

King County Housing Multiple Regression Analysis

...

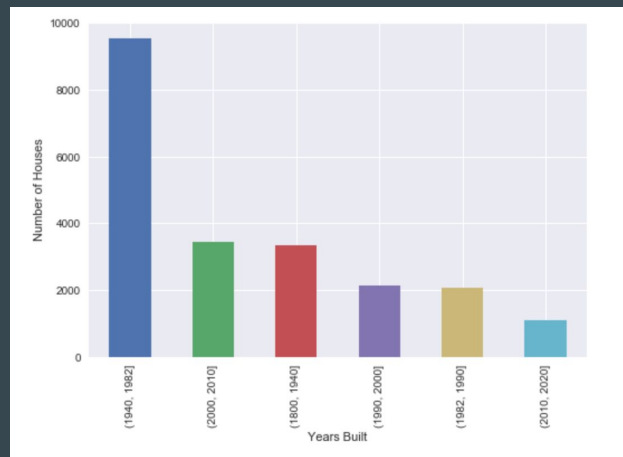
Anubhav Jain

Through Process

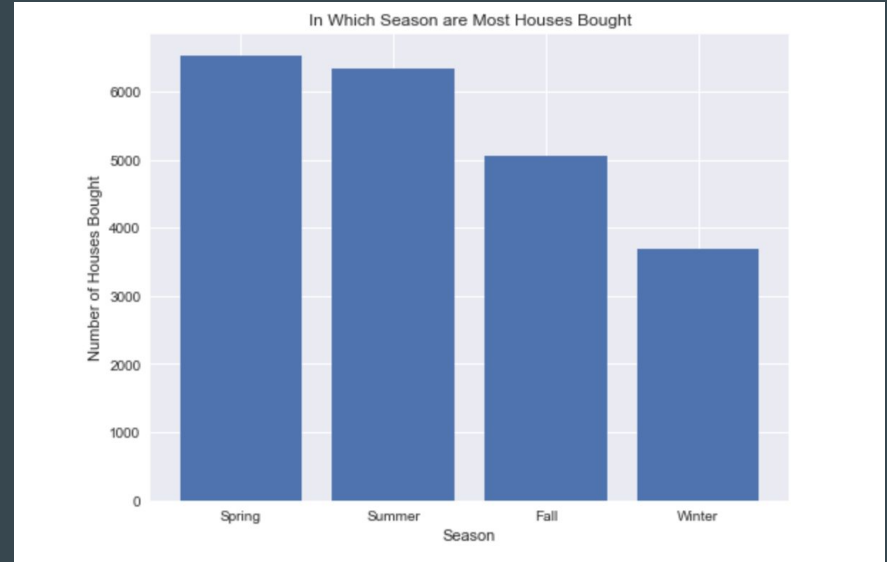
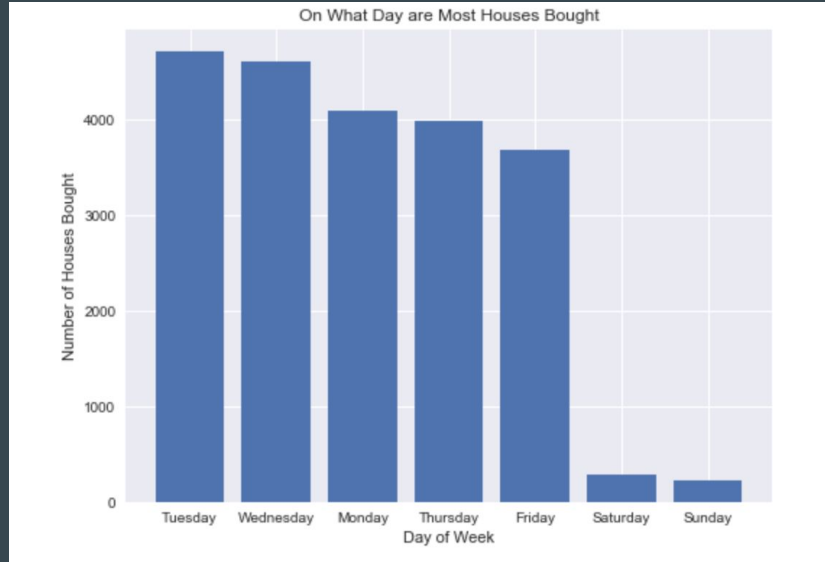
Business Understanding - Clear understanding of your house's value and your market

Why should you use my model?

- Model uses forward-backward and recursive selection to identify most influential features on price in King County
- Model puts emphasis on where you reside so that you are selling at the appropriate price for your type of home



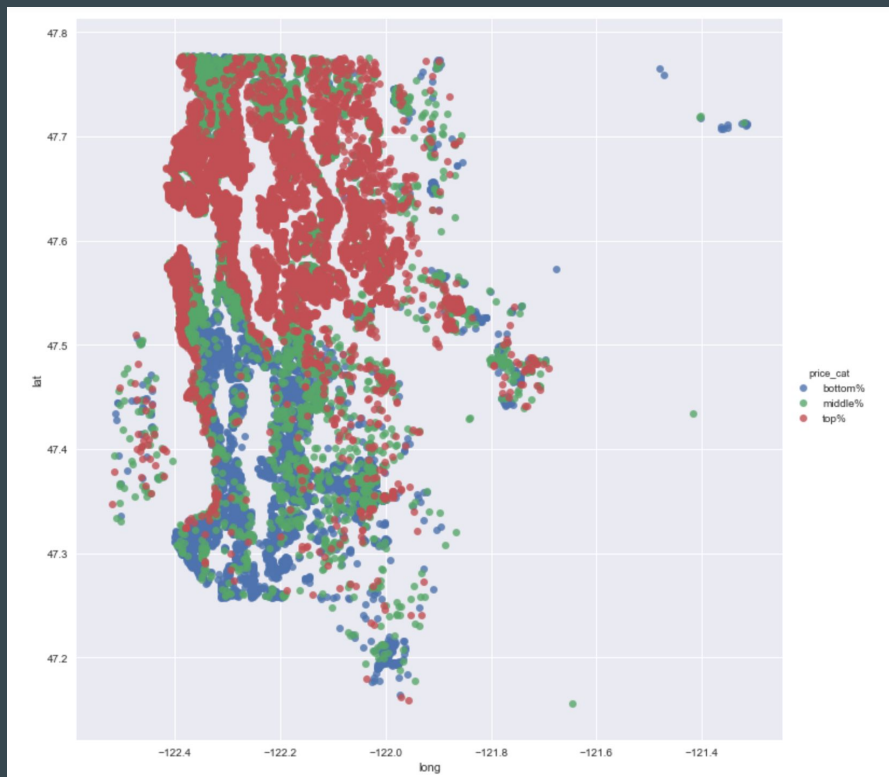
When are Houses Sold?



Houses were sold on Tuesday (1) and Wednesday (2) the most

Houses were sold in the Spring (1) and Summer (2) the most

Location Location Location

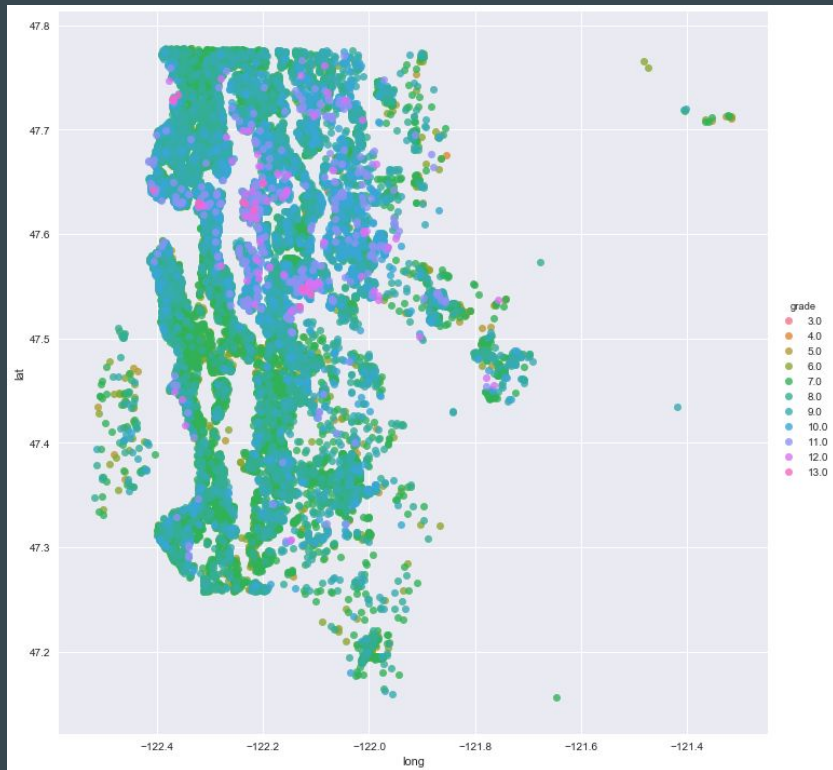


In this plot, we have our prices separated into 3 price categories:

Top 33%, middle 33%, bottom 33%

It is apparent that top and bottom are divided between North and South King County while middle priced houses are scattered all around, mostly visible in the bottom half from lat 47.6 and 47.2

Location Location Location

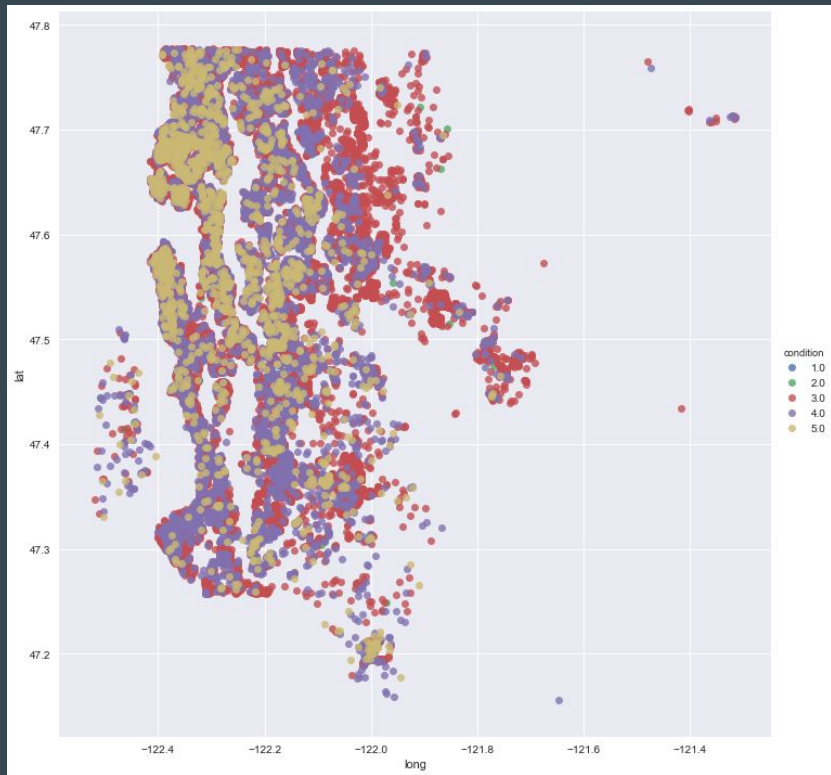


Grade - Overall grade given to the house decided by the King County grading system

There are very few houses with grades above 11

Most of the top graded houses are clustered in the top half of King County between latitude 47.5 and 47.8

Location Location Location

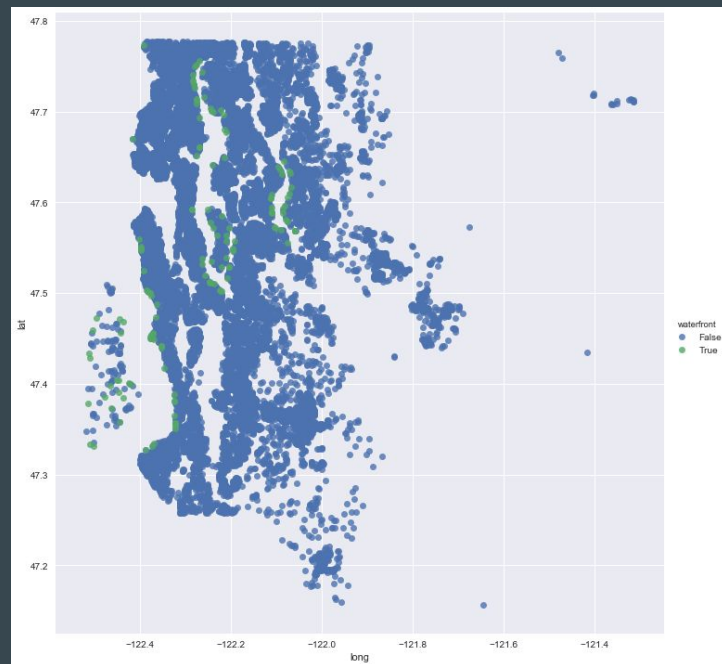
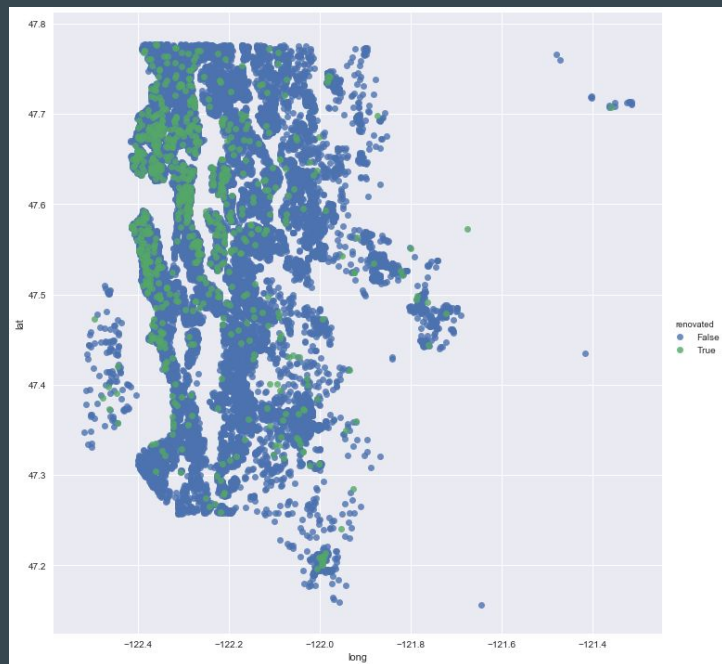


Condition - How good the overall condition of the housing unit is

We can see there are rarely any houses with condition 1.

Similarly to grade, houses with best condition are heavily clustered towards the top left corner, within lat 47.5 - 47.7 and long -122.4 and -122.1, but do go till the bottom

Location Location Location



The majority of houses renovated and with a view to the waterfront are located within latitude 47.3 and 47.7, and longitude -122.4 and -122.0

Important Features When Selling a House

We have thirty-four features in our model but found the five highest ranked out of the ones we used:

Square footage of living space excluding the basement

Square footage of living space for the nearest 15 neighbors

Latitude Coordinate

Houses that have a view to the waterfront

If the overall grade given to the housing unit is 13/13

Advice

There are multiple external factors that make your house more valuable, not only the components of the housing unit itself.

Be patient when selling your house and find the right audience looking for your type of neighborhood.

Timing, location and audience key.

Future Work

Exploring how increasing number of bathrooms, bedrooms affects house prices

Exploring how size of bathrooms, bedrooms affects house prices

Pay more attention to King County Specific Attractions in Locations to explain how prices vary in different locations

Explicitly describe change in house price when there is a change in important feature

Thank you for listening

-Anubhav Jain

References

MinMax Scaling -

<https://scikit-learn.org/stable/modules/generated/sklearn.preprocessing.MinMaxScaler.html>

Statsmodels OLS -

http://www.statsmodels.org/devel/generated/statsmodels.regression.linear_model.OLS.html

Statsmodels vs sklearn -

<https://becominghuman.ai/stats-models-vs-sklearn-for-linear-regression-f19df95ad99b>