

# ANALYSIS OF HOUSE SALES IN KING COUNTY

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# OUTLINE

- OVERVIEW
- BUSINESS AND DATA UNDERSTANDING
- MODELING
- REGRESSION RESULTS
- RECOMMENDATIONS
- NEXT STEPS

# OVERVIEW

- Cases from northwest in Washington state, King's County
- House prices depend of several factors
- This project will try to make predictions based on limited information such as:
  - Areas of house and lot
  - Grades, view, waterfront property and conditions
  - Zip code
  - Performance of prediction and recommendations

# BUSINESS AND DATA UNDERSTANDING

- Data collected from King's County official website
- This project will try to address the following questions:
  - What are the primary factors for house pricing?
  - Do zip codes, grades and other qualitative factors in the county determine house prices?
  - Are there unforeseen factors that could help predict housing price?
  - What is the best linear model to predict house prices in the future?
  - What are the additional information required to help make better prediction?
  - What are the recommendations based on the model generated?

# MODELING

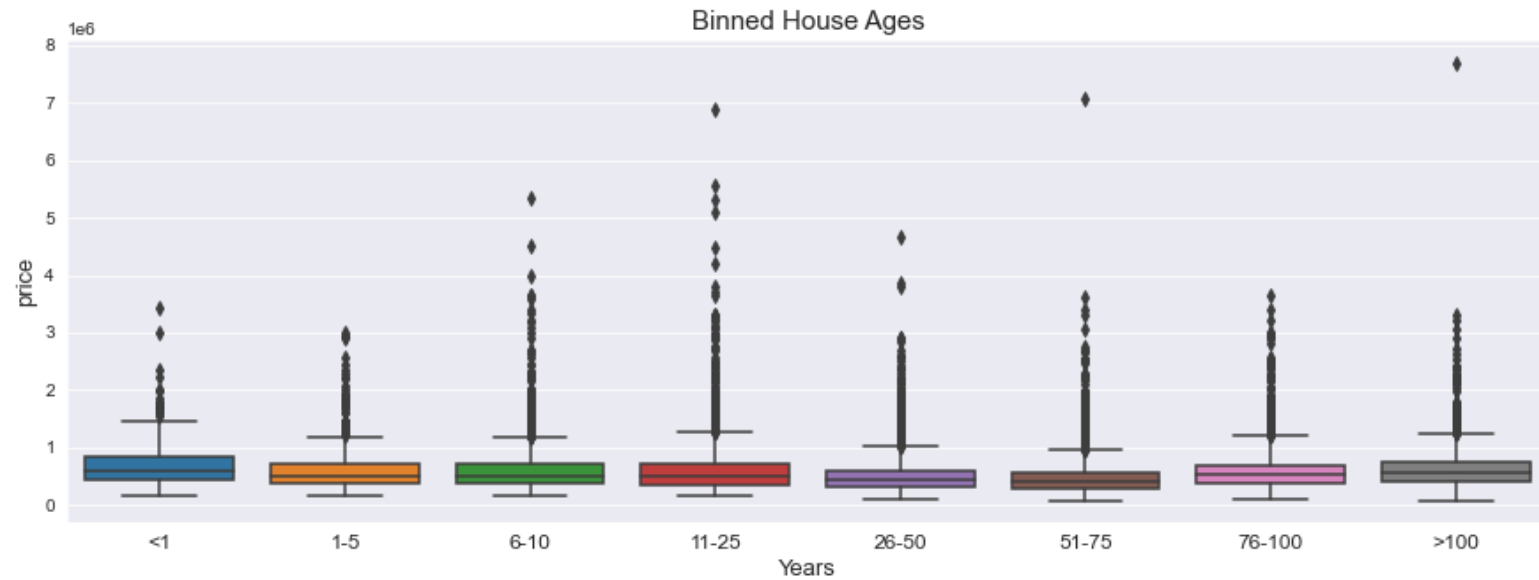
- Multiple Linear regression used in this project
- Ten models identified
- Models were evaluated
- Perform post-modeling assumption checked
- Features were check if they have mutual influences



RESULTS

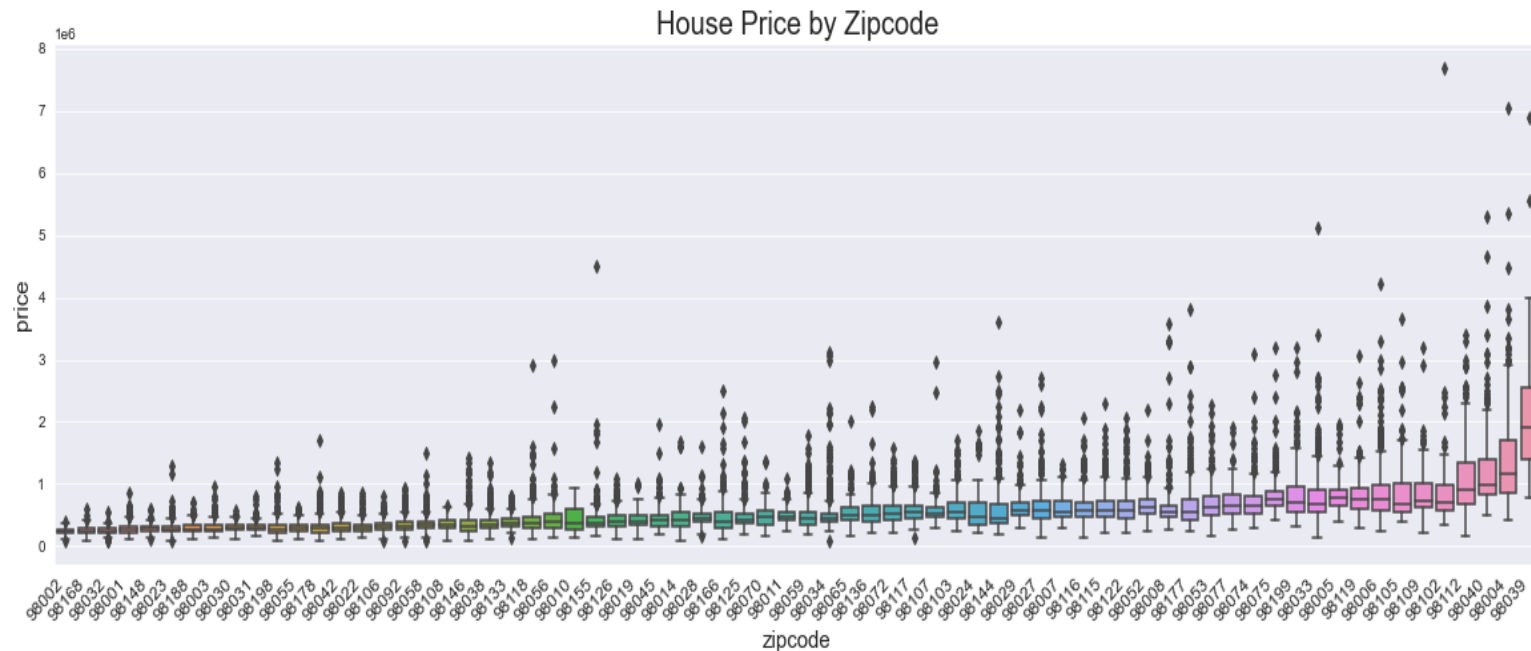
# AGE

Houses built 11 – 25 years ago sell better than others but not by a significant margin



# ZIP CODE

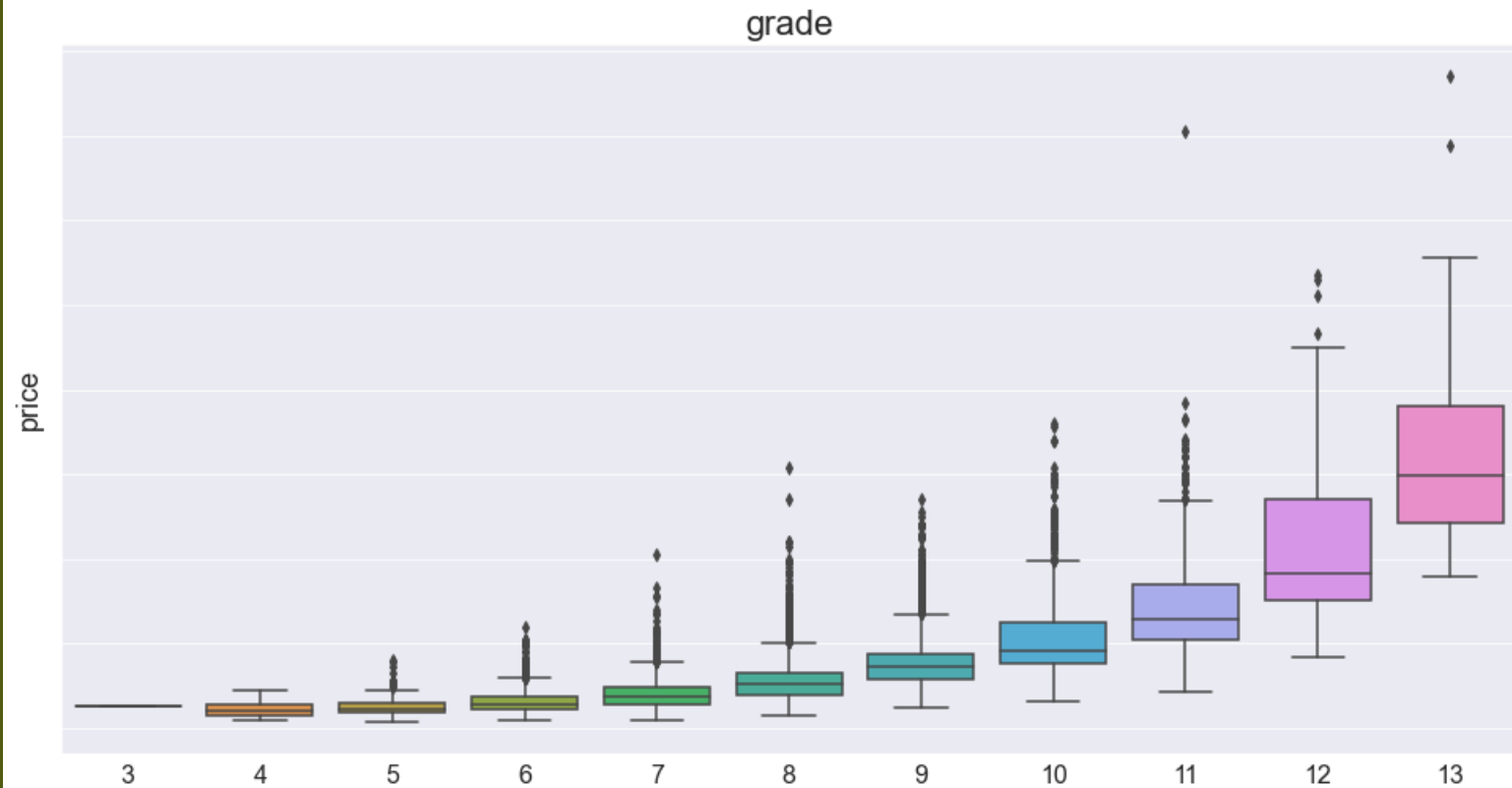
The costliest zip codes have significantly higher prices compared to others





GRADE

Average grades range between 7 and 8 but grades appreciably increase with price



## MONTH OF SALE

The month of house sale does not significantly impact on price



## REGRESSION RESULT

The final regression model appears as follows. R-square represents the goodness of fit. The closer it is to 1, the better



## RECOMMENDATIONS

- Location of the house has major effect on price
- Zip codes 98168, 98178, 98198, 98032, 98023, 98188, 98055 and 98031 reduce the house prices
- Age tends to reduce house price
- Waterfront properties increase the price significantly
- Houses with excellent views and condition cost more than the rest.
- The number of floors, interior living space square footage for the nearest 15 neighbors, basement area, and year of renovation have no significance in predicting prices.

## NEXT STEPS

- Gather more data with more sale years
- Investigate why some zip codes have over/undervalued prices
- Include median earning by zip code for better prediction
- Employ other predictive models, besides regression

# THANK YOU

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