



King County Housing

Buying a house for Larry Sanders & Sons

Larry Sanders

Profile:

- Has limited budget
- Has kids
- Wants a nice & isolated but central neighborhood without other pesky kids
- Wants a house with waterfront 🧐



Brother

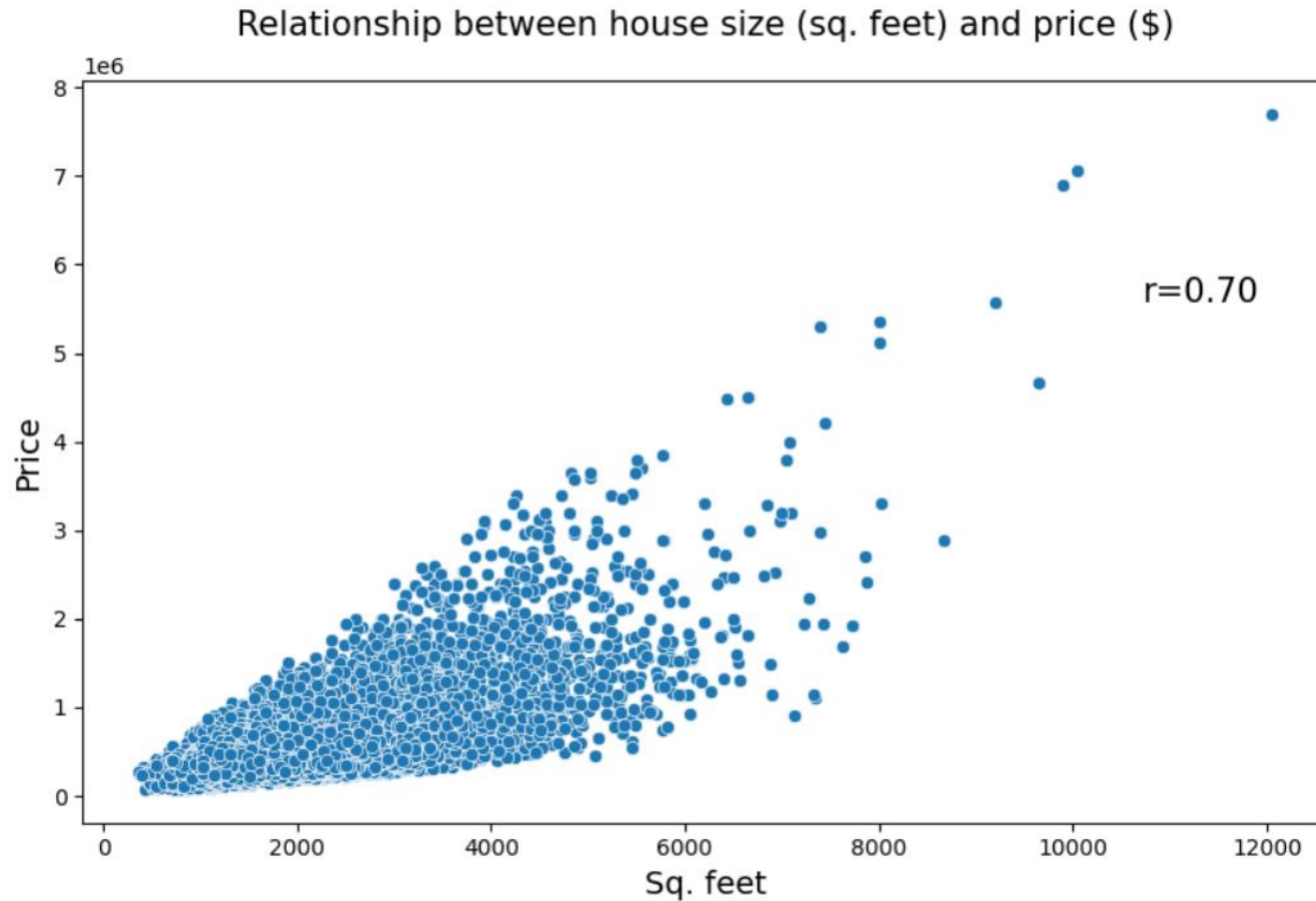


Approach

1. Pick relevant features based on client and hypotheses
2. Examine data types and check for missing values
3. Check correlations (high-level overview)
4. Create new features (e.g. price/sqft, grade/sqft)
5. Remove extreme and impute missing values
 - Imputed waterfront feature with Scikit-Learn's KNNImputer using lat/long
6. Conduct analysis on variables of interest, test hypotheses
7. Gain insights and make recommendations

Inquiry of interest	Reason	Variables
Effect of house size on price	Larry wants a larger house for him and his kids, but ain't got the cash	Price, house size (sqft_living)

Effect of house size on price

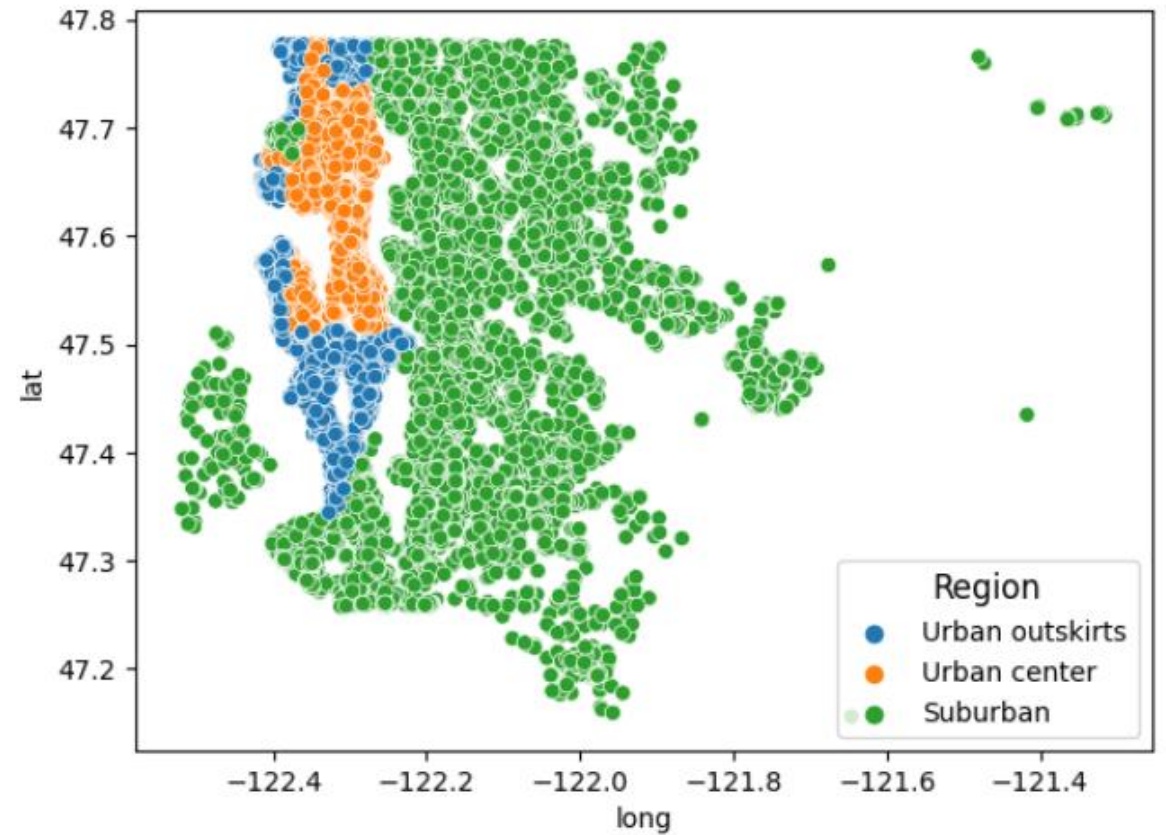
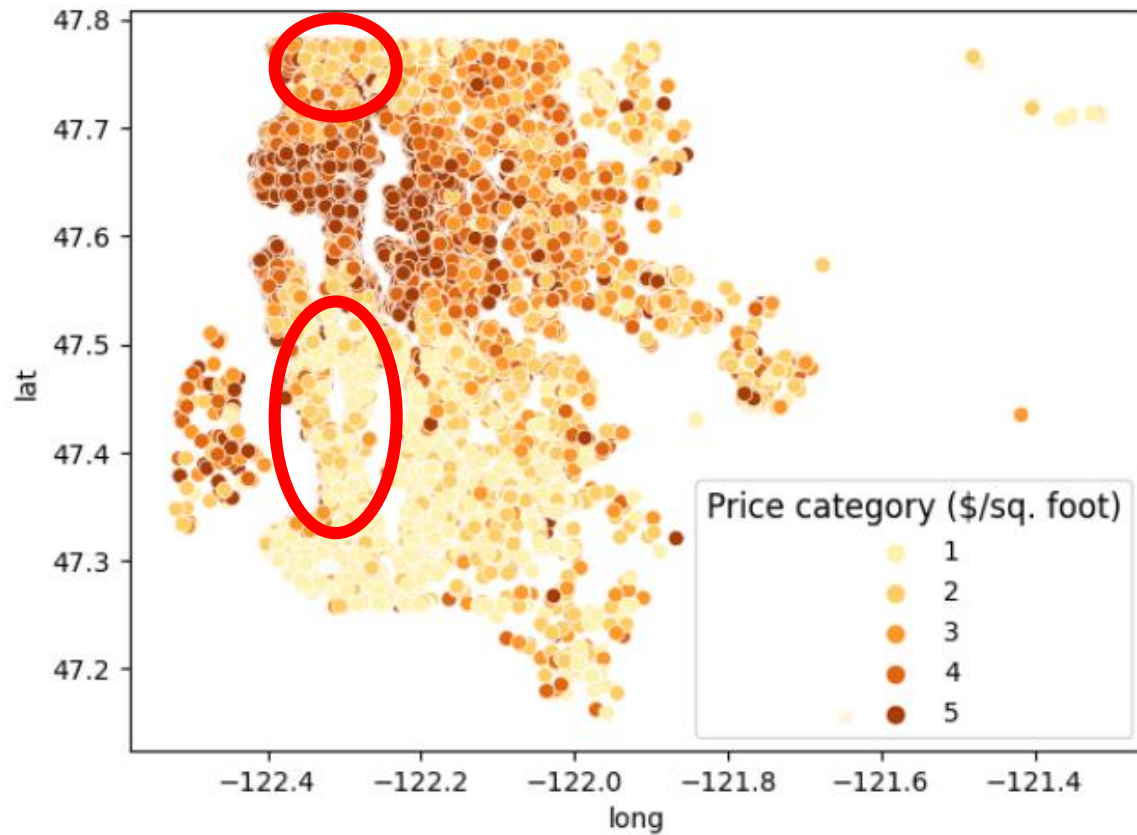
**Insight:**

The client might be able to afford some of the more spacious houses due to higher price ranges.

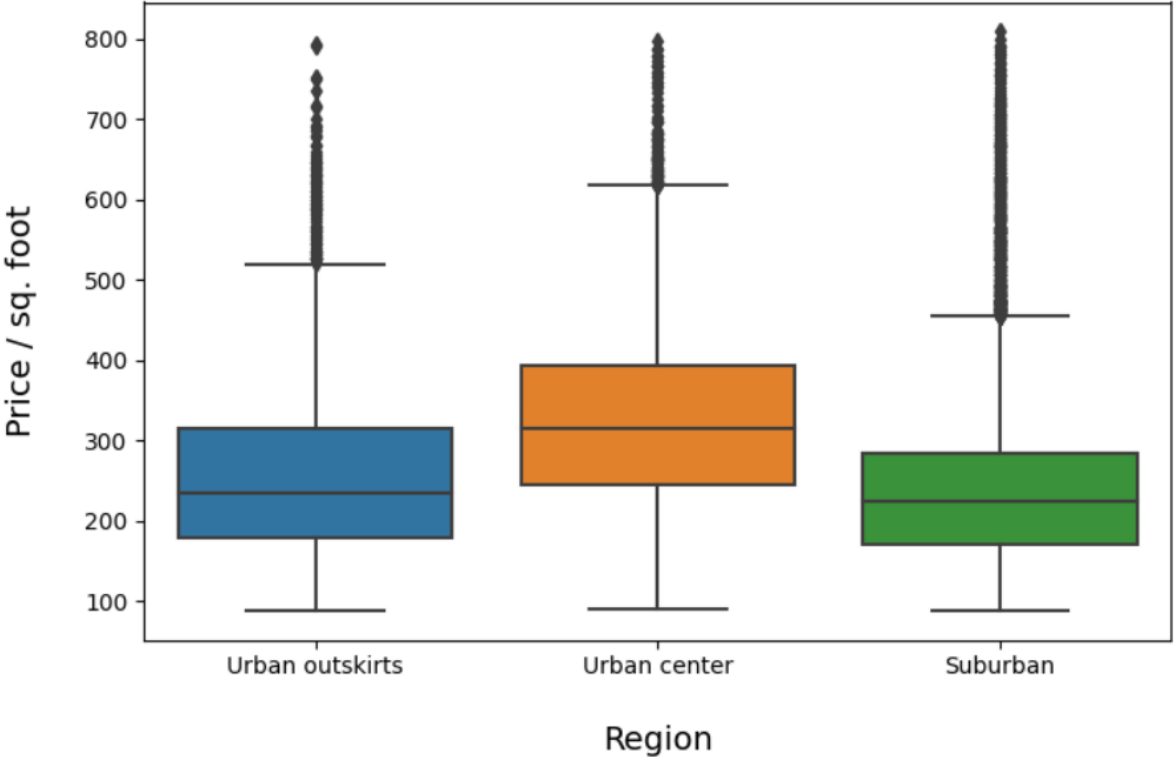
Inquiry of interest	Reason	Variables
Effect of location of price	Larry wants to live centrally, but not too centrally. Such areas tend to be more expensive	Price, price/sqft, zipcode, lat/long

Effect of location of price/sq. foot

Map of house price/sqft (left) and King County regions (right)



Difference between house prices per sq. foot in three distinct areas
(King County, Washington)



Urban outskirts	Urban center	Suburban
235 \$/sqft	315 \$/sqft	224 \$/sqft

Insight:

The client might be able to afford some of the more spacious houses.

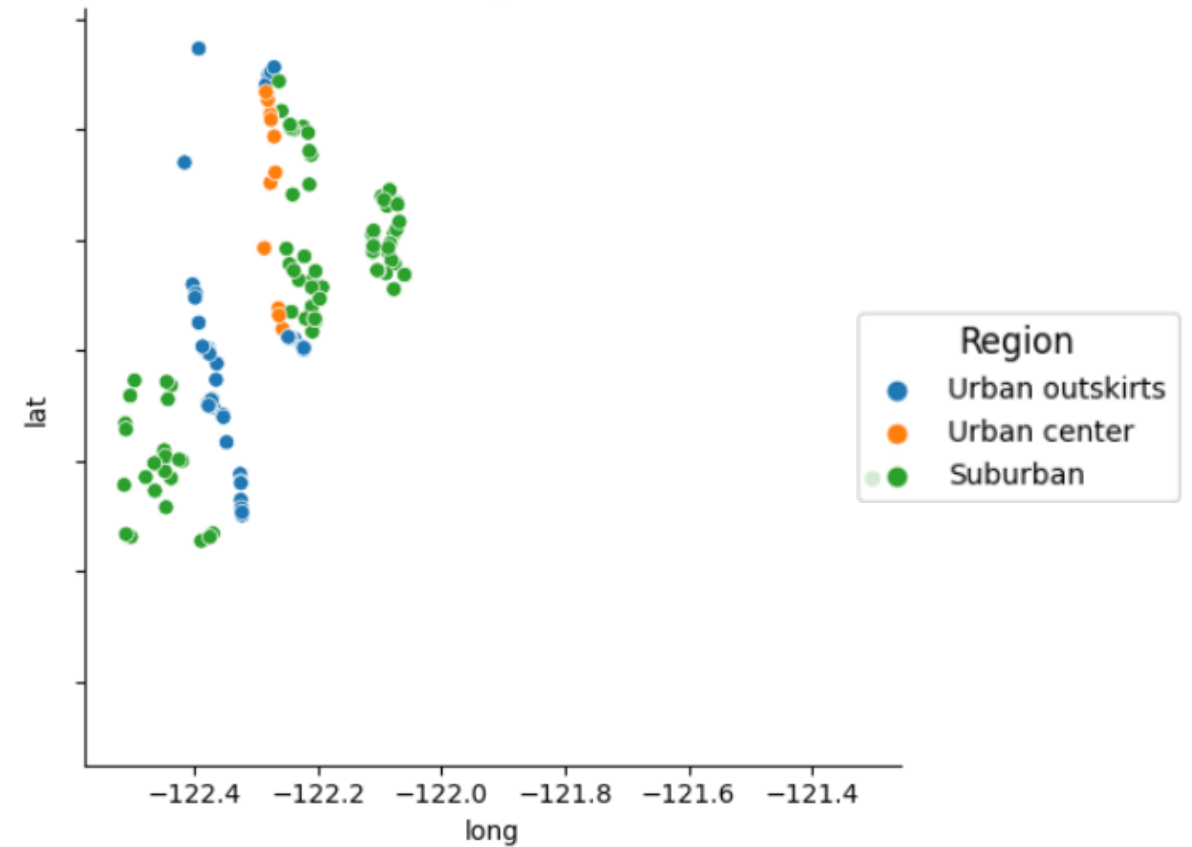
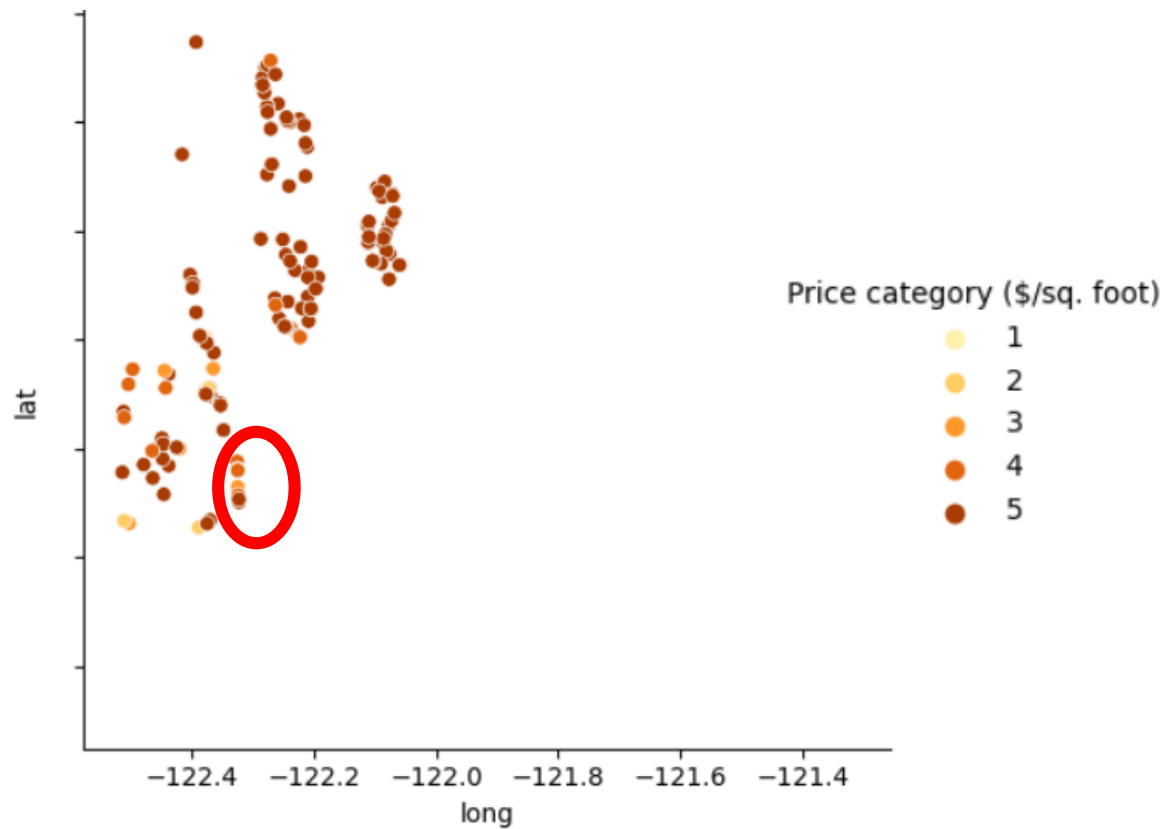
A lot of the affordable houses seem, however, to be concentrated in suburban areas, which the client does not prefer.

Recommendation:

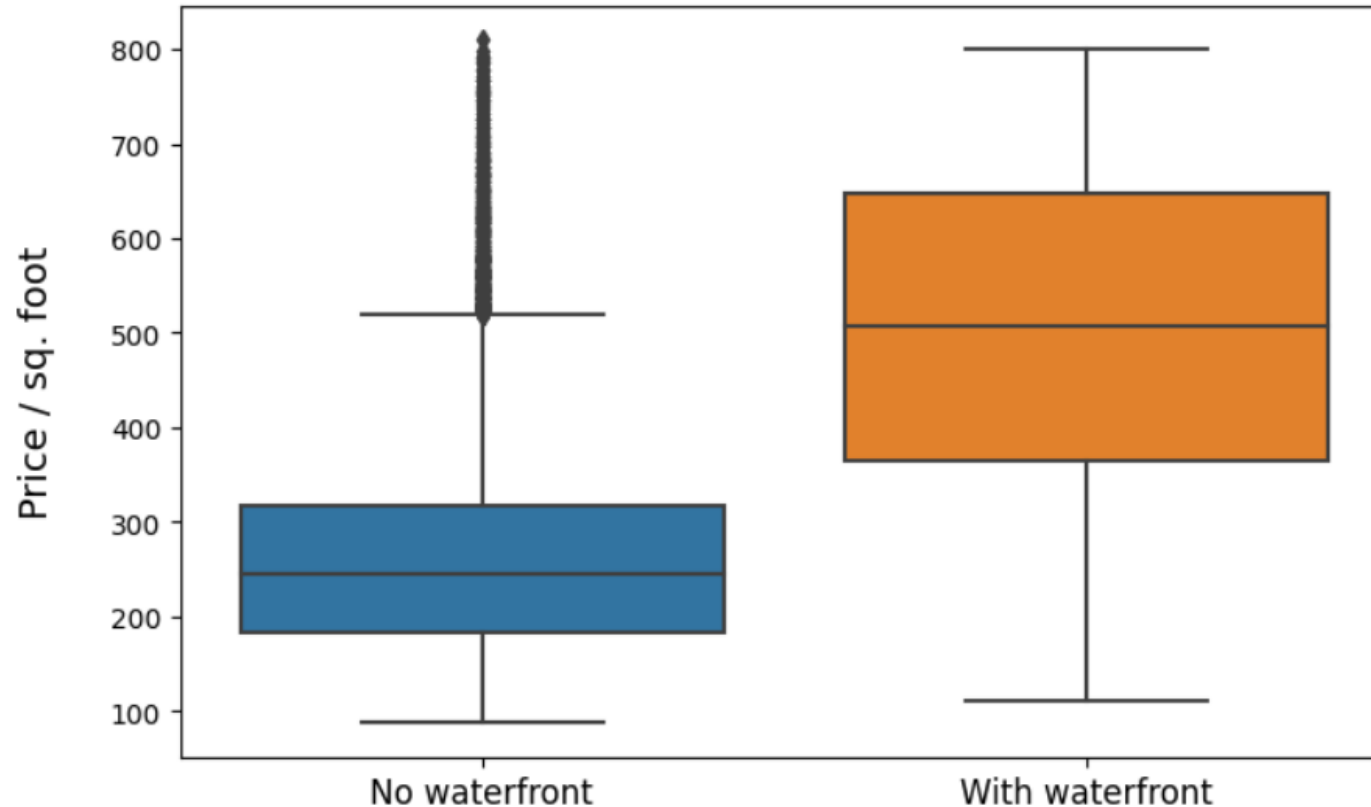
Client should primarily look at houses at Seattle's periphery where prices are still affordable.

Inquiry of interest	Reason	Variables
Effect of waterfront on price	Larry wants a waterfront house, but they are not common and tend to be pricey	Price, price/sqft, waterfront, location features

Effect of waterfront on price by region



Impact of a waterfront on house prices per sq. foot (King County, Washington)



No Waterfront

244 \$/sqft

Waterfront

507 \$/sqft

Insight:

The vast majority of houses with a waterfront are most likely out of the client's price range.

Recommendation:

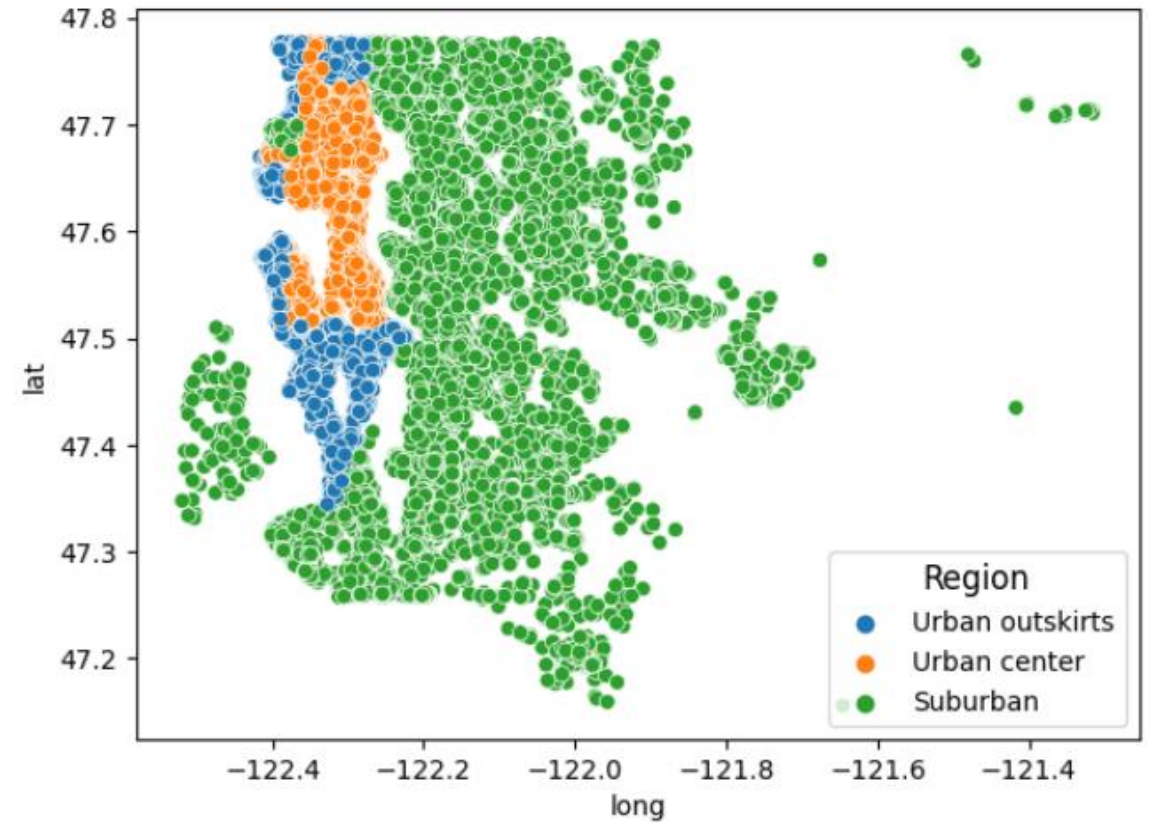
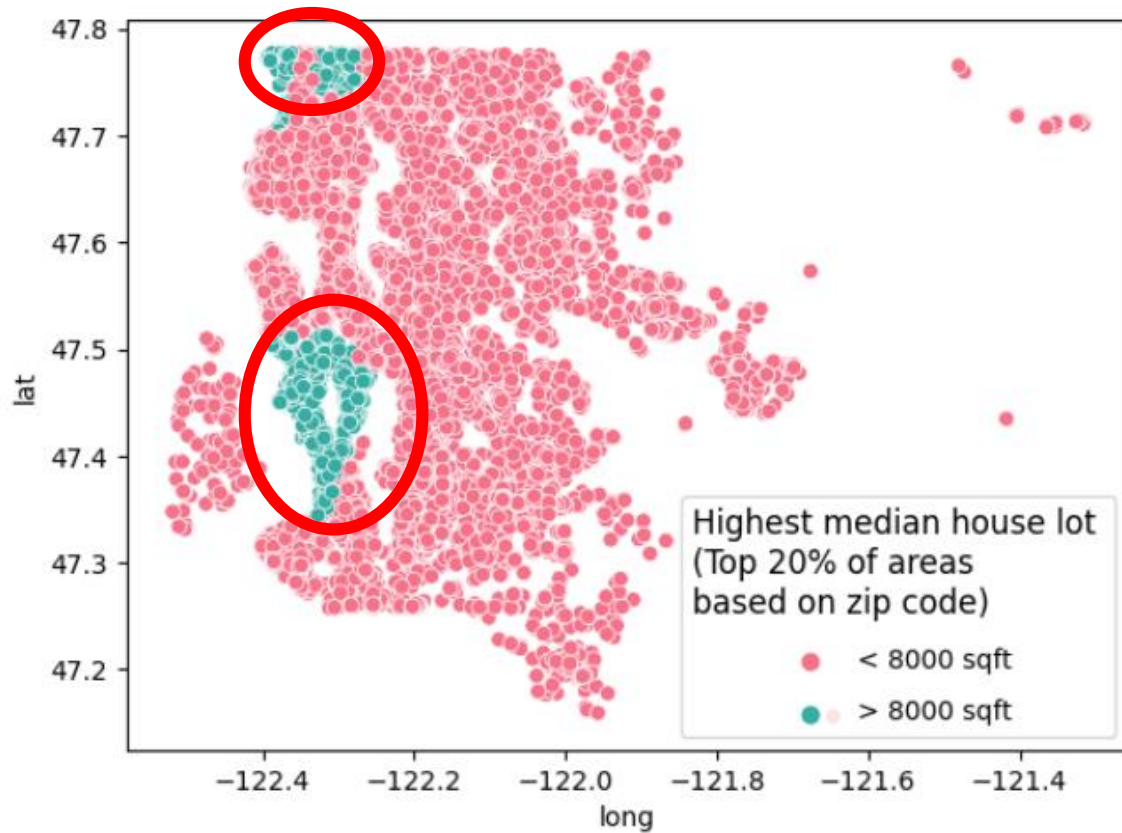
There do exist some not overly expensive options at the outskirts towards the south-western part of Seattle.

Still, the client should reconsider life choices.

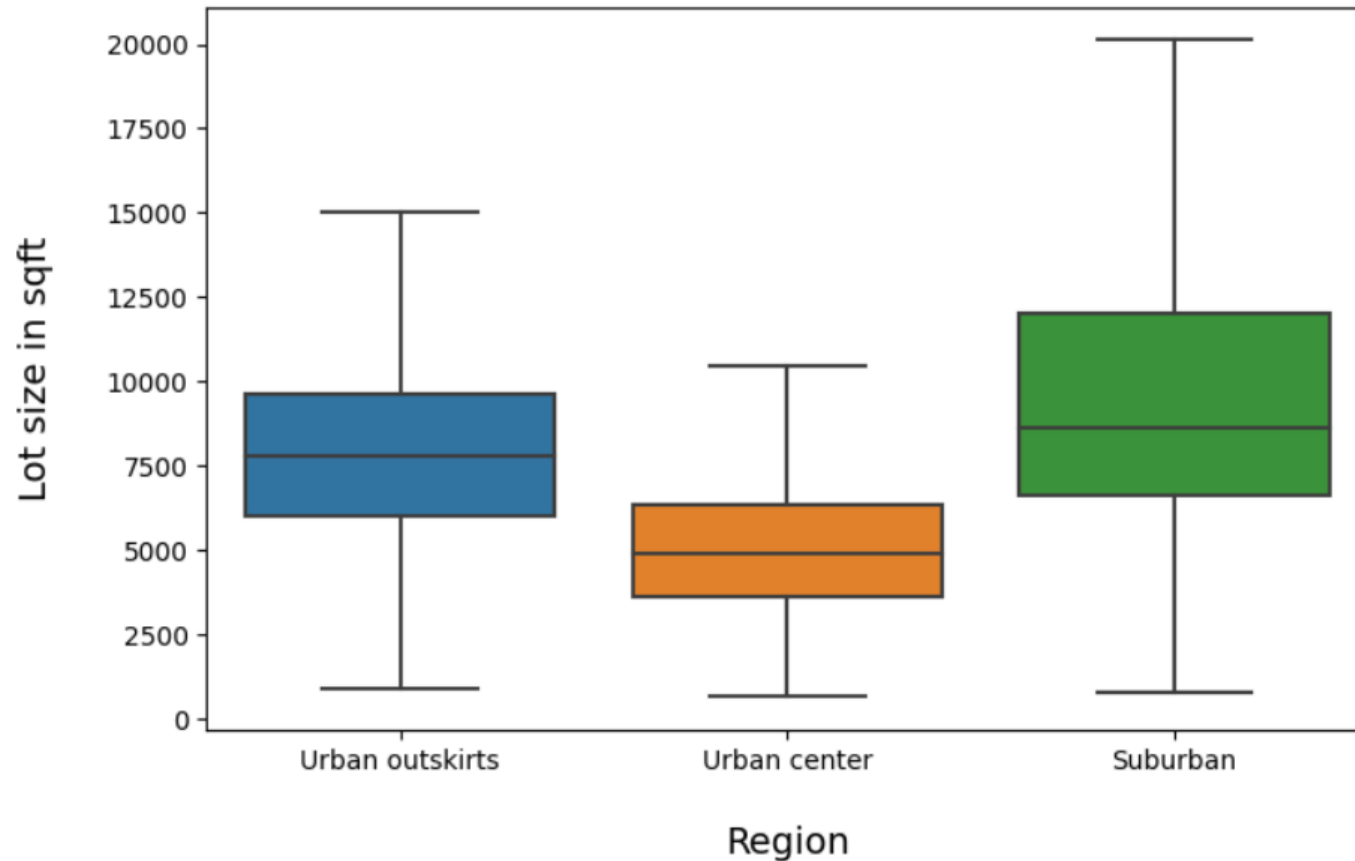
Inquiry of interest	Reason	Variables
Areas with large avg. lot size in local neighbourhood	Larry wants a more isolated life, which areas with larger lot sizes tend to offer	Lot size of 15 closest neighbours, location features

Areas with largest average lot sizes

Areas with highest average lot sizes (left) and King County regions (right)



Median lot sizes of 15 closest neighbours
in three distinct areas (King County, Washington)



Insight:

The larger the general lot size in a neighbourhood, the more quiet and less busy it is.

Recommendation:

Most of Seattle's peripheral areas seem to provide a good mix between isolated, yet urban neighbourhoods.

Urban outskirts

7800 sqft

Urban center

4877 sqft

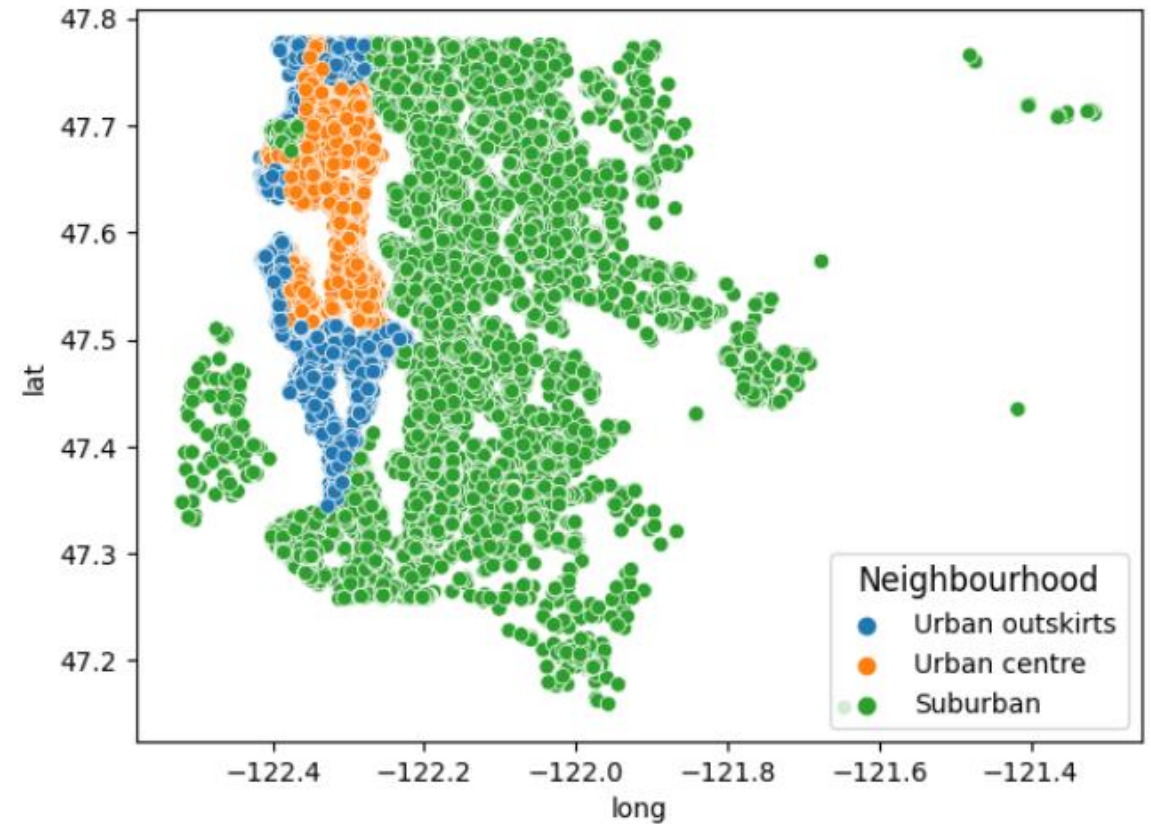
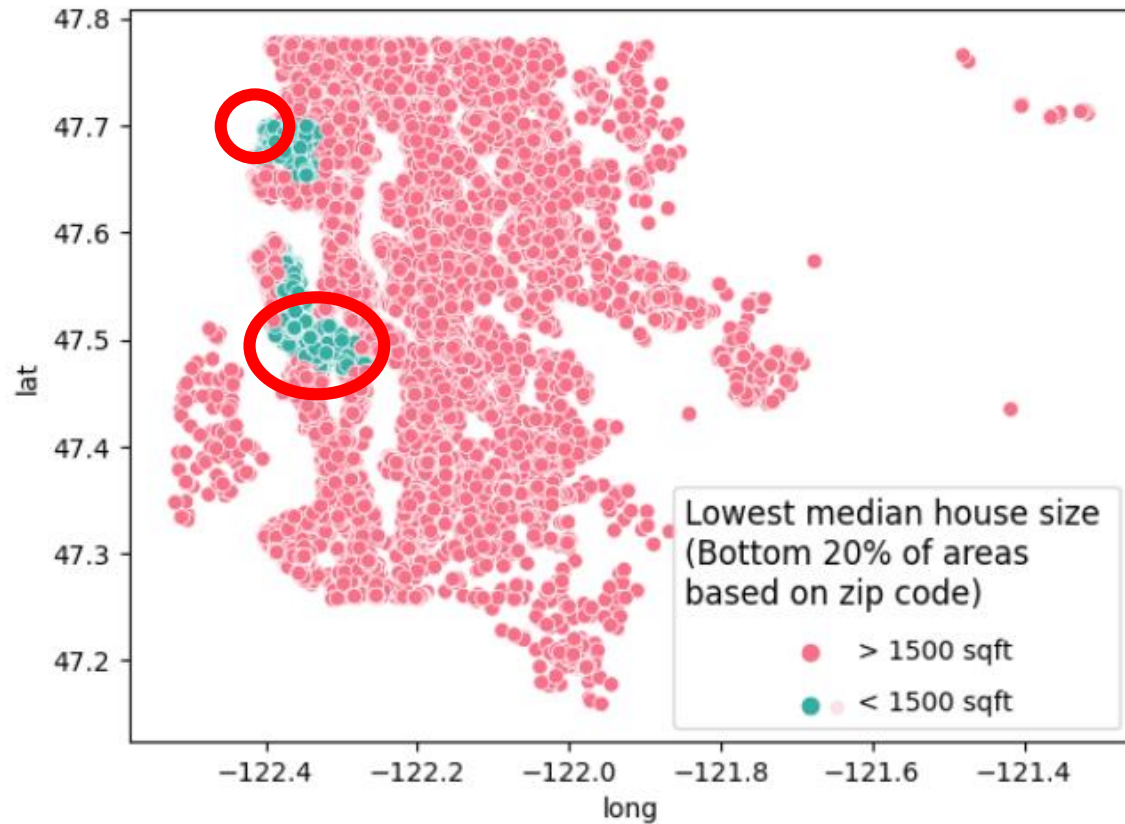
Suburban

8610 sqft

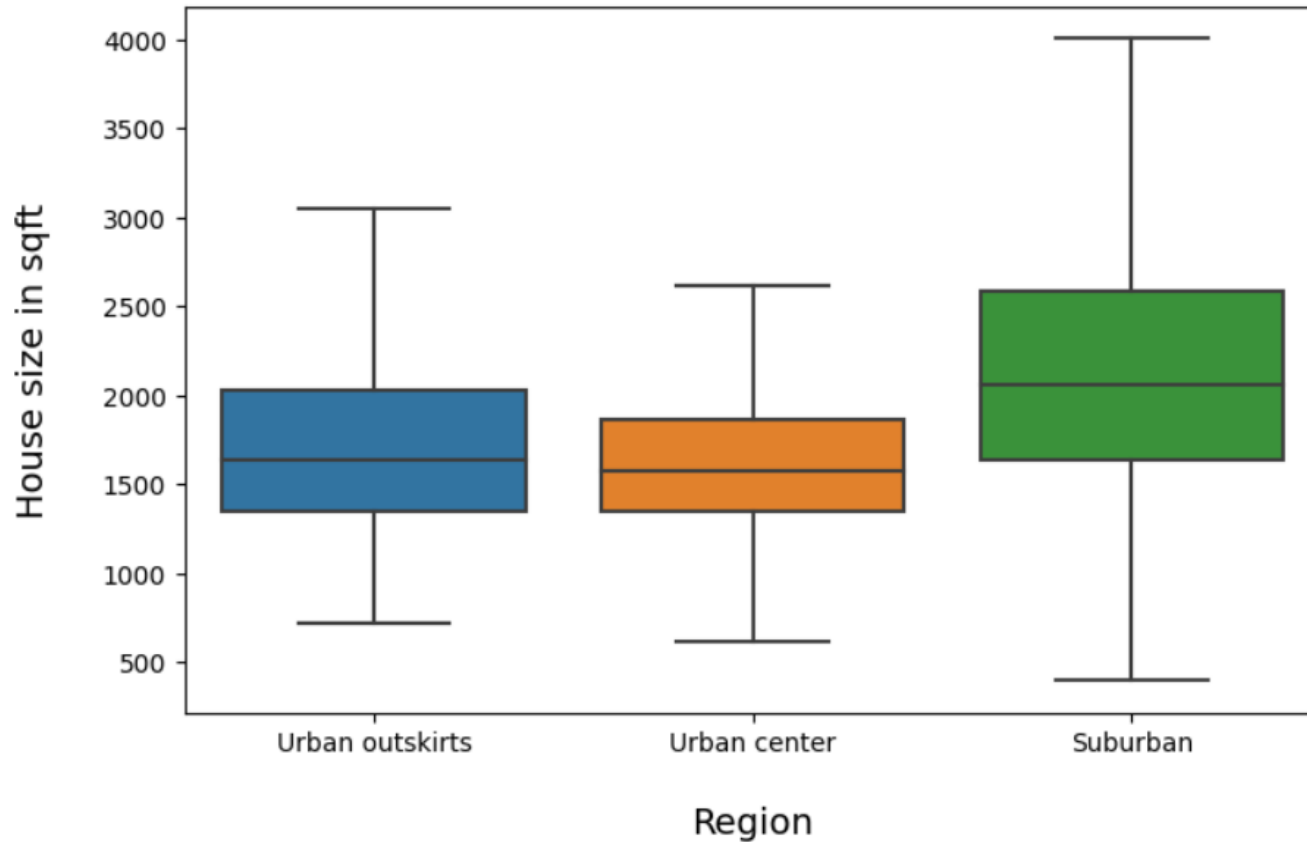
Inquiry of interest	Reason	Variables
Areas with small avg. house size in local neighbourhood	Larry wants no kids around, the smaller the house sizes in local neighbourhood, the fewer families	House size of 15 closest neighbours, location features

Areas with lowest average house sizes

Areas with lowest average house sizes (left) and King County regions (right)



Median house sizes of 15 closest neighbours
in three distinct areas (King County, Washington)



Insight:

While most areas with the lowest median house size seem to be concentrated in Seattle's center, there are still a few neighbourhoods located on the city outskirts that seem to have relatively small housing units.

Recommendation:

Considering how prices in Seattle's periphery tend to be lower, these neighbourhoods can be an attractive solution for the client. In particular the northeast and parts of the southern outskirts.

Urban outskirts

1640 sqft

Urban center

1570 sqft

Suburban

2060 sqft

Zip codes to consider

Zip codes	Avg. house size (sqft)	Bedrooms	Price (\$/sqft)	Median neighbour house size (sqft)	Median neighbour lot size (sqft)	Grade	Waterfront
98146	1490	3	202	1440	8100	7	If he's lucky
98166	1930	3	212	1850	10751	7	If he's lucky

Thank you, Larry... ..and thank you Bernie!



God bless

