
King County House Prediction

Phase 2 Project



AVI PATEL

Objective

Be Realty is a Real Estate company looking to adopt a data-driven approach in choosing the best house and giving the best price estimate to their client based on location and features of the house they are looking for.

Business Problem

People at Be Realty are really good at getting the best deal possible for their client but they are not good at giving the best estimate on the price as per the client's requirement so they need a predicting model which can help them and their client to have an idea before purchasing a house.

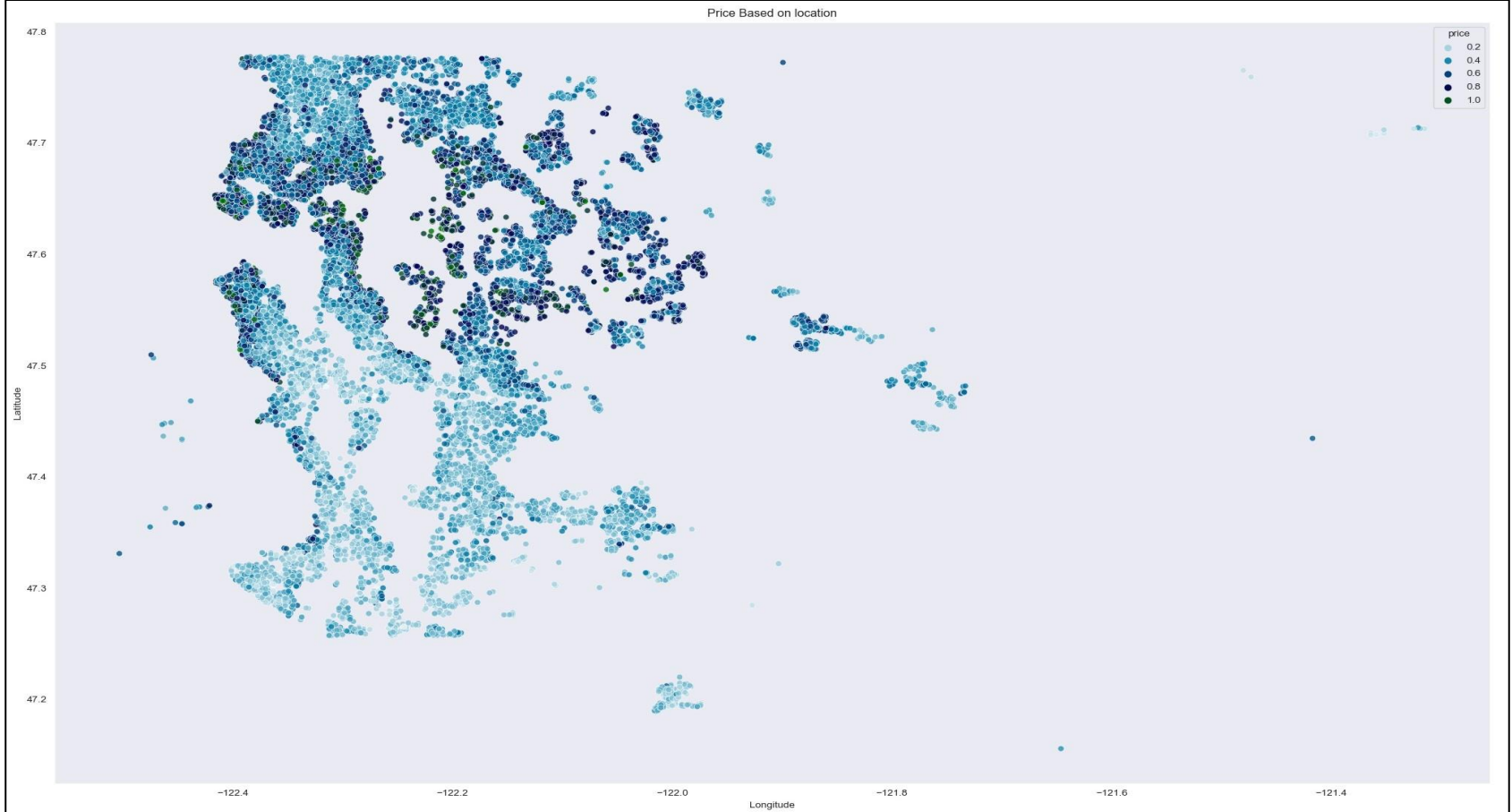
The Data

The data was obtained from [Kaggle](#). The dataset contains house price and the details of the house like Square Footage, Location and number of bedrooms and bathrooms. It includes homes sold between 2014 - 2015.

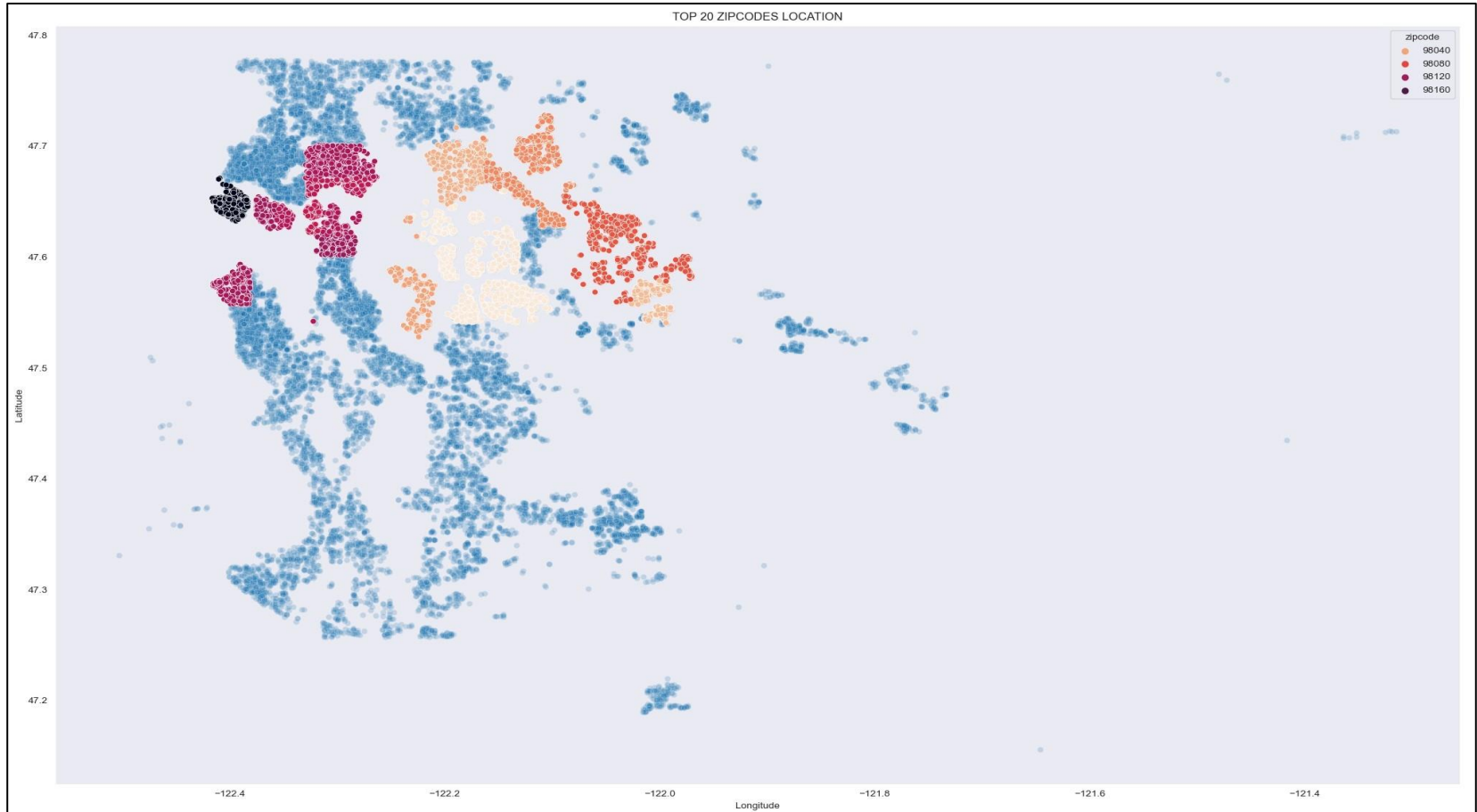


Out of 21,000 available data 17600 house data were used for the analysis.

Does Location Impacts Price ?



Top 20 Zip Codes with High Average price ?

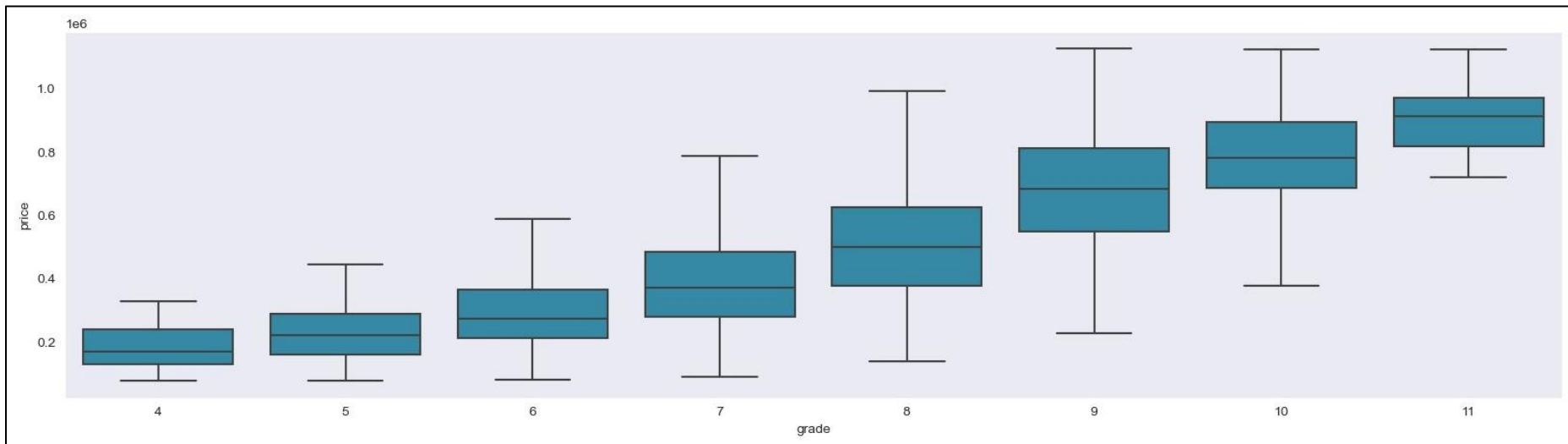


Conclusion based on location

- Majority of this zipcodes are near to the downtown Seattle and Many of these houses does have a waterfront.
- Being close to Seattle is a major attraction to many home buyers since it is most likely they work or where more job opportunities are available.

Does Grade of the House impacts the house price ?

The below plot shows the price range of all the grade.

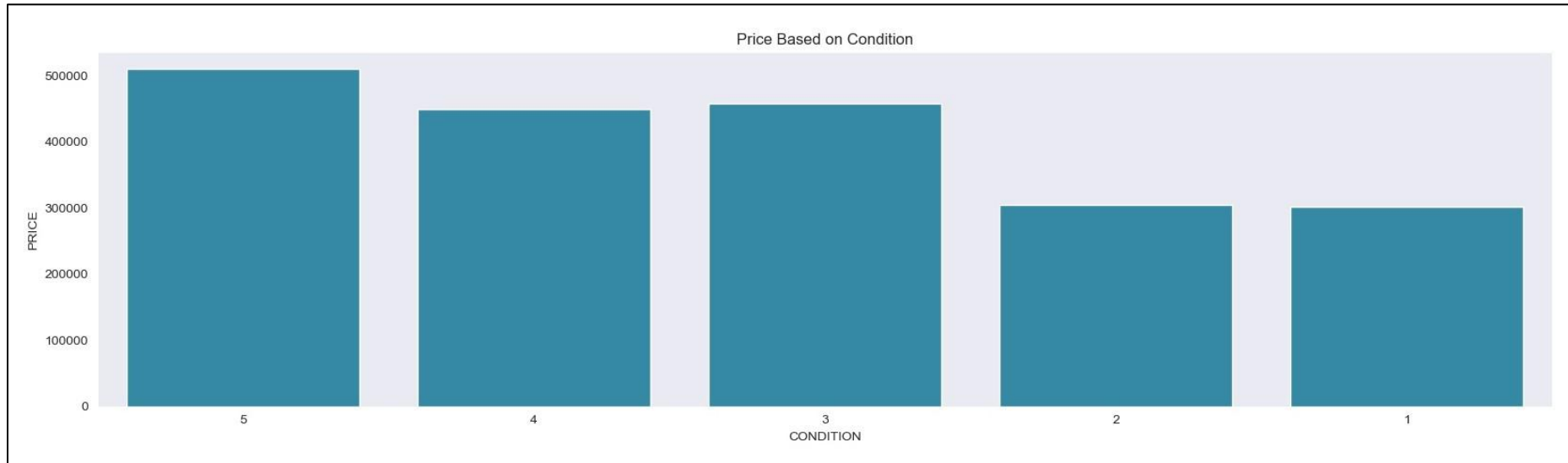


Conclusion based on grade

- The above plot shows that the price of house increases as the grade goes up.
- This makes sense as a house with the good build quality and custom design will have more price.

Does Condition of the House impacts the house price ?

The below plot shows the Average price of all the condition ratings.



Conclusion based on condition

- The above plot shows that the price of house drops as the condition ratings goes down.
- Most of the home buyers are looking to buy homes that are in good condition and do not need to have any further renovation or to deal with any kind of construction issues.

Grade and Condition Ratings Explanation

Condition: Relative to Age and Grade

- | | |
|--------------|--|
| 1= Poor | Many repairs needed. Showing serious deterioration. |
| 2= Fair | Some repairs needed immediately. Much deferred maintenance. |
| 3= Average | Depending upon age of improvement; normal amount of upkeep for the age of the home. |
| 4= Good | Condition above the norm for the age of the home. Indicates extra attention and care has been taken to maintain. |
| 5= Very Good | Excellent maintenance and updating on home. Not a total renovation. |

Residential Building Grades

- | | |
|--------------|--|
| Grades 1 - 3 | Falls short of minimum building standards. Normally cabin or inferior structure. |
| Grade 4 | Generally older low quality construction. Does not meet code. |
| Grade 5 | Lower construction costs and workmanship. Small, simple design. |
| Grade 6 | Lowest grade currently meeting building codes. Low quality materials, simple designs. |
| Grade 7 | Average grade of construction and design. Commonly seen in plats and 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. |

How much does Location, Grade and Condition Overall impacts Price ?

Moving from East towards North of seattle city can increase price up to **109%**.

On Average Change of +1 Grade can increase the price up to **21%**.

On Average Change of +1 Condition can increase the price up to **35%**.

How Good Is The Model?

The model learned from 17600 home data and has *R-squared = 0.85* and *Root Mean Square Error = \$83,000*.

Meaning that it can account for 85% of the data's variance .

NEXT STEPS

In order to improve the model to give much better results on house price prediction the following next steps should be considered -

- Obtaining Grades of Cost of Living, Crime Rates and Jobs from [Niche.com](https://www.niche.com) to see how these factors affect the price.
- Adding distance of nearby schools from the home.
- Exploring more on square footage data.

THANK YOU



<https://github.com/avithekkc>

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