



An Analysis of Kings County Housing Prices

By Megan & Ari

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?

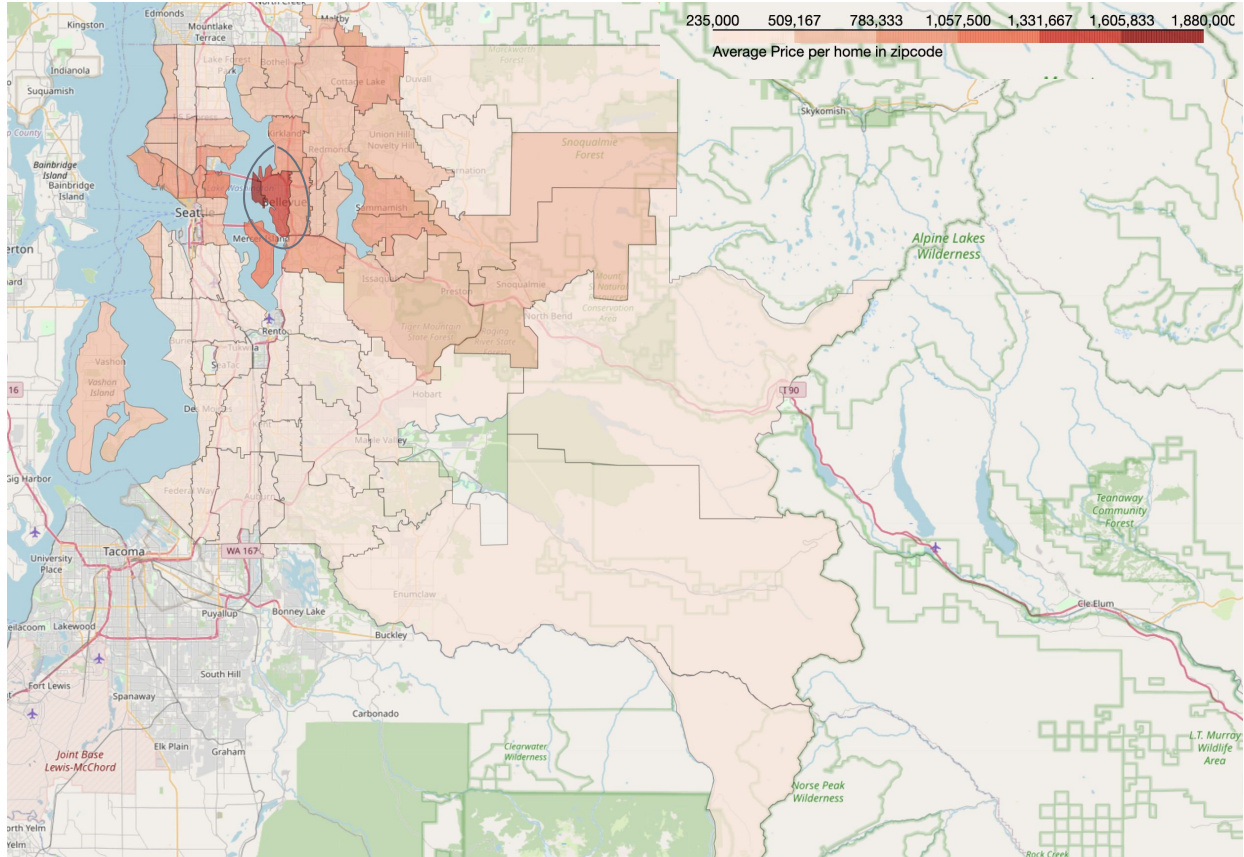


Breakdown by Zip code



This map displays the distribution of housing density across Washington state, with each zip code shaded according to the number of houses. The color scale ranges from light yellow (low density) to dark red (high density). Major urban centers like Seattle, Tacoma, and Spokane show high concentrations of housing, indicated by darker red shading. The map also highlights major highways and geographical features, providing a comprehensive view of the state's housing landscape.

House Prices by Zip Code

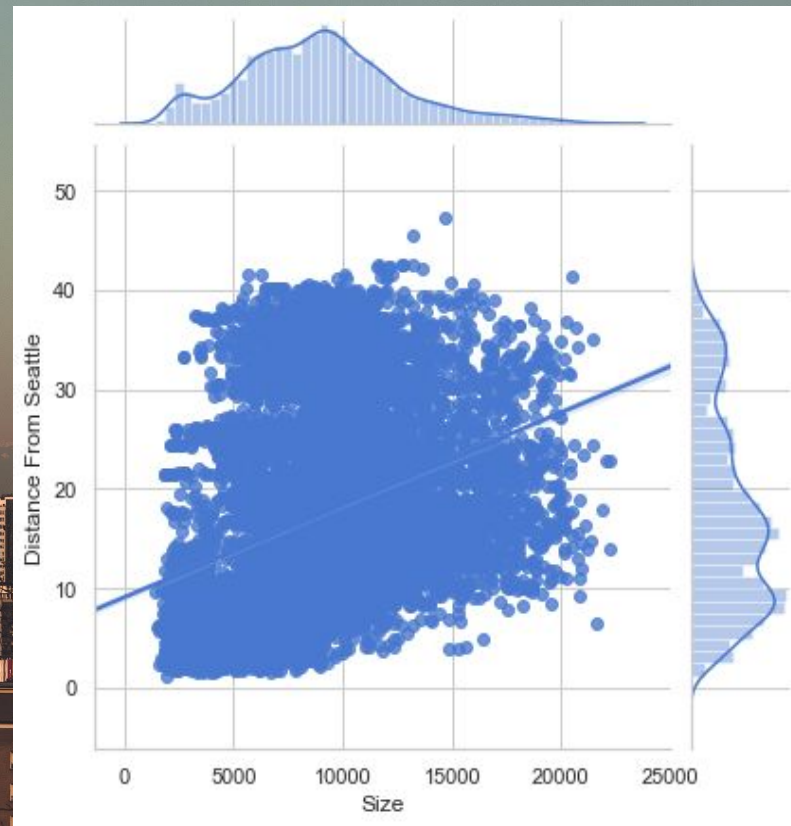
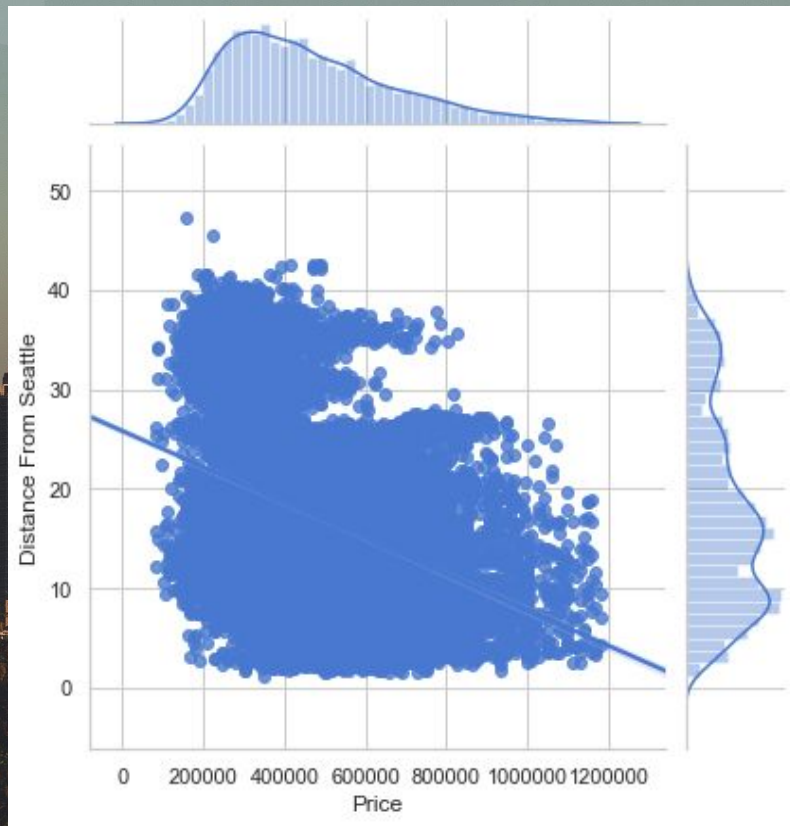




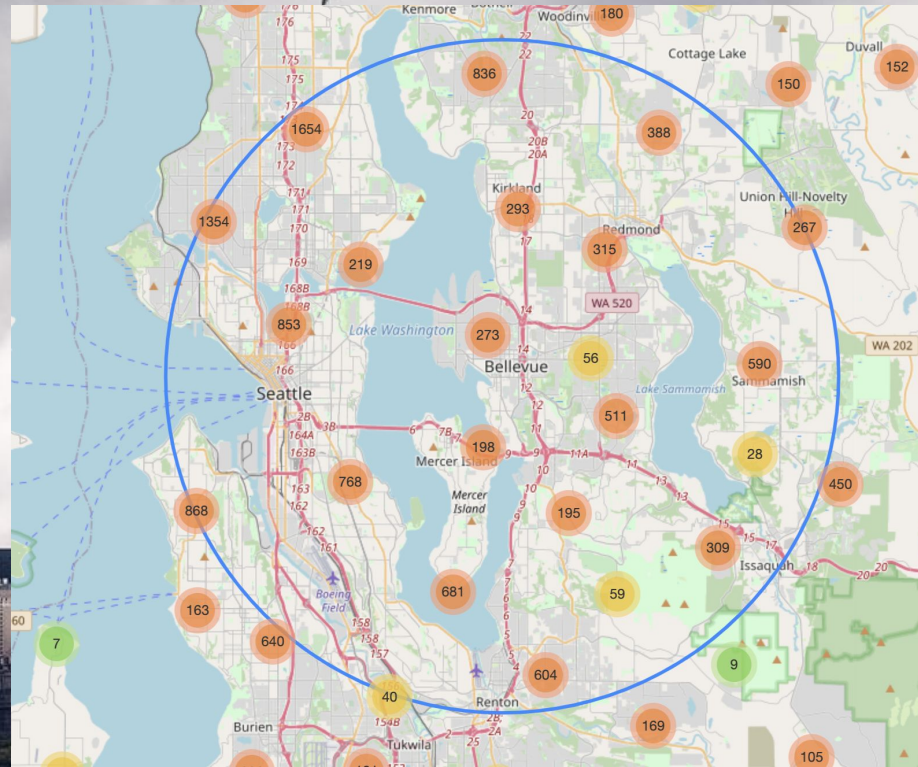
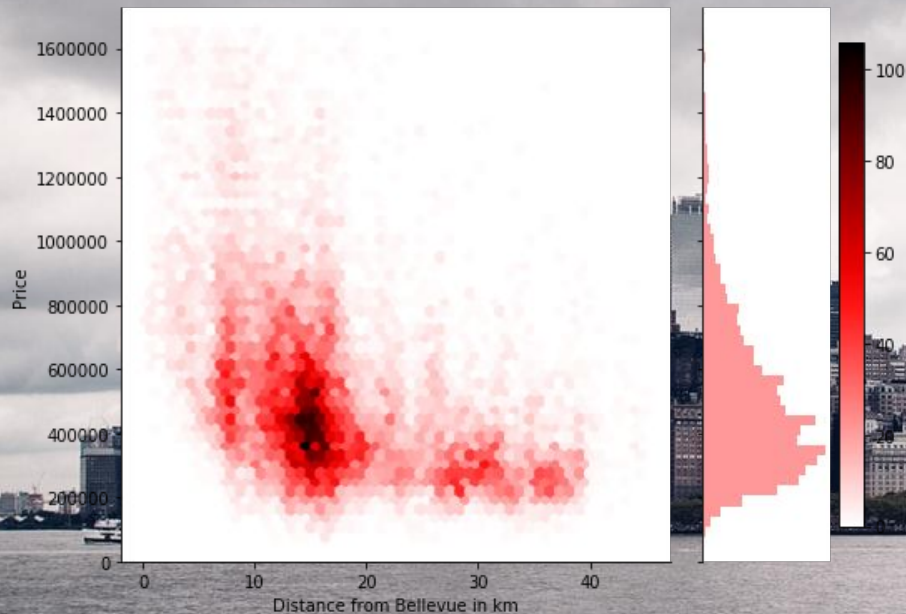
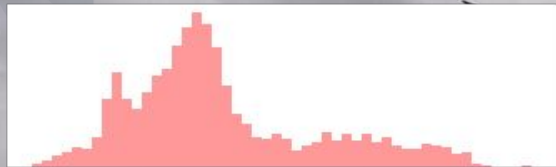
Distance from 2 major Cities



Seattle



Bellevue





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



House prices vs Waterfront



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 resale 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 (+)

Price = (84541 * Area inside) + (24190 * Area parking lot) + (-12510 * Number of bedrooms) + (3849.4898 * Number of bathrooms) + (-109100 * Distance from City) + (429646 * Grade 4) + (410804 * Grade 5) + (400781 * Grade 6) + (441474 * Grade 7) + (499282 * Grade 8) + (588835 * Grade 9) + (648431 * Grade 10) + (707515 * Grade 11)

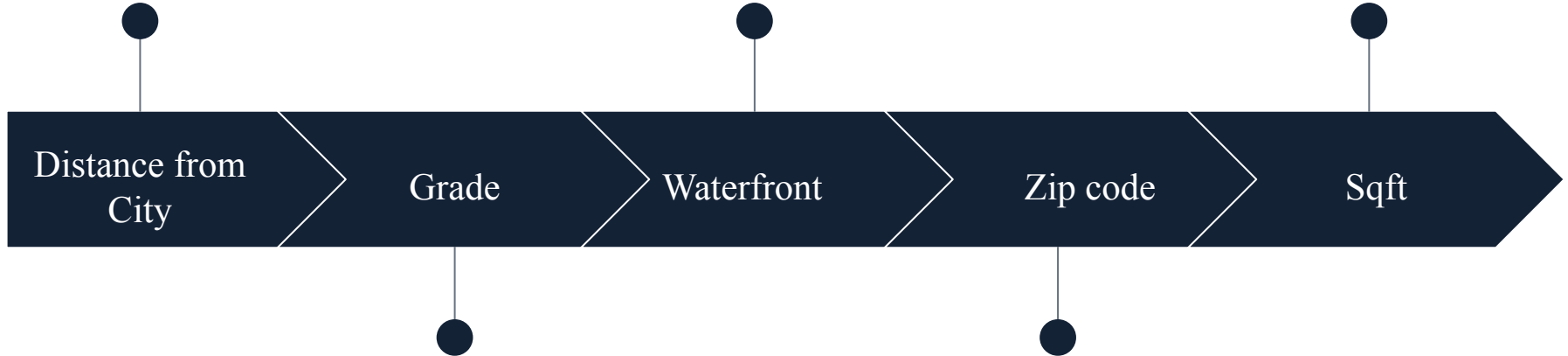
See Appendix for more detailed explanation

Conclusions

Houses over USD1m are located within 10km of Bellevue

Waterfront properties are more expensive

Bigger House means bigger price



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 i.e theatres, malls, etc.

Effects of the distance from the biggest city:

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

A dark, atmospheric photograph of the Chicago skyline at night. The city's lights are visible against a deep blue twilight sky. In the foreground, a multi-lane highway curves through the frame, with long-exposure light trails from cars creating streaks of white and red. Several prominent skyscrapers, including the Willis Tower, stand out in the background. The overall mood is serene and urban.

Thank You!

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

