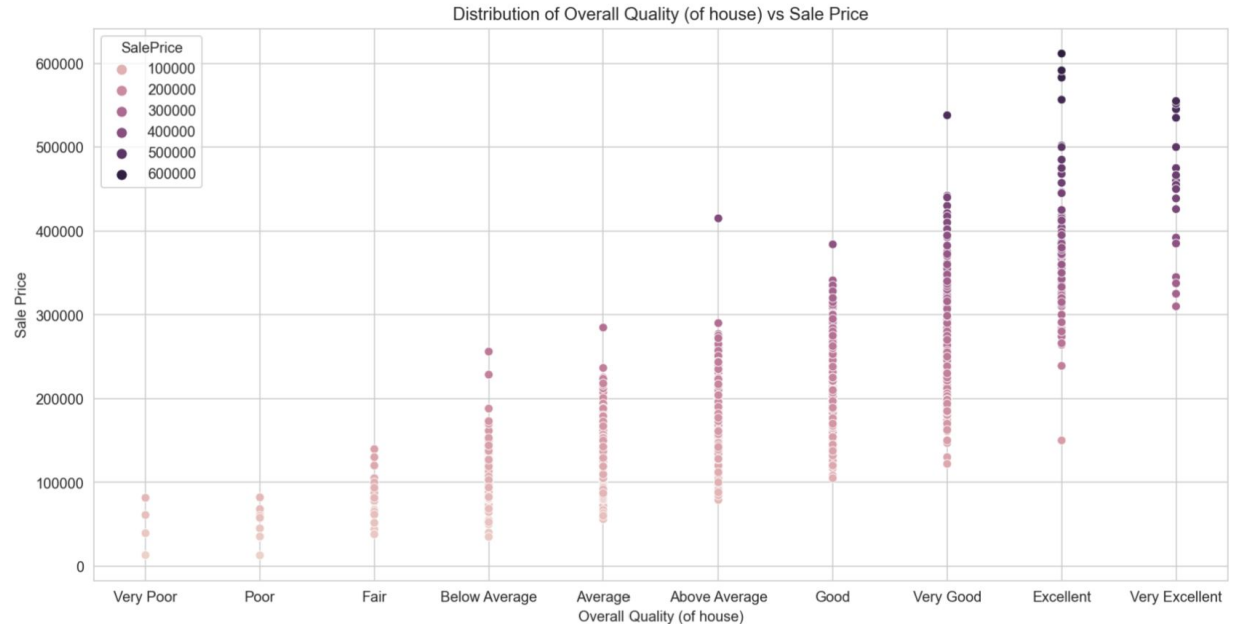
- 295 USD



Age of House

Feature 1: Overall Quality

- For every unit increase in Overall Quality, the mean sale price will **increase by 12K USD**.
- Aspects to consider:
 - Materials used to construct the house;
 - Able to handle effects of climate change.



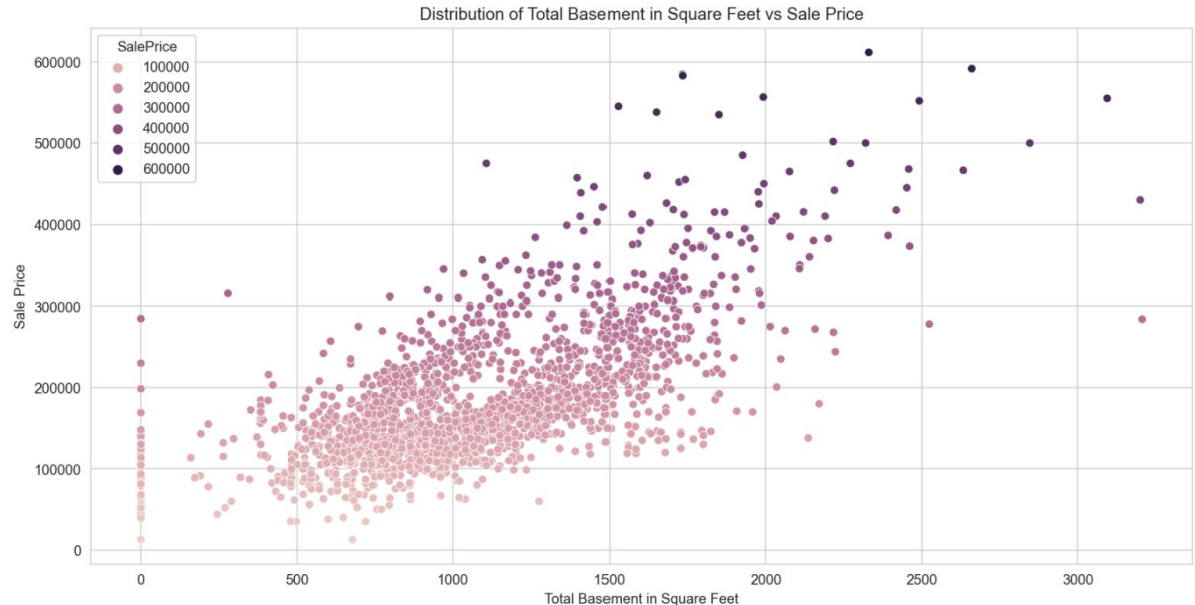
Feature 2: Above Grade (Ground) Living Area

- For every unit increase in above grade (ground) living area (in square feet), the mean sale price will **increase by 35 USD**.
- Aspects to consider:
 - Interior design and furnishing;
 - Unused garage space converted into living space.



Feature 3: Total Basement (in sq ft)

- For every unit increase in total basement (in square feet), the mean sale price will **increase by 22 USD**.
- Aspects to consider:
 - Identify houses with basements, i.e. those that have been converted into recreational space / indoor gym.



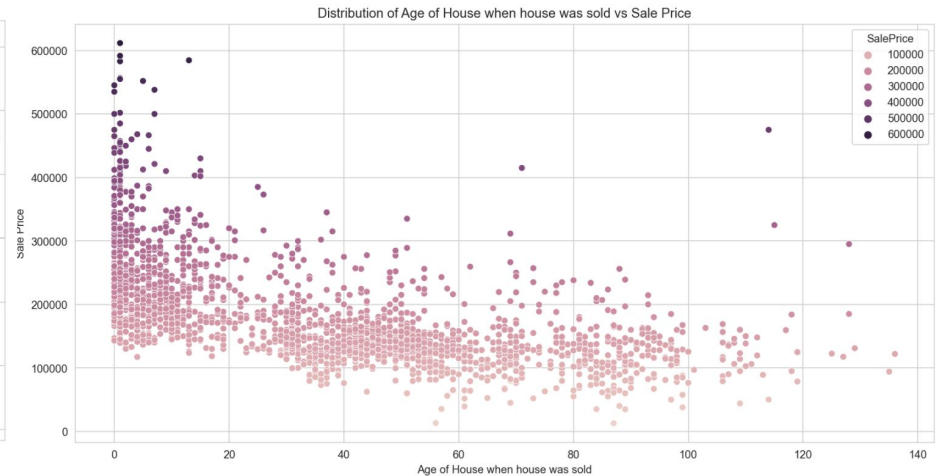
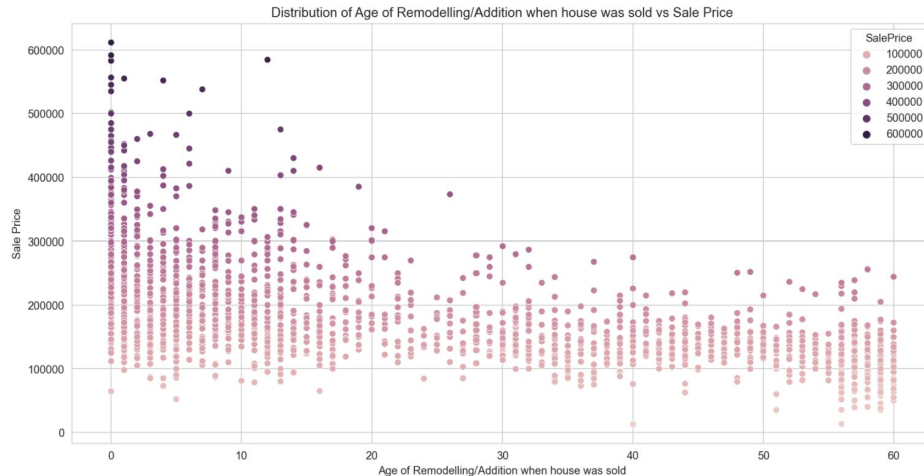
Source: The Balance Small Business, 2019

(<https://www.thebalancesmb.com/pros-of-finishing-a-basement-for-property-investors-2124861>)

Features 4 & 5: Age of Remodelling; Age of House

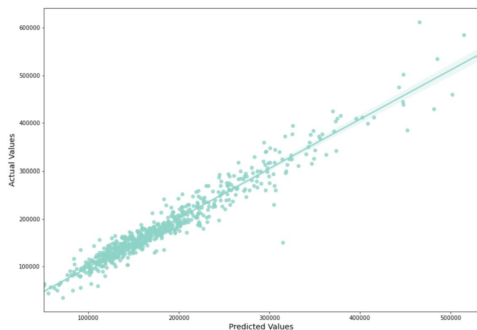


- For every unit increase in age of remodelling/addition in the house, the mean sale price will **decrease by 83 USD**.
- For every unit increase in age of the house, the mean sale price will **decrease by 295 USD**.
- Aspects to consider:
 - Renovations done to give the interior and exterior of the house a new look;
 - Damages, i.e. leaking water pipes, have been fixed.



Conclusion

Our House Prediction Model



92.4%

R2 Score

Top 5 neighborhoods that command the highest sale price of houses:

- 1) Northridge
- 2) Northridge Heights
- 3) Stone Brook
- 4) Timberland
- 5) Veenker

Top 5 features that result in the greatest fluctuation in sale price of houses:



Overall
Quality



Above Grade
(Ground)
Living Area (in
square feet)



Total
Basement (in
square feet)



Age of
Remodelling/
Addition



Age of House



THANK YOU :)

By J.S. Consultancy LLP