

Data Science

KING COUNTY HOUSING PRICE

Bao Tram Duong



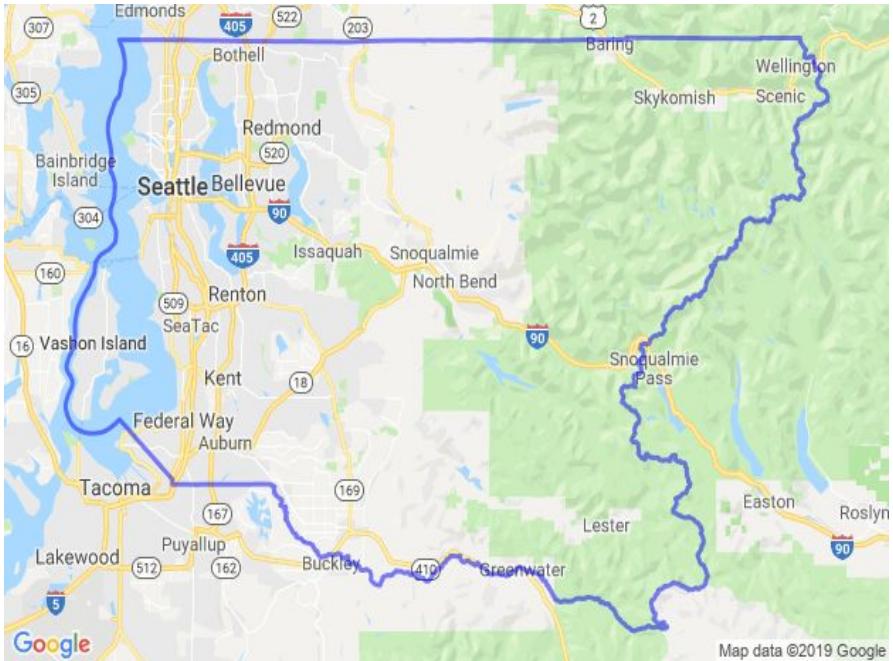
01

INTRODUCTION

- Real estate plays an integral role in the U.S. economy.
- Purchasing and selling a house is among the biggest commitments and a great source of income for most people. Therefore, accurate prediction of prices based on other sale data can be a critical tool to assist the buyer/seller in making an informed decision.

Data Source

- King County dataset
- Located in the U.S. state of Washington.
- The most populous county in Washington and the 12th-most populous in the United States.
- 21,597 listings from May 2014 to May 2015
- 21 features



Home Features



Business Statement



01

What are the most predictive features to predict the price of a home?



02

What features adds value and what features decrease the value of a home?



03

How do age and condition affect the value of a home?



02

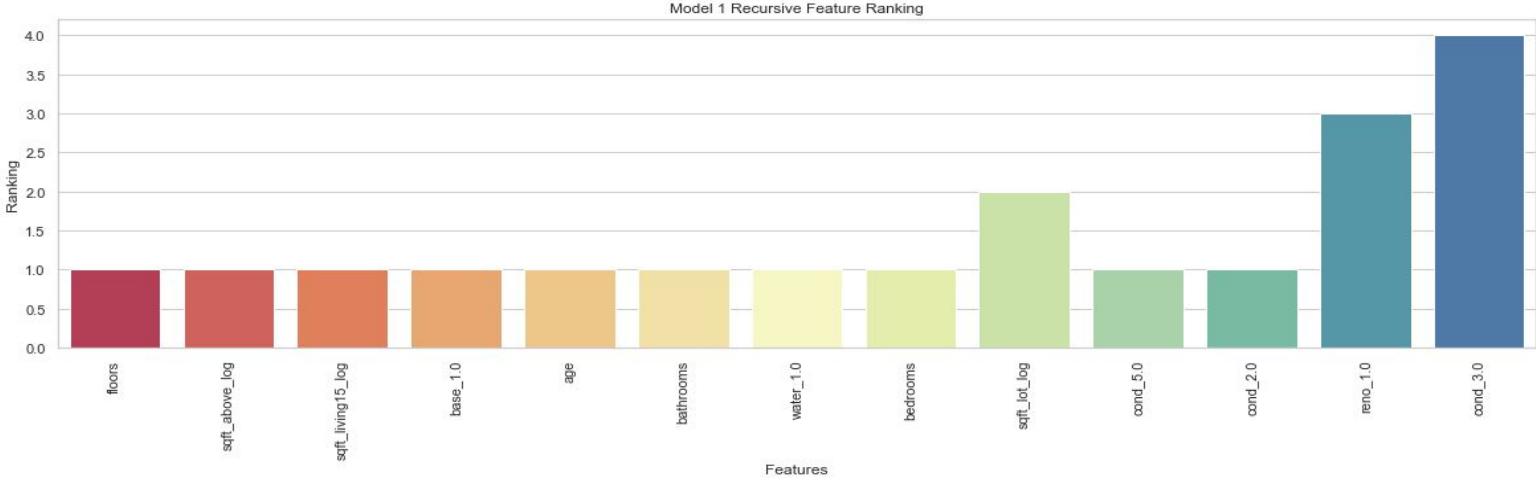
METHODOLOGY

- Perform exploratory data analysis to understand the insight of the data.
- Create different regression models and pick the best one with highest performance and accuracy that is able to accurately estimate the price of the house given the features.
- **Outcome:** By cross-referencing our initial EDA and the model coefficients, we not only help you to predict the price of house accurately but also give you insights on what to look for when buying a new home or what to do to improve your current home's value.

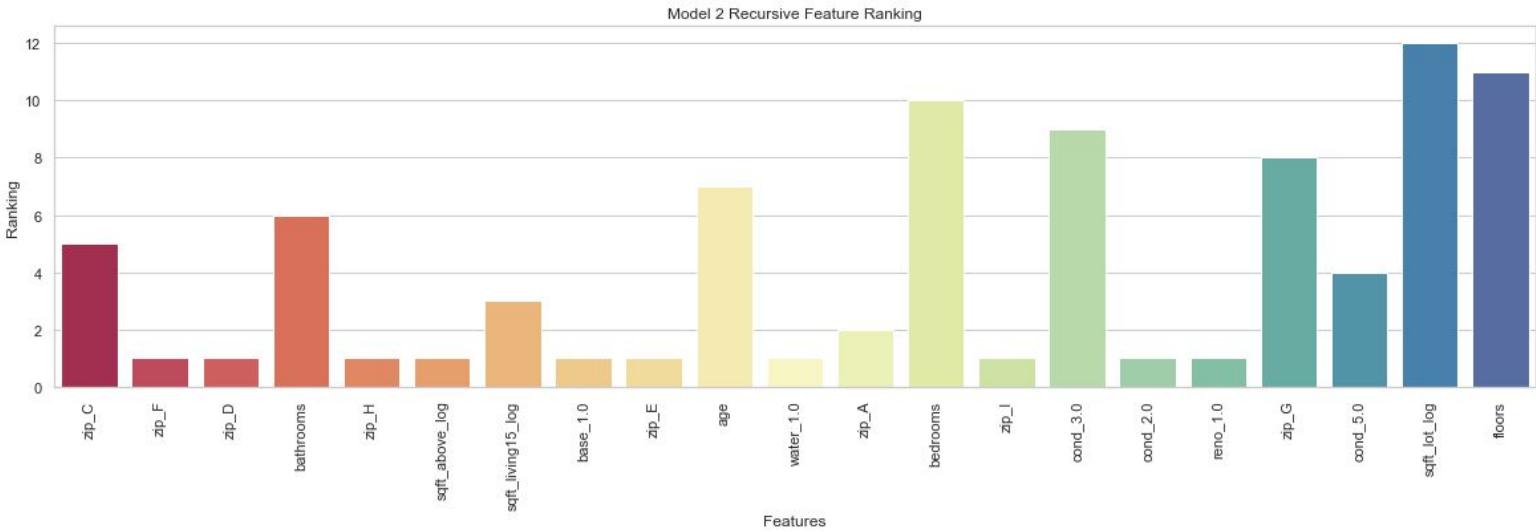


**What are the most
predictive features to
predict the price of a home?**

Accuracy
59%



Accuracy
73%

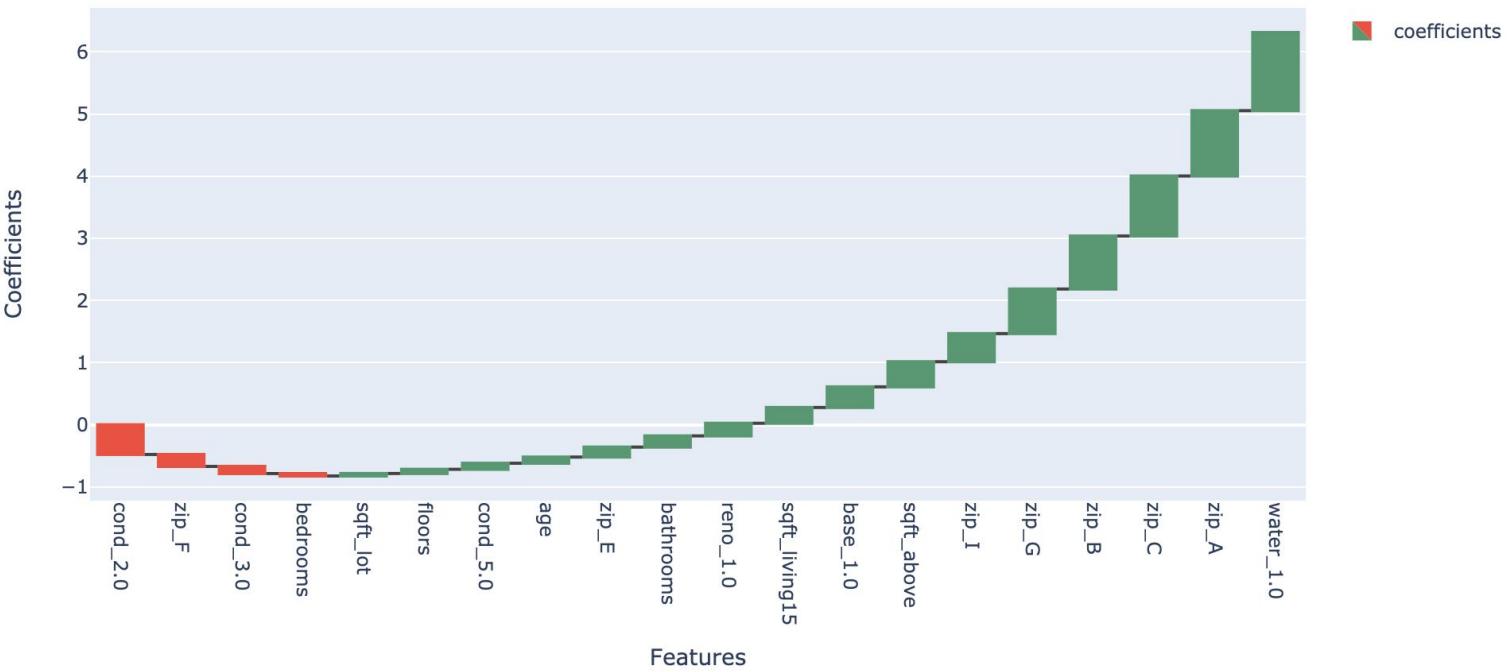


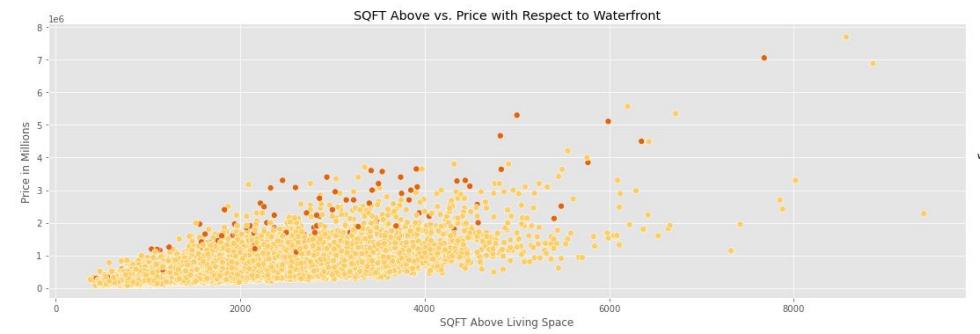
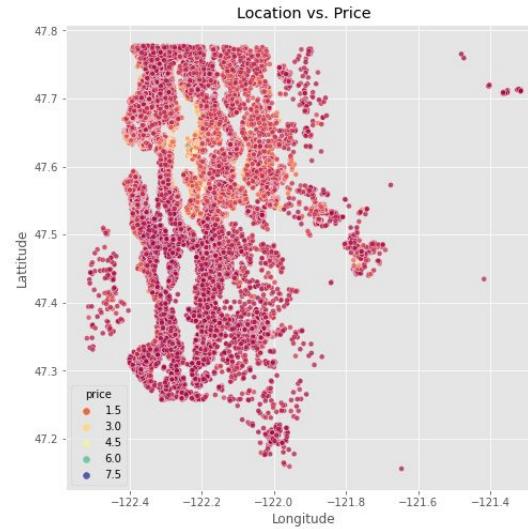
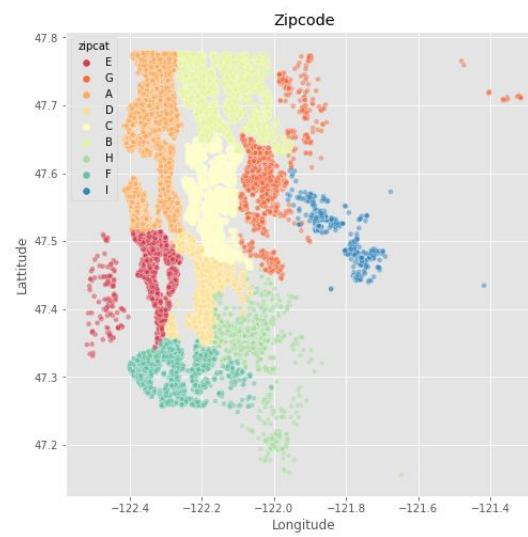


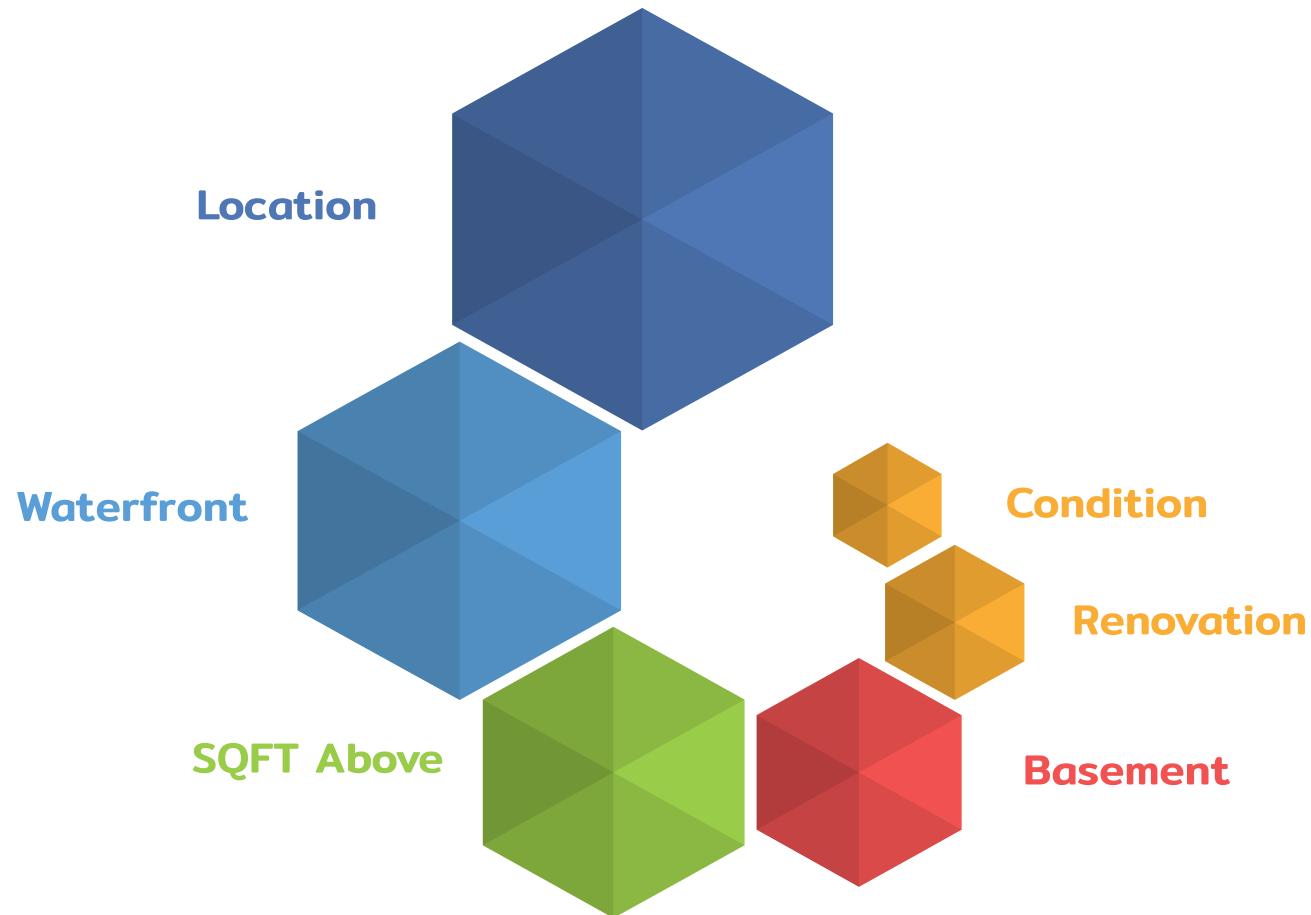
**What features adds value
and
what features decrease the
value of a home?**

Accuracy
76%

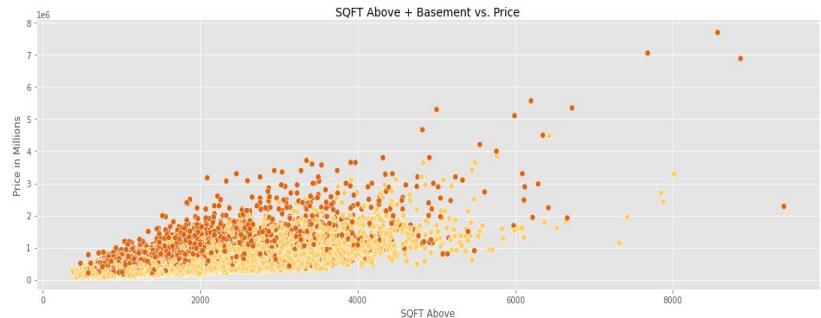
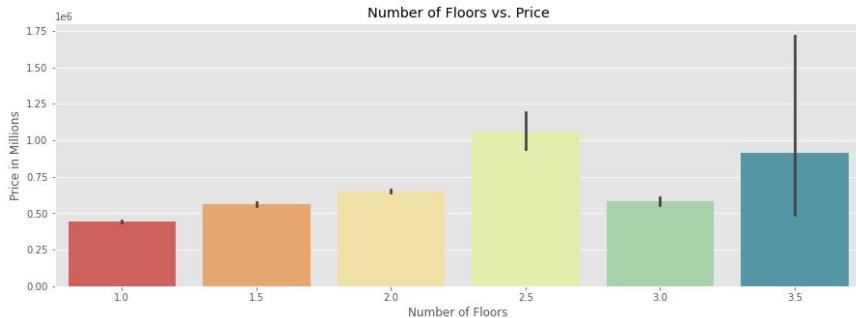
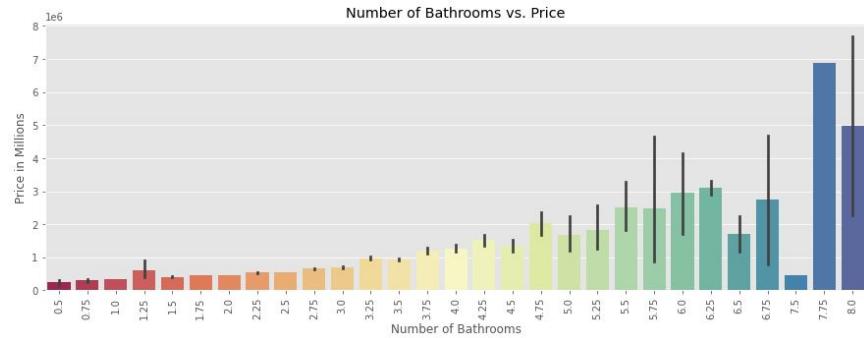
Model E Coefficients



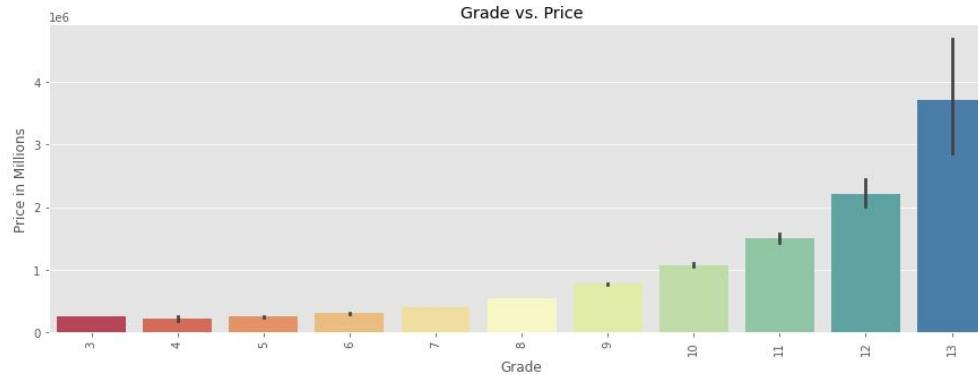
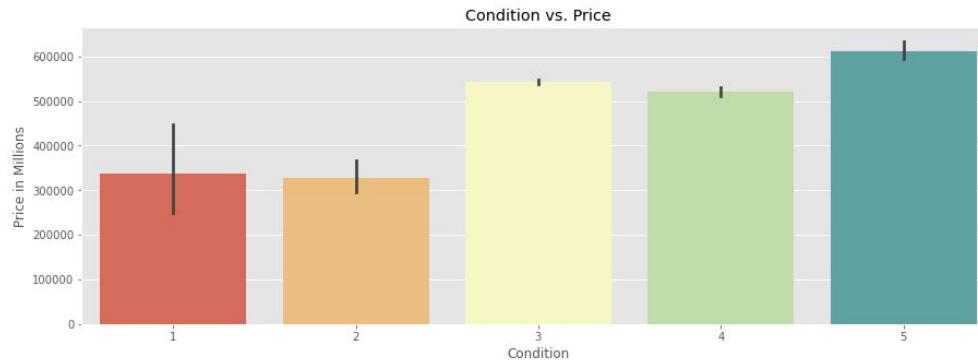




SQFT Livable Space



Condition Grade





**How do age, condition, and
grade affect the value of a
home?**

Renovation





03

ACTIONABLE INSIGHTS



Location

- Waterfront
- Neighbors



Livable Square Footage

- Bedrooms
- Bathrooms
- Floors



Renovation

- Basement



Condition: 3 and above



Grade: 7 and above



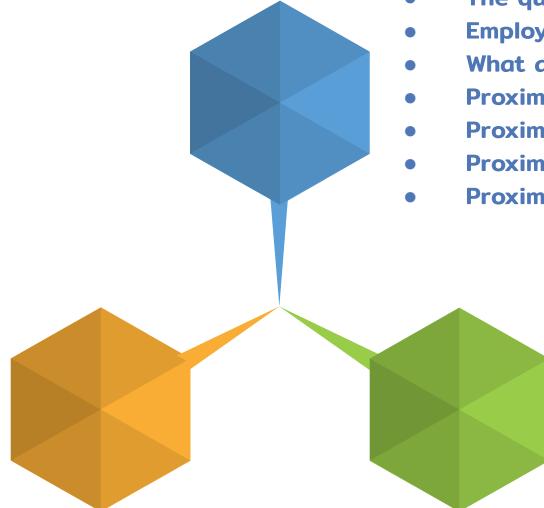
Age

- Renovation
- Improve condition & grade

04

OTHER FACTORS

When is the best time to buy or sell?



How hot (or cold) is the area's real estate market?

- The quality of local schools
- Employment opportunities
- What are the neighbors like?
- Proximity to shopping, entertainment, and recreational centers
- Proximity to hospitals and other common services
- Proximity to highways, utility lines, and public transit
- Proximity to the nearest major city



THANK YOU



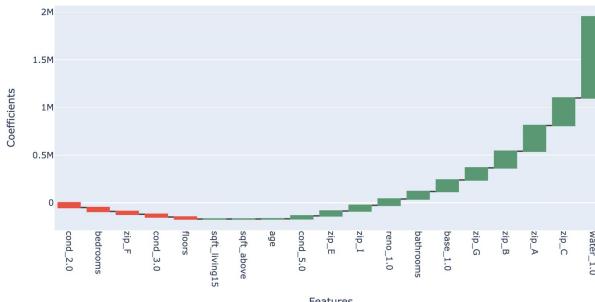
Q & A



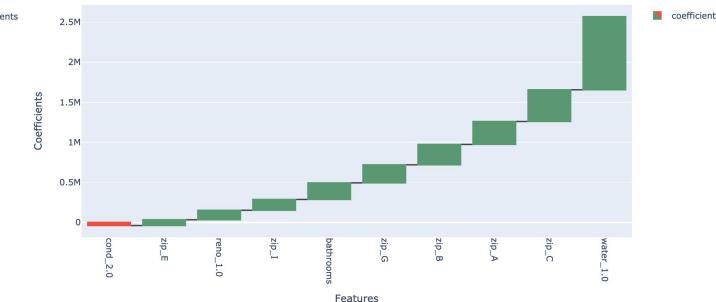
APPENDIX

Coef

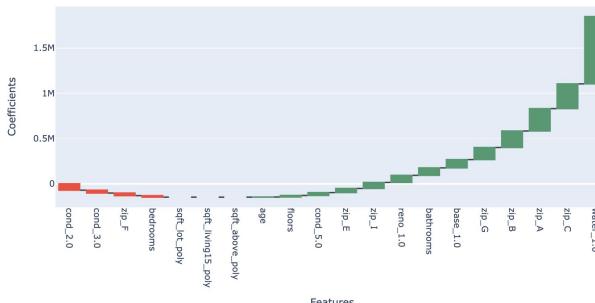
Model A Coefficients



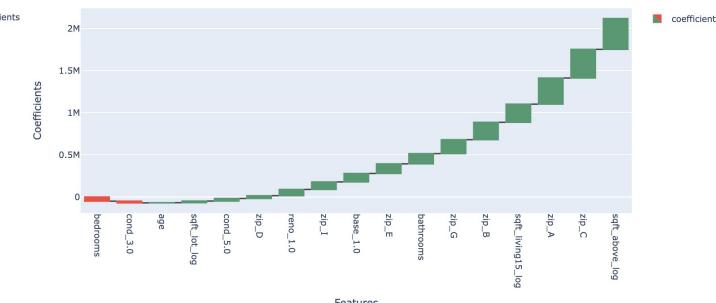
Model B Coefficients



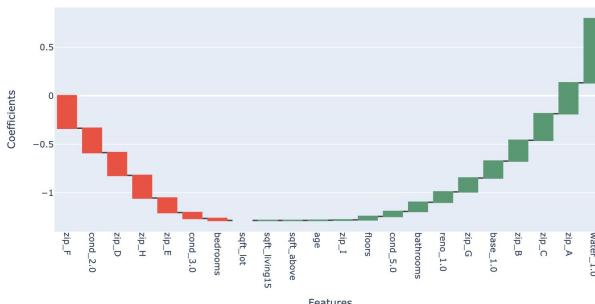
Model C Coefficients



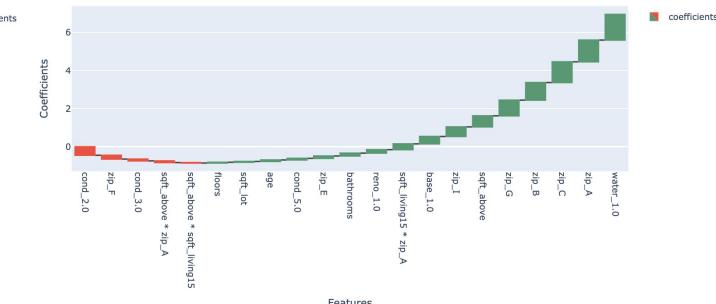
Model D Coefficients



Model E Coefficients

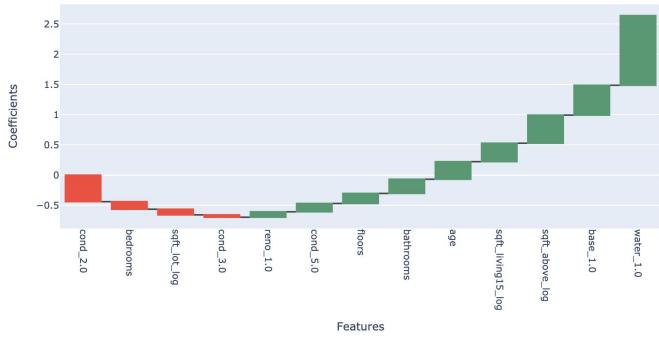


Model F Coefficients

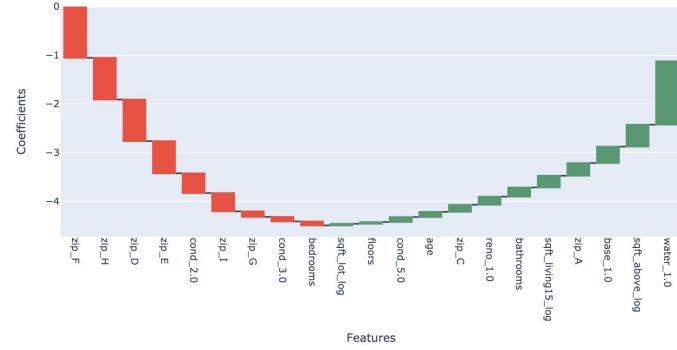


Coef

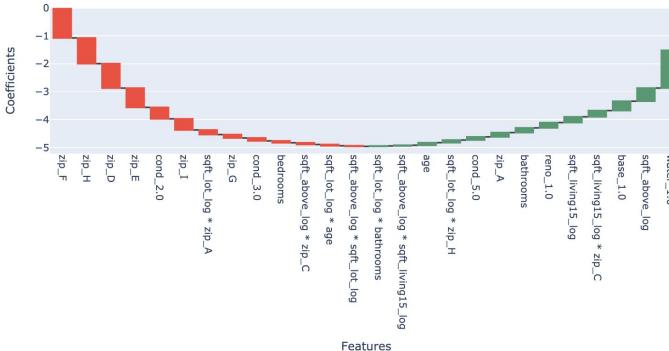
Model 1 Coefficients



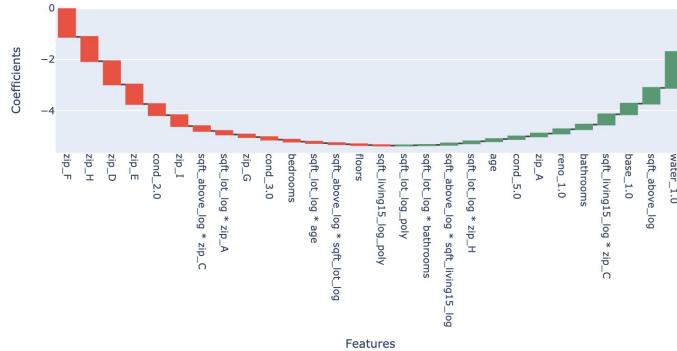
Model 2 Coefficients



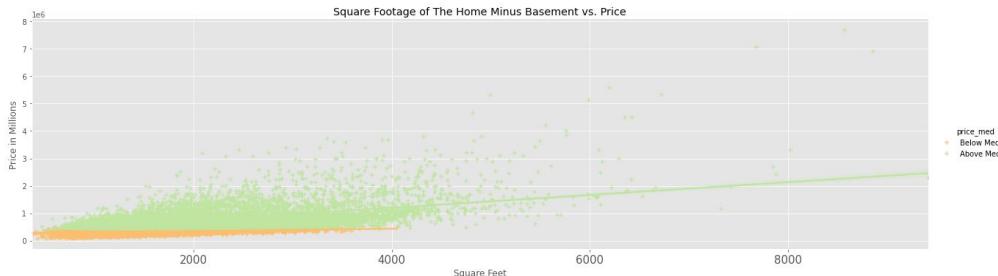
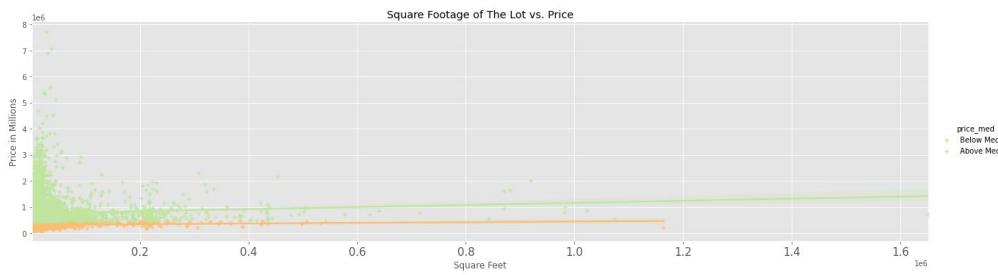
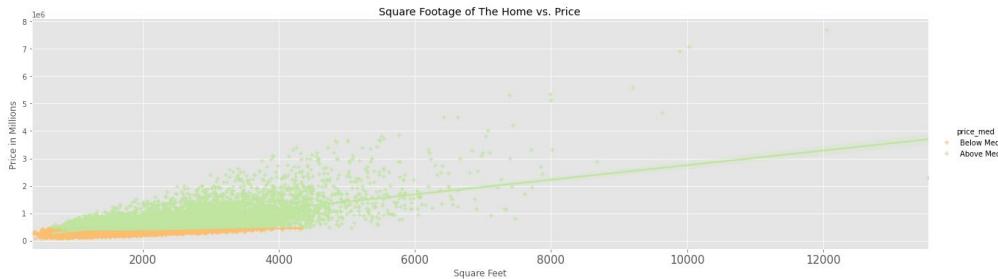
Model 4 Coefficients



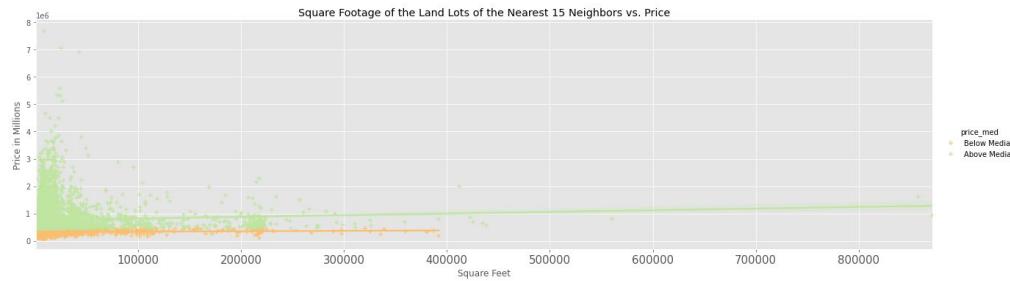
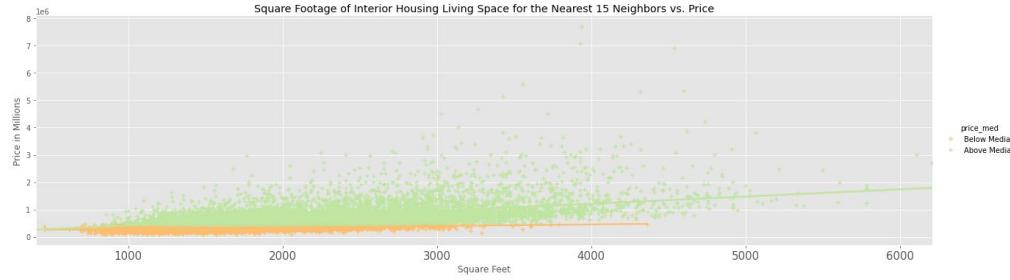
Model 5 Coefficients



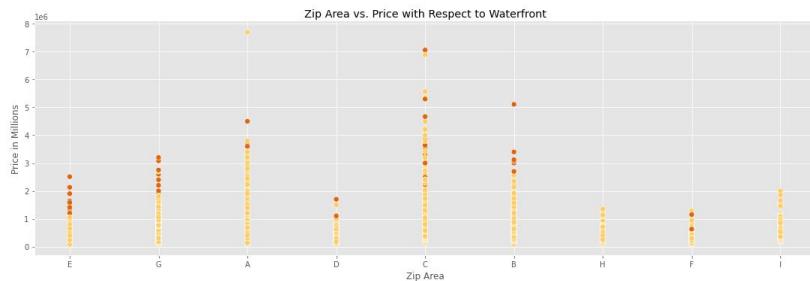
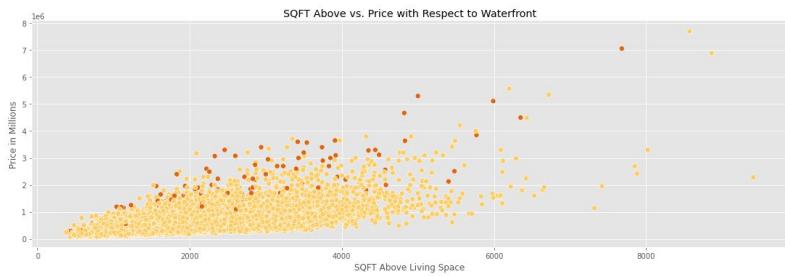
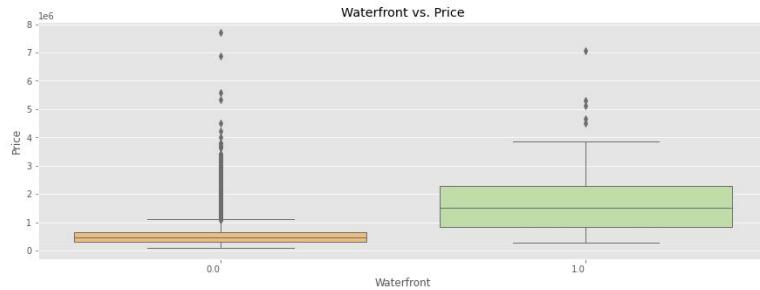
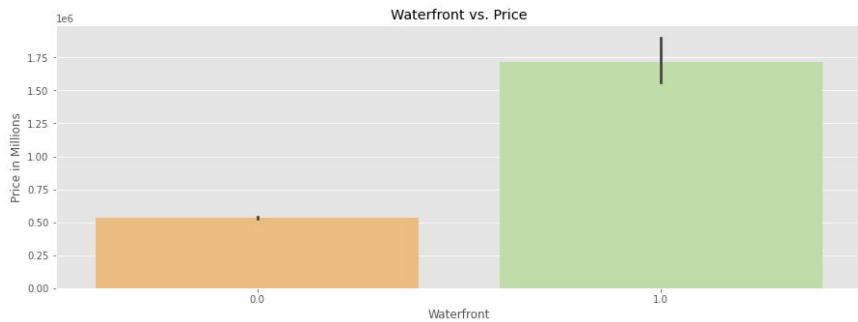
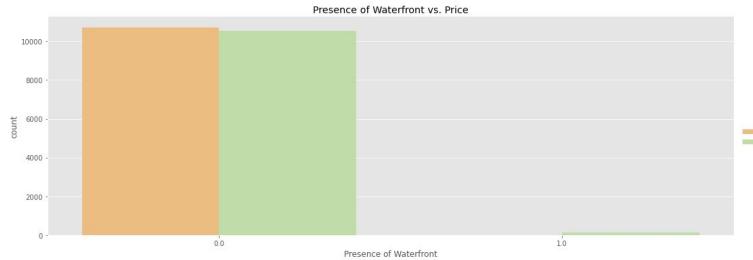
SQFT



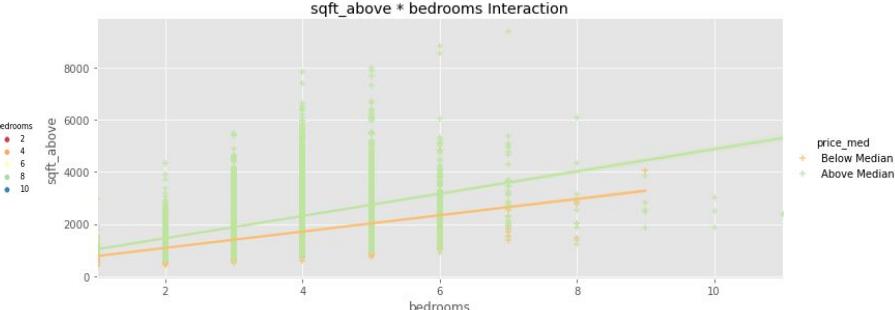
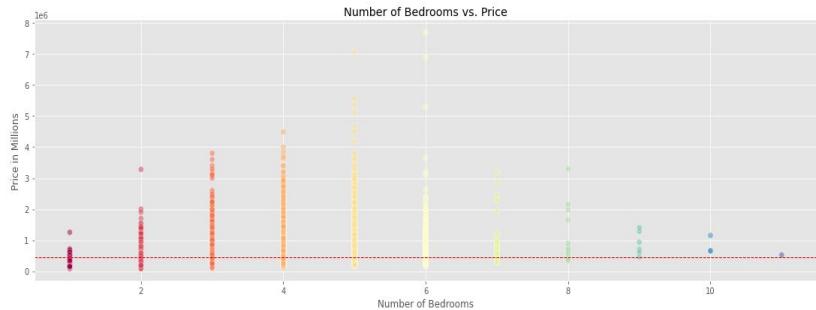
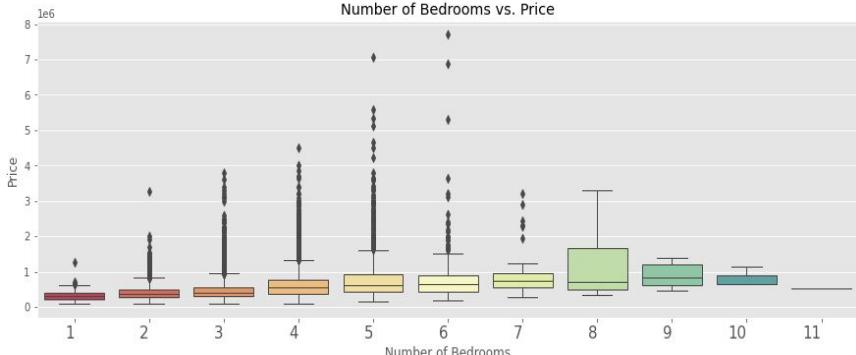
15 Neighbors



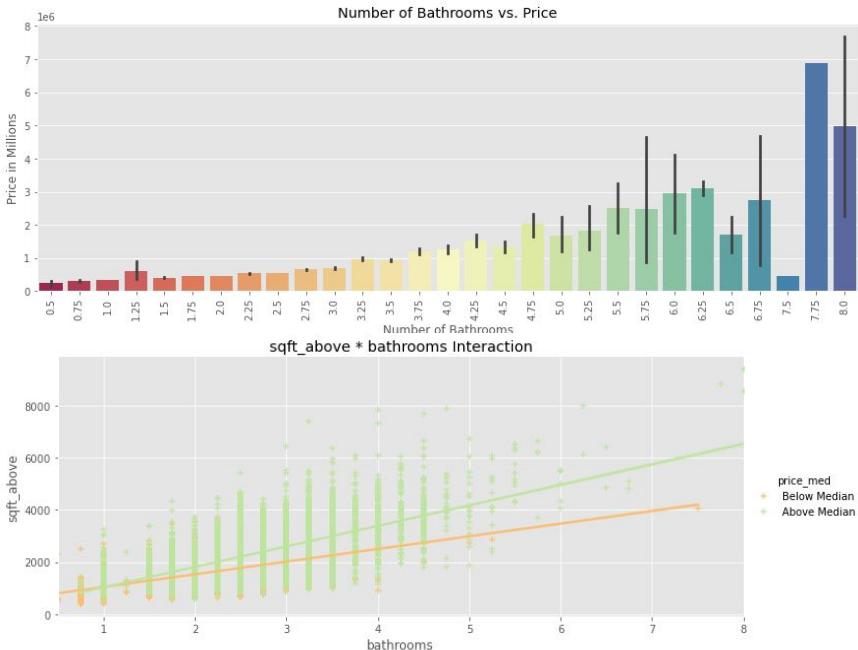
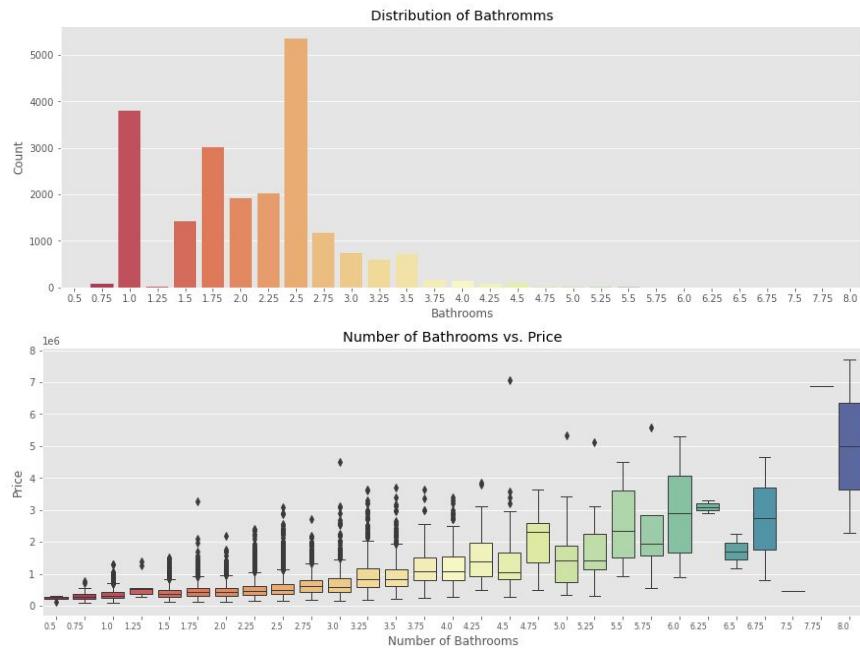
Waterfront



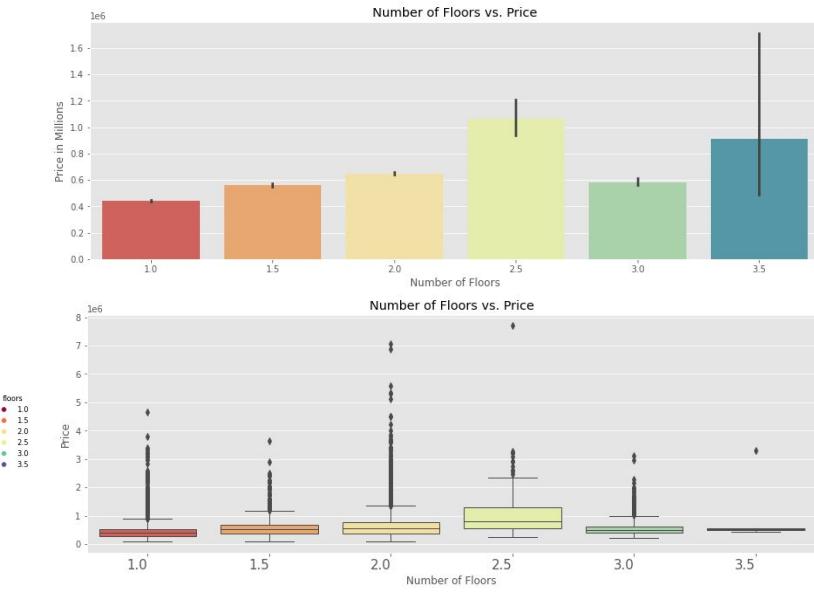
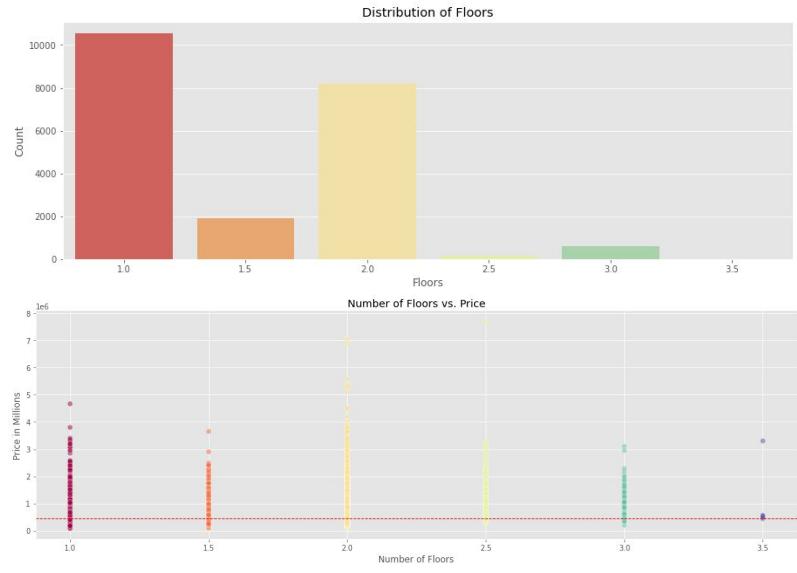
Bedrooms



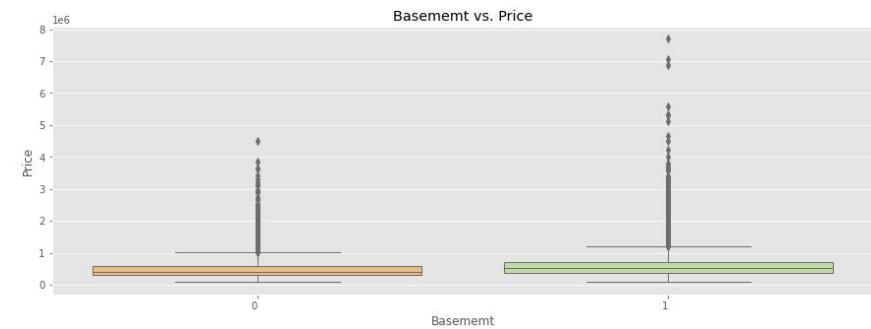
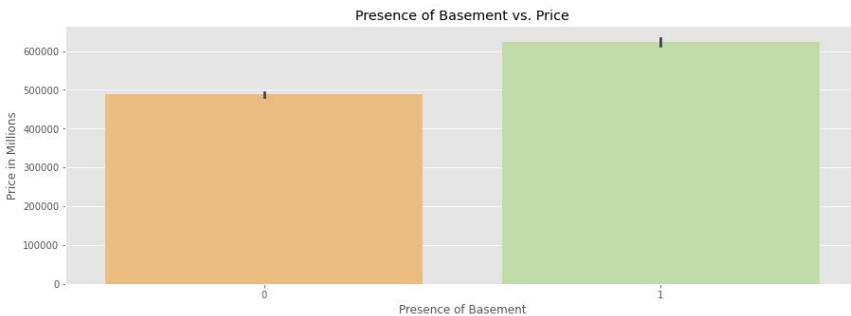
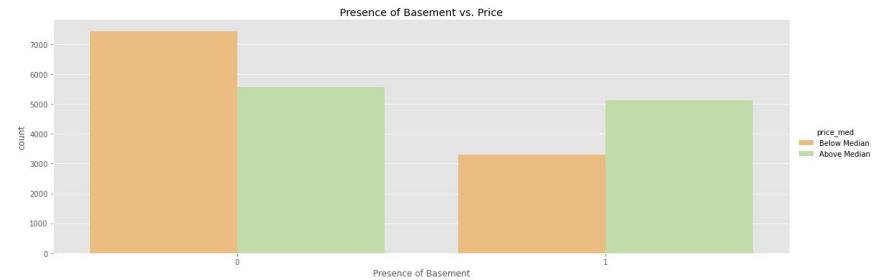
Bathrooms



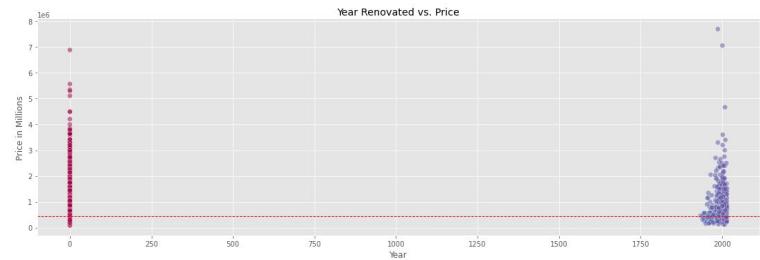
Floors



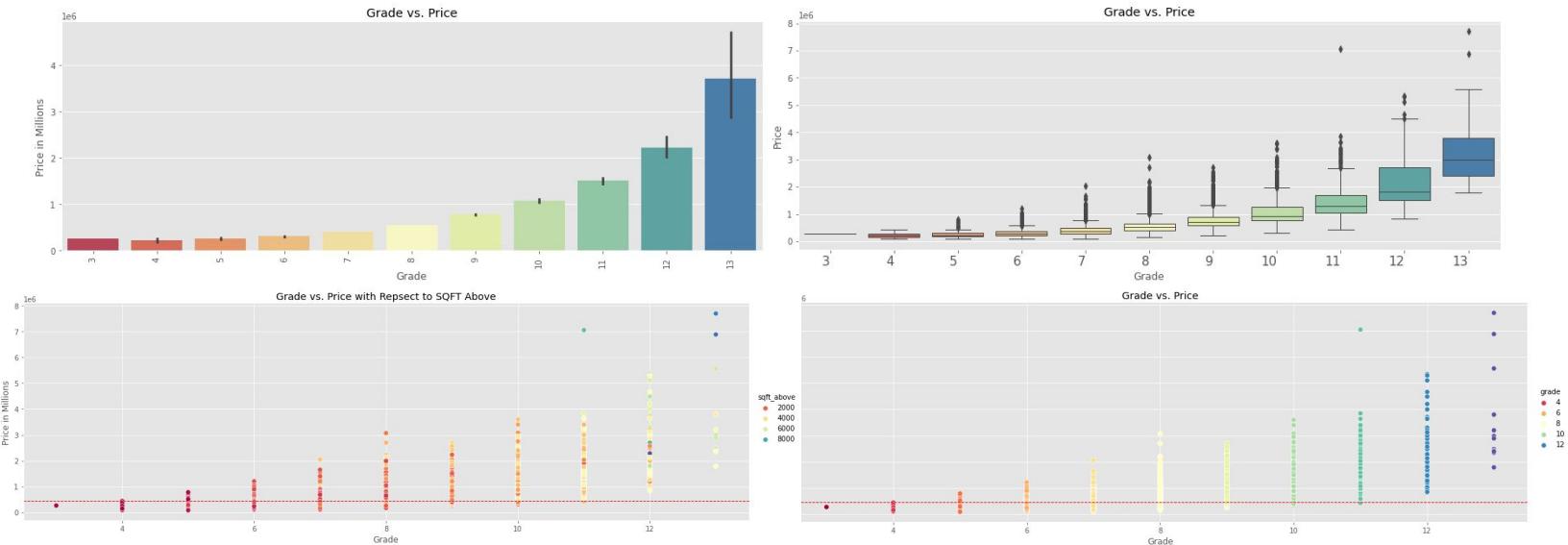
Basement



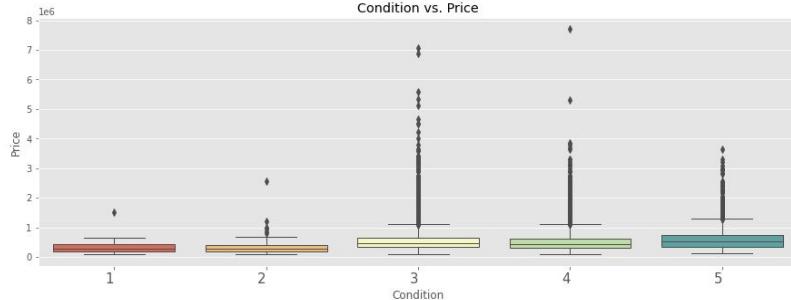
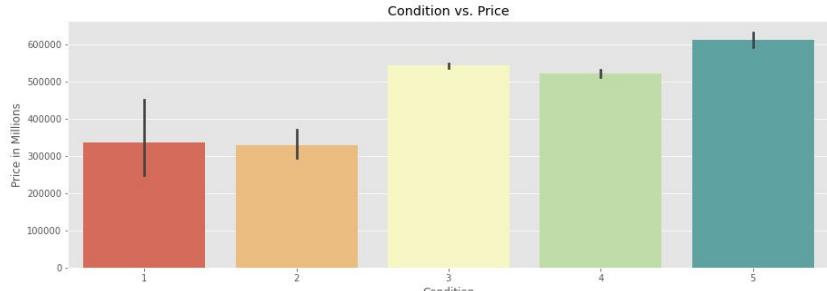
Renovation



Grade



Condition



grade

4

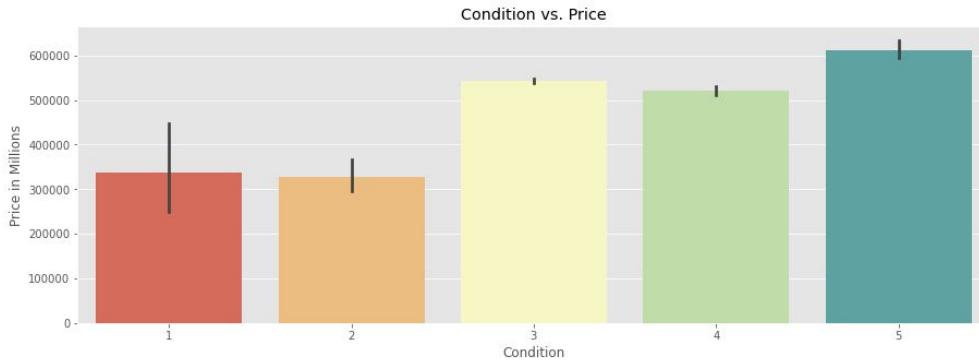
6

8

10

12

Condition



1 = Poor - Worn out.

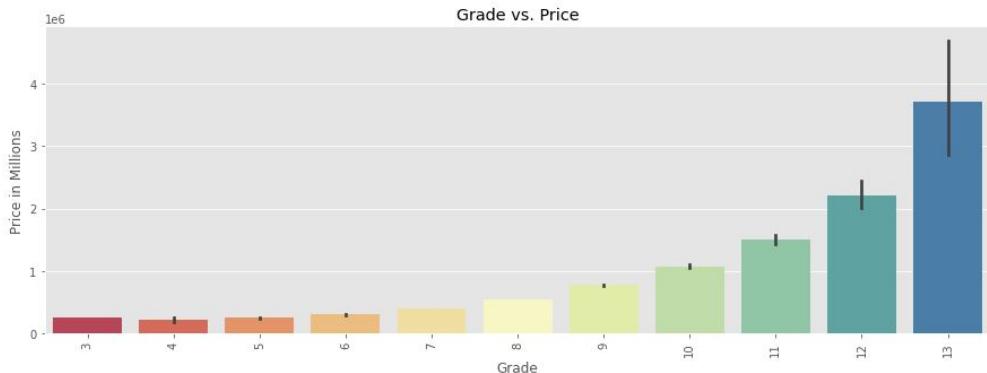
2 = Fair - Badly worn.

3 = Average

4 = Good

5 = Very Good

Grade



1-3 = Falls short of minimum building standards.

4 = Generally older, low quality construction.
Does not meet code.

5 = Low construction costs and workmanship.
Small, simple design.

6 = Lowest grade currently meeting building
code. Low quality materials and simple designs.

7 = Average grade of construction and design.

8 = Just above average in construction and
design.

9 = Better architectural design with extra
interior and exterior design and quality.

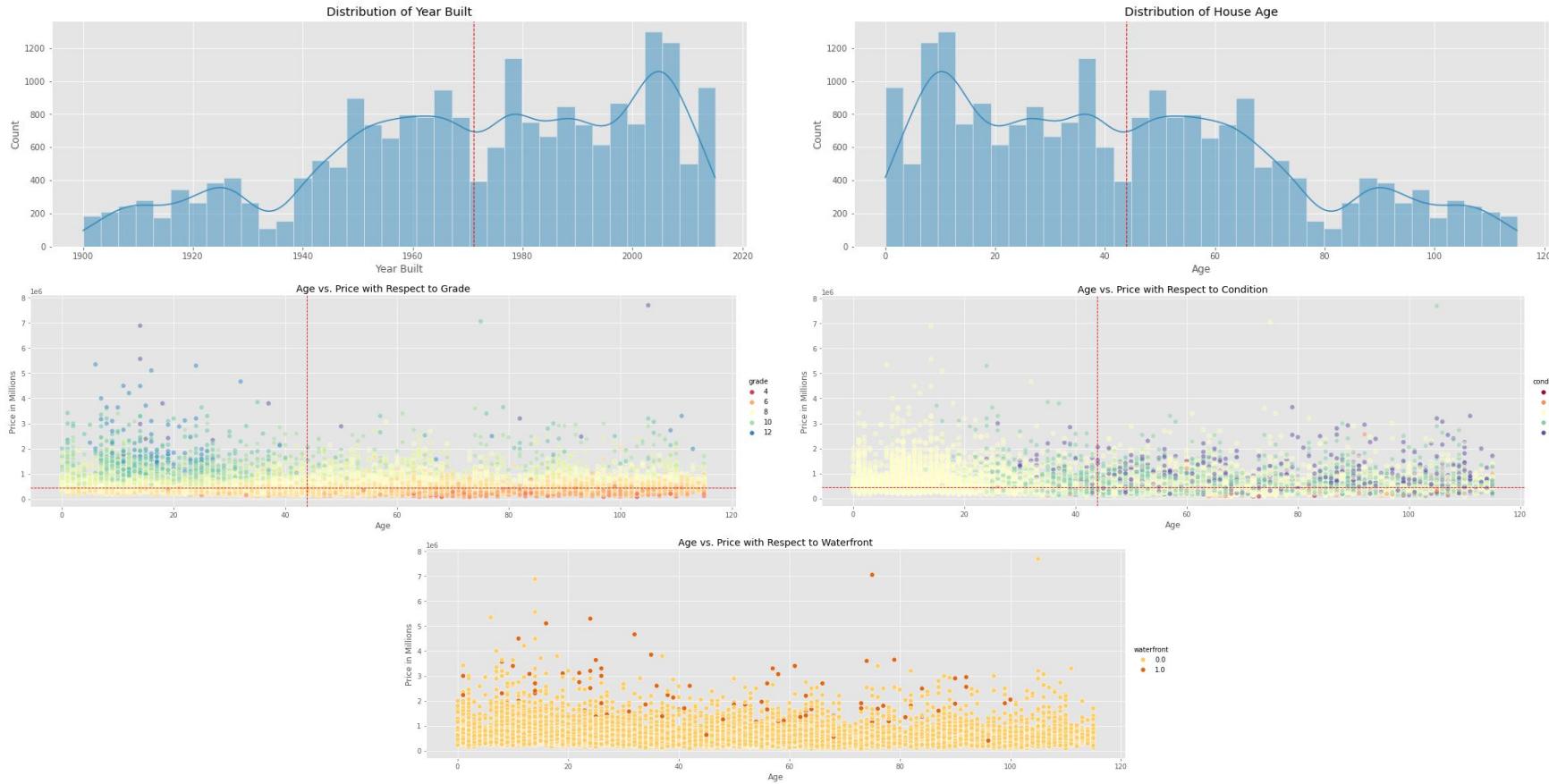
10 = High quality features.

11 = Custom design and higher quality finish
work with added amenities.

12 = Custom design and excellent builders.

13 = Generally custom designed and built.
Mansion level.

Age



Location

