

King County Housing Sales

“Data Analysis & Prediction Model”

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Problem Statement

Do bigger lot add value to a house?

How to maximize price of a house?



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The question is how to split the land into a house's living and lot area to get the maximum price in the market. As builders this is an important decision to make. You do not want to waste your resources where you could get the same price with a smaller lot size.

Also the house price estimation is needed to make investment on the house construction business.

Business Value

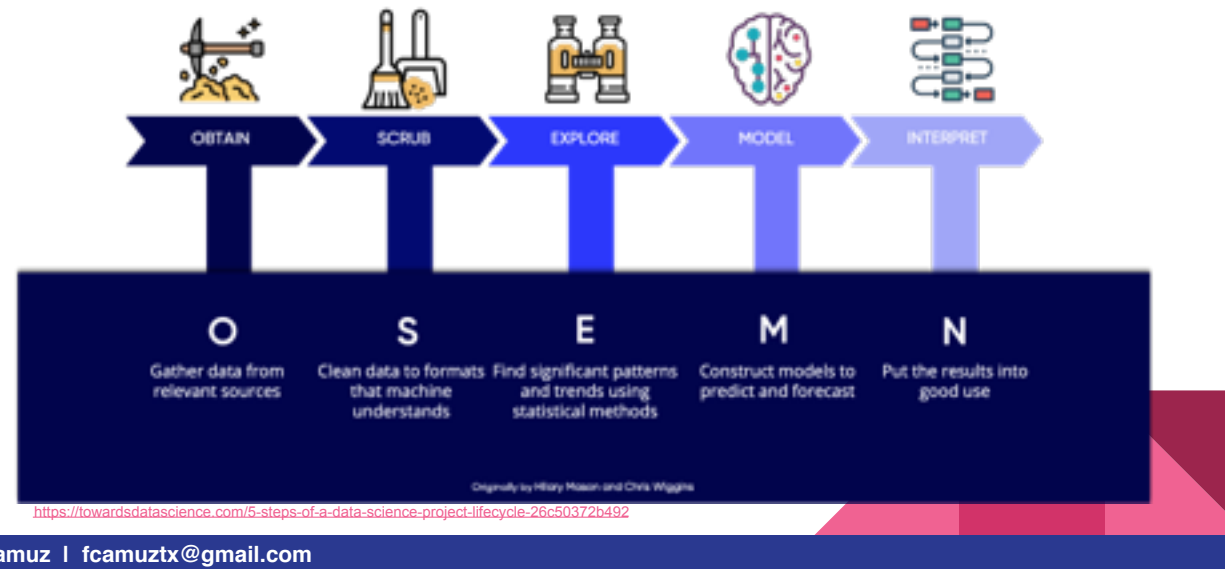
Split the land efficiently by the location to get the best price for every house you built

Have a model to predict the price of a house and see the most significant features effect.



Methodology

OSEMN



I followed the OSEMN model when I working on this project. It is a model that keeps everything in an order when we are building a model. First obtaining and scrubbing the data which we get everything in a format that we can use them in the model. Second, exploring and analysing are done with the raw data. Modeling comes after and finally we share the meaningful results for your business.

Findings

Larger lots does not increase the price of a house directly

But the larger house size always increase the house price



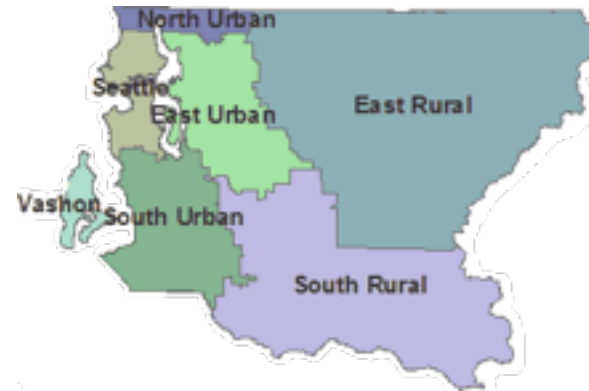
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After exploring the data, here are some findings that will help you in your decision making process.

The lot size does not have direct relationship with the house price. Most of the houses are in 1 million dollar range no matter what their lot sizes are. In fact there are some houses that extremely large lots sold for very low price.

However, as the living area size increases, the price of the house also increases. Although it is not always in the same ratio, we can say that, keeping the house living area larger always helps you to get better profit out of your house sale.

Findings



Choose Seattle, East Urban and East Rural areas to built houses.

Always keep the living area large

Keep the lot size minimum in Seattle and East Urban area.

Built relatively larger lots in South Urban, west of East Rural and west of South Rural area

Have options for huge lots for farm houses in the east side of the county.

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To sell a house for best price, built it in Seattle, East Urban or East Rural area. Those are the parts of the county that the house price average is much higher.

When it comes to splitting the land into the living area and lot ;

Always keep the living area is large no matter what the lot size is. That will definitely increase your house price.

Big lots are not in demand for every part of the town. They are more popular in mid and east side of the county. Built relatively larger lots in South Urban, west of East Rural and west of South Rural area.

It is good to have options for farmhouses that have huge lots. They are more popular in the east side of the county which is completely rural.

Price Prediction Model Findings

Model Accuracy;

82%

Best contributors;

Location, condition, living area and waterfront

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I have created the house price prediction model by using OLS statistics model.

This model can make 81% accurate prediction for a house price

Features that go through the model are

- Location (latitude and longitude)
- Number of bedrooms
- Living, lot and basement size
- Number of views the house get
- Year of built
- Number of floors
- Condition

Location, condition, living area and waterfront views effects a house price more than any other features.

1. Location (upto 1.46 unit)
2. Waterfront (0.63 unit))
3. Condition grade higher than 3 (3 :0.8, 4: 0.9, 5:1.0,)
4. Living area size (0.48 unit)

Future Works

Price comparison for per sqft of house and lot size

The best price efficient percentage model



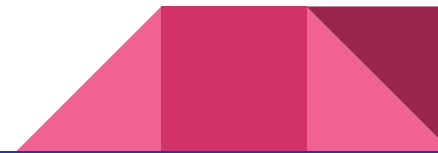
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A price comparison can be done for per sqft of house and lot size to make better decision when splitting the land into living and lot area.

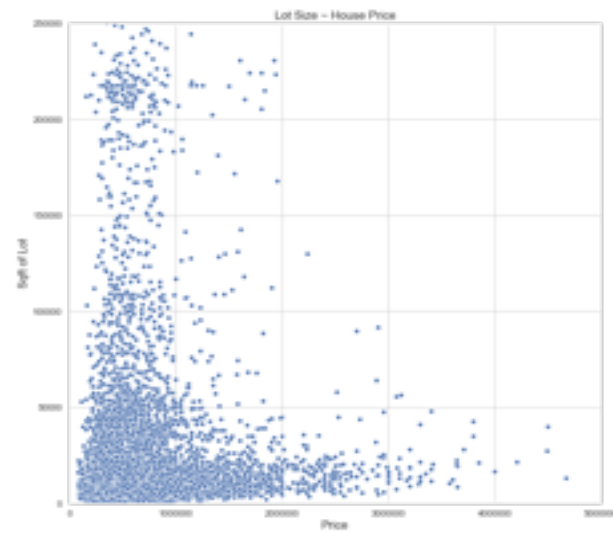
Also another model can be created to give best split percentages to get maximum price by the zipcode of the land.

THANK YOU

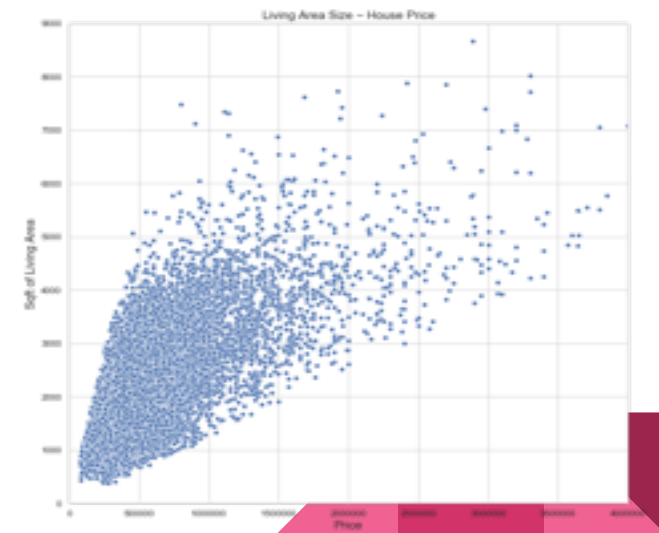
Please feel free to check the graphs and distribution maps below.



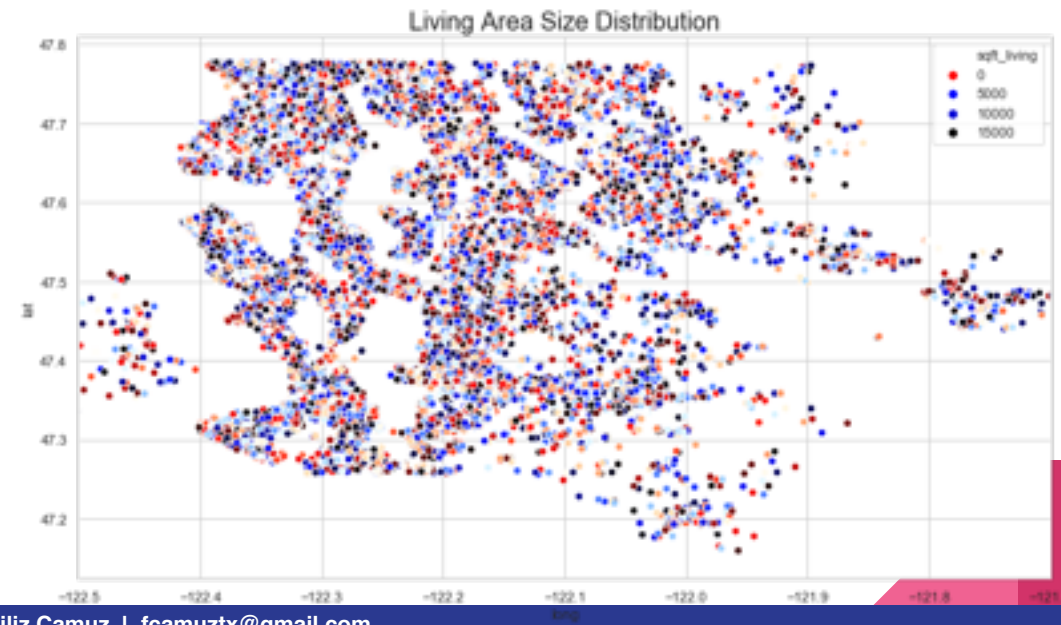
Lot size does not increase the price



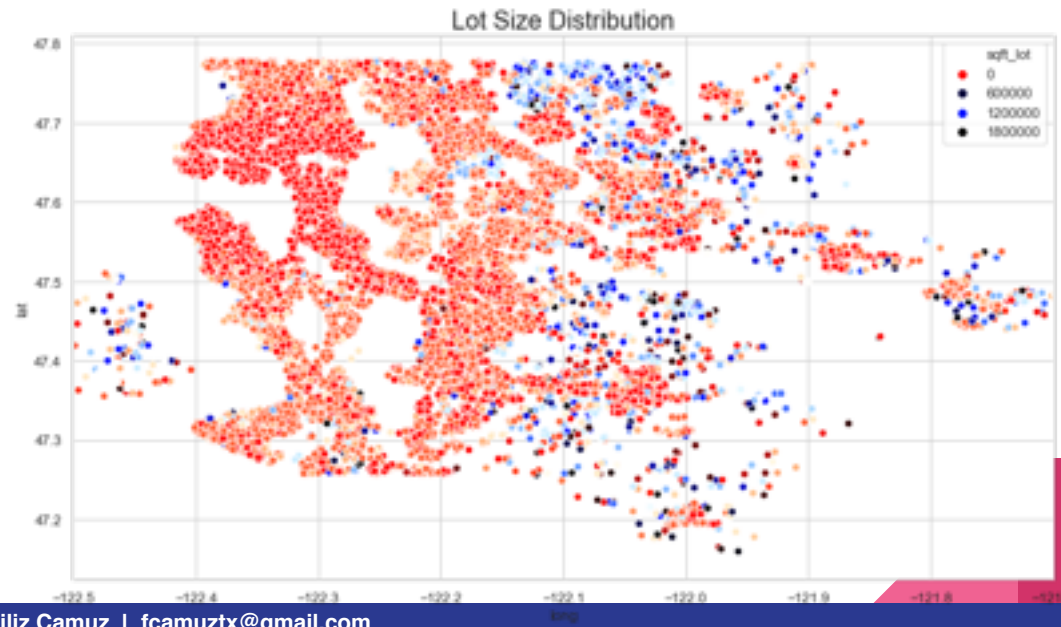
Larger living area increases the price



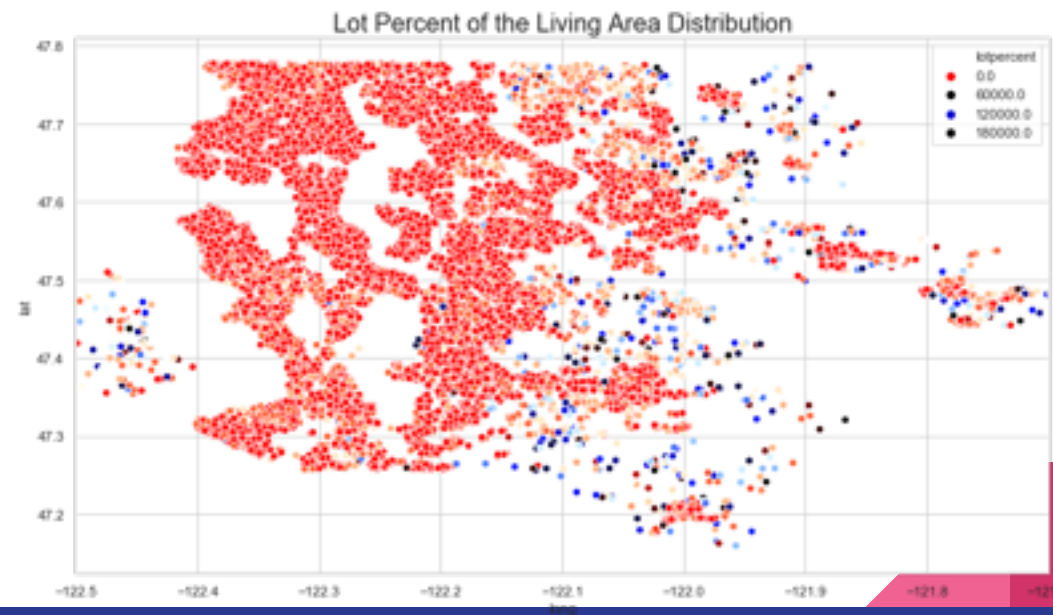
Various size of houses homogeneously distributed across the county



North east side of the county has smallest lot size average.



The percentage of living are and lot mostly i %500 range.



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This percentage map shows that the house size and lot size increase together in the southeast and mid part of the county. However east side of the county has relatively huge lots. Probably farm houses.

Every year the ratio of total number houses and houses have larger lots almost equal.

