King County's House Sale Predictions

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Outlines

- Overview
- Objectives
- Data
- Methods
- Results
- Recommendation
- Further study

Overview

This is a presentation on the analysis based on the King County's houses sales price, to identify the significant factors affecting the value worth of Single family homes so the Real Estate agency XYZ could have a finest structure of how much a house entering the market would cost according to these specific factors.

Such statistically analysed information could increase the agency's ability to provide valuable knowledge and information at each step for the clients while also coming up with an unbiased valuation of their home and help set a listing/buying price.

Project objective:

Building a model for understanding the features of a property's relationship to the market sales price.

Data

- King County's House Sales data of over 20,000 homes for the years 2014 - 2015
- Number of bedrooms, bathrooms and floors
- Size of living space
- Size of house
- Condition and Grade based on County's standards
- Location by zip code and coordinate system.

Methods:
The OSMEN process

Step 1

- **Obtain**
- **Scrub**
- **Explore**

Step 2

- **Model**
1. Baseline model
2. Transformation toward linearity
3. Individual feature observation
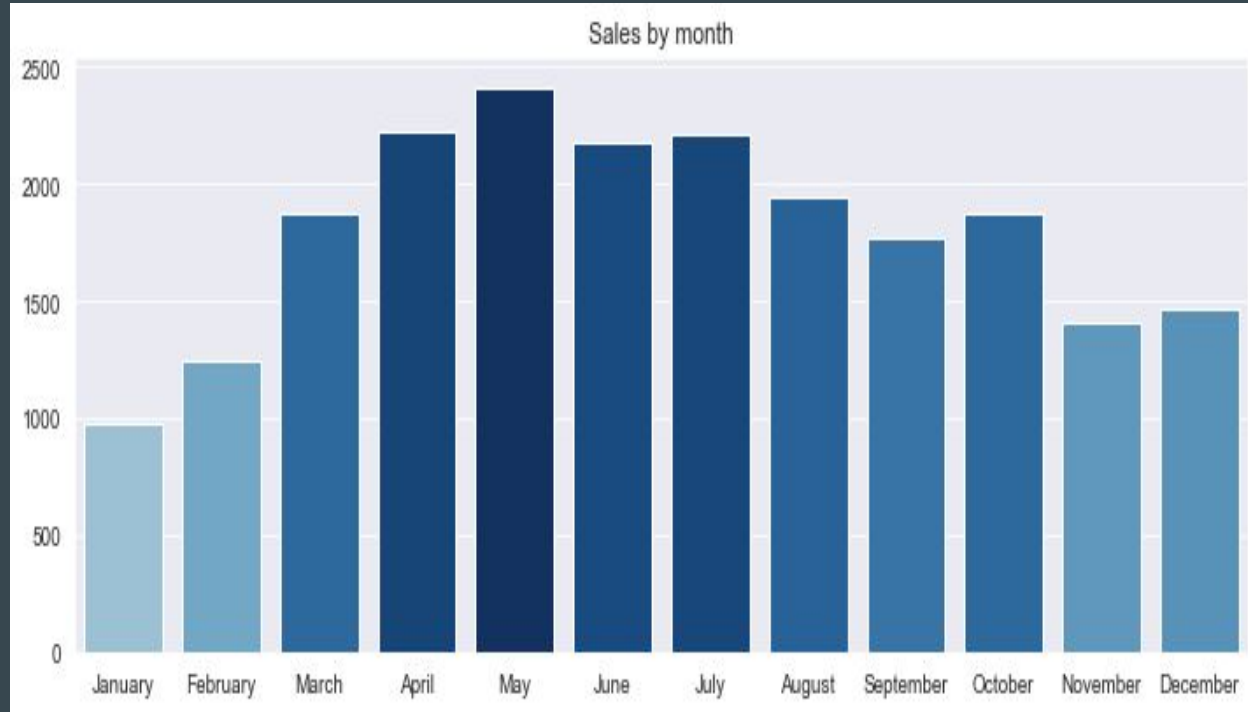4. Create Categories
5. Handle correlations

Step 3

- **Interpret**
1. Rates of change
2. Errors in model
3. Accuracy

Results

Sales Months

- Spring and early Summer are the best possible seasons with higher housing transactions. Families would want to settle before the beginning of a school year.

Sales by month

Results

Sales by location

- Location has a significant role on the price of a property.
- House prices increase as we go higher north of the County.
- Properties around water fronts are more pricey.
- Medina, Mercer and Bellevue come up to be the County's preeminent cities in Housing Sales price.

Locations and Prices
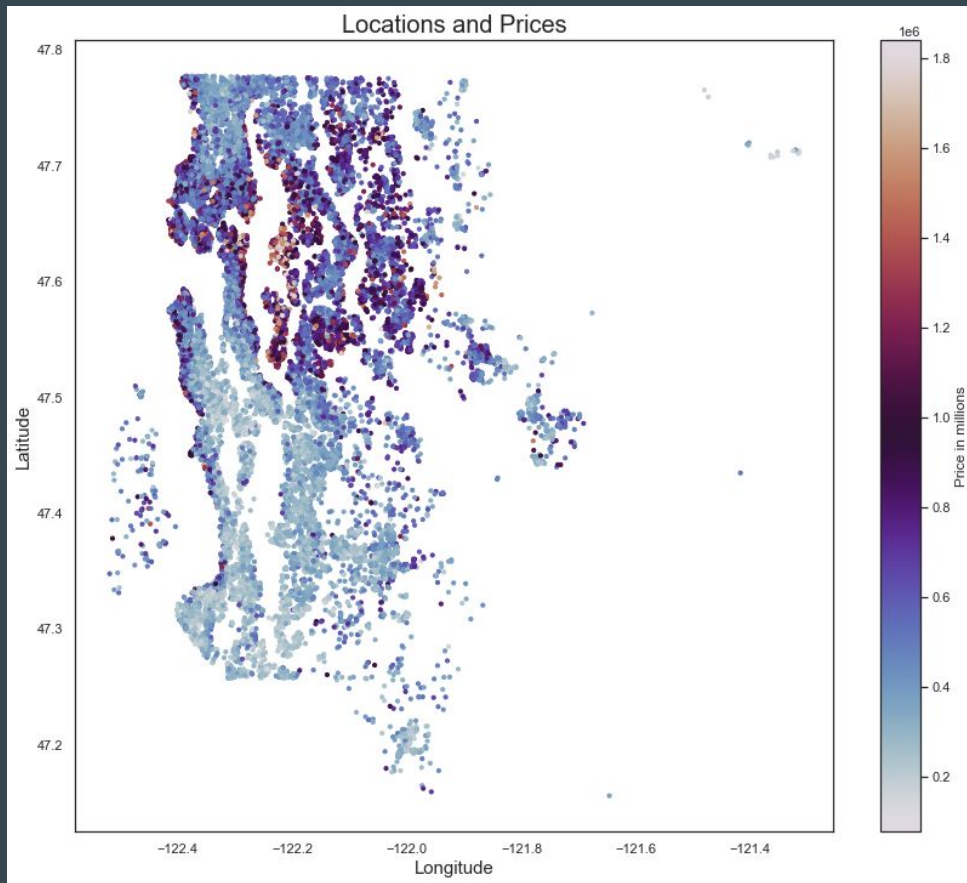
Results

Sales per sqft of Living Area.

0.49%

Increase in price for every 1% increase in sqft_living

Sales per property Condition.

7.6%

higher for a property with Condition (>4) than for a Condition (4) property.

Sales per property with Waterfront.

49%

A property's price with waterfront would be 48% higher than a property that doesn't have waterfront.

Results

Sales per number of bedrooms.

3.9%

Decrease in price for a unit change from a 4 bedroom to a 5 bedroom property with the same sqft_Living area.

Sales per year built/renovated.

2.7%

higher for a property built or renovated since 2005.
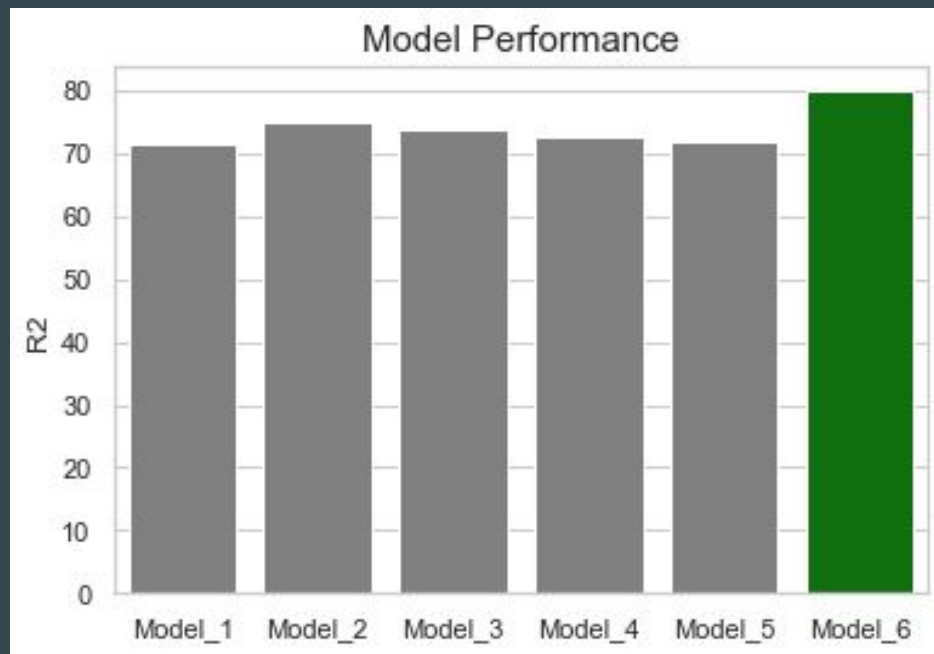
Sales per property's Grade value.

16%

Increase in a unit change from a Grade 8 to a Grade 9 property.

Results

Model performance

- As compared to our other models the final model has an outcome error of around $133,000.
- We have a total variance of 79.9% of our features attributed to the price, explained by our model.

Model Performance

Recommendations

Square ft for Living Area

- Adding square footage to a property can add significant value to a house.

Location and Budget

- Direct buyers with higher budget and priority of living area to invest on properties towards the Northern region of Seattle.

Condition of House

- Engage only in transaction of homes with a Condition value 4 and 5..

Further Study

Number of rooms per sqft of living.	• Determine the value of different types of expansions (Bedrooms, Bathrooms) and investigate how that affects the sale price of a house.
Locations on the Rise for preferred settlement	• Identify areas of Seattle where housing prices are increasing and possibly predict which neighborhoods will be ideal for settlement in the future.
Updated data trends	• Improve the model with more data over the years after 2015 and observe if there is any change in the trend of the major factors.

Thank you!

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