

# King County

## Marketing Campaign

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Data-driven insights and predictive modelling



# Problem Statement

Advertising Campaign to encourage sales in King County



**PropertiesInc**

REAL ESTATE

# Problem Statement

Advertising Campaign to encourage sales in King County

- Data-driven recommendations



**Properties**Inc

REAL ESTATE

# Problem Statement

**Advertising Campaign to encourage sales in King County**

- Data-driven recommendations
- Model to predict house prices



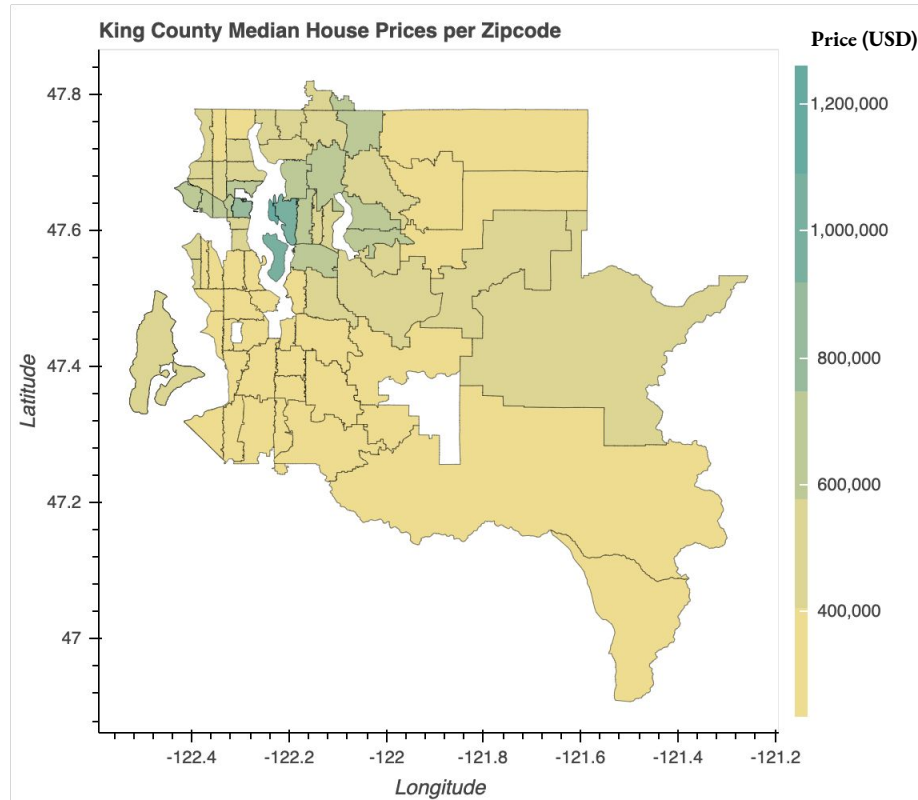
**PropertiesInc**

REAL ESTATE

# Location

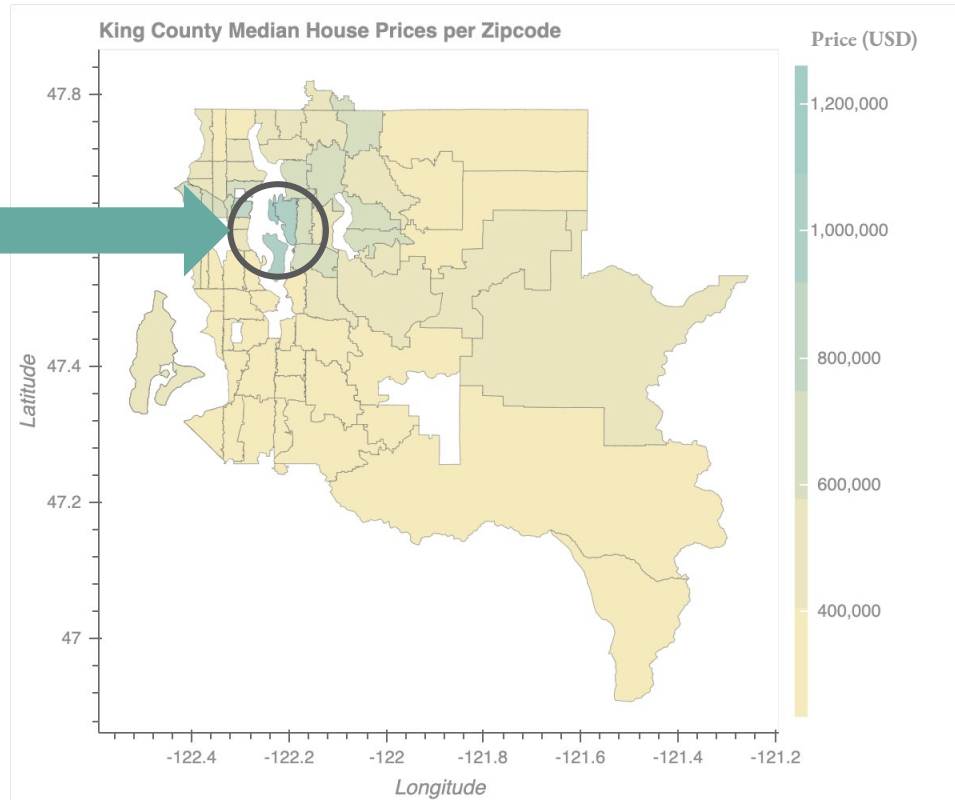


## LOCATION - Zip Codes

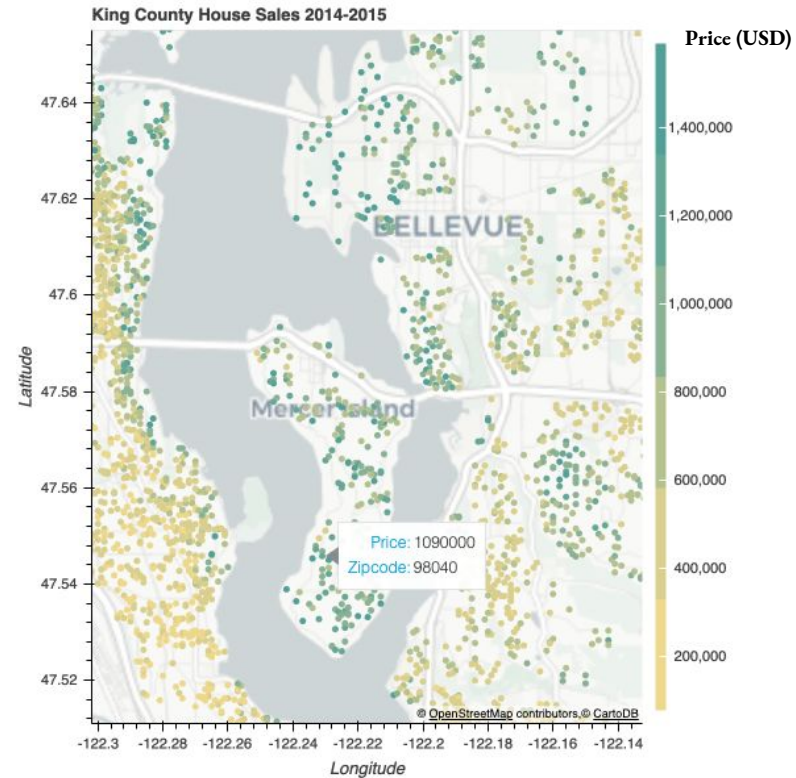


## LOCATION - Zip Codes

Top 3 Zip Codes



## LOCATION - Neighbourhoods





## Recommendations



### Location

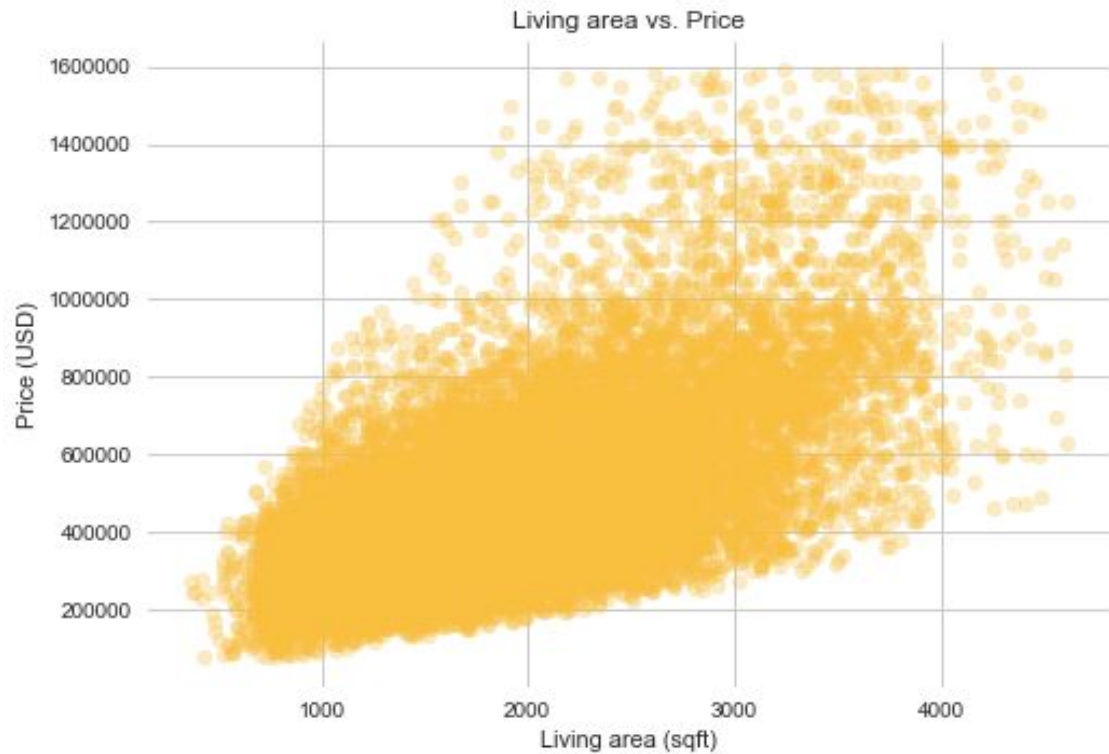
- Importance of waterfront
- Bellevue and Mercer Island areas



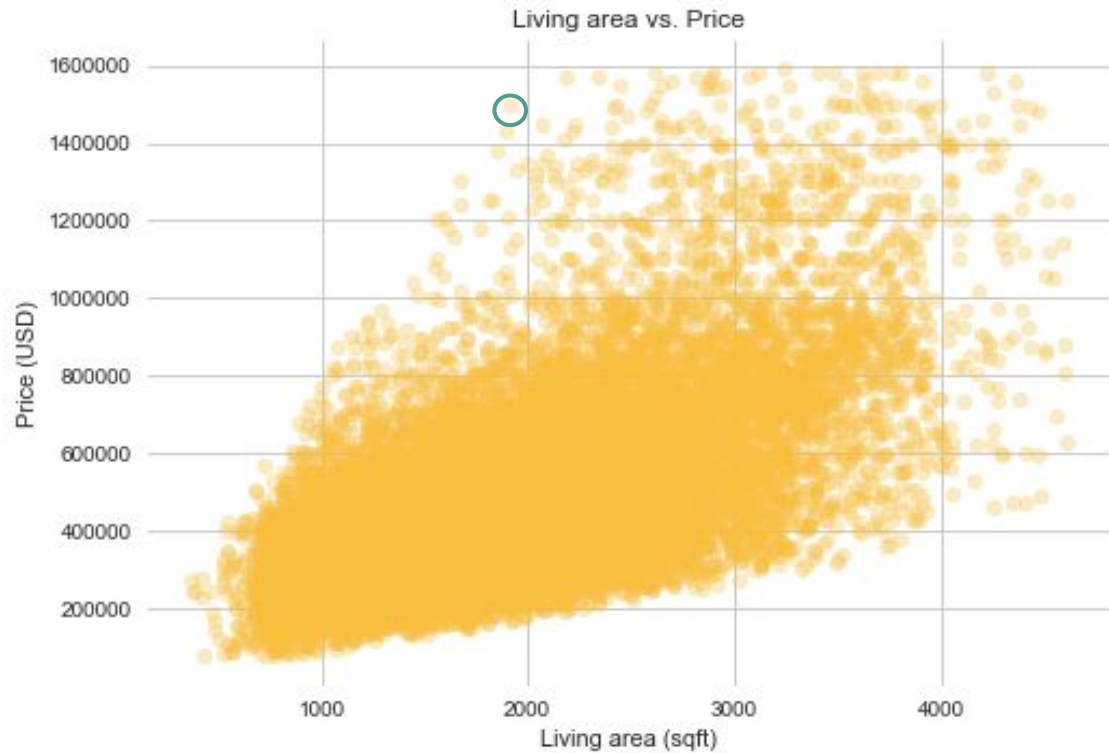
# House Features



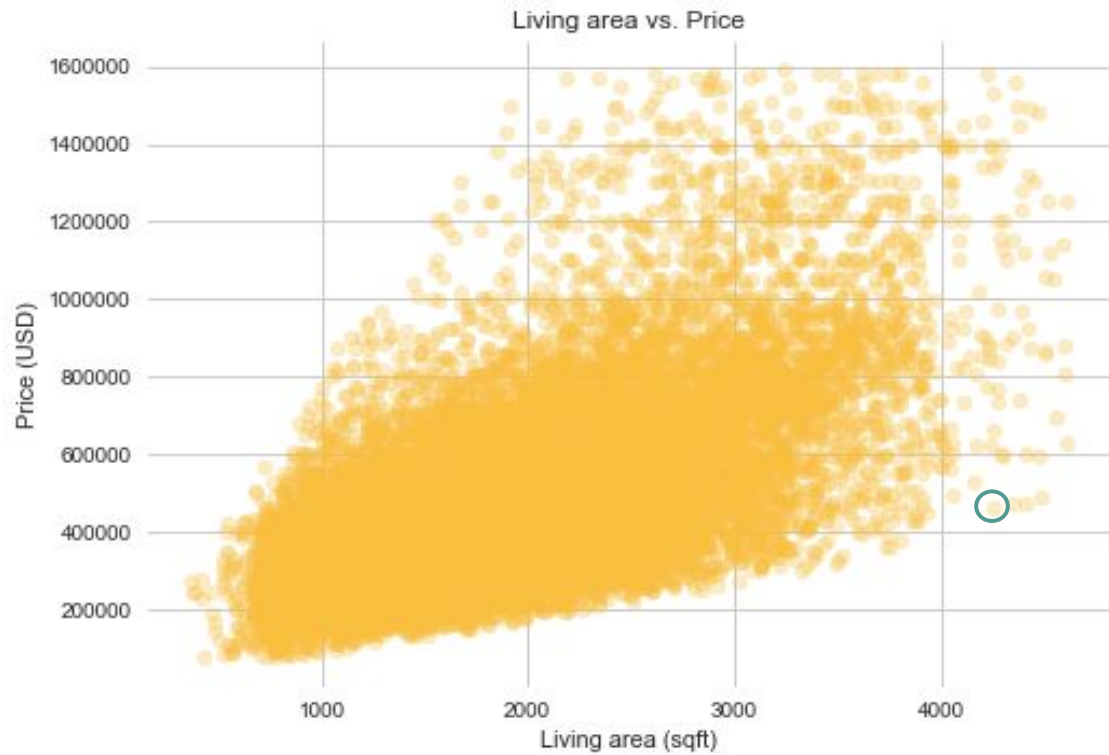
## House Features - Living Area



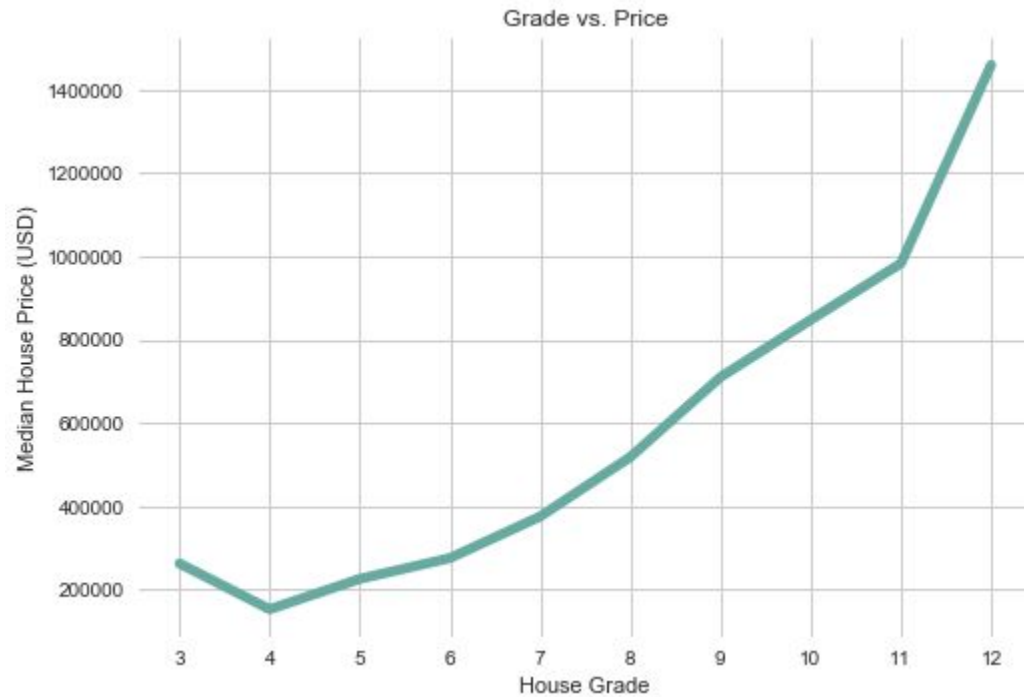
## House Features - Living Area



## House Features - Living Area



## House Features - Grade



## House Features - Other

Was viewed

Presence of Basement

Square Feet of Lot

Recently renovated

Condition

Bedroom count

Year Built



Waterfront view

Bathroom count

Number of floors

## Recommendations



### Location

- Importance of waterfront
- Bellevue and Mercer Island areas



### Home Features

- Larger living area (sqft)
- Grade 10 and above
- Grade better predictor

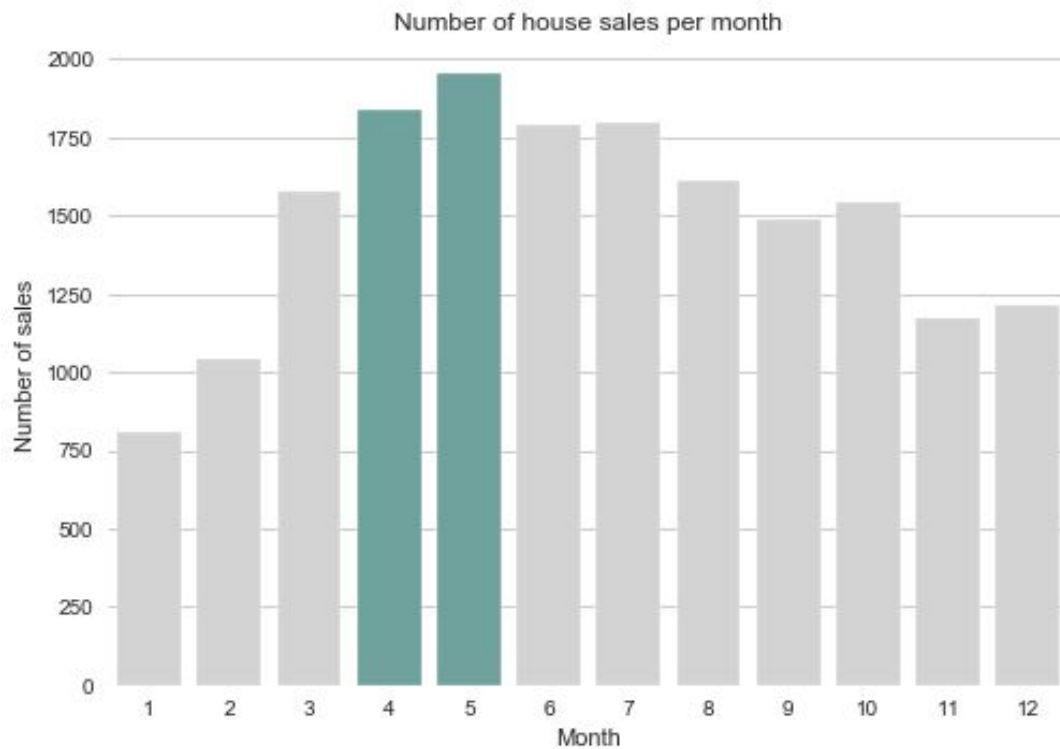




# Time of Year



## Time of year



## Recommendations



### Location

- Importance of waterfront
- Bellevue and Mercer Island areas



### Home Features

- Larger living area (sqft)
- Grade above 10
- Grade better predictor



### Time of Year

- Constant median house price
- April/May highest sales volume
- Campaign in March/April



# Predicting House Prices





## Predicting House Prices

<b>Features</b>		
<b>Pros</b>		
<b>Cons</b>		
<b>Score</b>		
<b>Mean Error</b>		

## Predicting House Prices

	Model A	
<b>Features</b>	17	
<b>Pros</b>		
<b>Cons</b>		
<b>Score</b>		
<b>Mean Error</b>		

## Predicting House Prices

	Model A	
<b>Features</b>	17	
<b>Pros</b>	Easy to interpret, generalises well	
<b>Cons</b>		
<b>Score</b>		
<b>Mean Error</b>		

## Predicting House Prices

	Model A	
<b>Features</b>	17	
<b>Pros</b>	Easy to interpret, generalises well	
<b>Cons</b>	Less accurate	
<b>Score</b>		
<b>Mean Error</b>		



## Predicting House Prices

	Model A	
<b>Features</b>	17	
<b>Pros</b>	Easy to interpret, generalises well	
<b>Cons</b>	Less accurate	
<b>Score</b>	0.70	
<b>Mean Error</b>		

## Predicting House Prices

	Model A	
<b>Features</b>	17	
<b>Pros</b>	Easy to interpret, generalises well	
<b>Cons</b>	Less accurate	
<b>Score</b>	0.70	
<b>Mean Error</b>	USD 132,444	

## Predicting House Prices

	Model A	Model B
<b>Features</b>	17	87
<b>Pros</b>	Easy to interpret, generalises well	
<b>Cons</b>	Less accurate	
<b>Score</b>	0.70	
<b>Mean Error</b>	USD 132,444	

## Predicting House Prices

	Model A	Model B
<b>Features</b>	17	87
<b>Pros</b>	Easy to interpret, generalises well	Performance
<b>Cons</b>	Less accurate	
<b>Score</b>	0.70	
<b>Mean Error</b>	USD 132,444	

## Predicting House Prices

	Model A	Model B
<b>Features</b>	17	87
<b>Pros</b>	Easy to interpret, generalises well	Performance
<b>Cons</b>	Less accurate	Uses exact zip code data
<b>Score</b>	0.70	
<b>Mean Error</b>	USD 132,444	

## Predicting House Prices

	Model A	Model B
<b>Features</b>	17	87
<b>Pros</b>	Easy to interpret, generalises well	Performance
<b>Cons</b>	Less accurate	Uses exact zip code data
<b>Score</b>	0.70	0.83
<b>Mean Error</b>	USD 132,444	

## Predicting House Prices

	Model A	Model B
<b>Features</b>	17	87
<b>Pros</b>	Easy to interpret, generalises well	Performance
<b>Cons</b>	Less accurate	Uses exact zip code data
<b>Score</b>	0.70	0.83
<b>Mean Error</b>	USD 132,444	USD 99,654

## Best predictors - Model A



**Grade**



**Zip Code  
Tier**



**Waterfront**



**Viewed**



**Four  
bathrooms**





## Further work

### School Ratings Data

Proximity to a good school is likely to increase sale price



## Further work

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Proximity to a good school is likely to increase sale price

### Commuting Time Data

Homes better connected to downtown Seattle are likely to be more valuable



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### School Ratings Data

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### Commuting Time Data

Homes better connected to downtown Seattle are likely to be more valuable

### Longer Time Scale

See which areas show signs of growth/ decline



# THANK YOU

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## APPENDIX - Model A Coefficients

	Feature	Coefficient		Feature	Coefficient
1	grade_12	515,536	10	zip_tier_5	168,374
2	grade_11	463,199	11	viewed	153,790
3	zip_tier_1	435,924	12	zip_tier_6	133,920
4	grade_10	327,375	13	bathrooms_4	105,063
5	zip_tier_2	313,144	14	zip_tier_7	99,454
6	waterfront	277,442	15	grade_8	88,713
7	zip_tier_3	250,036	16	grade_5	-94,930
8	zip_tier_4	248,289	17	grade_4	-136,094
9	grade_9	233,634			

