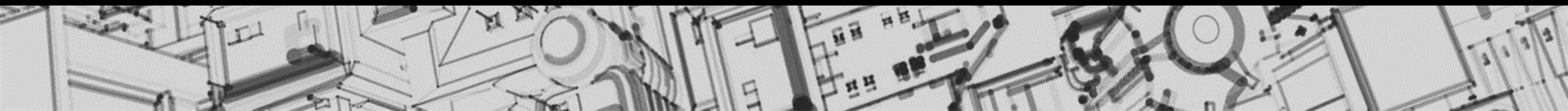
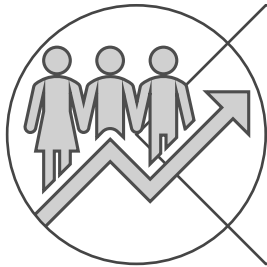


Increasing Your Home's Value

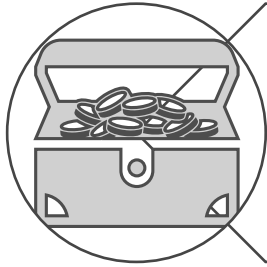
Nick Gigliotti



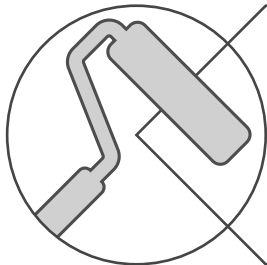
Business Problem



Data Driven Realty™ has asked me to research the factors affecting house value for King County residents who are looking to renovate.



Research Question: What features have the strongest positive effect on home value?



Home features which can be renovated are the highest priority.

Data and Methods



- Datasets
 - King County Real Estate
 - 21,600 residential properties
 - Includes data on price, square footage, location, and various government ratings
 - Additional zip code data from www.unitedstateszipcodes.org
- Methods
 - Linear Regression (OLS Multiple Regression)
 - Built ~21,700 different test models with various combinations of features
 - Iteratively developed models using the test data as a guide
 - Landed on a model with high explanatory power ($R^2 = 0.81$) that included as many renovatable features as possible.

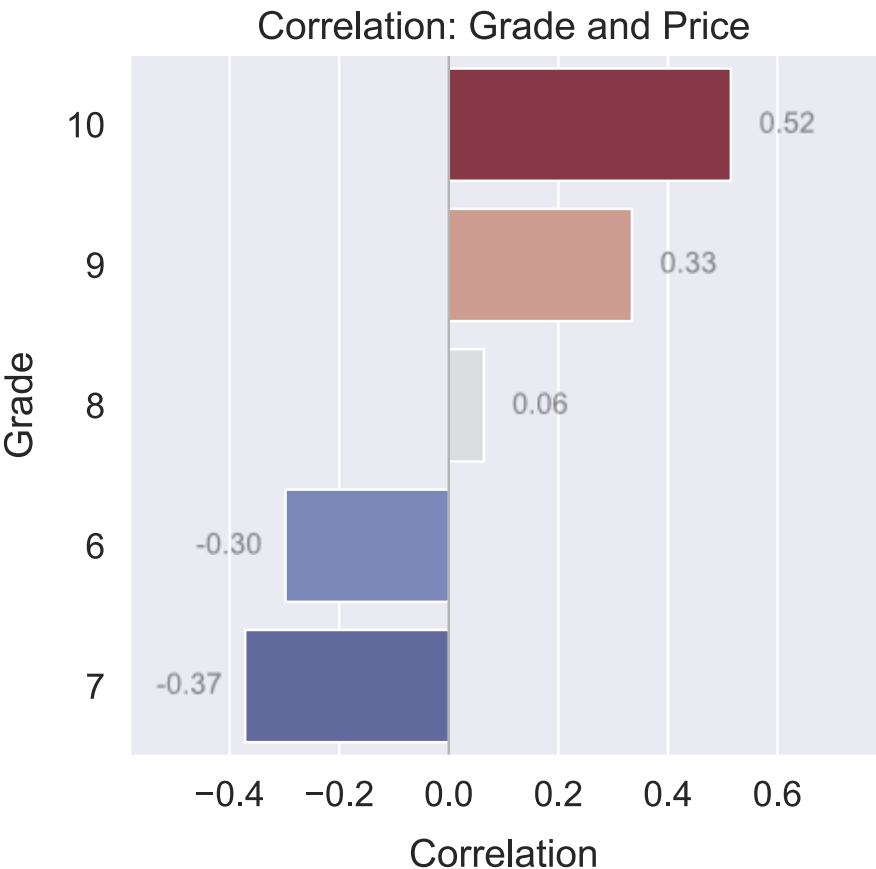
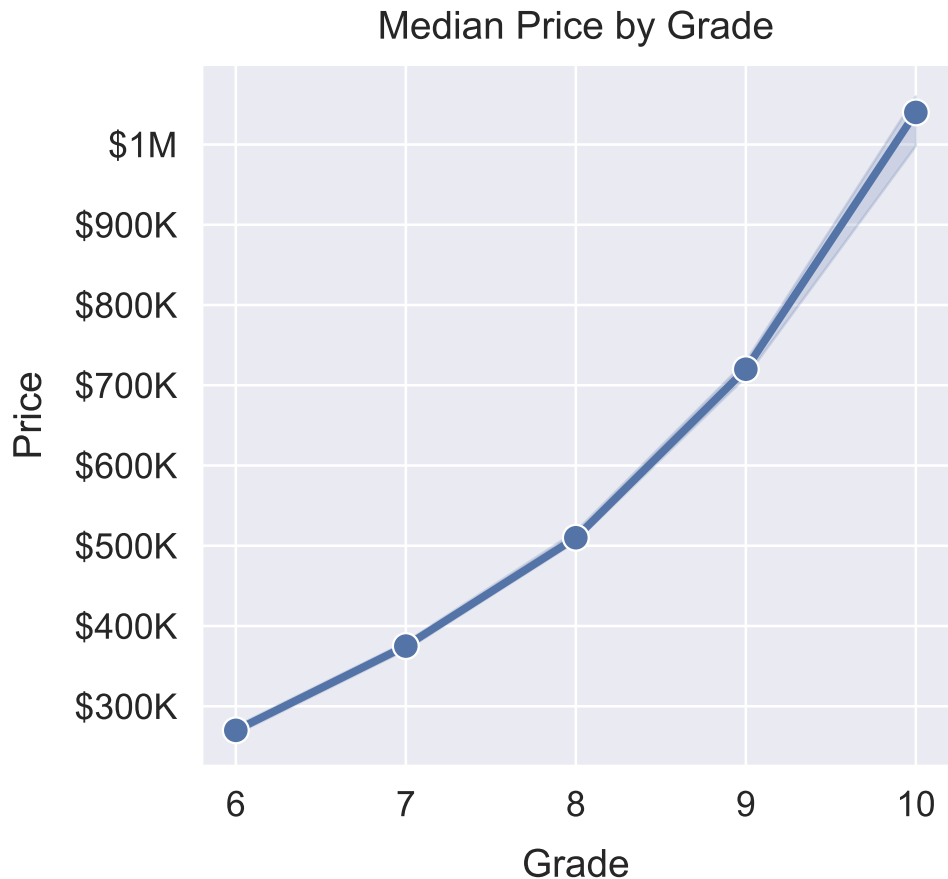
In this presentation, I discuss insights gleaned from the final model.

Raise Your Housing Grade

The Higher, The Better

Outliers < 6 were shoehorned into 6.

Outliers > 10 were shoehorned into 10.



- Foundation
- Exterior Walls
- Roof
- Floors
- Plumbing
- Climate Control
- Electrical

Housing Grade

King County



Grade 6: Lowest grade currently meeting building codes. Low quality materials, simple designs.

Grade 7: Average grade of construction and design. Commonly seen in older subdivisions.

Grade 8: Just above average in construction and design. Usually, better materials in both the exterior and interior finishes.

Grade 9: Better architectural design, with extra exterior and interior design and quality.

Grade 10: Homes of this quality generally have high quality features. Finish work is better, and more design quality is seen in the floor plans and larger square footage.

Grade 11: Custom design and higher quality finish work, with added amenities of solid woods, bathroom fixtures and more luxurious options.

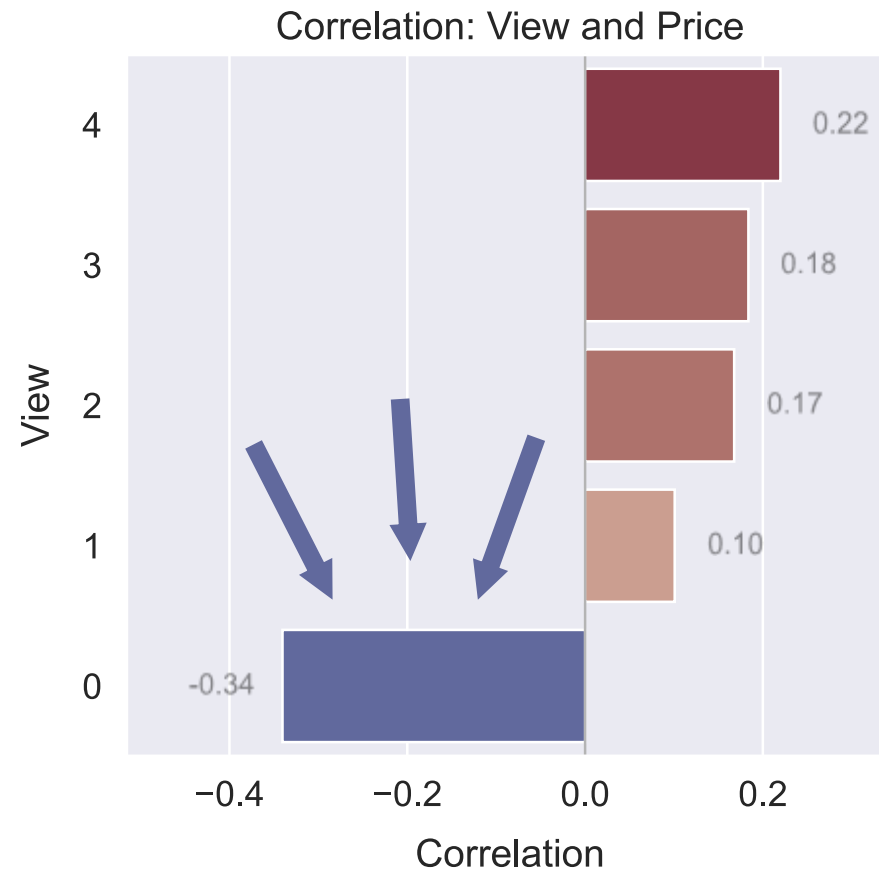
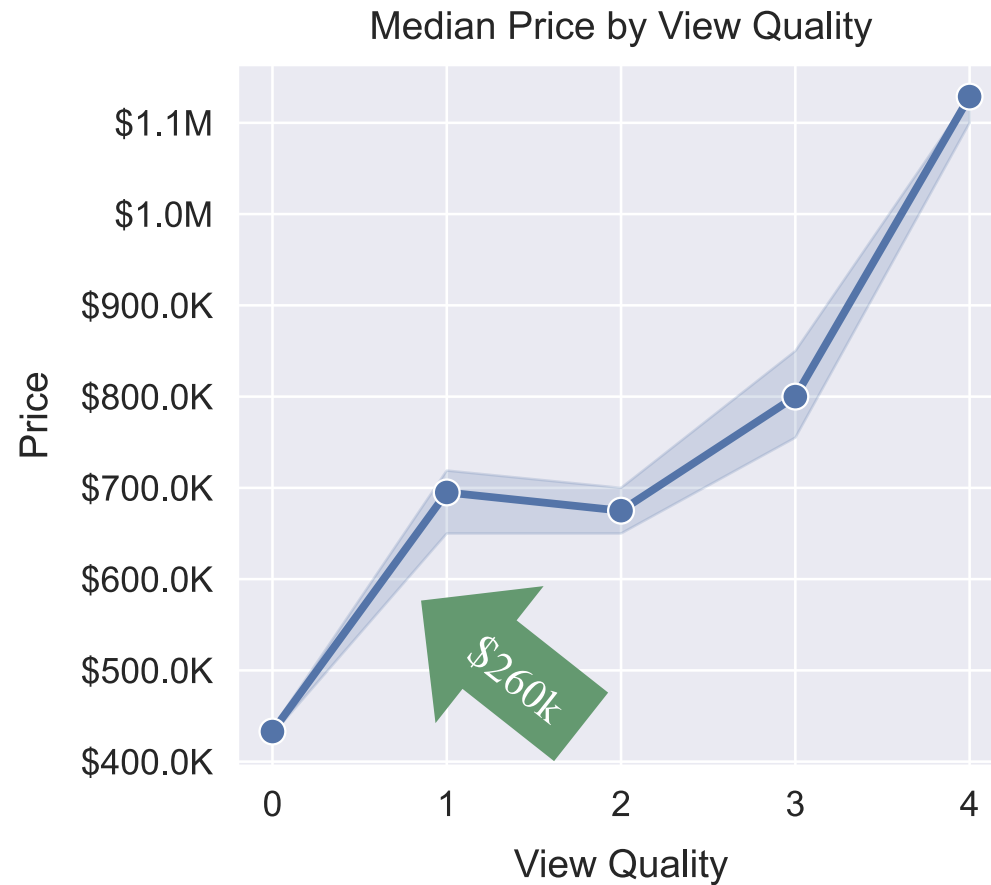
Grade 12: Custom design and excellent builders. All materials are of the highest quality and all conveniences are present.

Grade 13: Generally custom designed and built. Approaching the Mansion level. Large amount of highest quality cabinet work, wood trim and marble; large entries.

Get a View

Mediocrity is \$260,000 Better than Nothing

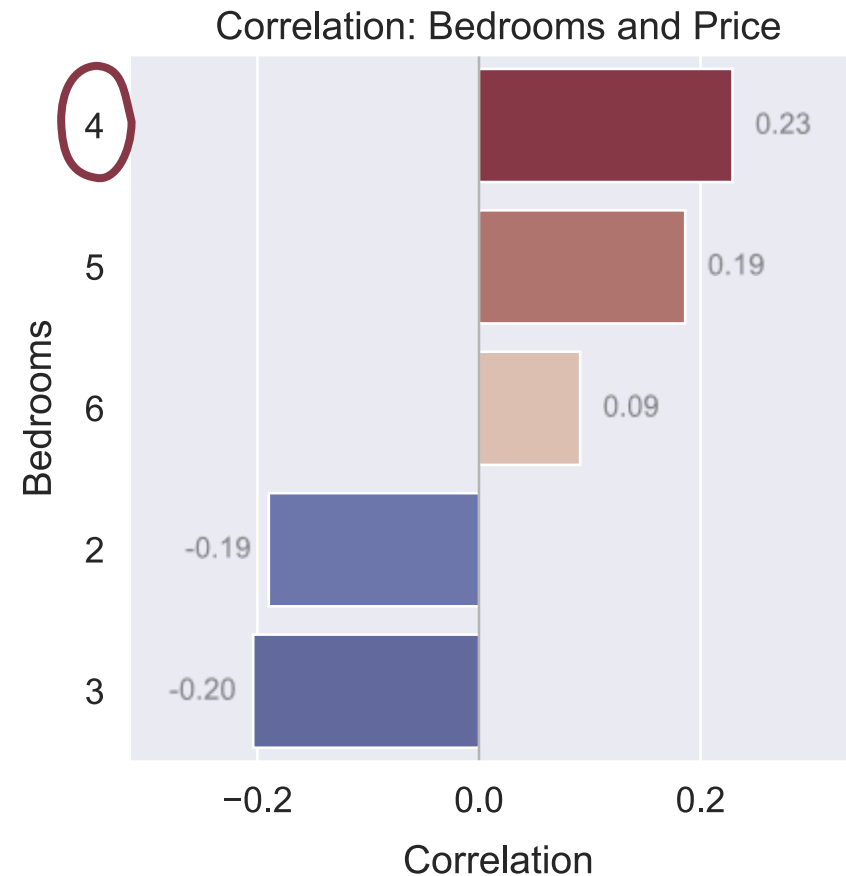
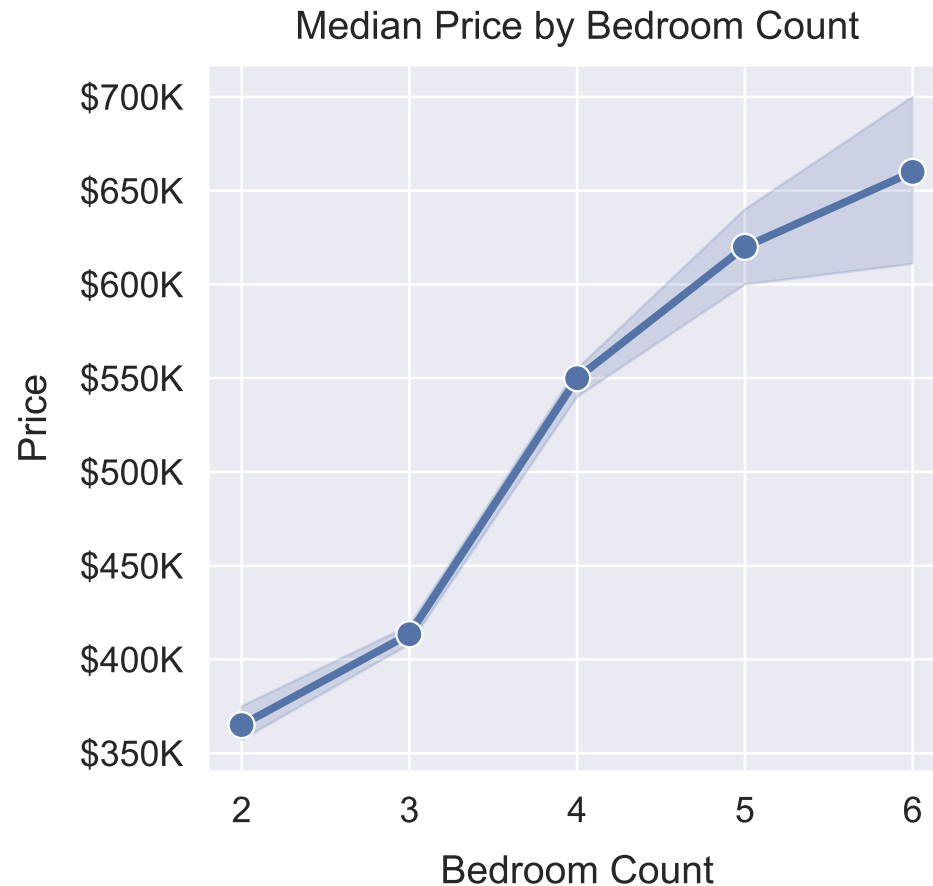
- Landscape
- Add windows
- Remove obstructions



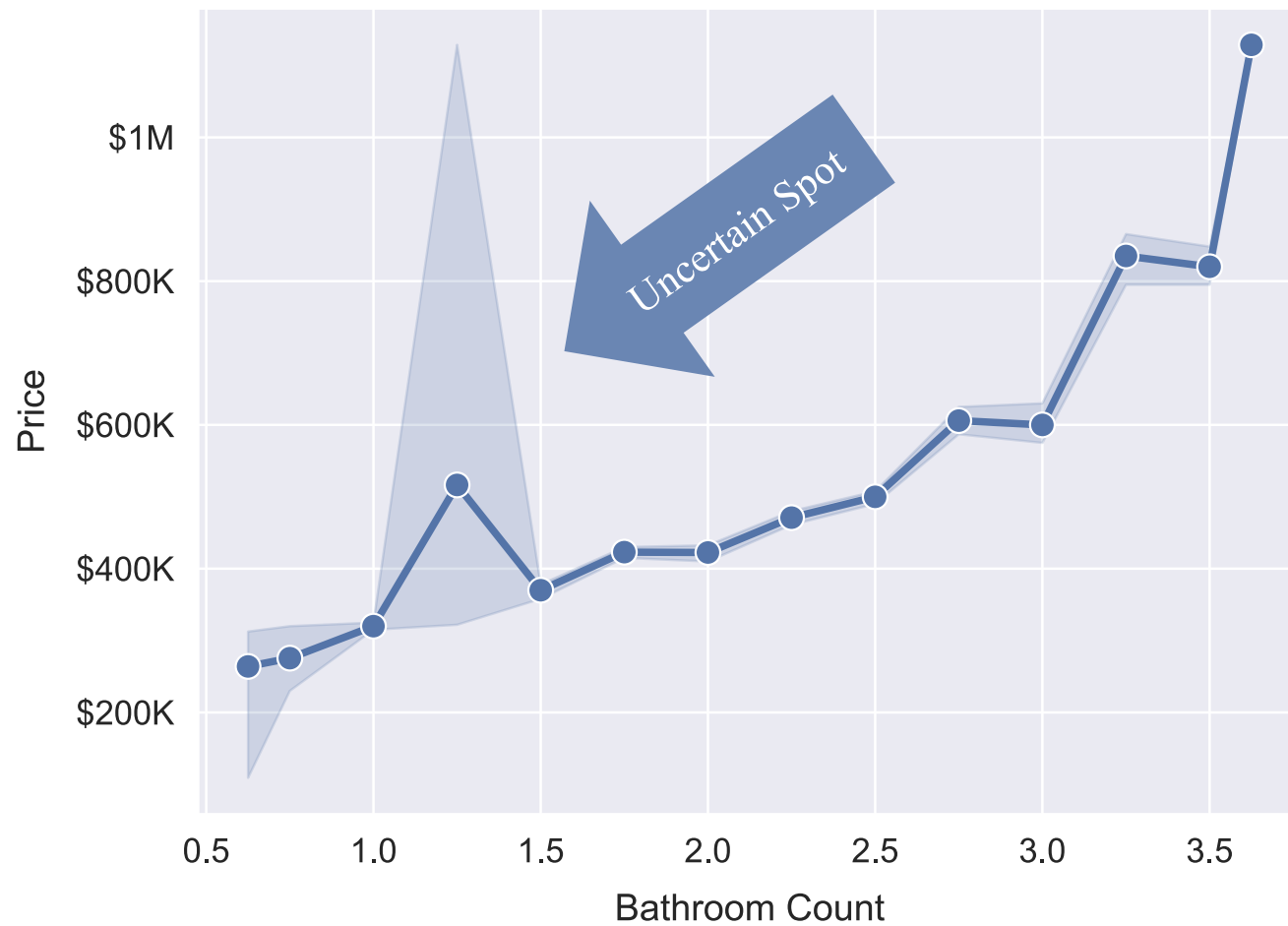
Get Four Bedrooms

Four is the Magic Number

Notice the air of mystery surrounding the medians for 5 and 6.



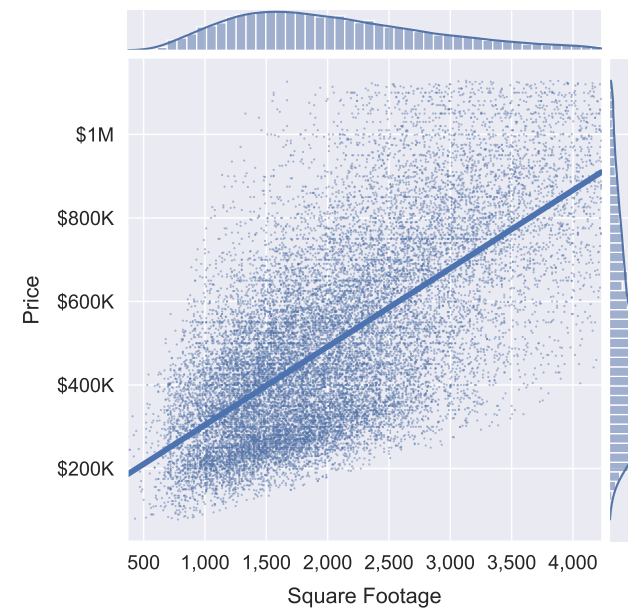
Median Price by Bathroom Count



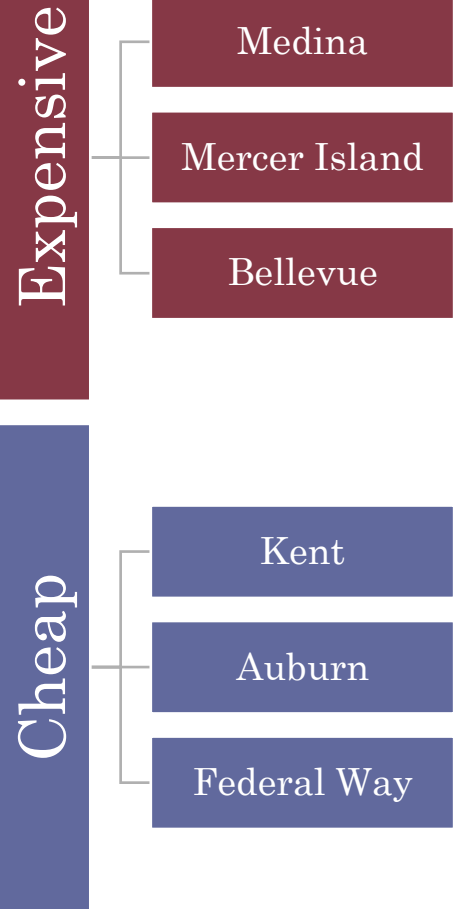
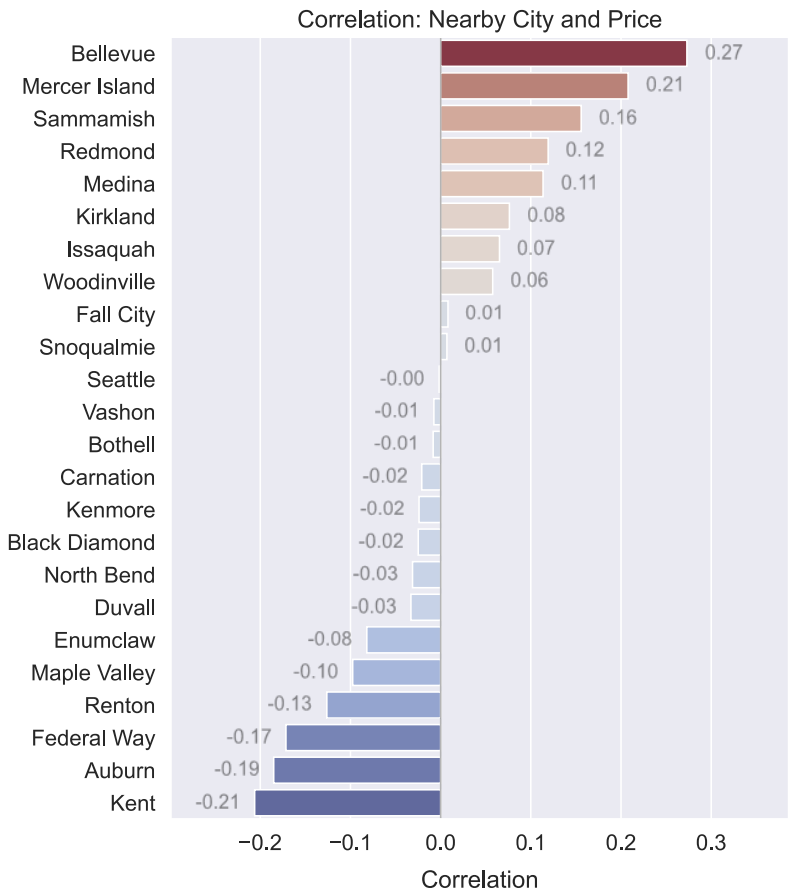
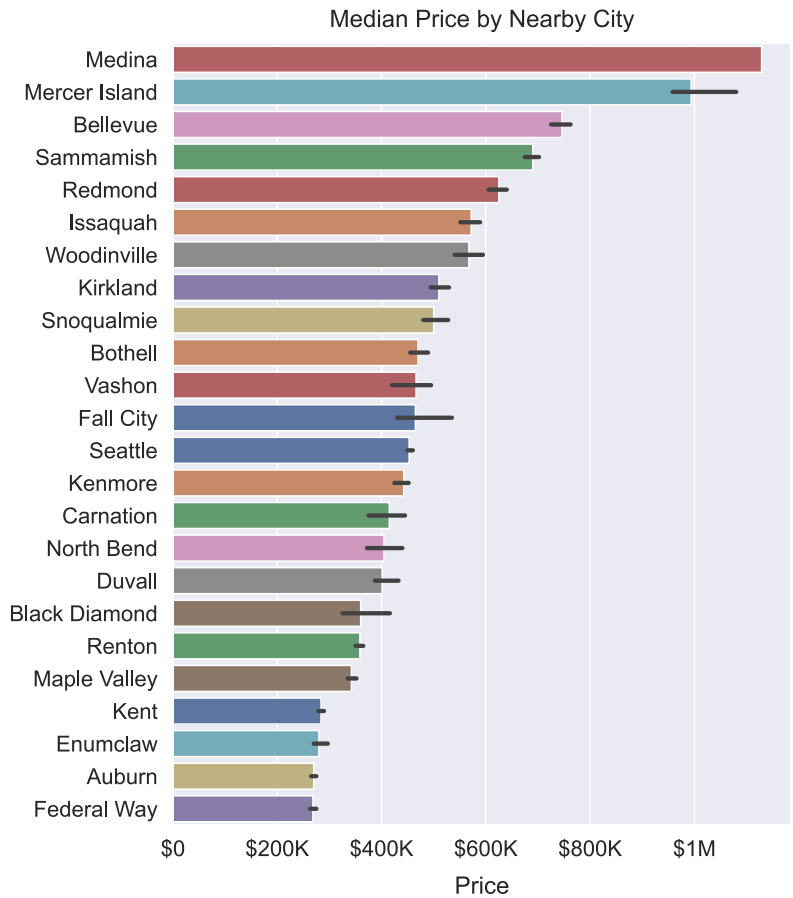
Add Bathrooms

- Keep in mind that you can add full, half, and quarter bathrooms.
- Living space has a strong 0.7 correlation with price.
- **Adding rooms is adding living space.**

Living Space vs. Price



How Does Your City Measure Up?



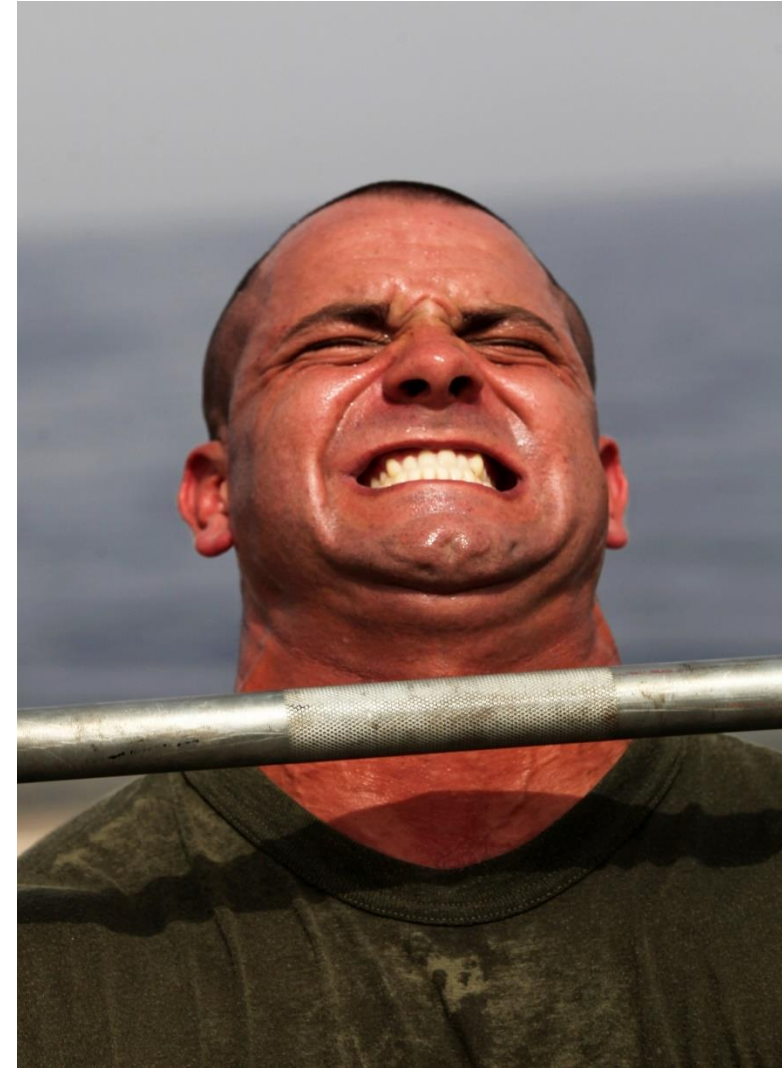
Recommendations Recap



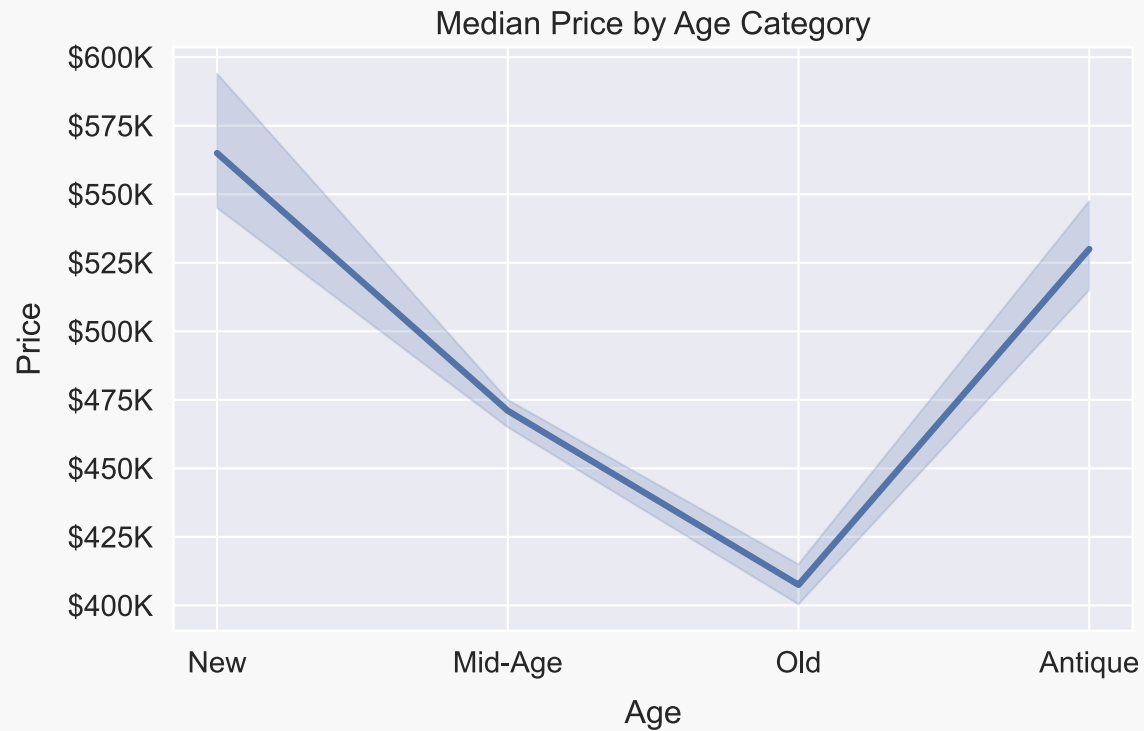
- Increase your housing grade as much as possible.
- Attain View Rating of at least 1.
- Aim for 4 bedrooms.
 - Expect diminishing returns if you add more.
- Add more full-bathrooms, half-bathrooms, and quarter-bathrooms.
- Add more rooms in general because it increases living space.

Future Work

1. Look at other models and learn about features which didn't make it into the final model.
2. Run feature-selection sweeps using the normalized datasets I created.
 - How much better do the scaled models perform on diagnostic tests?
 - What insights do they offer at the expense of interpretability?
3. Look for more data, ideally data with time information gathered over the course of decades. It'd be interesting to investigate trends.



Thank You, and Hurry



New: Under 10 years old

Mid-Age: 10-50 years old

Old: 50-100 years old

Antique: 100+ years old

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