



# King County Housing Market Analysis

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What decides a house value

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# Overview

- King County is in the U.S. state of Washington.
- 12<sup>th</sup> largest county
- Home Price\*:
  - \$ 431 Median Listing Price/Sq Ft,
  - \$ 700K Median Listing,
  - \$ 766K Median Sold Price,
- Around 6000 house for sale and 2800 for rent.

\* March 2021 data

# Business Problem

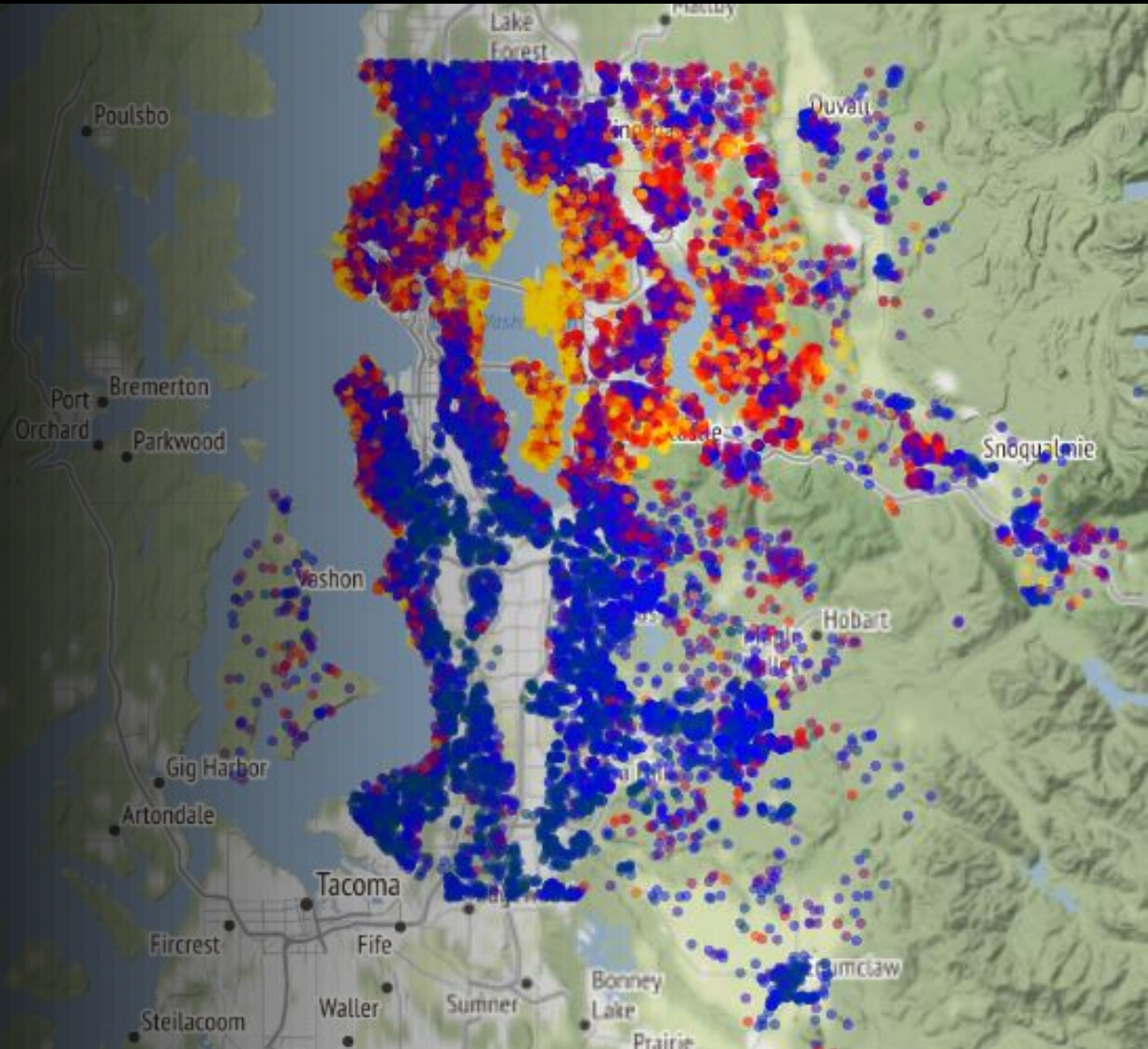
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King County Residents that want to renovate their home to increase its resale value, but don't know what factors are important for determining a home's value.

Those include:

- How to improve marketability.
- Focus on which aspect of the house.
- What factors to keep in mind deciding budget and required return on investment.

I shall discuss key factors of a home's price. This factors can be both under their constrain and beyond their control.



# Methodology

- Dataset from Flatiron School GitHub repo.
- After removing outliers sample size was 16980 with 20 initial predictors.
- Using linear regression technique for prediction.
- Regression model can explain 81% of data.

# Recommendation On



WHICH AREAS YOU  
SHOULD FOCUS



WHICH ONES YOU CAN  
BE LESS WORRIED  
ABOUT



WHAT TO EXPECT

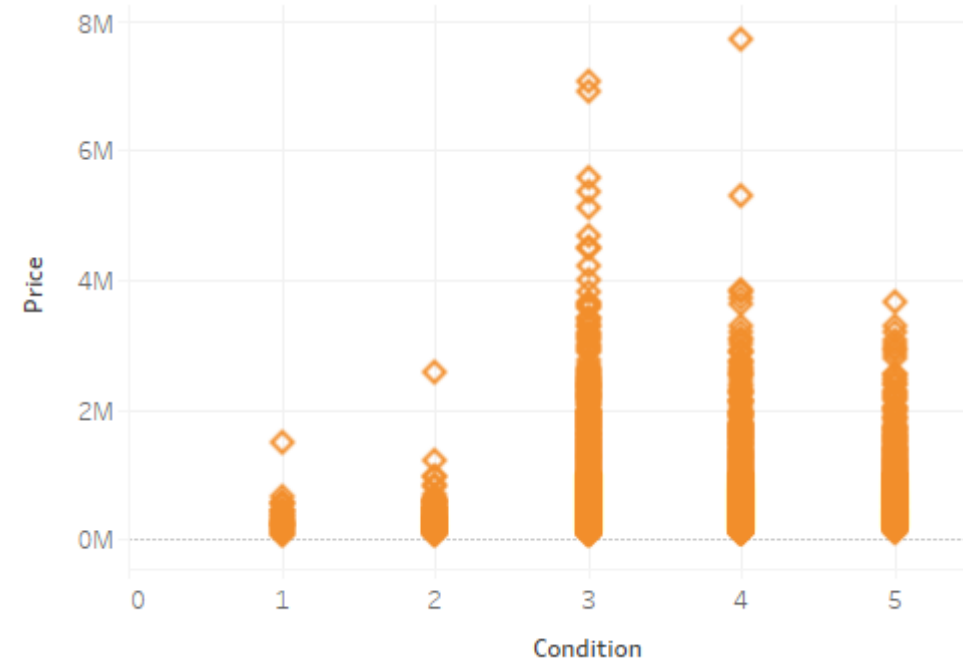
# Condition

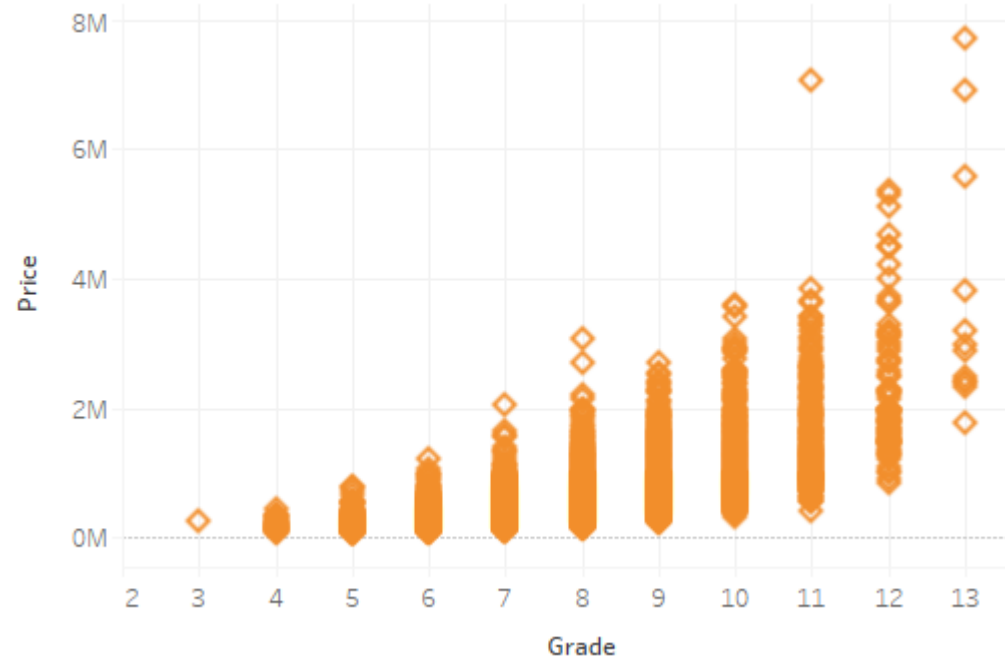
This is one of the most important factors.

Make sure that your house is at least average condition rating by using better quality material and maintain existing fixtures.

Coded 1-5.

1. Poor- Worn out.
2. Fair- Badly worn.
3. Average- Some evidence of deferred maintenance and normal obsolescence.
4. Good- No obvious maintenance required but neither is everything new.
5. Very Good- All items well maintained, many having been overhauled and repaired



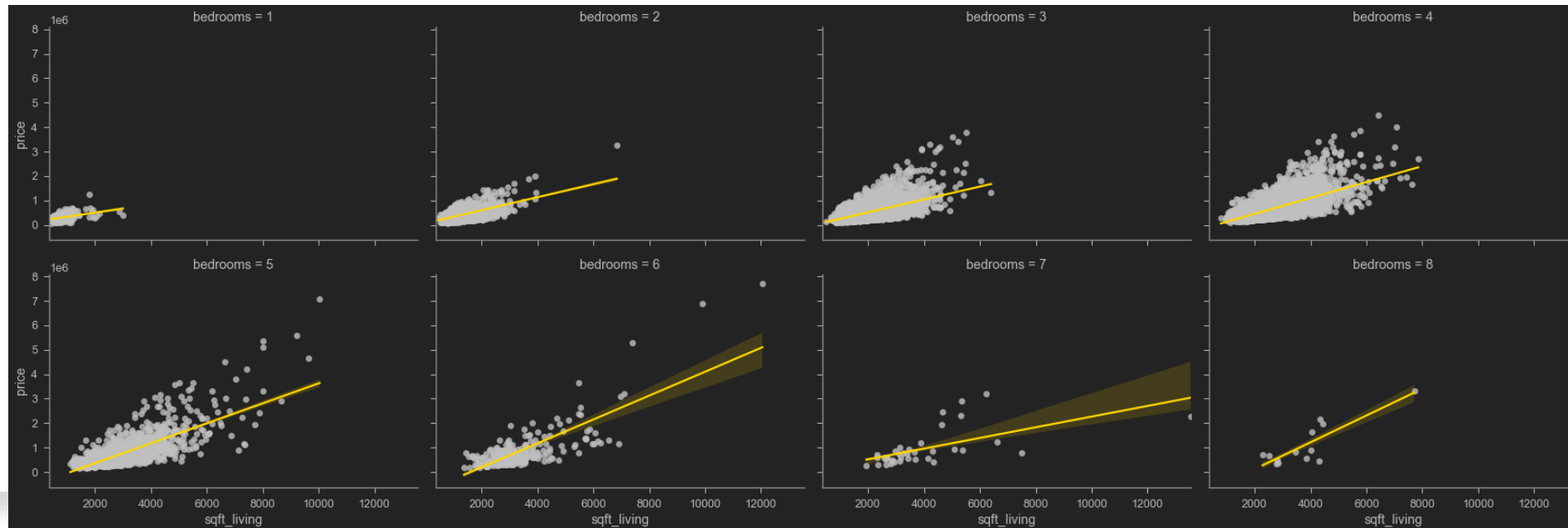
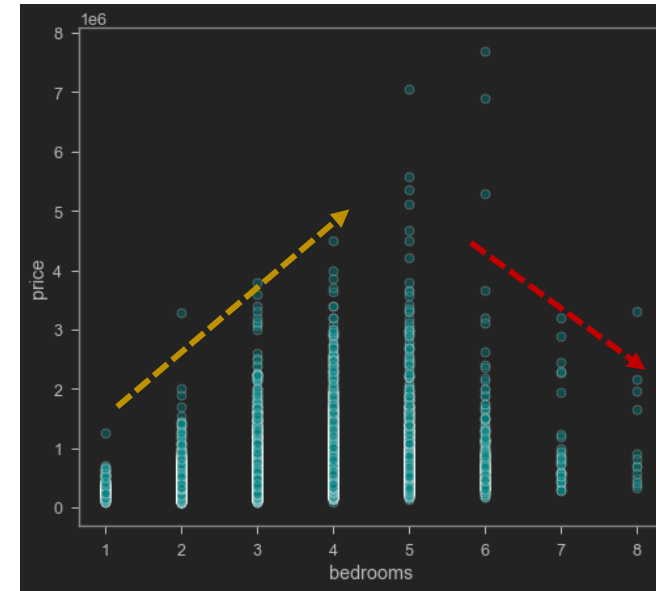


# Grade

- Hire better contractors thus making sure that the building materials and design is satisfactory.
- Good finishing in interior and exterior.
- High grade materials in both the exterior and interior

# Bedrooms

- Don't make increasing this a priority if you have 5 or more.
- It has diminishing return after 5 bedrooms, instead increase living space.
- Add bedroom if you have less than 5 bedrooms

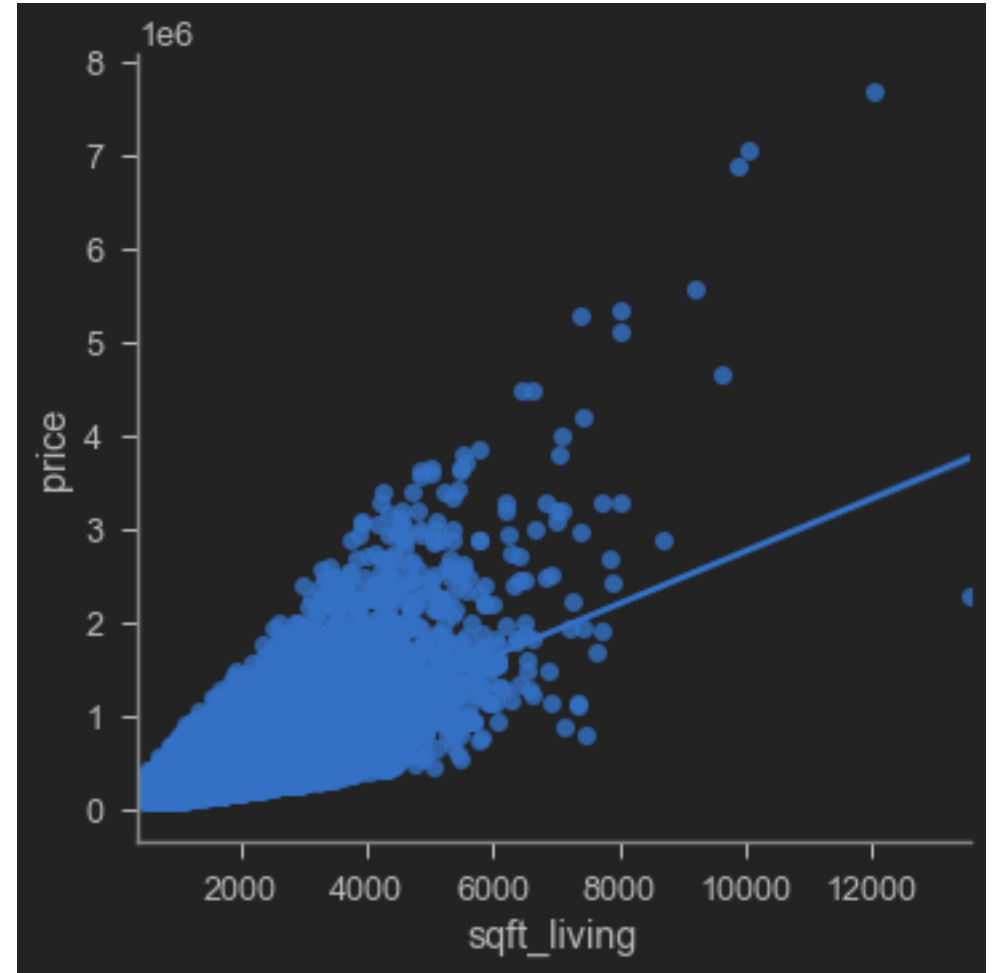




# Sqft of living area

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- This is one of the most influential part of your home's value.
- Make conscious effort to increase the living area by merging rooms together or building a new one.



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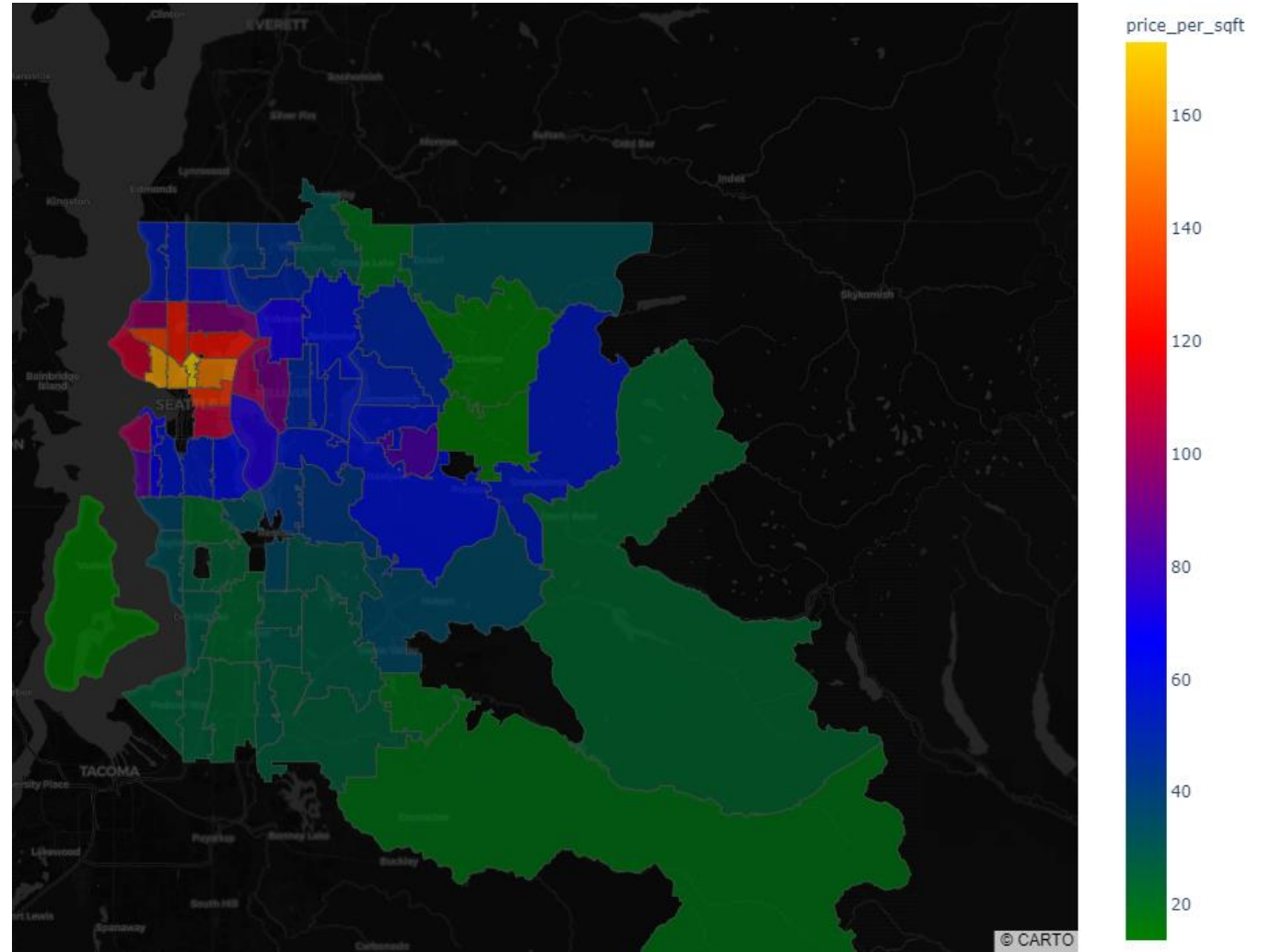
Last but not  
the least

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# Location matters

- Houses near the city has a higher value. If your house is in this zip codes, expect a higher value.

Zip code	Average Price
98039	2,186,224
98004	1,355,200
98040	1,194,874
98112	1,096,523
98102	899,608
98109	880,078
98105	863,229
98006	856,813
98119	849,715
98005	810,290



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# To recap

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## Homeowners should focus to:

1. Condition of the house is important. Invest on improving elements that improves that. Focus on higher quality building materials.
2. Try to increase sqft of living area; consider adding to the property.
3. Grade provided by the city is important. Read the guidelines and do things that improve grade. E.g., use better materials.
4. Don't be an outlier in the neighborhood in terms of living space. At least remodel to match that.
5. Bedrooms after 5 has a diminishing return. Do not focus on increasing. Instead invest on creating a better condition.
6. Basement sqft has a negative relation with value. Focus elsewhere.

## Homeowners should be aware that:

1. Renovation has a positive impact on price.
2. Waterfront house has higher value.
3. Should expect more value if closer to the city

# Next steps

- Get some other info about the locations.
  - Monetary (e.g., Average property price by zipcode),
  - Cultural, and
  - Recreational (e.g., Proximity to some stadium (if any), local restaurant density, public transport, schools, parks)
- Engineered more features. e.g .,
  - Total house sqft,
  - Bedroom to bathroom ratio.

And analyze those for better accuracy.

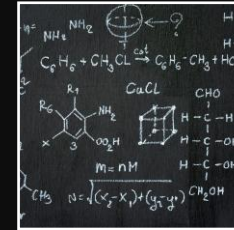
# THANK YOU



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Project repo:  
<https://github.com/tamjid-ahsan/dsc-phase-2-project>



# Appendix

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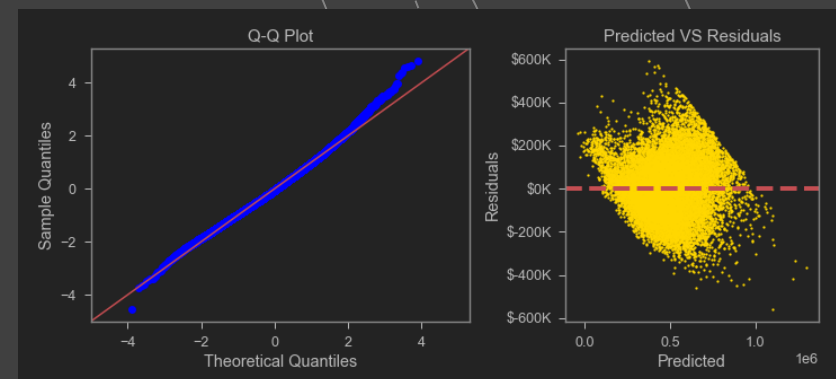




Feature	beta	Relation	Comment	Can Control?
Intercept	335799.05	positive	Necessary to facilitate regression. OLS line goes through this on the y-axis	
sqft_living	132496.68	positive	Should increase it, very high beta	yes
is_renovated	46199.95	positive	Renovation has a good impact on the price	yes
waterfront	345419.15	positive	Waterfront house see a massive boost in the house	no
sqft_living15	38715.26	positive		yes, indirectly
bathrooms	16821.08	positive	Add bathroom as it adds value	yes
sqft_lot	12067.89	positive	Higher the better, has positive impact	not really
floors	-9072.33	negative	extra floors does not add much value unless offsetted by some other feature	yes
bedrooms	-9275.87	negative	extra bedrooms does not add much value unless offsetted by some other feature	yes
sqft_basement	-24453.92	negative	extra sqft here does not add much value unless offsetted by some other feature	yes
distance_from_downtown_mile	-105340.49	negative	Further you go from downtown, houses has lesser value	no
C(condition)[T.5.0]	94578.71	positive	Higher condition means better value	yes
C(condition)[T.4.0]	62977.09	positive	Higher condition means better value	yes
C(condition)[T.3.0]	42254.24	positive	Higher condition means better value	yes

# Regression Results

- R squared is 62%.
- No p value > 5%
- Some bias
- This excludes zipcode betas





# Grading system

- Represents the construction quality of improvements. Grades run from grade 1 to 13. Generally defined as:
  - 1-3 Falls short of minimum building standards. Normally cabin or inferior structure.
  - 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. Commonly seen in plats and older sub-divisions.
  - 8 Just above average in construction and design. Usually, better materials in both the exterior and interior finish work.
  - 9 Better architectural design with extra interior and exterior design and quality.
  - 10 Homes of this quality generally have high quality features. Finish work is better, and more design quality is seen in the floor plans. Generally, have a larger square footage.
  - 11 Custom design and higher quality finish work with added amenities of solid woods, bathroom fixtures and more luxurious options.
  - 12 Custom design and excellent builders. All materials are of the highest quality and all conveniences are present.
  - 13 Generally custom designed and built. Mansion level. Large amount of highest quality cabinet work, wood trim, marble, entry ways etc.

# Condition

Relative to age and grade. Coded 1-5.

1. Poor- Worn out. Repair and overhaul needed on painted surfaces, roofing, plumbing, heating and numerous functional inadequacies. Excessive deferred maintenance and abuse, limited value-in-use, approaching abandonment or major reconstruction; reuse or change in occupancy is imminent. Effective age is near the end of the scale regardless of the actual chronological age.
2. Fair- Badly worn. Much repair needed. Many items need refinishing or overhauling, deferred maintenance obvious, inadequate building utility and systems all shortening the life expectancy and increasing the effective age.
3. Average- Some evidence of deferred maintenance and normal obsolescence with age in that a few minor repairs are needed, along with some refinishing. All major components still functional and contributing toward an extended life expectancy. Effective age and utility is standard for like properties of its class and usage.
4. Good- No obvious maintenance required but neither is everything new. Appearance and utility are above the standard and the overall effective age will be lower than the typical property.
5. Very Good- All items well maintained, many having been overhauled and repaired as they have shown signs of wear, increasing the life expectancy and lowering the effective age with little deterioration or obsolescence evident with a high degree of utility.