

Data Science



MULTIVARIATE LINEAR REGRESSION

VS.



KING COUNTY HOUSING PRICE

Bao Tram Duong



INTRODUCTION

- Real estate plays an integral role in the U.S. economy.
- In 2018, real estate construction contributed **\$1.15 trillion** to the nation's economic output, adding **6.2%** to U.S. gross domestic product.
- 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.

Business Statement



01

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

02

How does location affect the price of the home?
How does location affect other features?

03

If location does not matter, what features adds value and what features decrease the value of a home?

04

How to add value to a home?

05

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



DATA SOURCE

- King County dataset
- Located in the U.S. state of Washington.
- The population was 2,252,782 in the 2019 census estimate, making it 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 cover the price, attractiveness, size, location and comparison to 15 nearby homes





METHODOLOGY

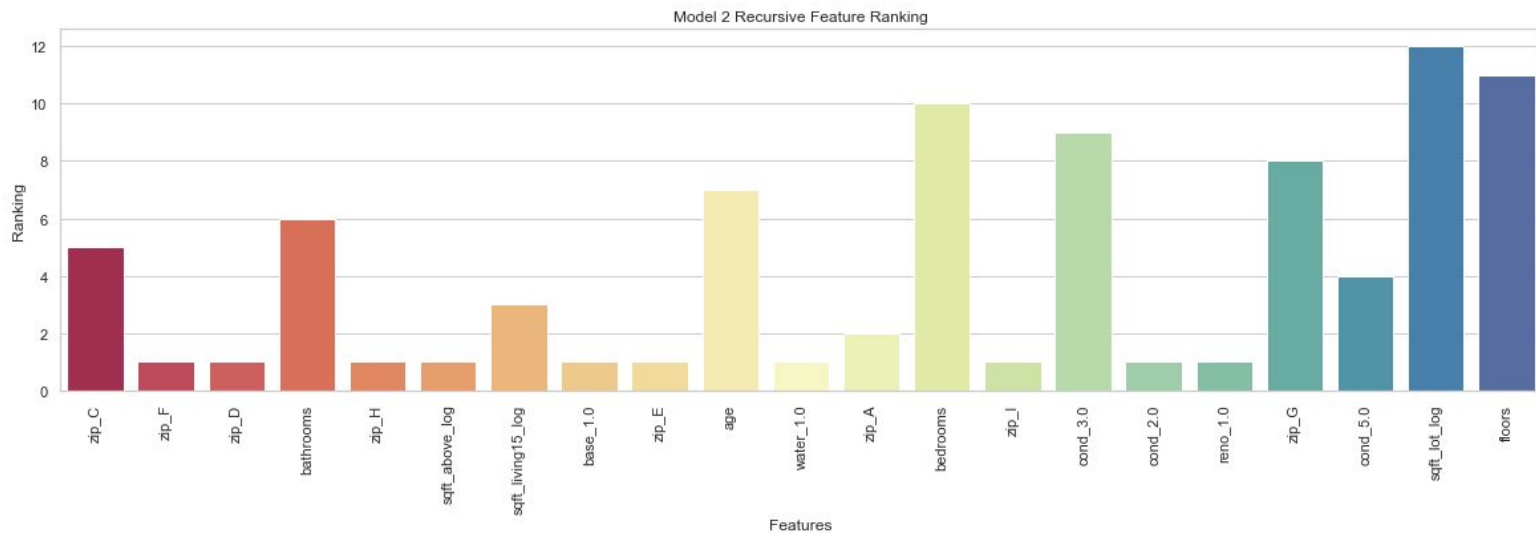
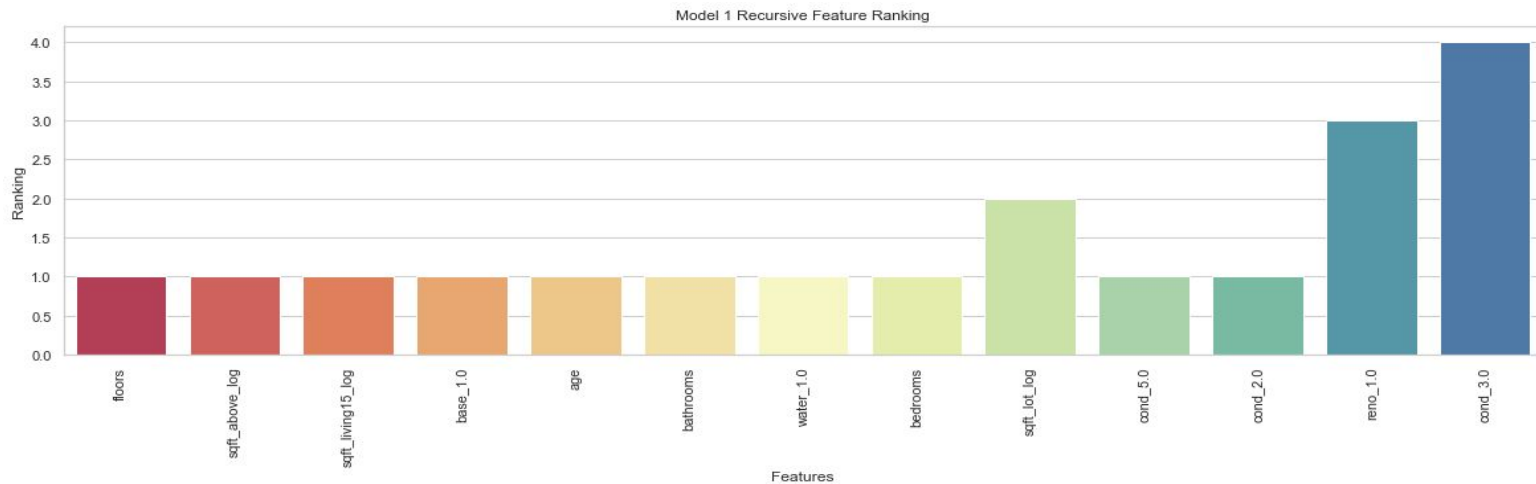
- Perform data visualization techniques to understand the insight of the raw data.
- Create a regression model that are able to accurately estimate the price of the house given the features.

Home Features

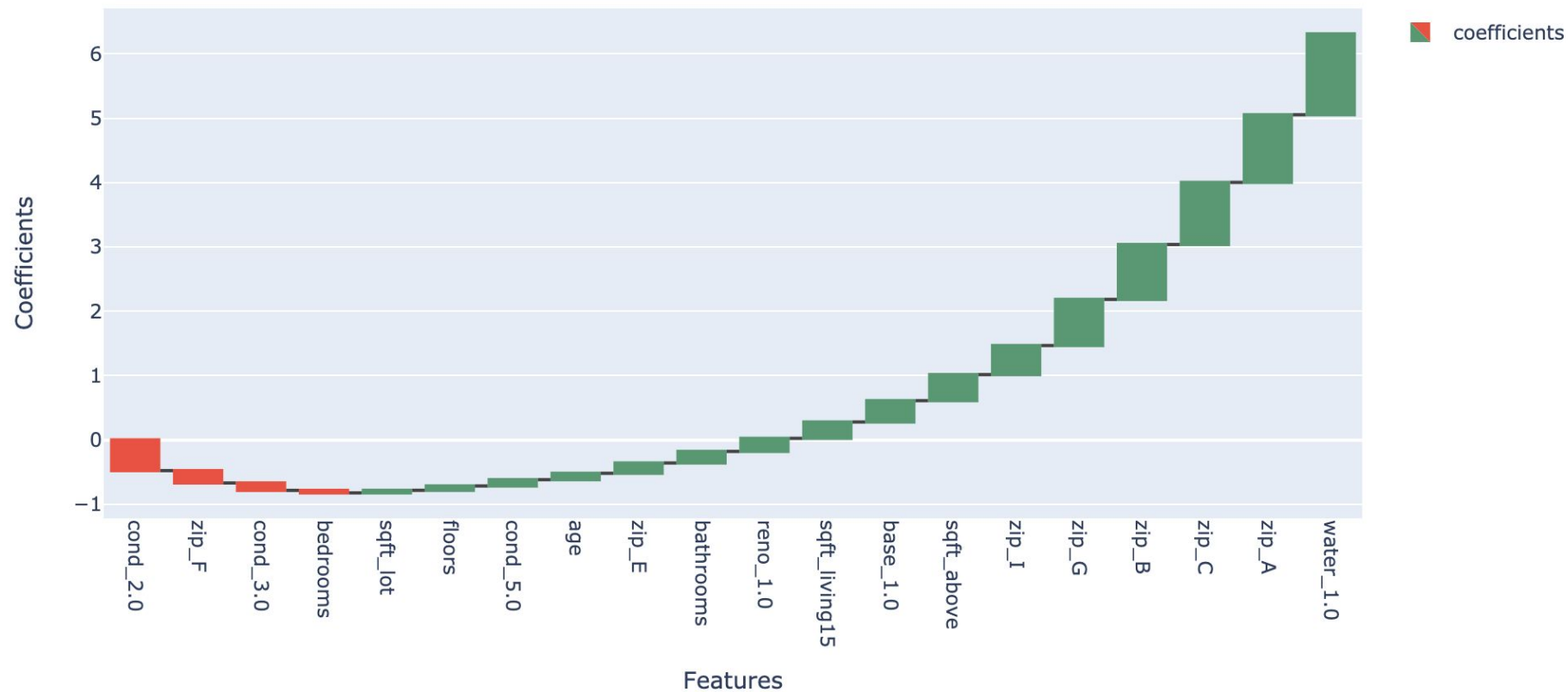


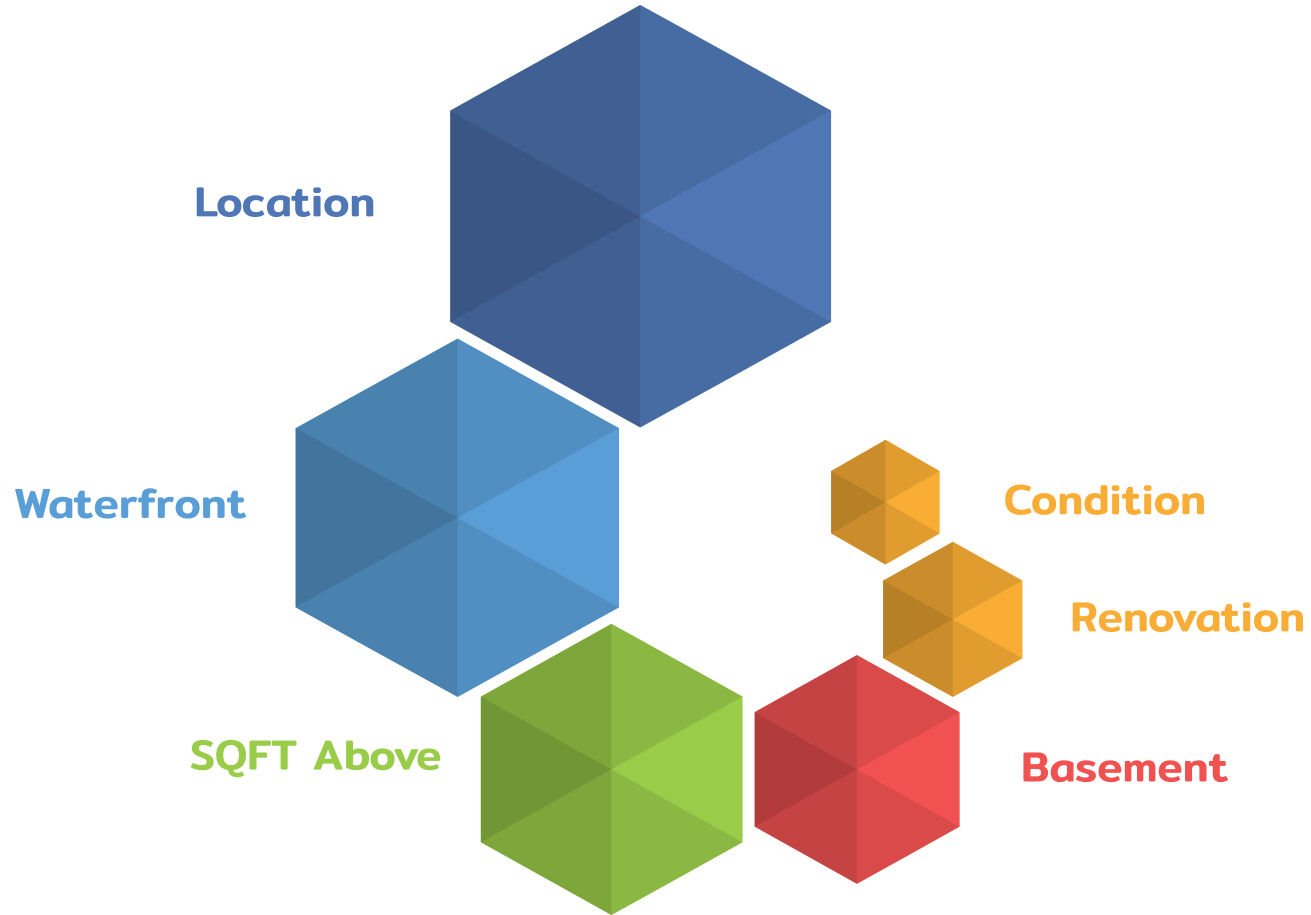


**What are the most
predictive features to
predict the price of a home?**



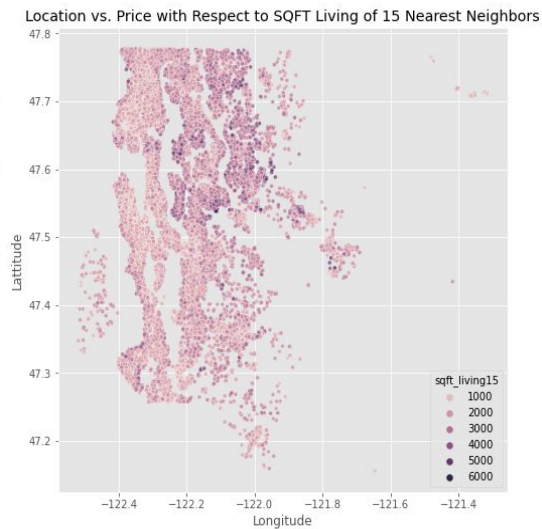
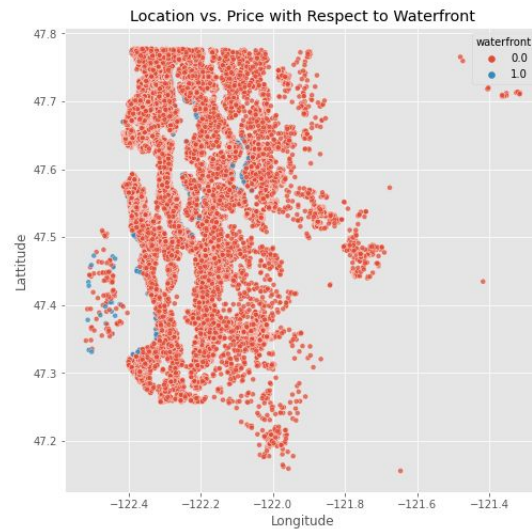
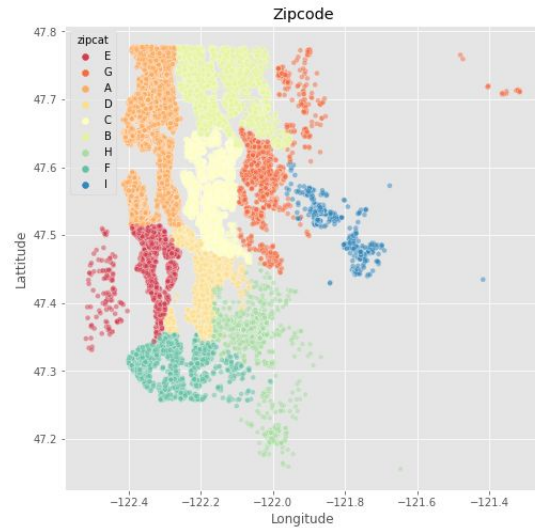
Model E Coefficients

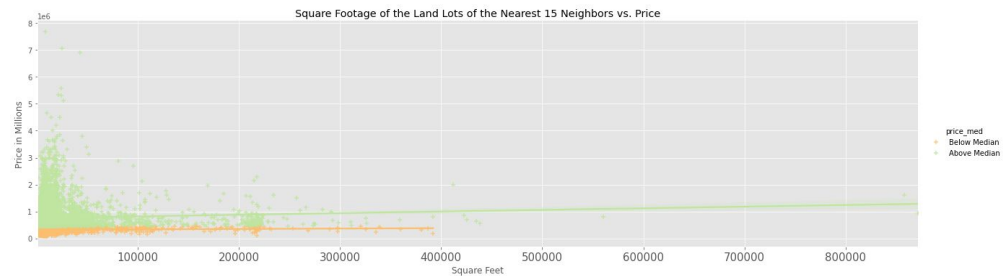
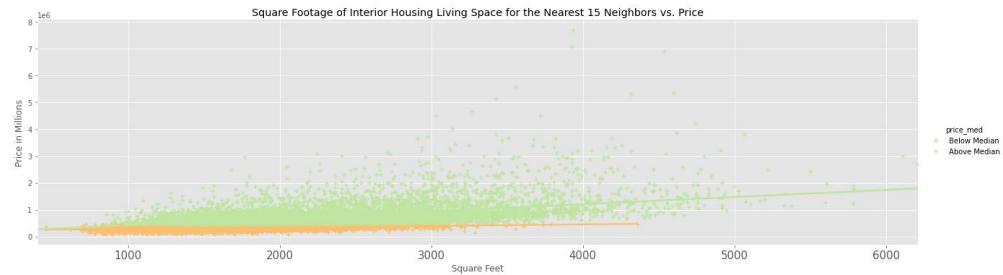


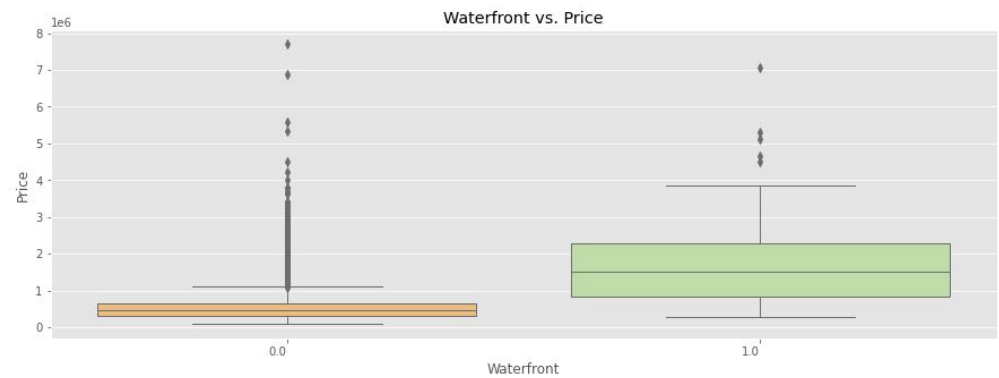
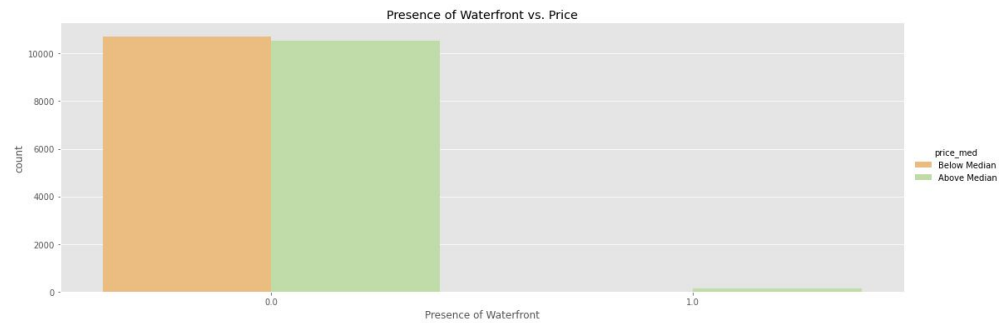




**How does location
affect the price of a home?**



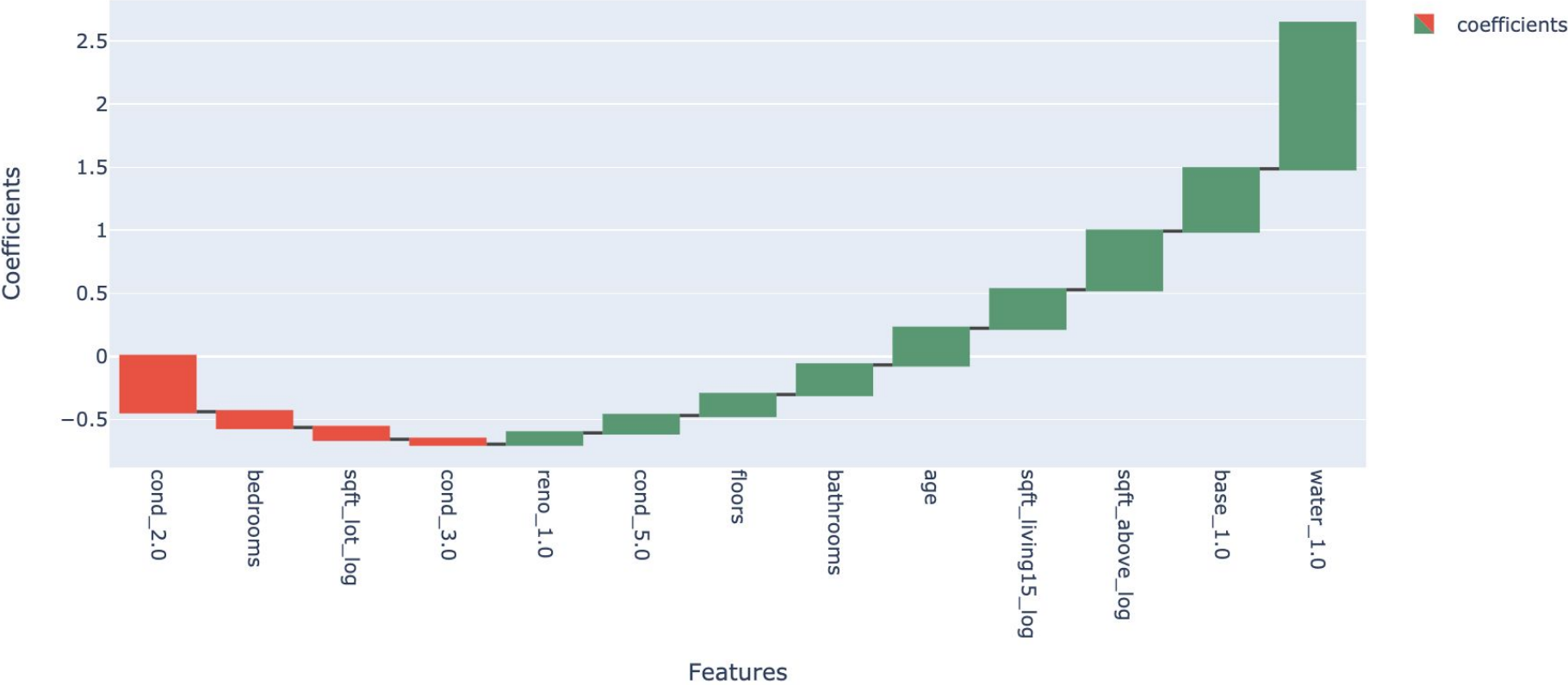






**If location does not matter,
what features adds value
and
what features decrease the
value of a home?**

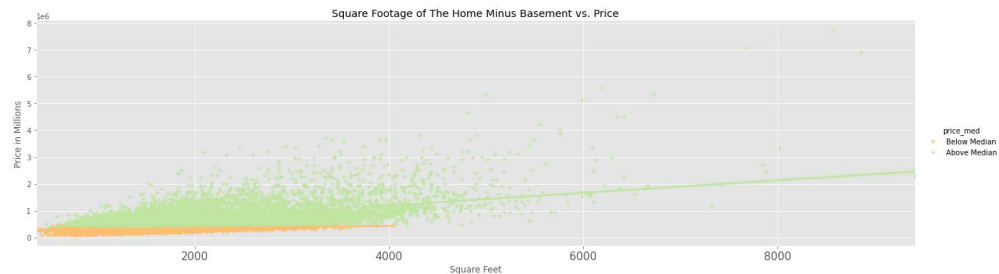
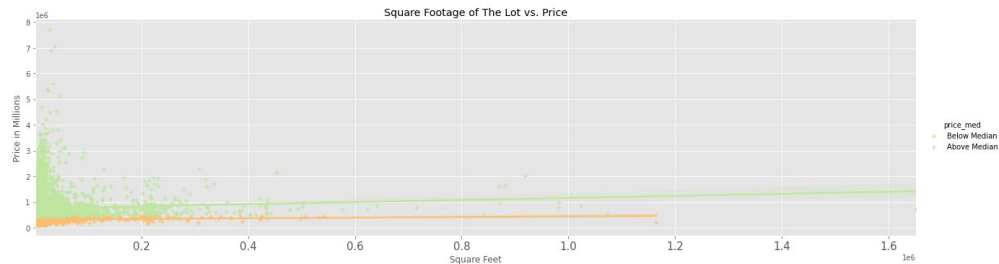
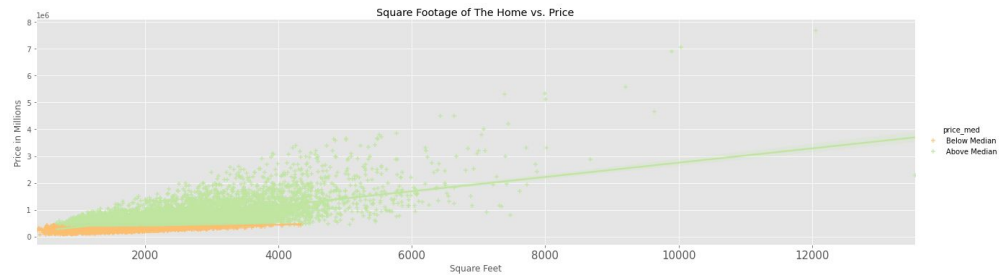
Model 1 Coefficients



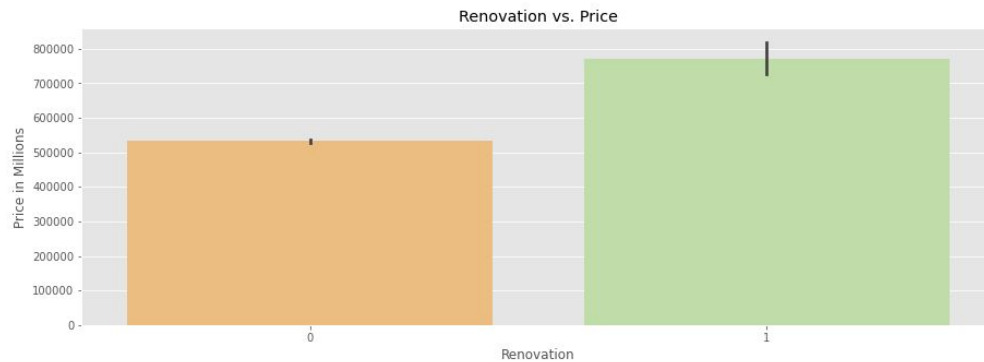


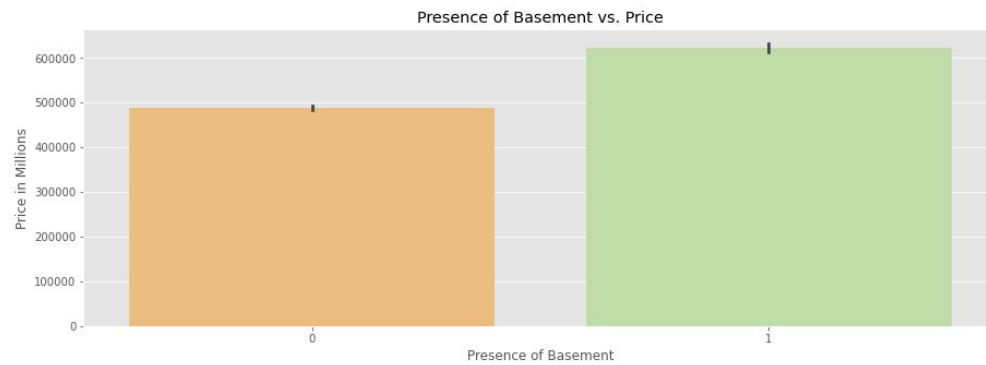
How to add value to a home?

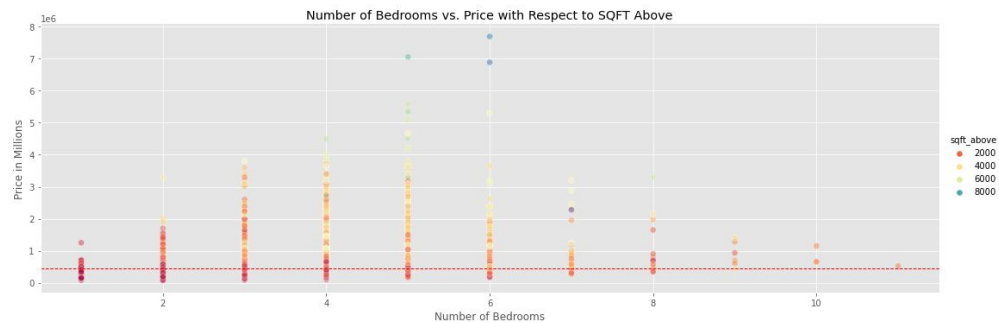
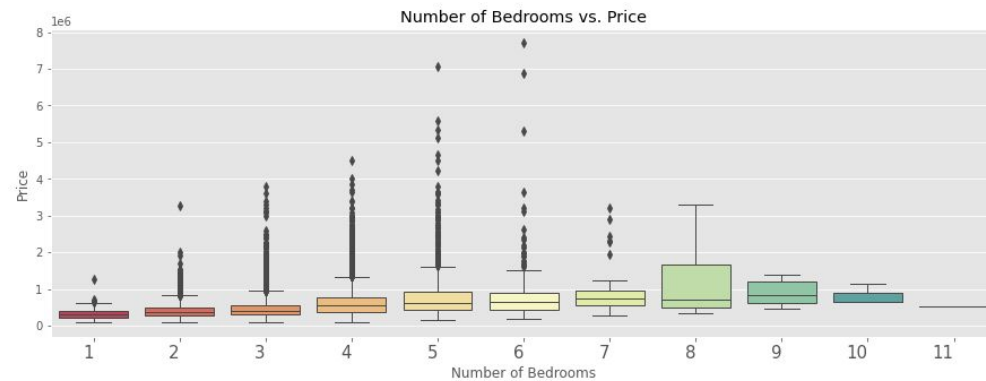
Livable Living Space

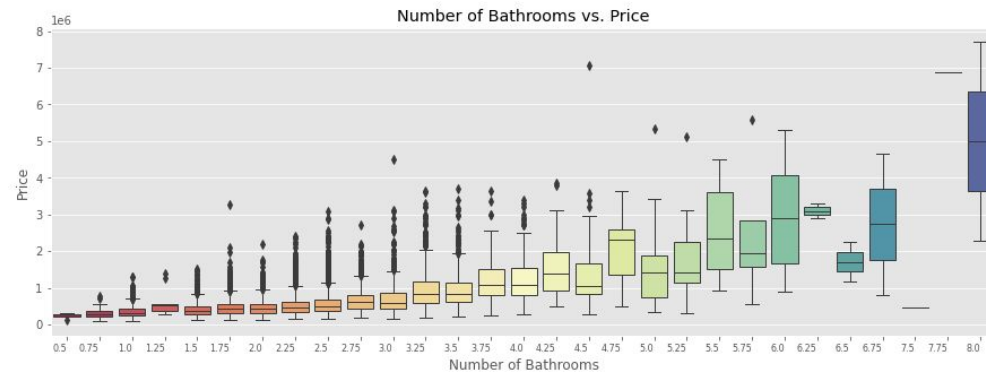


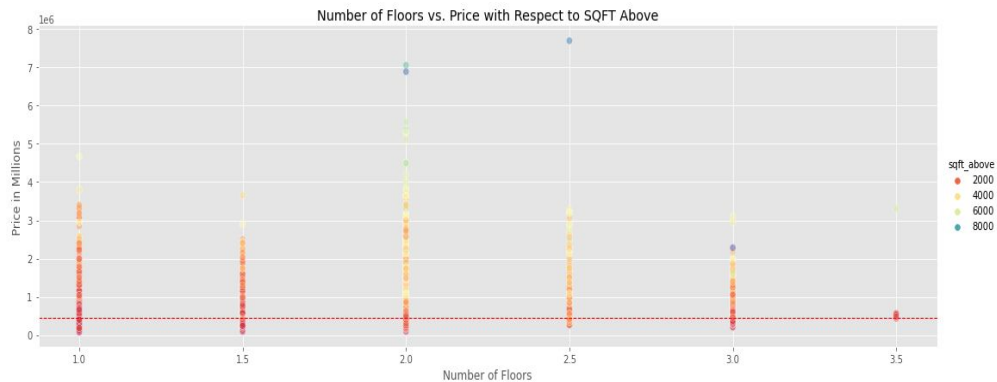
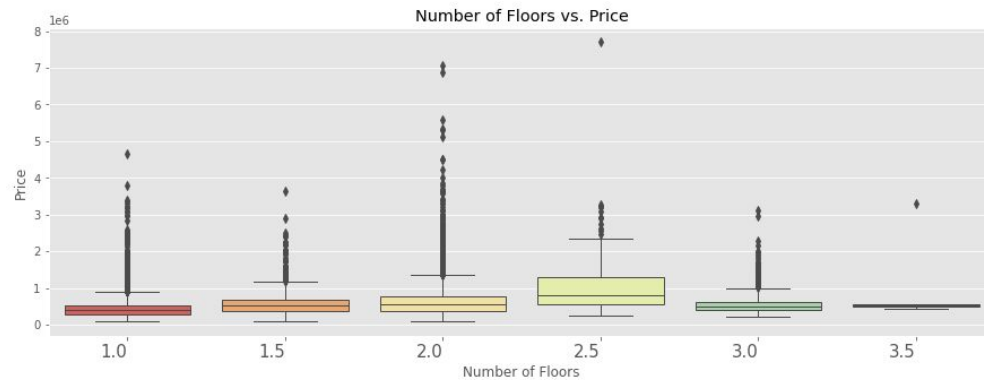
Update & Upgrade





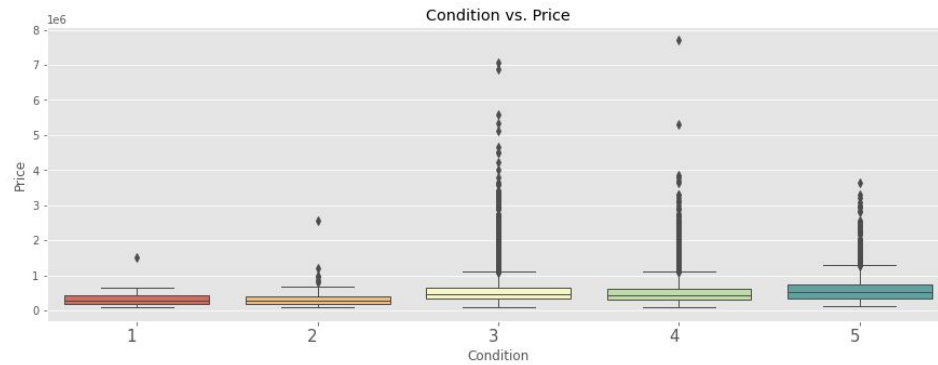


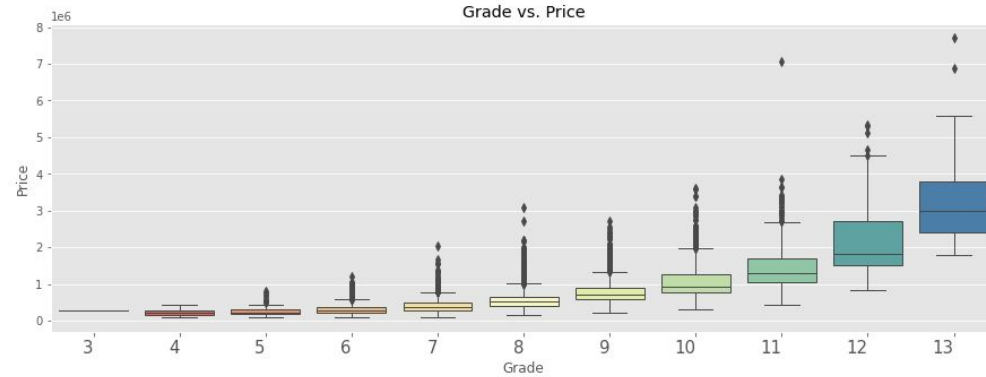






**How do age and condition
affect the value of a home?**









Actionable Insights

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THANK YOU



APPENDIX