



Berkshire Hathaway Real Estate Group

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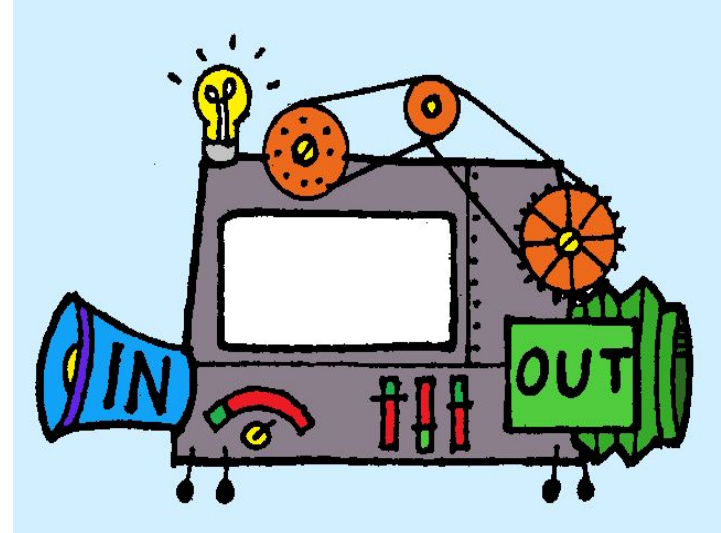




Business Problem

Washington's Berkshire Hathaway Real Estate Group are always looking for efficient ways to find properties for their clients

Our models take in each specified preference your client wants, and returns the predicted property price given those preferences, for each region and city





Data Source

1

King County Data Set

Detailed info of residential properties in King County, WA including sale price (prediction target)

2

Mapping City and ZIP Codes in King County

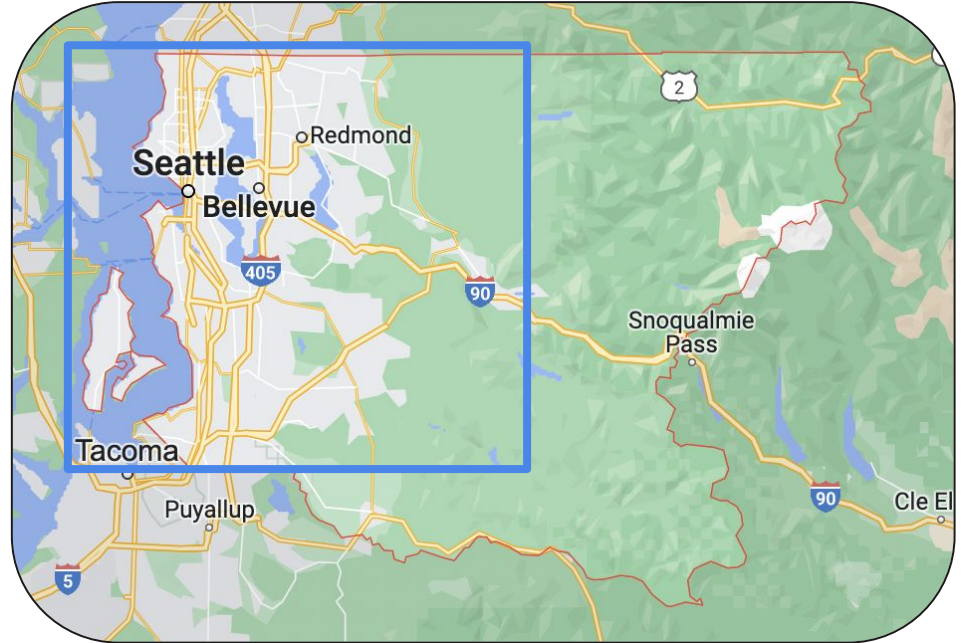
https://www.ciclt.net/sn/clt/capitolimpact/gw_ziplist.aspx?FIPS=53033

King County Overview

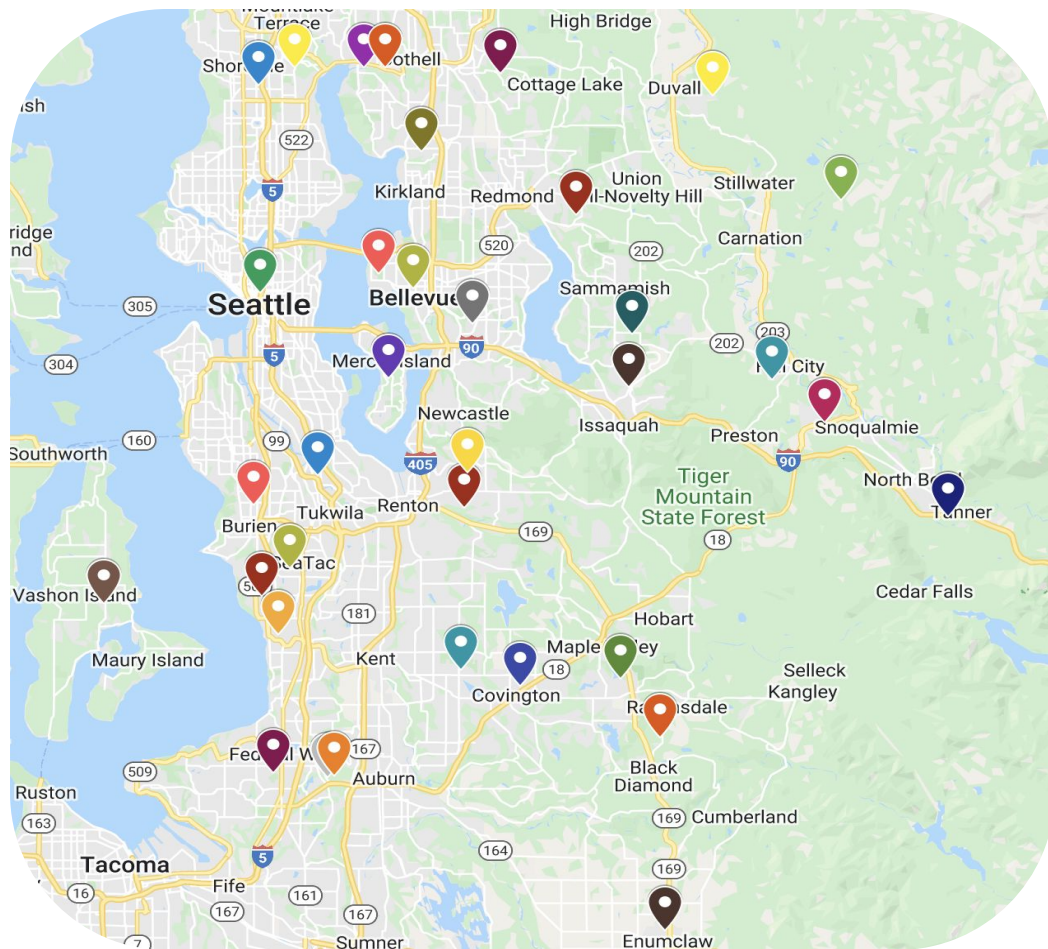
- King County has a total area of 2,307 square miles (nearly twice the land area of RI)
- The most populous county in WA
- Most cities located on the left half of the county

We have two sets of models based on:

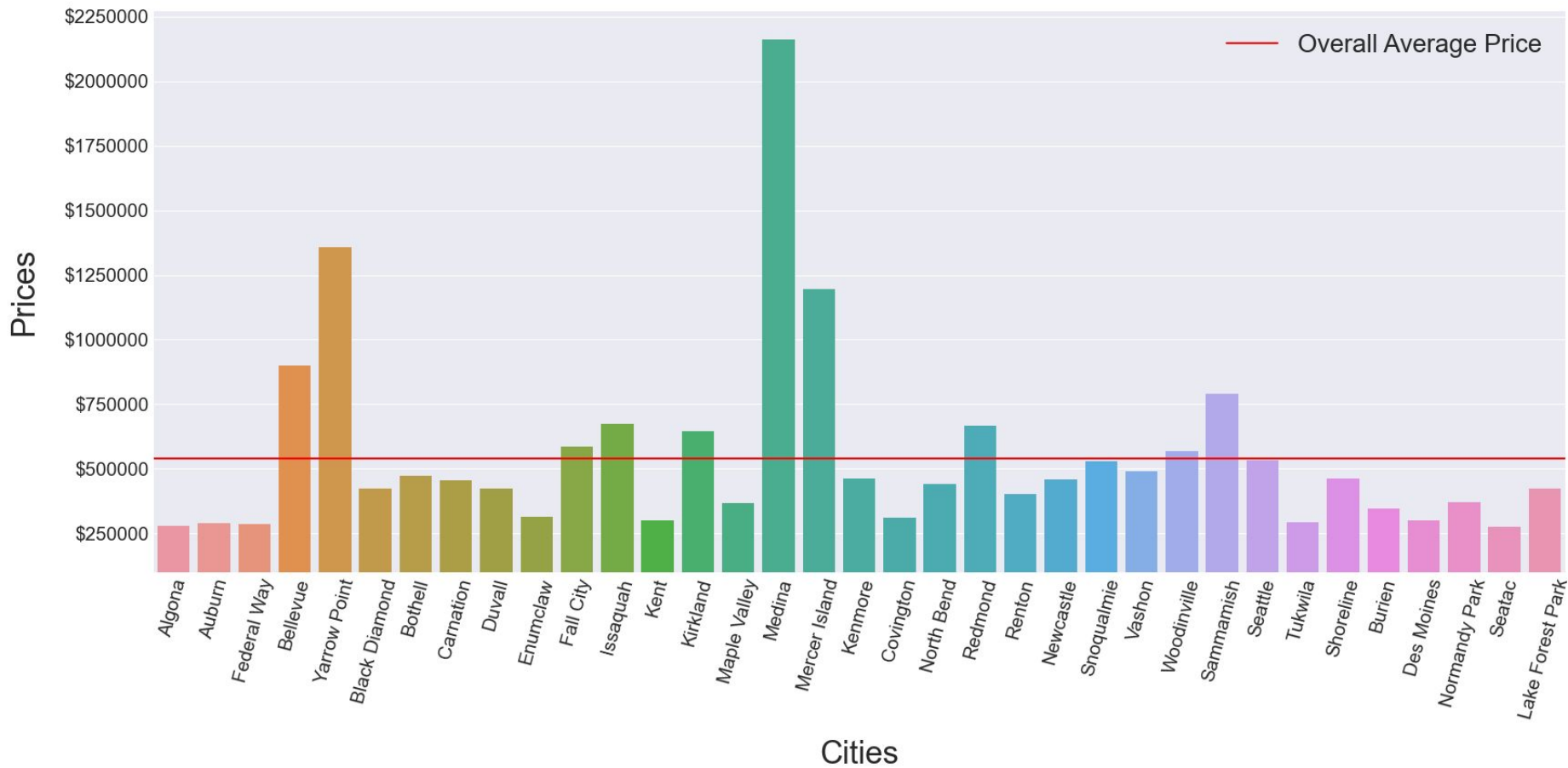
Cities and Regions



- 38 cities in the data set
- Varies data size and average price
- Each marker shows the center point of each city based on latitude and longitude

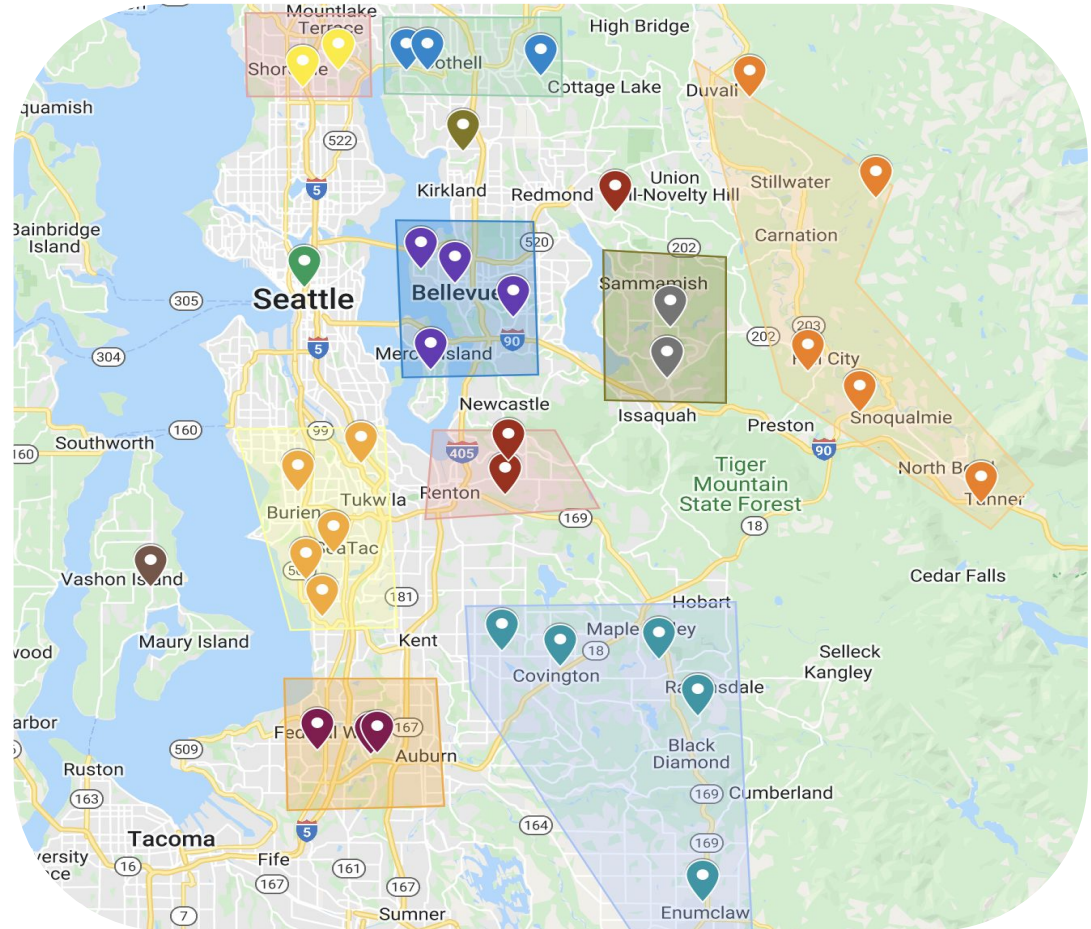


Average Property Price by City in King County

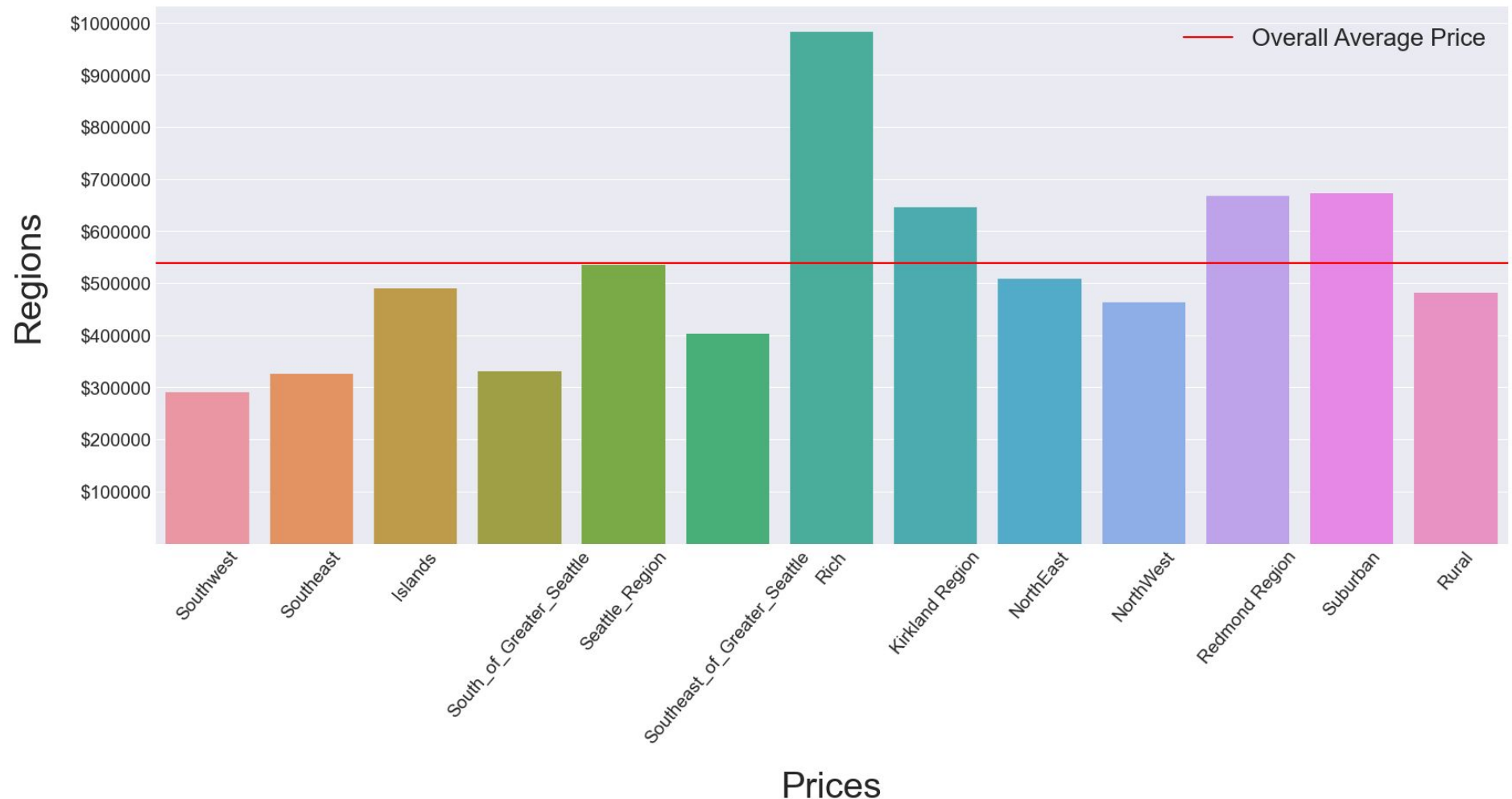


Region Breakdown

- Grouped cities into 13 regions based on locations, prices, and features
 - 108 total zip codes - some codes are being shared by nearby cities
 - 98001 - Algonia, Auburn, Federal Way
 - 98056 - Renton, Newcastle
 - Displays similar average sale price
- Increased data size by grouping, instead of dealing with some cities with small data



Average Property Prices by Region in King County





Our Models

Outlier Treatment

Using Log Transformation/IQR

Model Training

Training and testing selected variables

Delivery

Providing suggestions with min & max price along with target regions and/or city

1

2

3

4

5

Selecting Variable

User selects variables for prediction

Model Prediction

Computing sale price base on user preference



Example #1

Client 1: Family of 4 looking for a 4 bedroom, 3 bath, and 3000 square feet home in King County. No specified city or town in the county. Price Range between 500 K and 550K.

Minimum Price

399 K

Region - SouthWest

Maximum Price

1.05 M

Region - Wealthy Region

Suggested Cities

Duvall: 525K

Renton: 530K

Normandy Park: 537K



Example #2

Client 2: Single Woman looking for a 1 bedroom apartment with at least 800 square feet in or around Seattle. Price Range of 100k -150k.

Minimum Price

107K

City - Algona

Maximum Price

1.04 M

Cty - Medina

Suggested Cities

None



Example #3

Client 3: Elderly Couple looking for a country house, with 6 bedrooms, 4 bathrooms, 5500 square feet of living space, and and excellent grade. Price range of 950k - 1.5m.

Minimum Price

460K

Region – South West

Maximum Price

1M

Region - Wealthy

Suggested City

Duvall: 1.05M

Carnation: 1.27M



Further Analysis

1

Updated Housing Market Data

4

Education

2

Demographics

5

Traffic & Transportation

3

Cost of Living

6

Crime Rate



Thank you.

