

Property Development in King County, WA

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Data Science, Module 2 – Final Project





Aims and Objectives of Analysis

A local property development company wants to better understand the factors that influence the sale price of a property.

They are keen to use statistical modelling techniques to assist their decision making processes and better inform the planning, design and marketing of new build and / or renovated properties within the King County area of Washington State, USA.

Whilst we recognise that certain influencing factors are beyond the control of the developers, it is useful to understand their effect on the data.



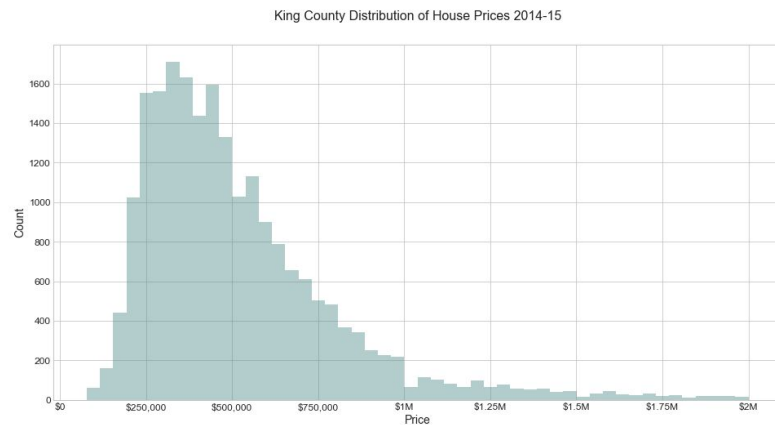
King County



House Prices in King County – 1

What is the range and distribution of house prices?

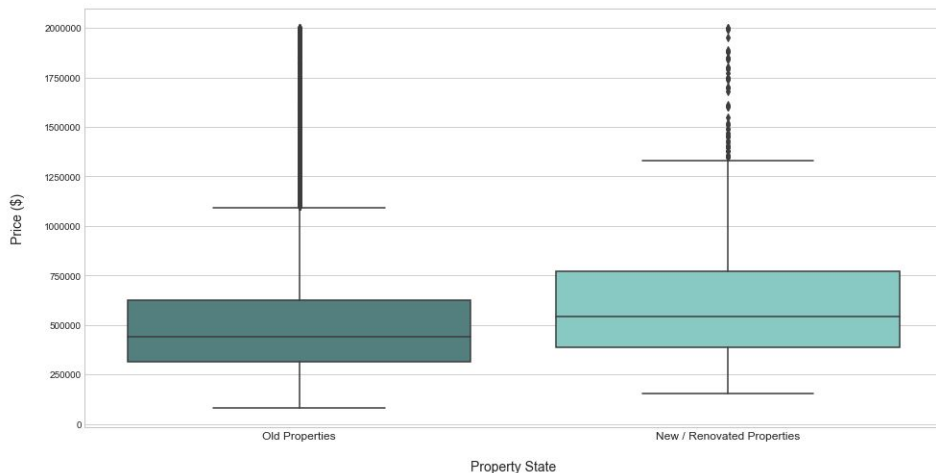
- The average house price within King County is just over \$500,000 across all properties.
- This is distorted by the smaller number of high value (\$1M+) properties within the county.
- Ignoring these high value properties brings the average house price down to just under \$470,000.





House Prices in King County – 2

King County House Prices by Property State 2014-15

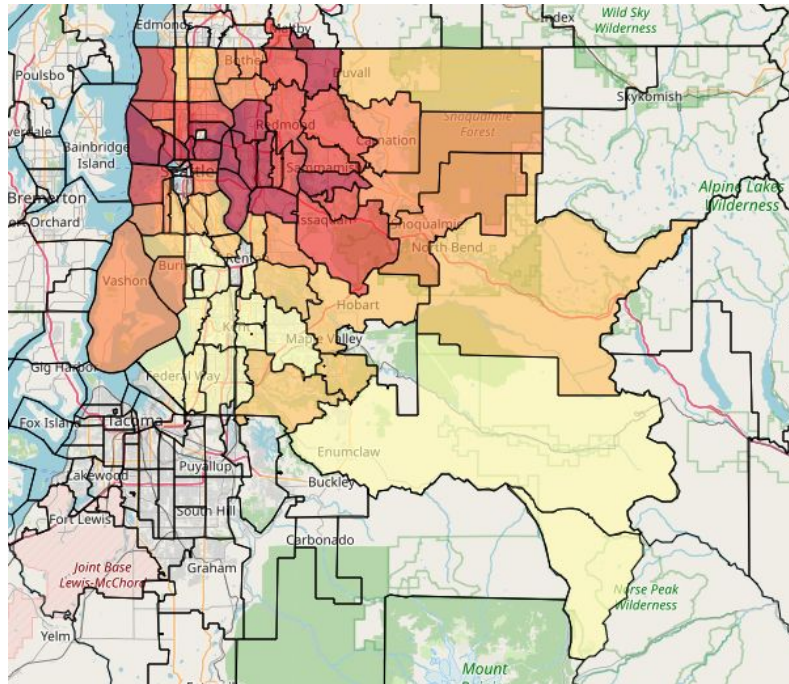


Do newly built or recently renovated houses achieve higher prices?

- The uplift in average house price of a recently built or renovated house (in the last 5 years) is just under \$105,000 or a 20% increase.

How does geographic location affect house price?

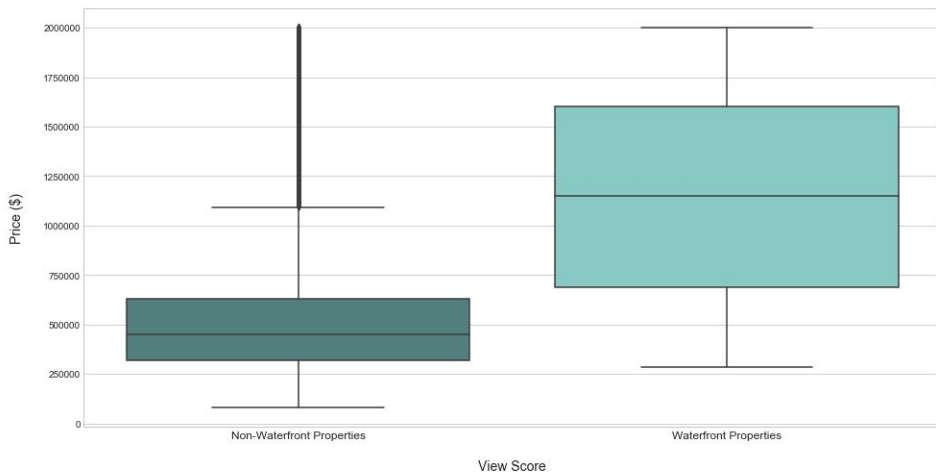
- In general, average house prices increase with proximity to central Seattle.
- In addition, average house prices increase with proximity to the waterfront and the Interstate roads, I-90 and I-405.
- There are some exceptions to this with proximity to airports decreasing average house prices.





Factors Influencing House Prices – 2

King County House Prices by Waterfront Location 2014-15



Source: King County Housing Dataset

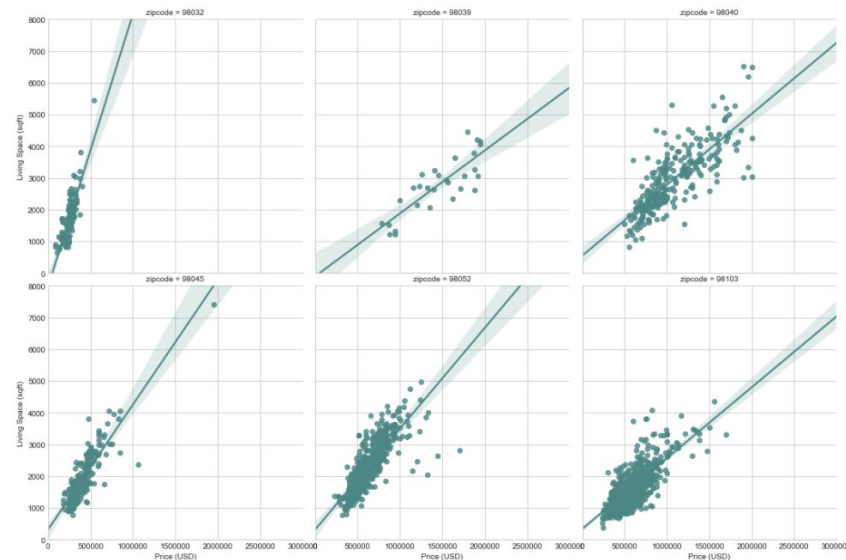
Does a waterfront location have an effect on the house price?

- Properties located on the waterfront achieve much higher prices than those that are not.
- The average price of a waterfront property is \$608,000 greater than non-waterfront properties.
- Waterfront properties, however, are more likely to flood increasing insurance costs for the owner but will also increase construction costs for the developer.

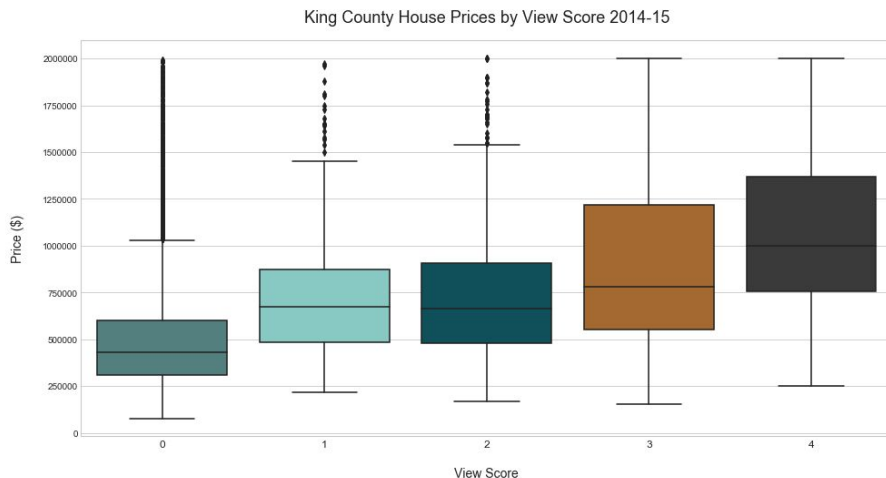
Factors Influencing House Prices – 3

How does the amount of living space of a property affect house price?

- Rather obviously, the greater the amount of living space, the higher the price BUT...
- The relationship between living space and house price fluctuates from one zip code to another, as demonstrated by the changing gradients in these graphs.



Factors Influencing House Prices – 4



Does a better quality view have an effect on the house price?

- Again, rather unsurprisingly, a better quality view will increase the average house price.
- The increase in average house price is roughly between \$250,000 and \$530,000 with increasing quality of view.



Conclusion and Possible Next Steps

In Summary –

- House prices tend to increase with increases in:
 - Living Space (but this fluctuates between zip codes)
 - Location (Waterfront)
 - View
- House prices tend to decrease with increases in:
 - Lot Space

Next Steps –

- Whilst the model “predicts” house prices with a reasonable but not high level of confidence, it is sensitive to certain zip codes. The sensitivity caused by these zip codes should be explored and the model refined to include them.
- Expand the analysis to include data from the surrounding counties to see if this can produce a more refined model.
- Refine the model by including other features such as topology, proximity to major roads, public transport, airports and schools.

Thank you.

Any questions?

