An Analysis of Kings County Housing Prices

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Questions

Zip code

Does the average price of a home vary based on the zip code?

Are some zip codes more densely populated than others?

Nearest Cities

How does house price vary based on the proximity to the nearest city?
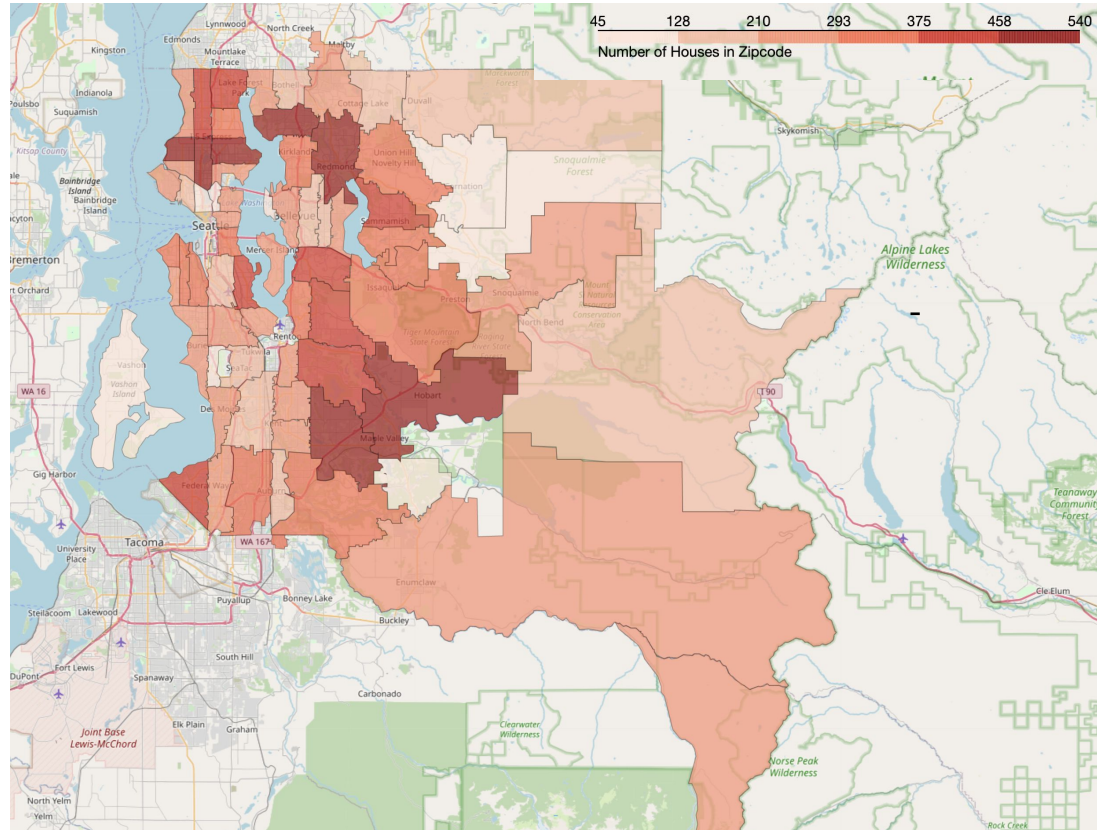
- Bellevue
- Seattle

Waterfront
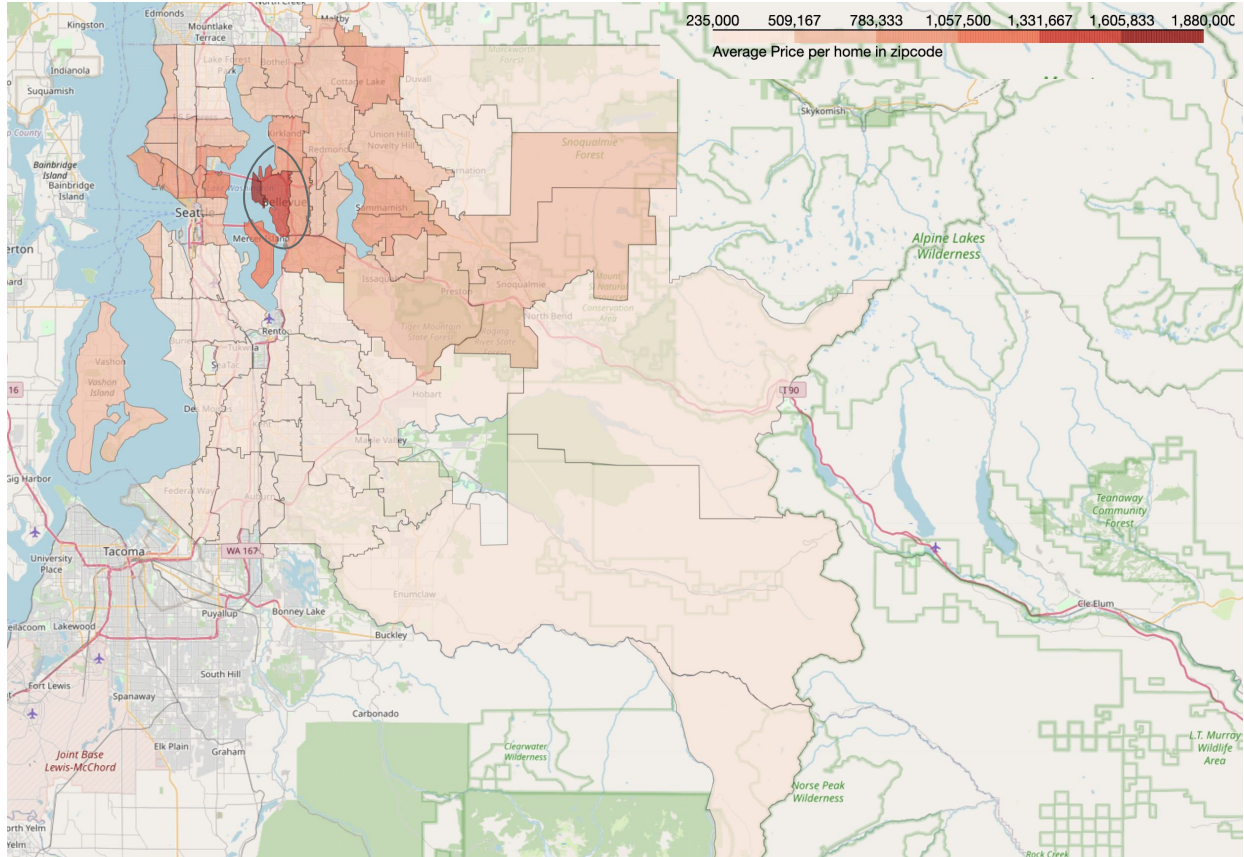
Are waterfront properties more expensive?

How does their price compare to non waterfront properties?
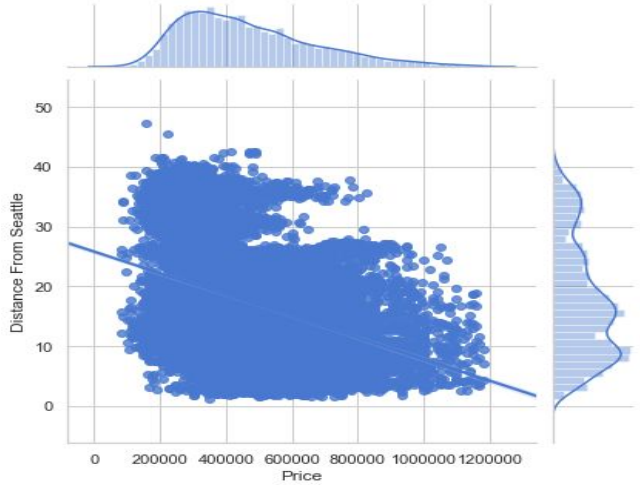
Breakdown by Zip code

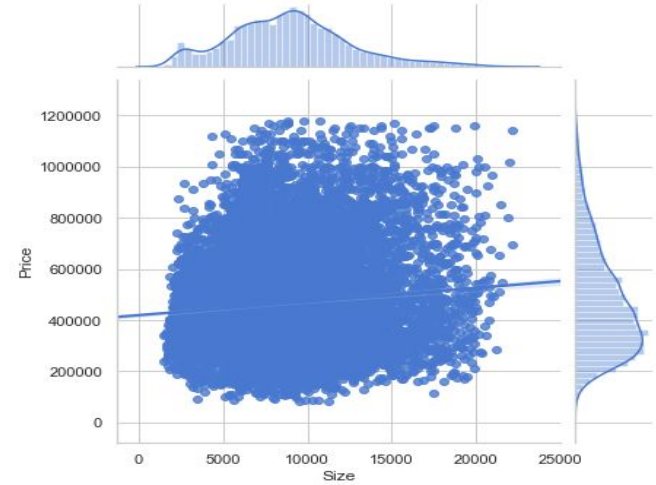# Distribution of houses by Zip Code

House Prices by Zip Code

Distance from 2 major Cities
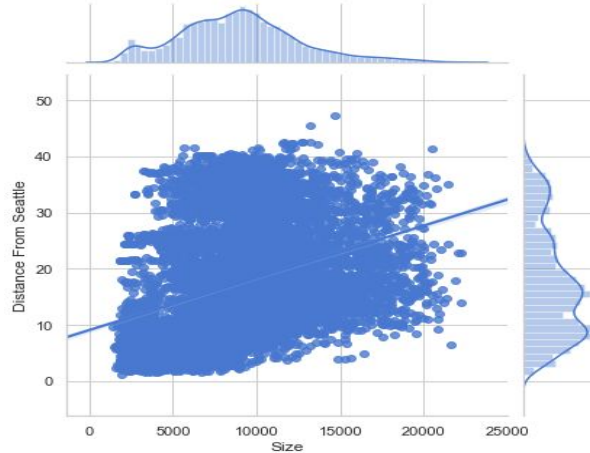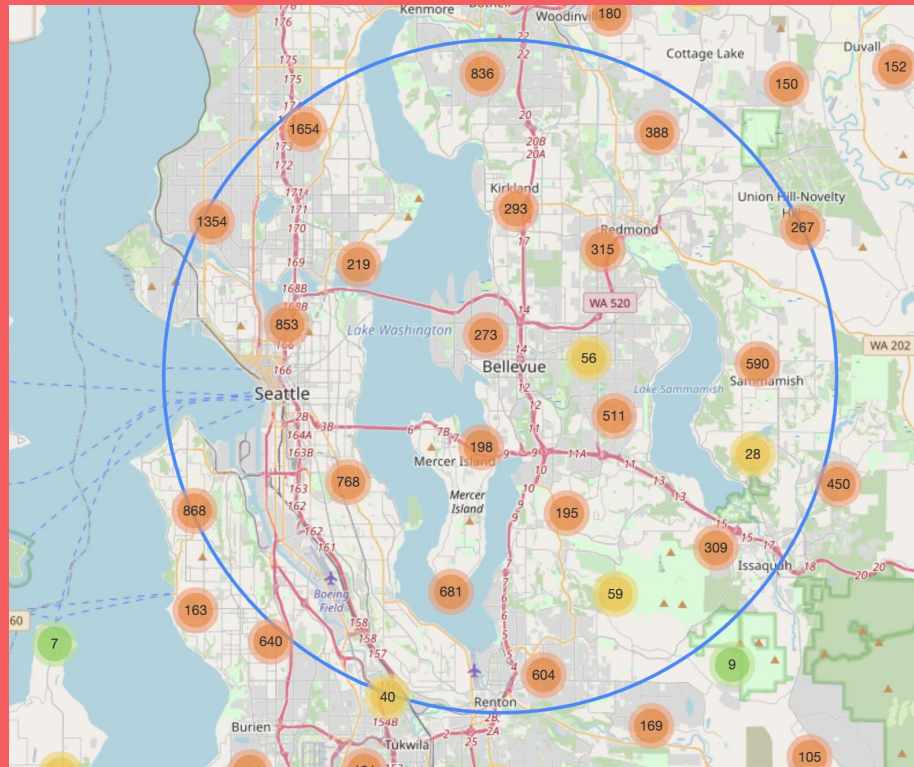
Seattle

For homes within 50km of Seattle

Although the price/house increases the more the sqft.

the price/sqft reduces the the further away from Seattle a house is.

Bellevue
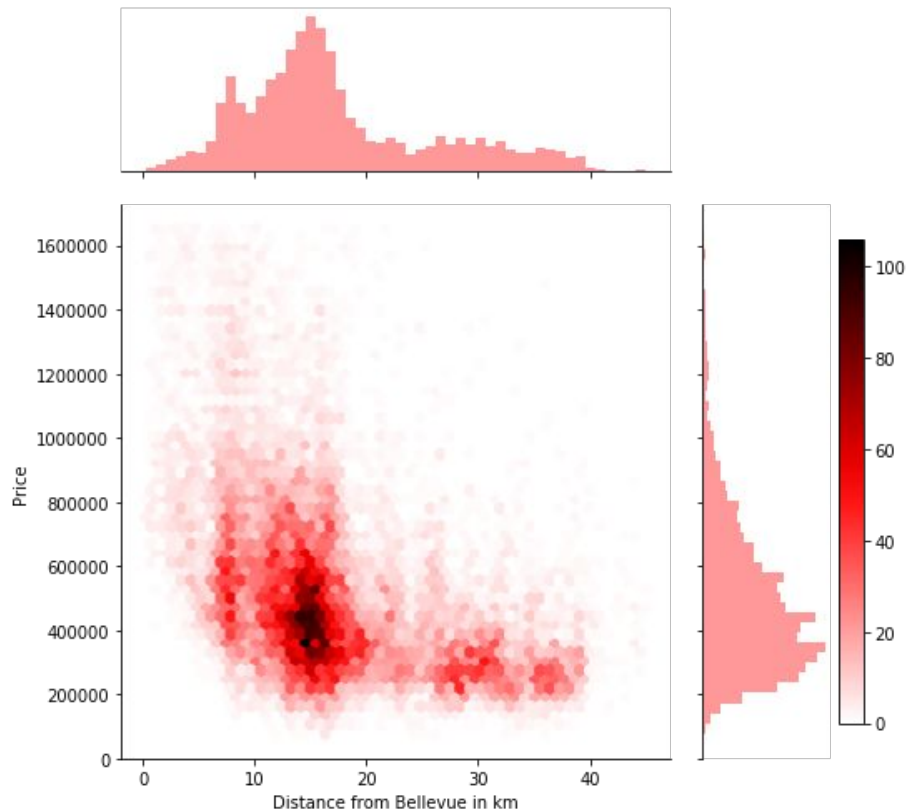
What effect does waterfront have on the price of a home?

House prices vs Waterfront

Waterfront vs. Housing Price

There's about half a million dollars in difference between the average of houses with a waterfront and houses without a waterfront within Kings count. Given this I can conclude that the re-sell value of most waterfront home will be no less than $300,000.

Regression Model

Housing Price Predictor

Features of Model:

1. Bathrooms (-)
2. Bedrooms (+)
3. Sqft Living (+)
4. Sqft Lot (+)
5. Distance to Nearest City (Bellevue/Seattle) (-)
6. Grade (+)
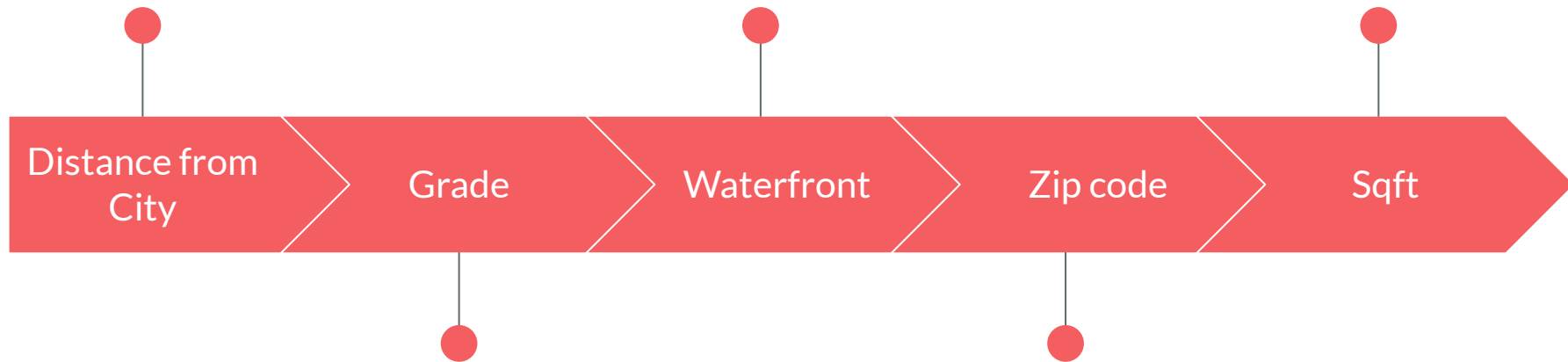
See Appendix for more detailed explanation

Conclusions

Houses over USD1m are located within 10km of Bellevue

Waterfront properties are more expensive

Bigger House means bigger price

Distance from City	>	Grade	>	Waterfront	>	Zip code	>	Sqft

Higher grade means higher price

Average Price of houses varies greatly by zip code

Future Work

Zip code Feature

Create a boundary selector to enable the model to predict price depending on zip code

More Data

- Collate data over a longer period to see how the house prices have changed
- Trends in zip codes

Effects of the distance from the biggest city:

- On the presence of a basement.
- The size of a basement.

Thank You

Questions :)

Appendix I

Details on Regression Model

The Model works by taking a base price based on the grade of the house.

It then makes further adjustments based on the other features

See next slide for Beta Coefficients

Beta Coefficients

Bedrooms: -12,506.75

Bathrooms: 3,849.49

Sqft_Living: 84,541.15

Sqft_Lot: 24,188.31

Distance from City: -109,135,43

Grade 4: 429,646.63

Grade 5: 410,804.70

Grade 6: 400,781.68

Grade 7: 441,474.33

Grade 8: 499,282.51

Grade 9: 588,835.14

Grade 10: 648,431.59

Grade 11: 707,515.76

Appendix II

Box Cox Transformation
&
Z Scores

The Following features were transformed into a more normal shape using BoxCox:

- Sqft Living
- Sqft Lot
- Distance from the City

All features were then normalized using z-scores

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