



# Kings County Housing

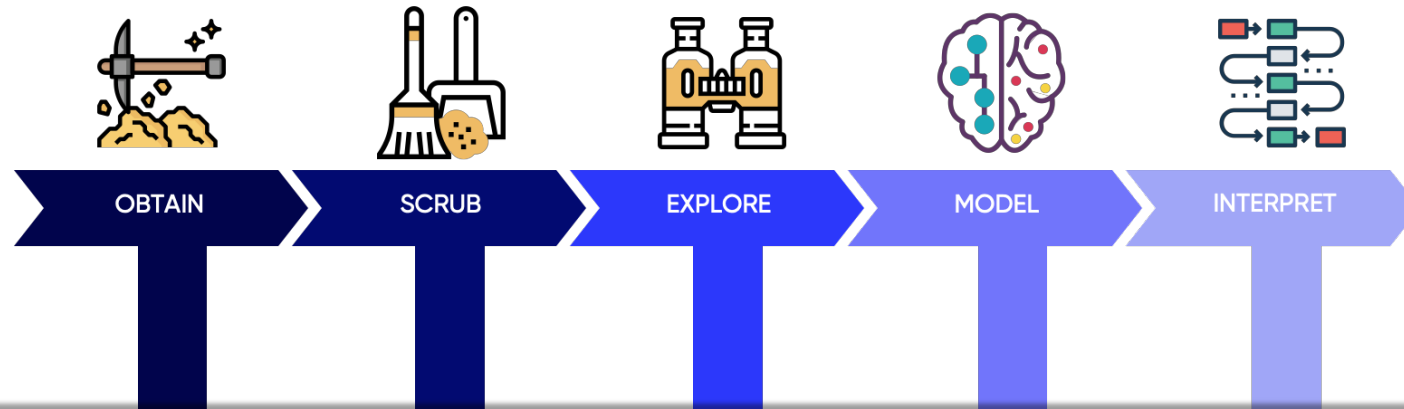
By: Rachel Spiro

# GOAL: Predict Housing Prices In Kings County

- ▶ Model: Multivariate Linear Regression
- ▶ Variables:
  - ▶ Number Of Bedrooms
  - ▶ Number Of Bathrooms
  - ▶ Square Footage Of The Home
  - ▶ Square Footage Of The Lot
  - ▶ Total # Of Floors
  - ▶ Waterfront View
  - ▶ Overall Condition Of The House
  - ▶ Grade Based On KC Grading System
  - ▶ Number Of Times Viewed
  - ▶ Inclusion Of A Basement
  - ▶ Year Built
  - ▶ Year Renovated
  - ▶ Zipcode
  - ▶ Latitude
  - ▶ Longitude
  - ▶ Square Footage Of Nearest 15 Neighbors' Homes
  - ▶ Square Footage Of Nearest 15 Neighbors' Lots

# METHODOLOGY

## Data Science Process



O

Gather data from relevant sources

S

Clean data to formats that machine understands

E

Find significant patterns and trends using statistical methods

M

Construct models to predict and forecast

N

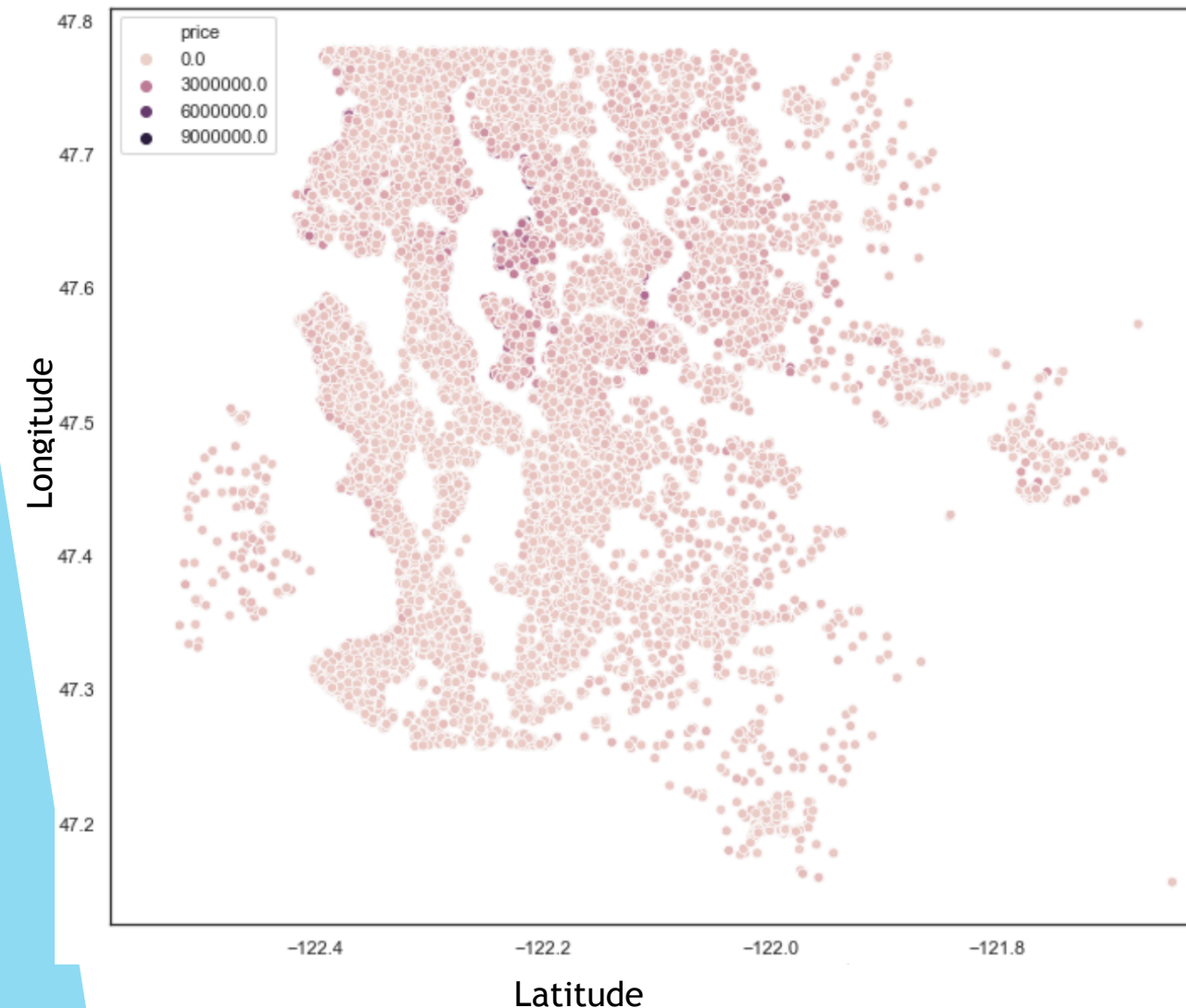
Put the results into good use

Originally by Hilary Mason and Chris Wiggins

Source: [5 Steps of a Data Science Project Lifecycle](#)

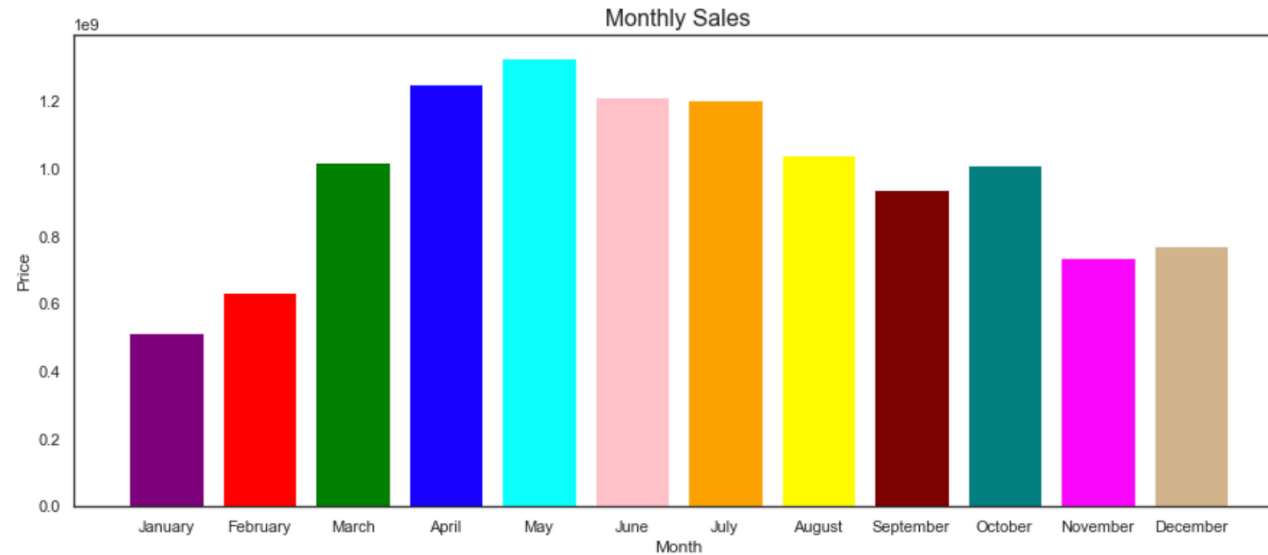
# What is the best location?

Location vs. Price

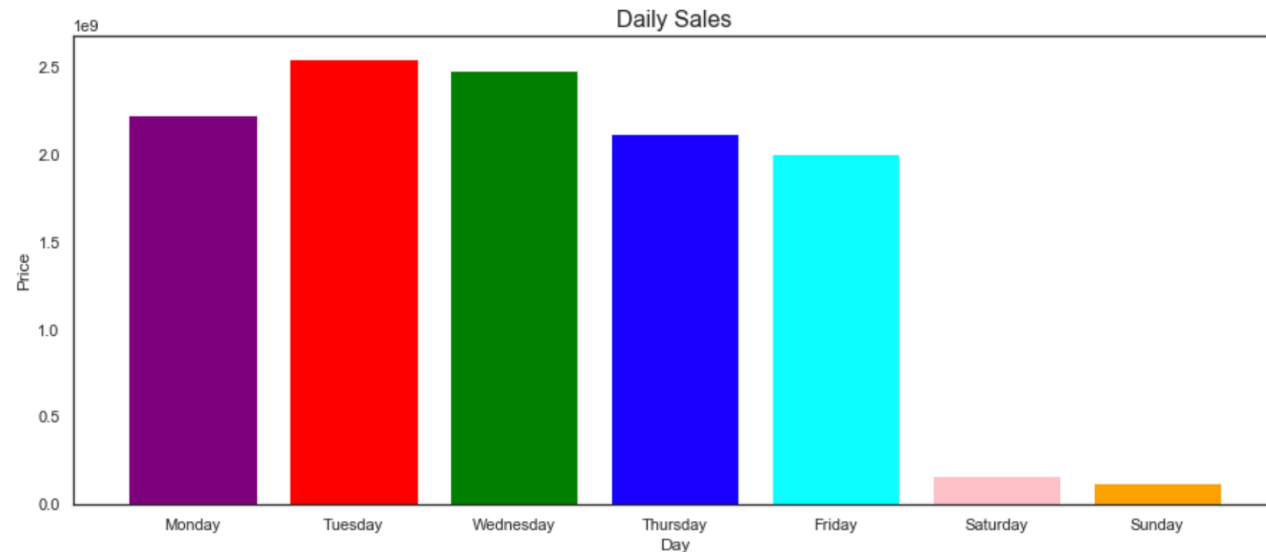


Premium priced houses (\$3,000,000+) tend to be located towards the outskirts of the more northern housing areas. There also is a cluster of them near 47.6 longitude and -122.2 latitude. Selling in one of these prime locations will be key to maximizing profit.

# When is the best time of year to sell?



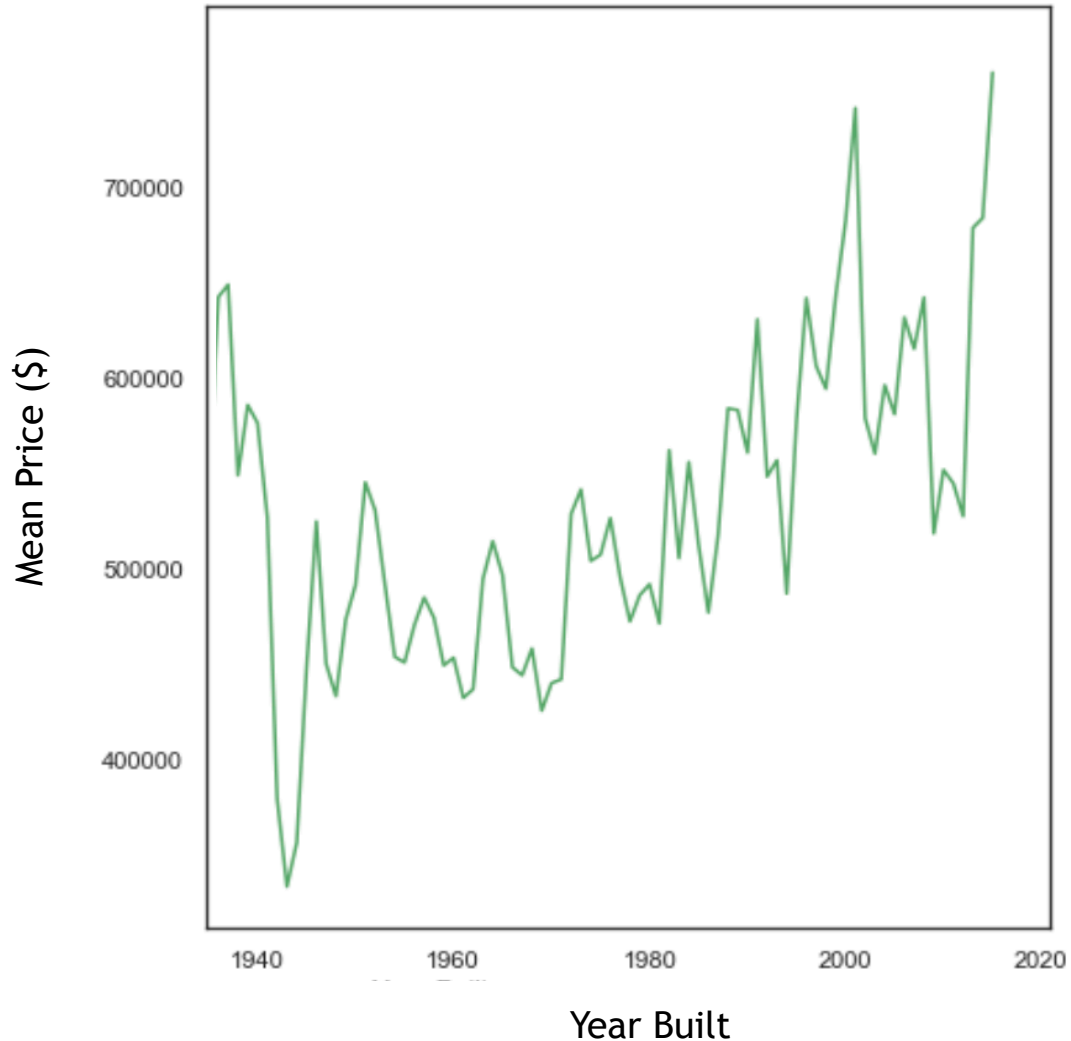
- ▶ Sell during the spring/summer months to garner the greatest profit (March-August).



- ▶ Selling on a weekday is advised as it brings in significantly more revenue than weekends.

# Do people prefer new or old homes?

Mean Price Per Year Built



People are typically willing to spend more for newer homes.

# What other factors have a strong influence on price?

- ▶ **Square footage of the house and neighboring houses** - Larger houses sell for higher prices, especially when built near other large, expensive houses.
- ▶ **Grade of the house** - More expensive homes often are given a higher grade rating from the town.
- ▶ **Number of Bathrooms** - Homes with more bathrooms tend to be more expensive homes.
- ▶ **Waterfront View** - Having a waterfront view can increase the value of a home.



# Conclusion: Variables to take into account when seeking high home sale profits

- ▶ Location
- ▶ Waterfront view
- ▶ Time of year and day of the week
- ▶ When the house was built
- ▶ Size of the home
- ▶ Number of bathrooms
- ▶ Grade of the home

**Model Accuracy:**  $R^2 = .76$

Therefore, 76% of the variation in price can be explained by the variables included in our model.



# Next Steps:

- ▶ Further investigate if there are certain thresholds for the size of a house to lead to being able to sell for a higher price.
- ▶ Of the lower priced homes, determine how many are being bought for re-modelling, and then are re-sold for a higher profit within 1-2 years.
- ▶ See what other community aspects factor into house pricing (i.e. education, crime rate, nearby recreational facilities).