

The background is a dark blue gradient. In the corners, there are white line-art illustrations of circuit boards or neural networks, with lines and small circles connecting them.

HOUSING PRICES IN KING COUNTY

An Analysis by Umar Khan

PROBLEM STATEMENT

1. How can we predict the price of a house in King County based on other information available about it?
2. How do home prices vary geographically across King county?

BUSINESS VALUE

1. Be able to identify high value properties that offer greater return on investment.
2. Identify locations that offer the best value in terms of price/square footage.

METHODOLOGY

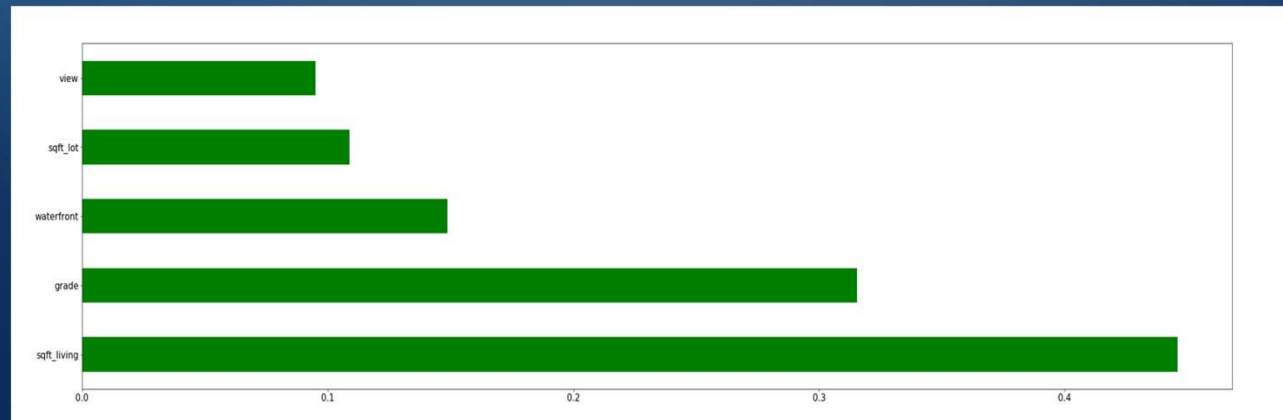
- Cleaning the dataset
- Removing outliers
- Normalizing
- Scaling
- Generating Visualizations
- Fitting Model

MODEL INPUTS

In order to predict the price of a house, we must provide the model with the following information:

- The square footage of living space
- The zipcode it is in
- The lot size
- The grade assigned to it by the County
- Whether it is a water front property
- Whether it has a view

The following chart shows the size of the effect the input variables have on the price.

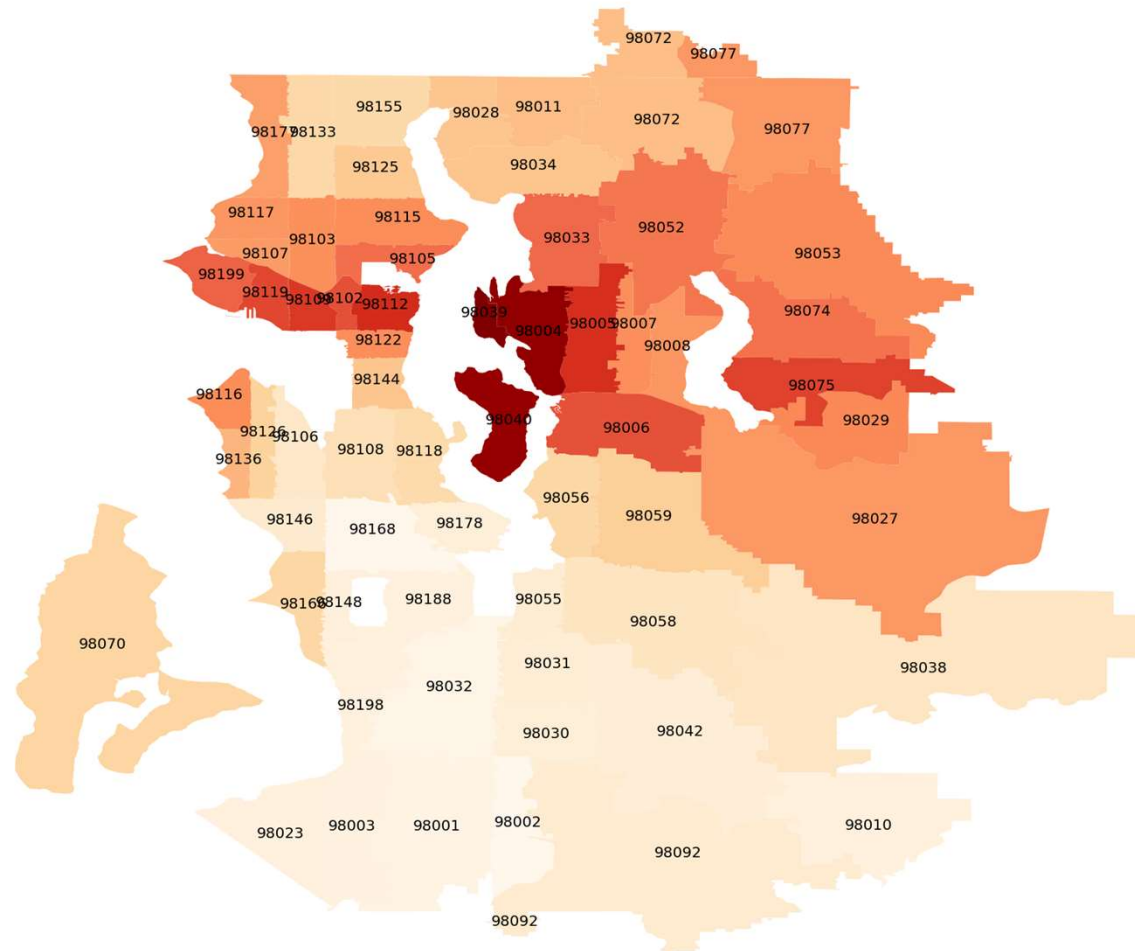


MODEL PERFORMANCE

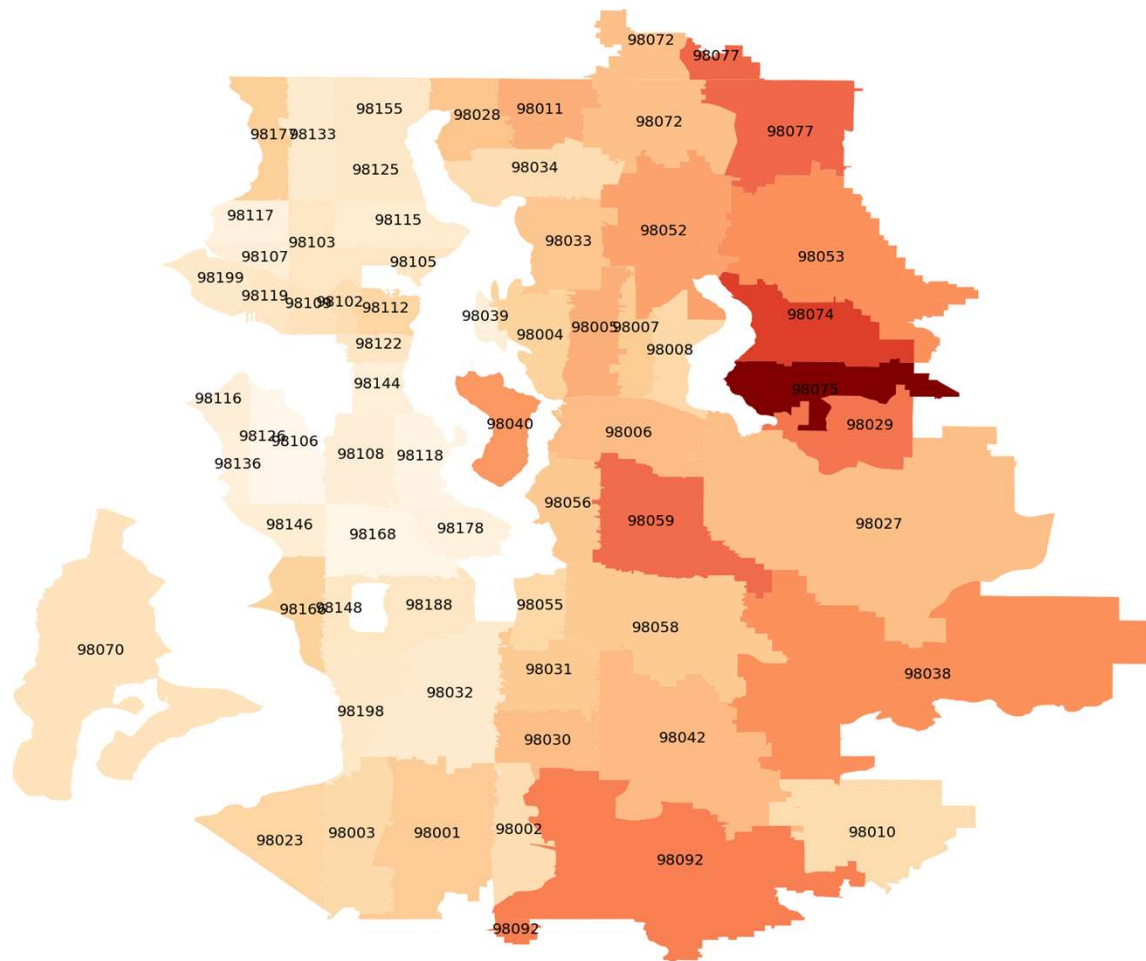
In order to test the accuracy of the model's predictions, we set aside 20% of our data at the beginning as a test set. Later on we used the model to predict the prices for houses in the test set, and compared them to the actual prices for those houses.

- Our model has an R^2 value of .87, meaning it explains 87% of the variation in housing prices above the average price.
- On average, the price predicted by our model was within 10% of the actual price.

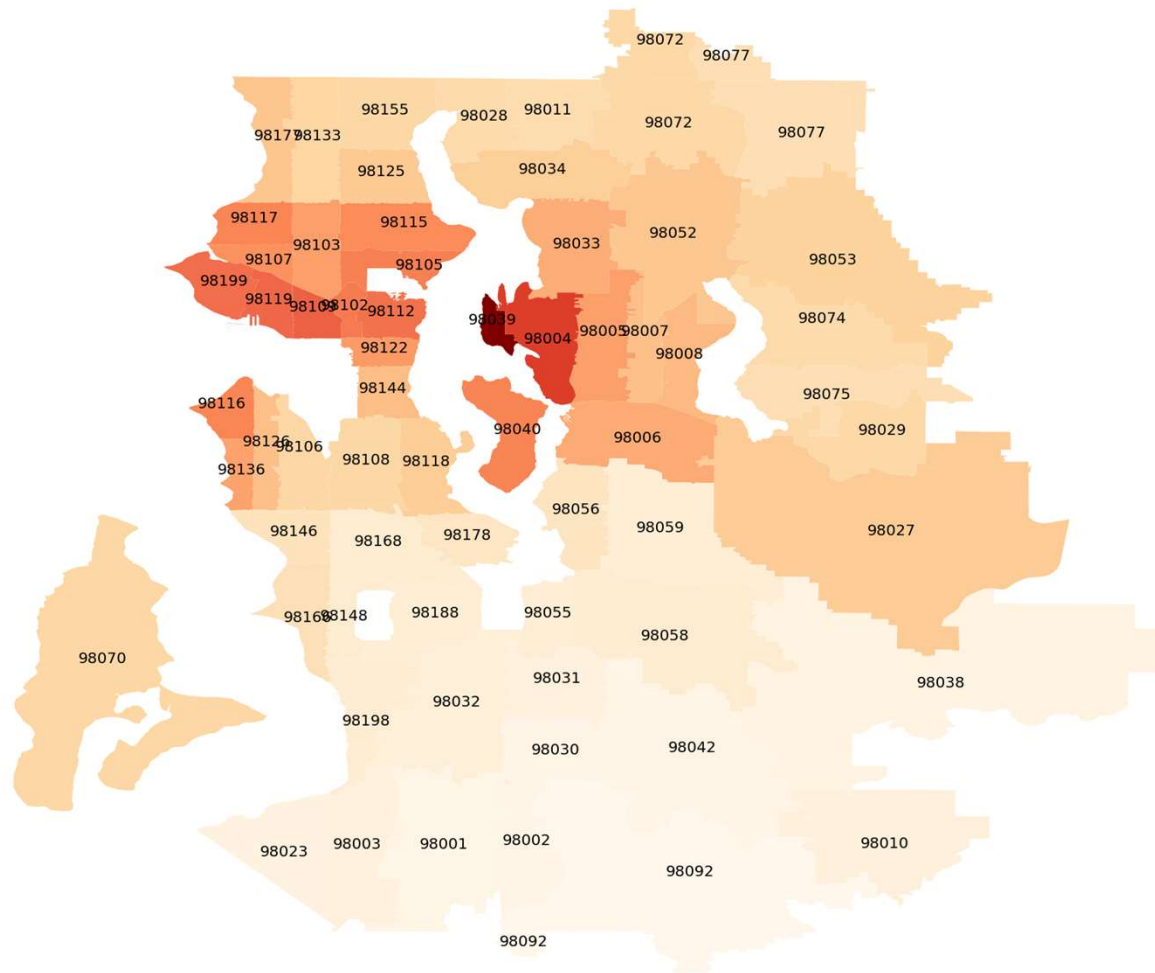
Price By Zipcode



Indoor Square Footage



Price per Square Foot



FINDINGS AND RECOMMENDATIONS

- **Sellers looking to make profits from investing in property:**

- Should buy houses towards the city center, and in neighborhood like Medina and Mercer Island. These have higher sales prices and thus, probably yield higher profits.
- Buying closer to the city would probably lead to more increases in sale price, since the scarcity of land close to the city will only increase.

- **Buyers who will live in the homes they purchase:**

- Should buy in the suburbs, if they want maximum living space for their money.
- Should buy close to the city if they prefer a shorter commute to having more space.

FUTURE WORK

- Historical sales data
 - If we could get sales information on these houses from the past, we could track the change in the price of houses over time.
 - This can allow us to also see how house values increase geographically over time, and whether the increase in value “peaks” for neighborhoods.
- Renovation data
 - We have very little data on home renovations. If we had more, we could study the effect of renovation on the price of a home.
 - This can help make business decisions about whether renovating is a good investment decision for a given house or area.