

KING COUNTY, WA HOUSING MARKET PRICE MODELING

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Project Team:

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"THE ACHE FOR HOME
LIVES IN ALL OF US, THE
SAFE PLACE WHERE WE
CAN GO AS WE ARE AND
NOT BE QUESTIONED."

MAYA ANGELOU



1

INTRODUCTION

2

RESEARCH

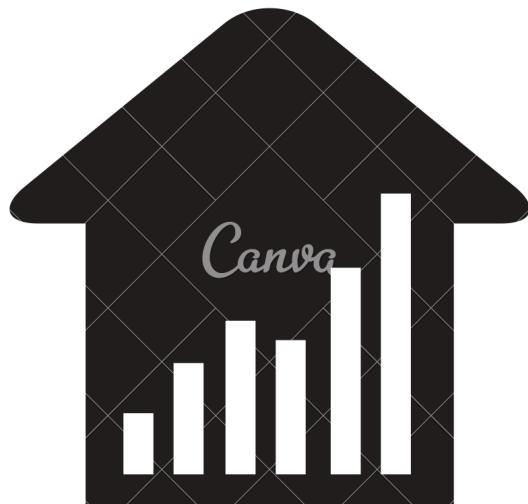
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FINALISE

-
- Business Problem
 - Data Sources & Methods
 - Market Research
 - Models
 - Regression Results
 - Business recommendations
 - Next Steps



INTRODUCTION



- Business problem
- Data sources & Methods

BUSINESS PROBLEM

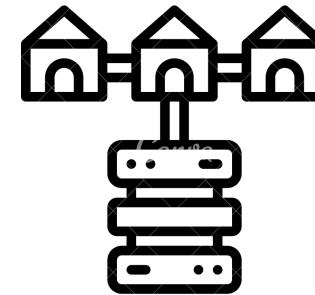
- Our team was hired by a hot-shot real estate agency **to create a model which predicts the prices of houses** in the King County, WA area based on certain property features.
- This model should allow for predicting **house prices using easy-fill questionnaires**



DATA UNDERSTANDING

Sources

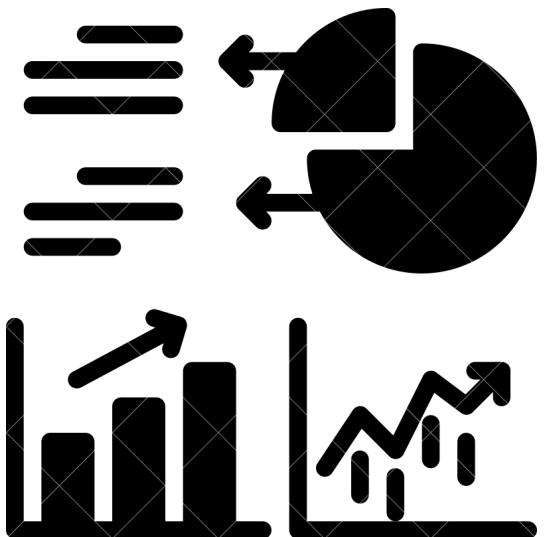
- King County, WA housing sales data
(2014-2015)
- Open Street Maps (www.openstreetmap.org)
Geographical maps and geolocation coding
- Washington Geospatial Open Data (<https://geo.wa.gov/>)
Washington State geospatial information



Methods

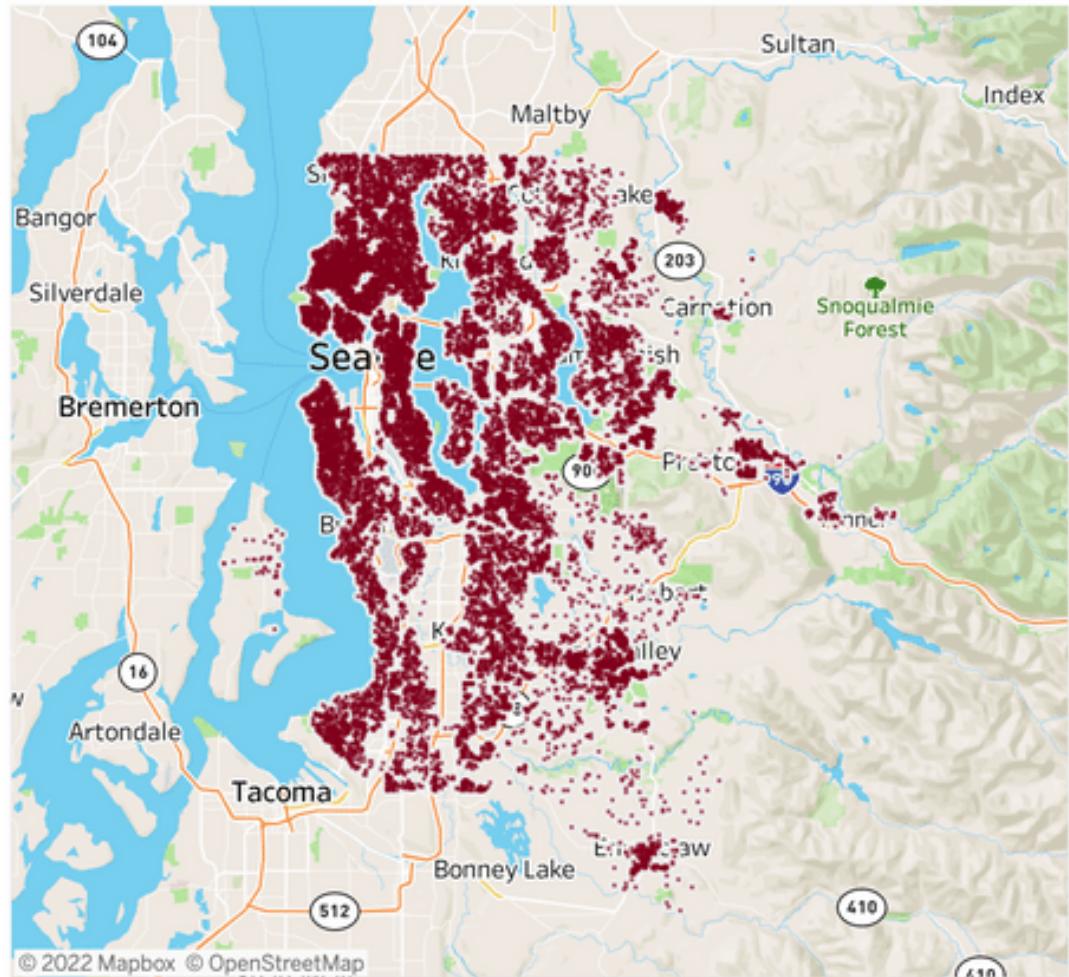
- Exploratory data analysis (EDA)
- Geoinformation scraping
- Determine statistically significant features
- Engineering prediction models

RESEARCH

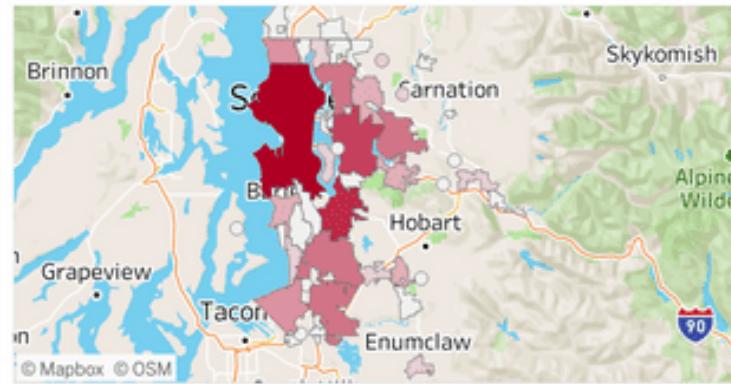


- Market Research
- Preliminary Models
- Final Model

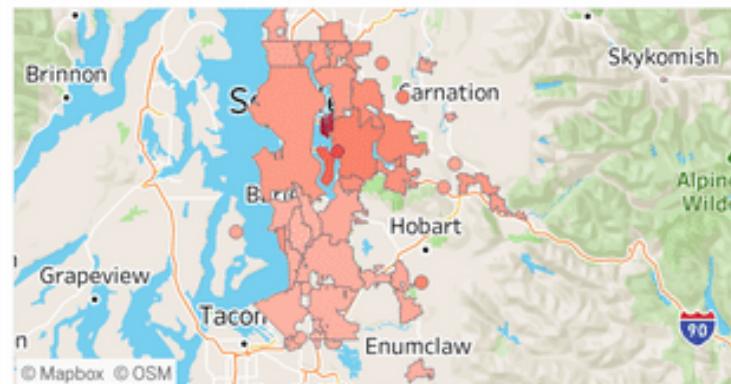
Overview of houses sales



Sales/towns



Median sale price



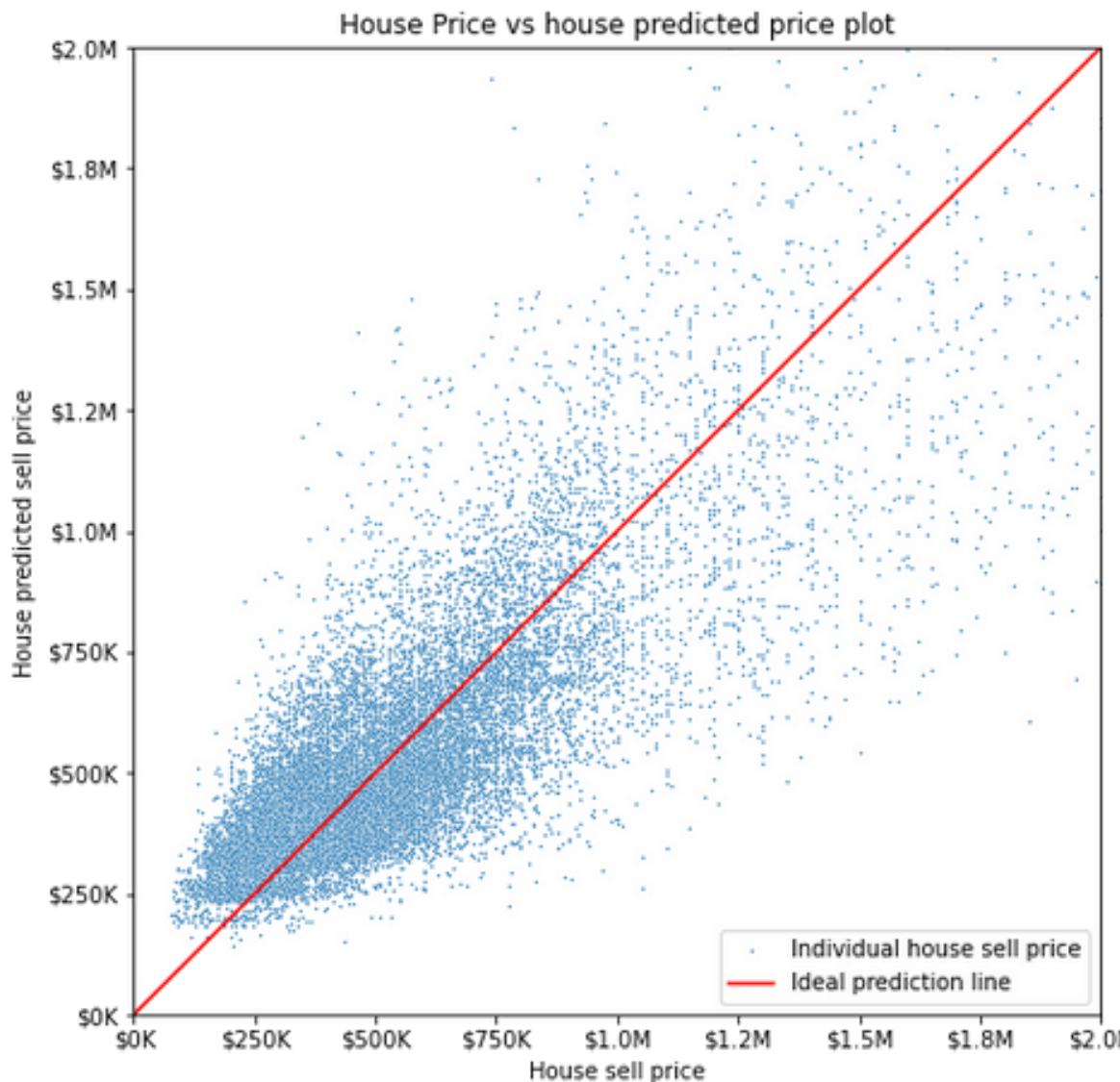
Median Price

155,000 | 1,880,000

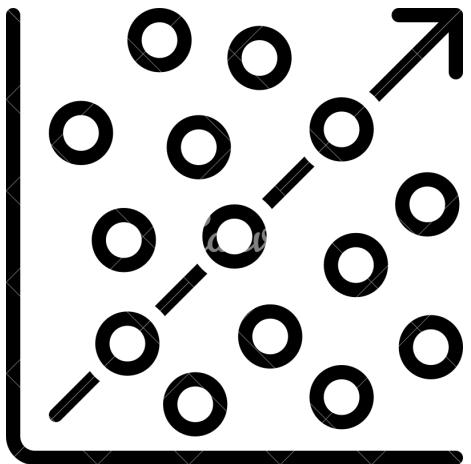
SALES TRANSACTION IN ALL CITIES IN KINGS COUNTY.
LOCATION HAS GREAT IMPACT ON PRICE.

**USED FEATURES:****FOOTAGE****BEDROOMS****WATERFRONT****VIEW**

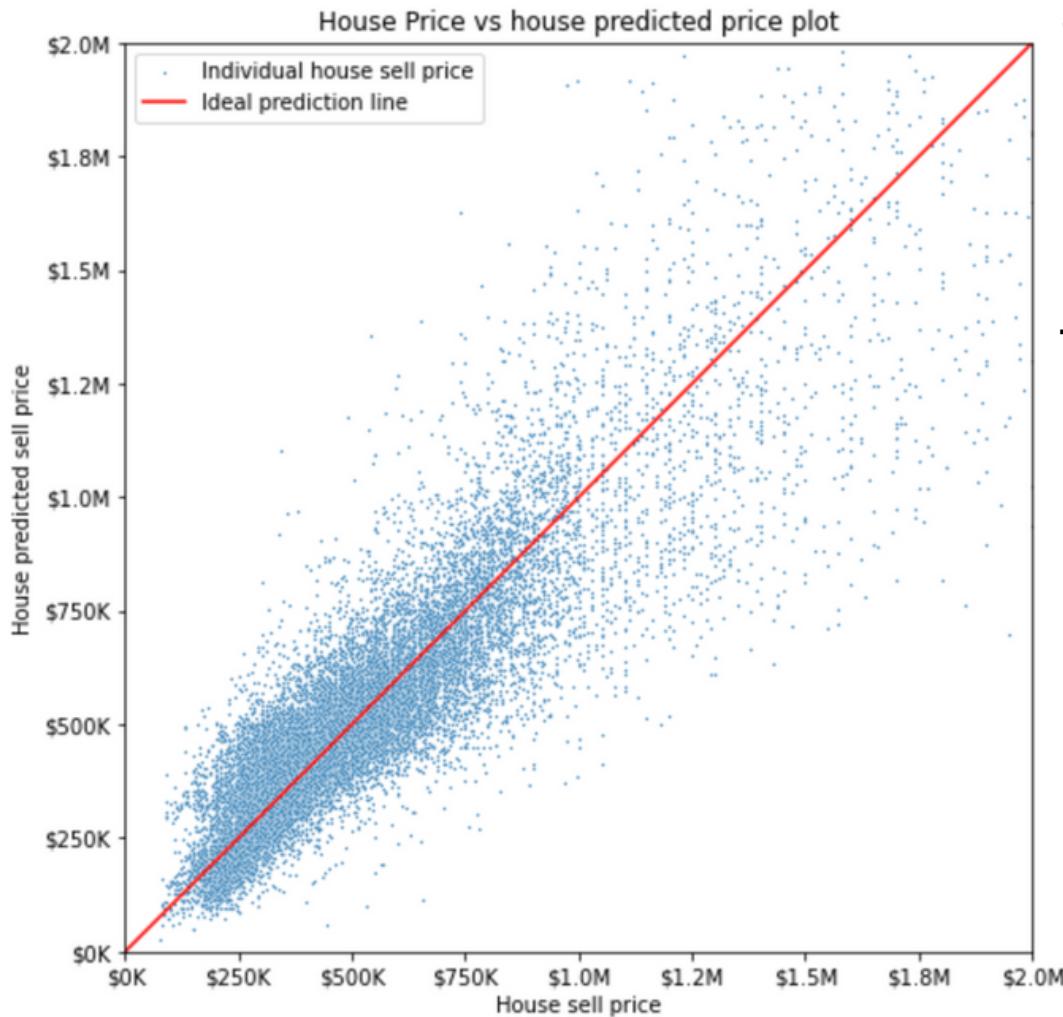
**USED FEATURES:****AGE****GRADE**

**USED FEATURES:****FOOTAGE****BEDROOMS****WATERFRONT****VIEW****AGE****GRADE****MODEL ACCURACY 69.2%**

Final Regression



- Added locational data for our final regression results



TEST 1

Model accuracy(R2 score): 80.7% +-3.9%
Mean Squared Error 26151639698.0
Random house price 331000.0
Predicted price 377244.0
Price difference 13.97 %

TEST 2

Model accuracy(R2 score): 80.7% +-3.9%
Mean Squared Error 26151639698.0
Random house price 1930000.0
Predicted price 2161811.0
Price difference 12.01 %

TEST 3

Model accuracy(R2 score): 80.7% +-3.9%
Mean Squared Error 26151639698.0
Random house price 512500.0
Predicted price 547056.0
Price difference 6.74 %

FINAL MODEL ACCURACY 80.7%

Business Recommendations



01

PROPERTY GRADE & SQUARE FOOTAGE



Property Grade and Square Footage are the housing features that have the strongest correlation with price

02

RENOVATIONS



Renovations did not significantly add to sales price in our model and should be considered minimally when pricing a property.

03

NEIGHBORHOOD



Housing prices vary widely based on neighborhood. Location is a major predictor of price

Next steps

- Explore Seattle for district information that could influence model
- Explore other statistical models for changes in model accuracy
- Expand models to other regions and cities



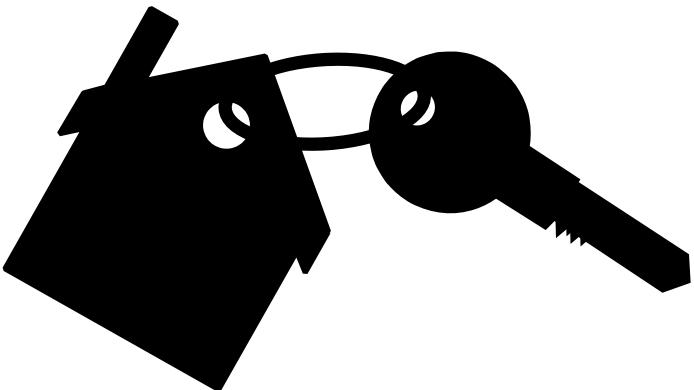
Q & A:



**Thank you for joining
today's presentation.**

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"HOME ISN'T WHERE
YOU'RE FROM, IT'S
WHERE YOU FIND LIGHT
WHEN ALL GROWS
DARK"

PIERCE BROWN

