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# King County House Recommendation

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# Our Client: Larry Sanders

Type of client: King County's house buyer

Mr. Sanders' requirements:

1. Has a view of waterfront
2. Enough space for a family
3. Nice and isolated
4. Central neighborhood
5. Limited budget

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# Overview of Our Datasets

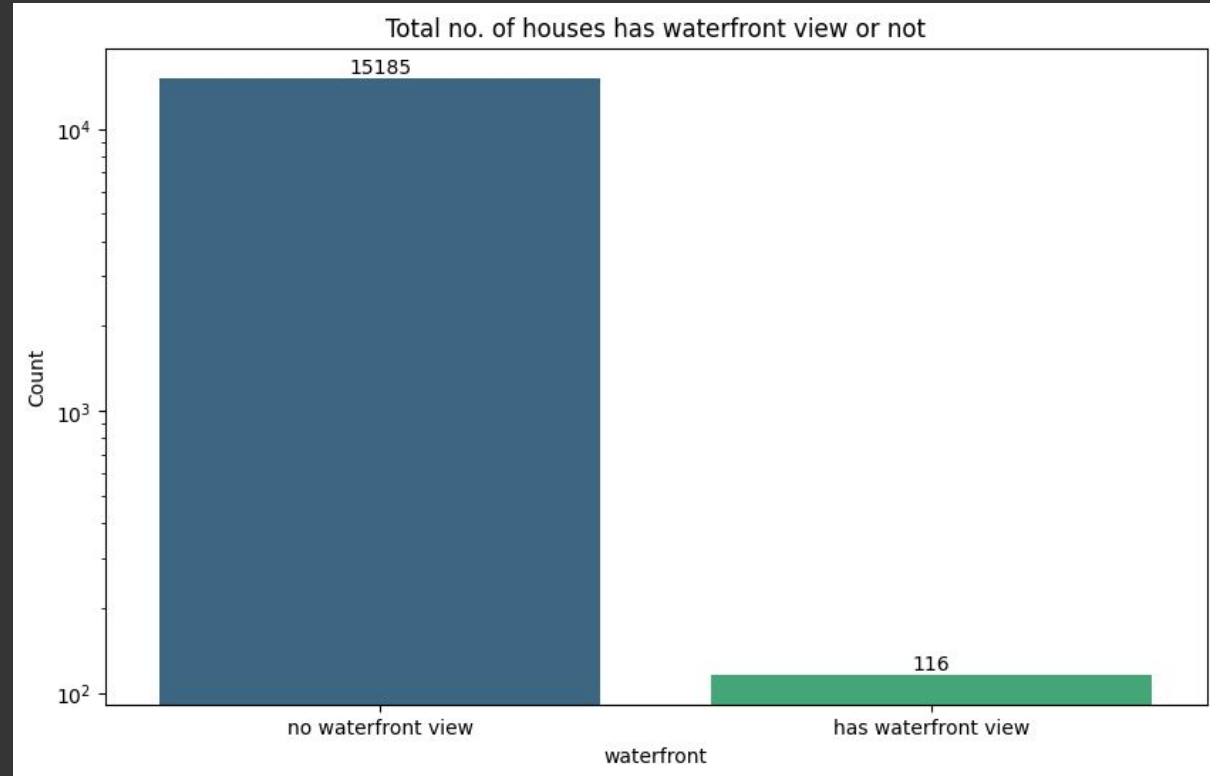
- King County's data from February 2014 to May 2015
- Total houses: 21420 units
- House id
- Price range: 78k to 7.7M USD
- Either has a view of waterfront or not
- Number of bedrooms range : 1-33
- Minimum footage of lot: 520 sqft
- Zip code of cities
- Latitude and longitude for the location of house

## Requirement 1: Has a view of waterfront

Q: Are there houses that have a waterfront view?

A: Yes!

Requirement fulfilled!

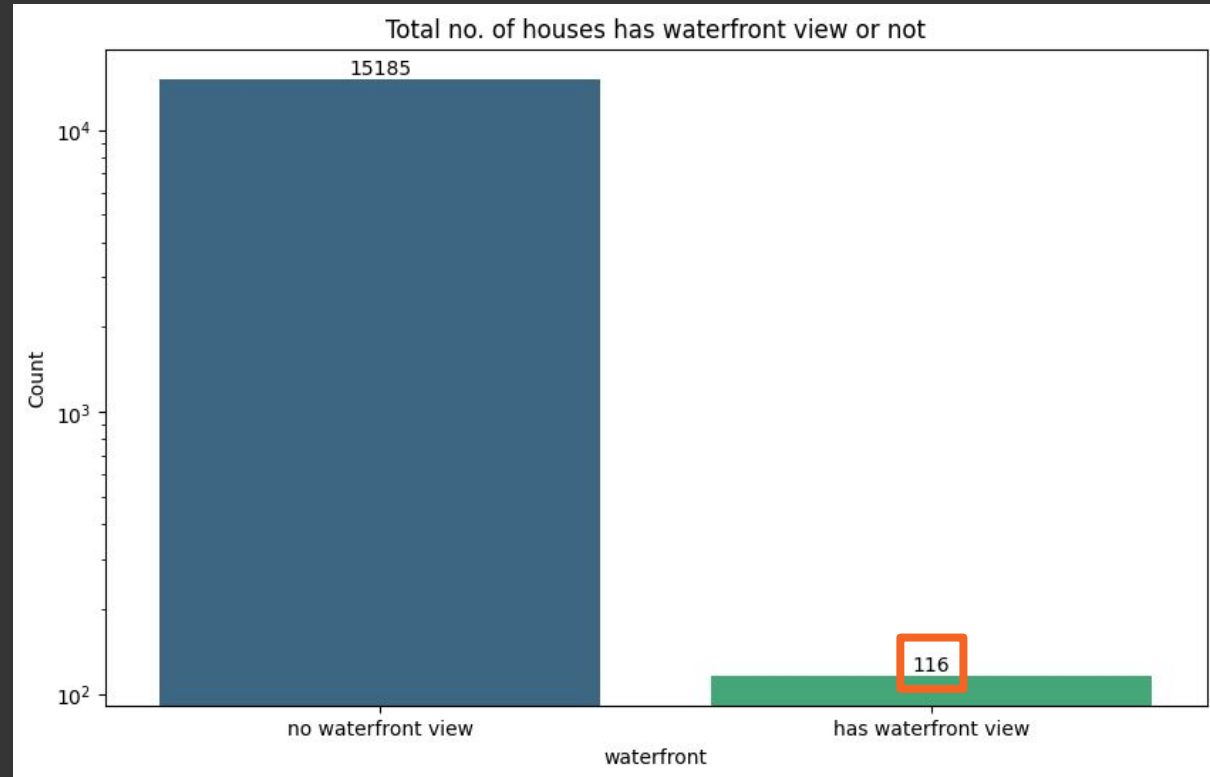


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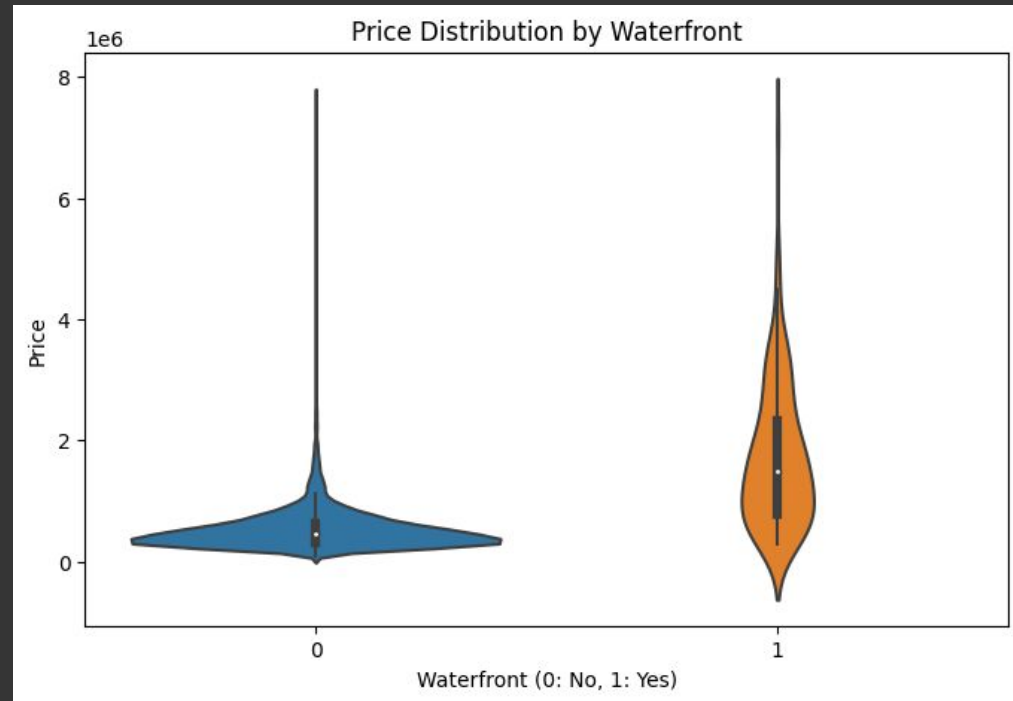


## Requirement 1: Has a view of waterfront

Q: Is house near waterfront expensive?

H: The closer the house to the water, the expensive the house is

We can expect that the price of houses that has a waterfront view will be high

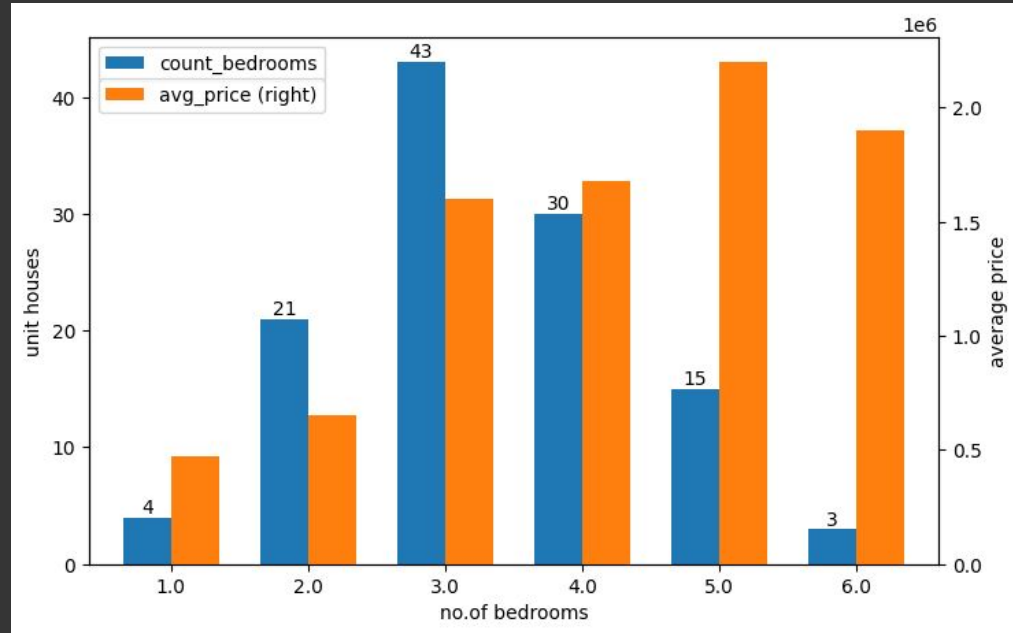


## Requirement 2: Enough space for a family

Q: How many bedrooms needed for our client, and what is its relation with price?

H: If more than 1 person living in the house, then more bedrooms are needed, the higher the price

We can expect that the price of houses for bedrooms > 3 is >1.5M USD

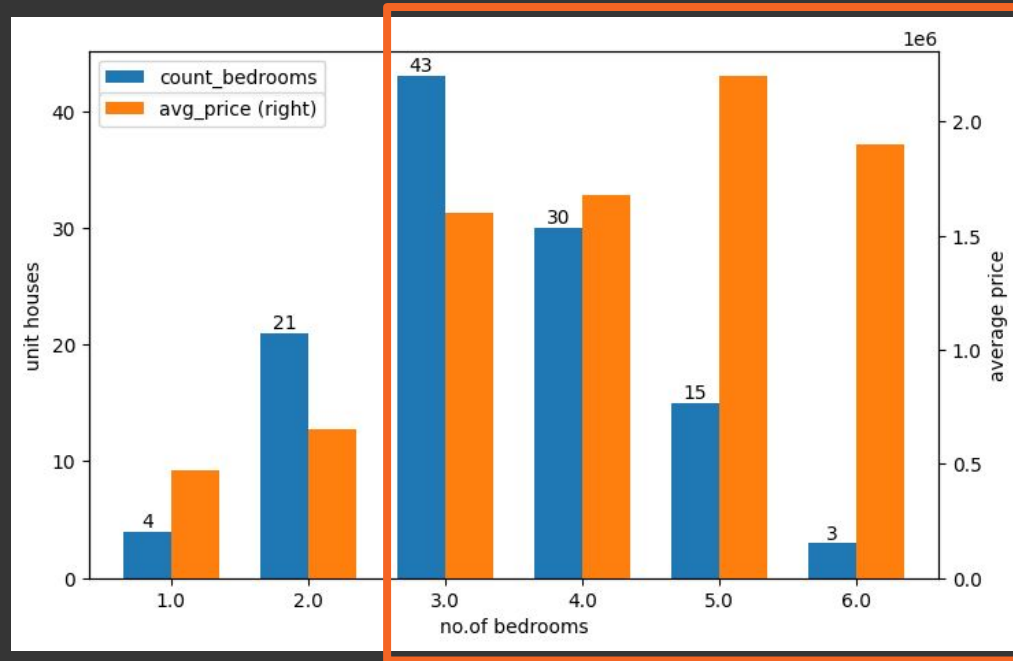


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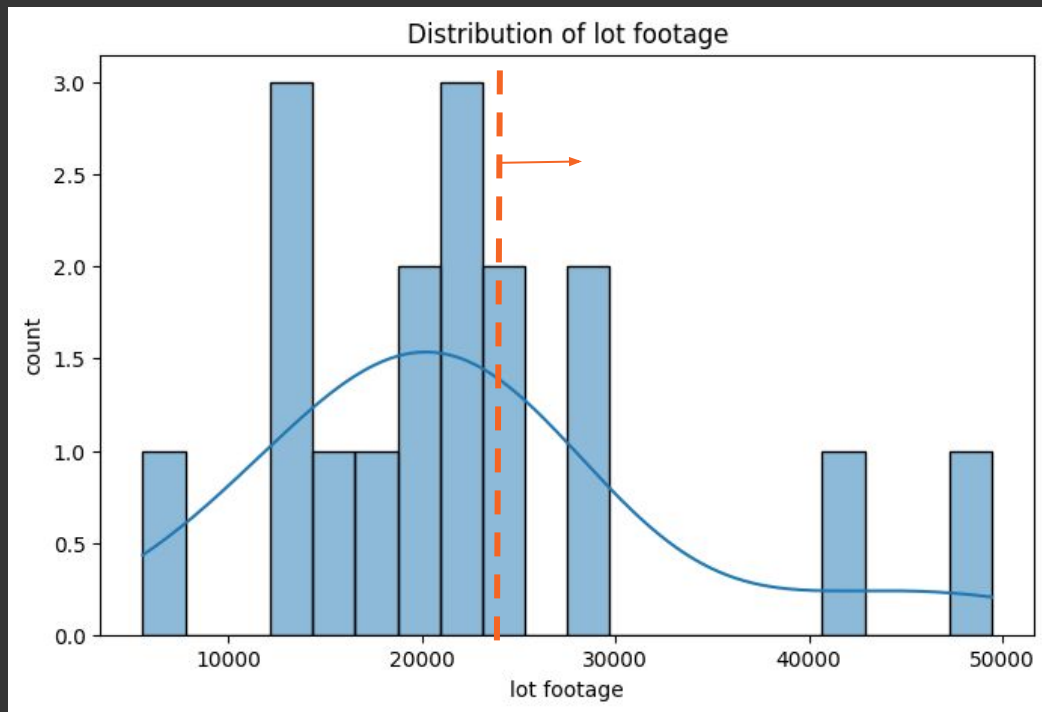




## Requirement 3: Nice and isolated

- Definition of nice:
  - condition → building condition, rated from 1 to 5
  - grade → construction quality, rated from 1 to 13
  - view → quality of view
- Do hard cut on the list
  - condition  $\geq 4$
  - grade  $\geq 9$
  - view  $\geq 4$
- Definition of isolated: top 25% of the footage of the lot

The house listing is now reduced to 5 houses after these cuts



## Requirement 3: Nice and isolated

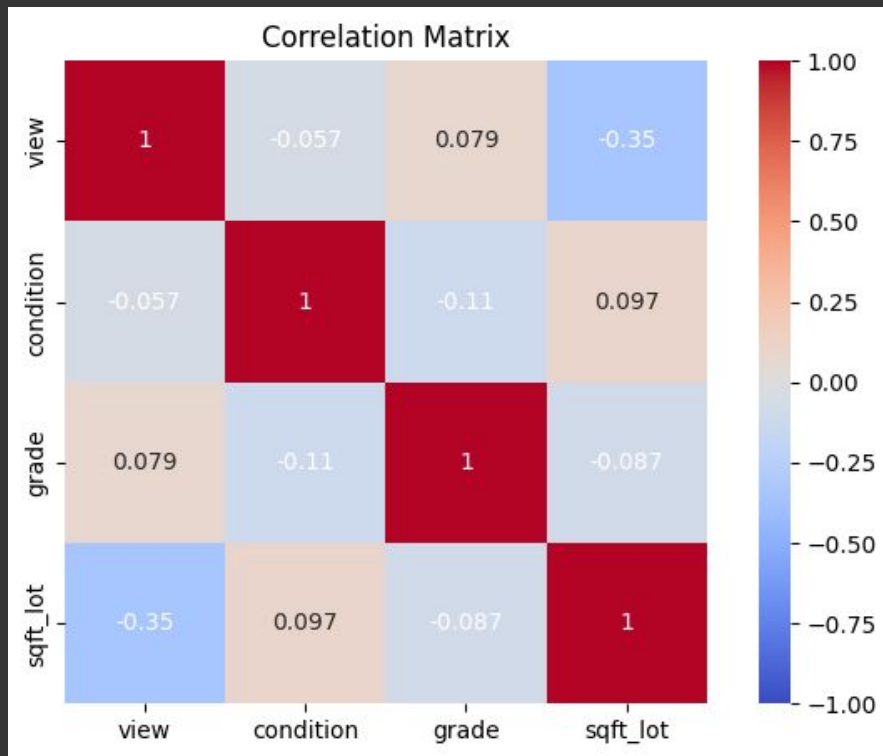
Q: Is there any correlation between nice and isolated house?

H: the nicer the house, the more isolated the house is

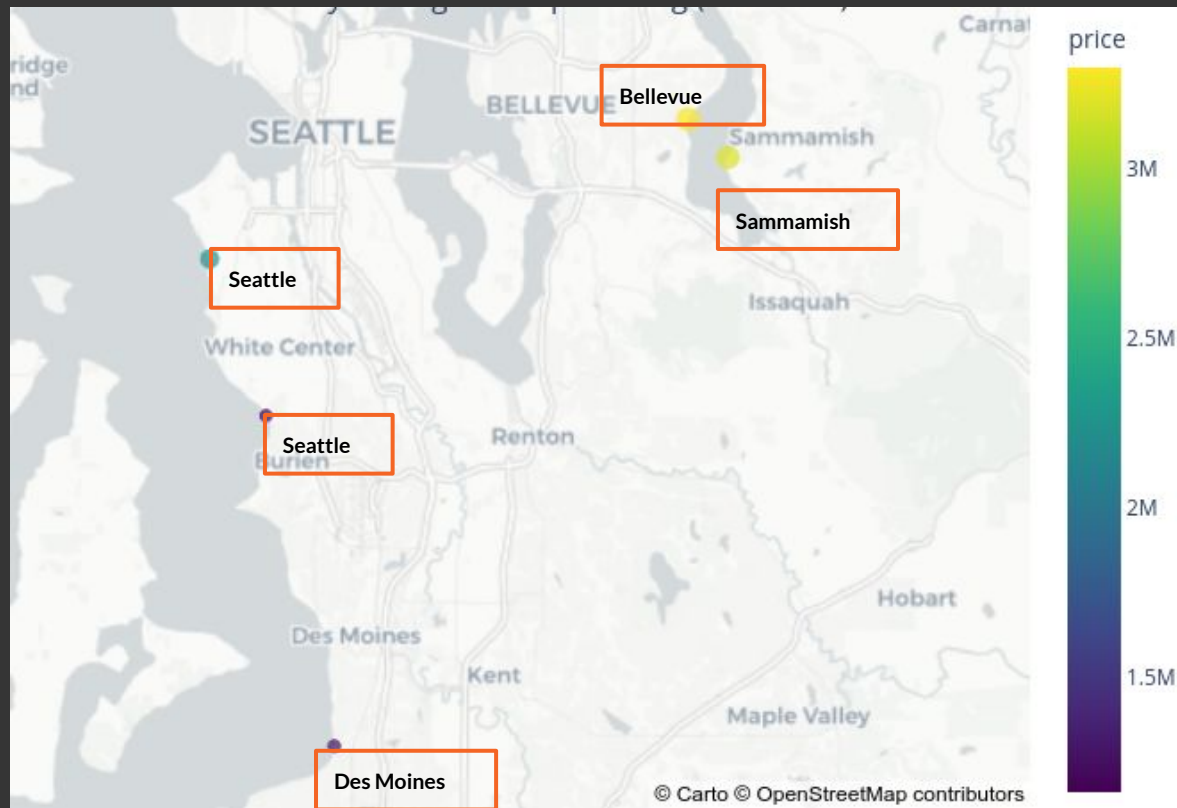
There is no correlation between these 4 variables

Q: How big the square footage of land lots of the nearest 15 neighbors?

H: The bigger the square foot of land lots, the more isolated the house is, thus fewer gems



## Requirement 4: Central neighborhood




Our top 5 house listing for Mr. Sanders

Cities Ranking based on population:

1. Seattle
2. Bellevue
3. Sammamish
4. Des Moines

## Requirement 5: Limited budget



Price	House_id	Date	No. of Bedrooms	sqft_lot_15 neighbor (sqft)	Cities	View	Condition	Grade
1,160,000	7781600025	2014-10-23	3	24121	Seattle	4	4	12
1,230,000	7204200025	2014-10-28	4	32181	Des Moines	4	4	11
2,230,000	7936500109	2014-07-25	3	34713	Seattle	4	4	9
3,200,000	624069108	2014-08-12	4	14663	Sammamish	4	4	9
3,300,000	3625059152	2014-12-30	3	30401	Bellevue	4	5	10

The first house is the best that fulfill Mr. Sanders' requirements

# Remarks & Idea

- Depending on the priority of requirements by Mr. Sanders, may change the house selection
- Definition of nice and isolated may differ from Mr. Sanders' point of view, thus may lead to different outcome
- Recommending timing on buying house to Mr. Sanders
- Investigate the NaN values. May include as a good prospect of house listing instead of removing the whole rows
- Make several price ranges and select top 5% from each range
- Look and investigate at relationship of variables that give high correlation



A large, two-story white house with a dark roof and a front porch. The house has multiple windows with dark shutters and a central entrance. It is surrounded by a green lawn and some landscaping, including a palm tree and bushes. The sky is blue with some clouds. The text "Thank you for your attention" is overlaid in white, bold, sans-serif font.

**Thank you for  
your  
attention**