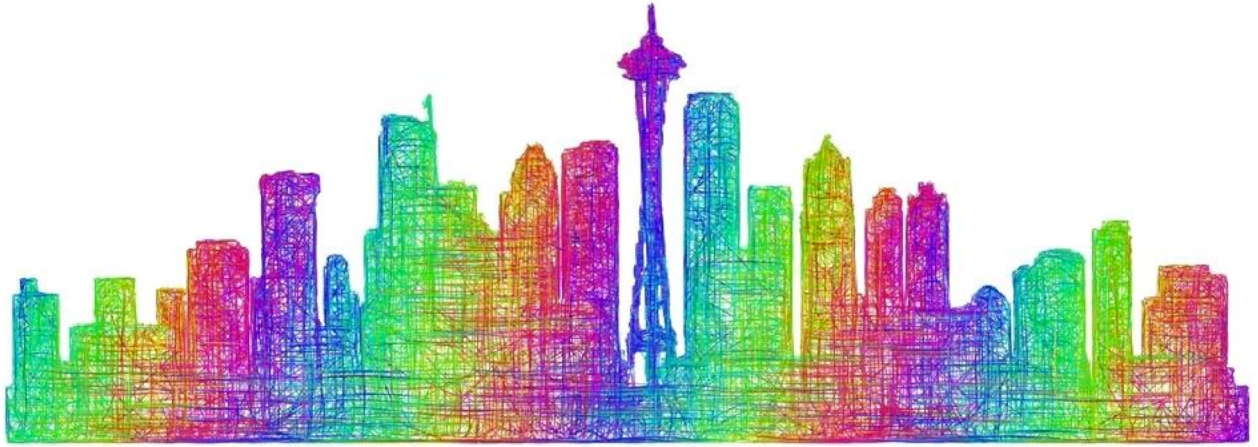
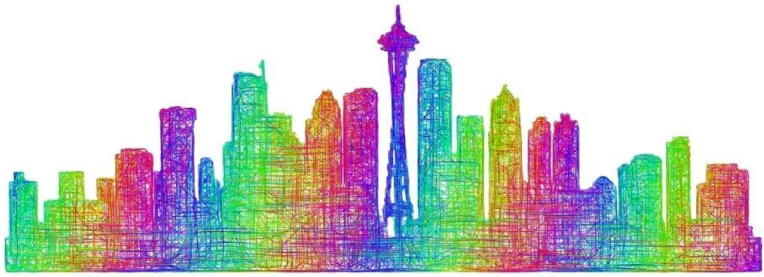
Prediction of Rental Prices in Seattle using Craigslist Data

Carolina Gonzalez

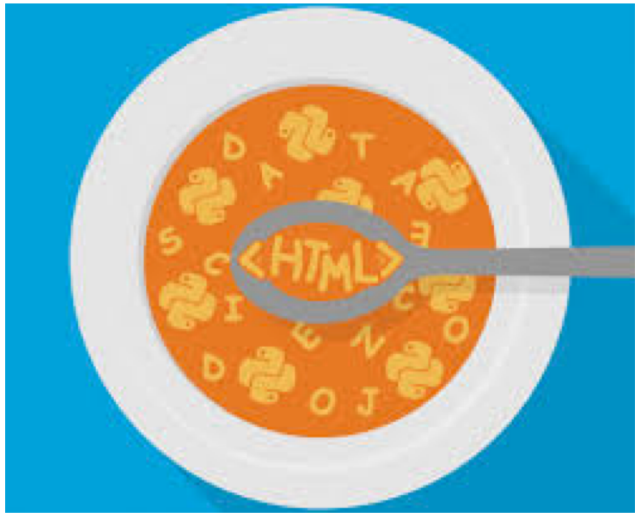


Business Case

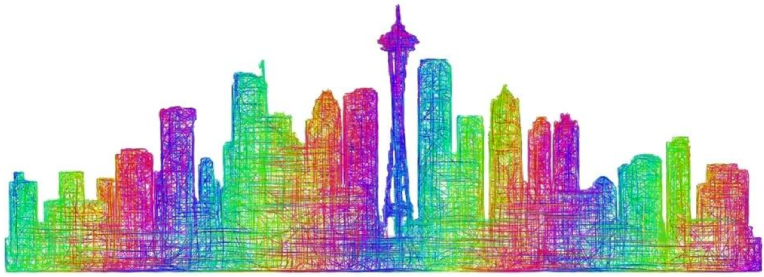
- The evaluation of rental cost could be useful for:
  - Landlords
  - Tenants
  - Developers
  - The city
  - Prospective home buyers
- The rental market in Seattle is very dynamic. The rental prices have varied significantly from year to year (5% last year)
- Craigslist is one of the most popular sites for rental classifieds in Seattle.



The Data

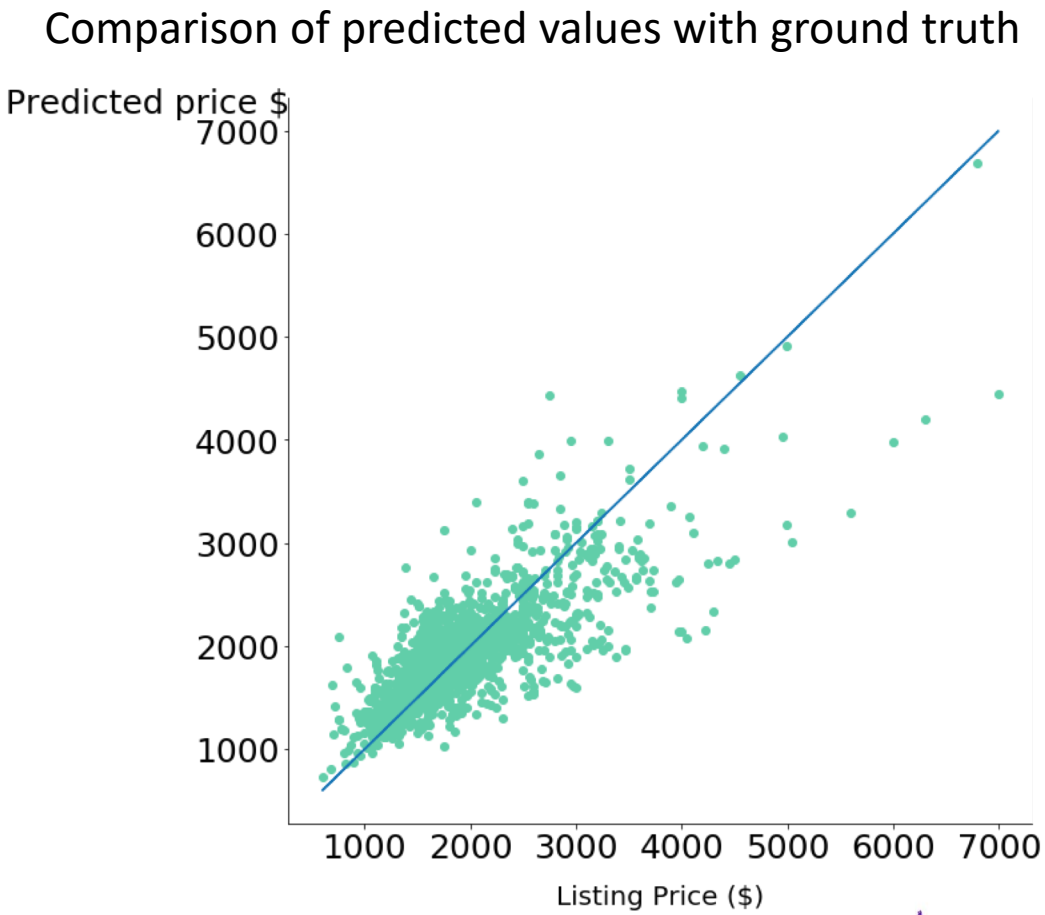


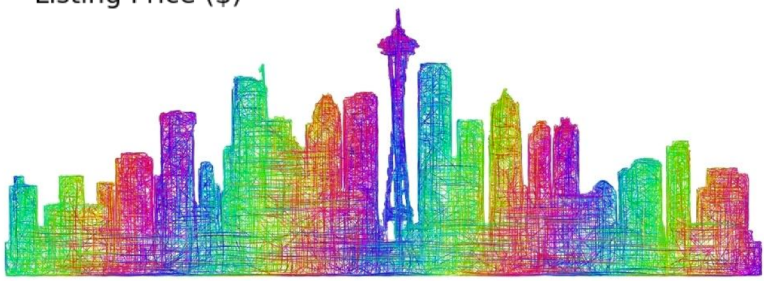
- 3000 listings were scrapped using BeautifulSoup.
- The features collected included: number of bedrooms, bathrooms, area, dog allowed, cat allowed, latitude, longitude, number of images in the listing, zip code, w/d in unit, laundry in building, carport, garage.
- The data was cleaned to delete duplicates, outliers, or listings without a price.



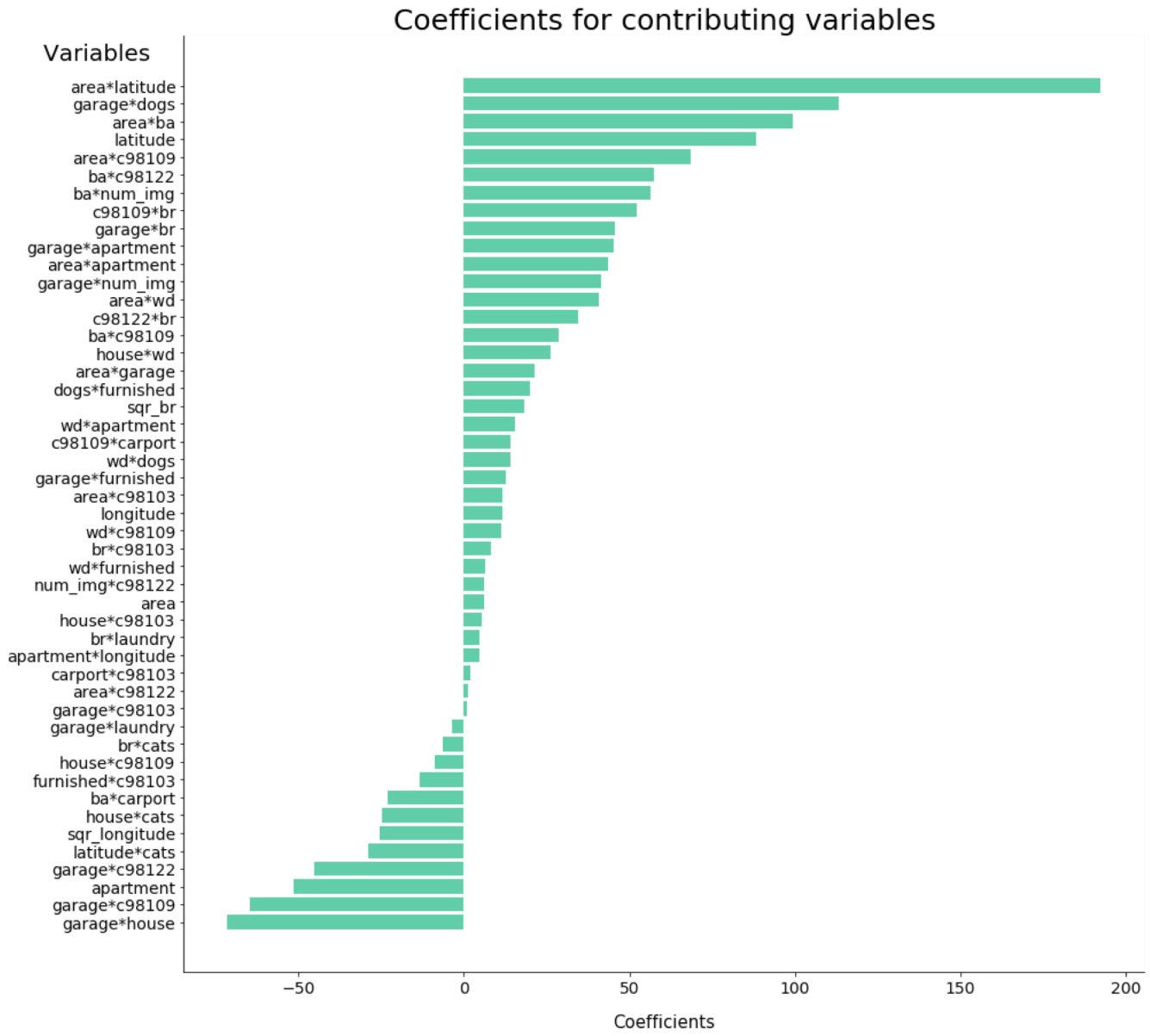
Models

- ~20 models were explored.
- Selected Model:
  - polynomial model grade 2
  - Normalized variables
  - LassoCV
  - Cross- validated adj-R^2: 0.60
  - Mean error 15%
- 1742 listings
- Mean price $1874/month
- Range $600 - $6995/month
- Mean BR 1.5. BA 1.3

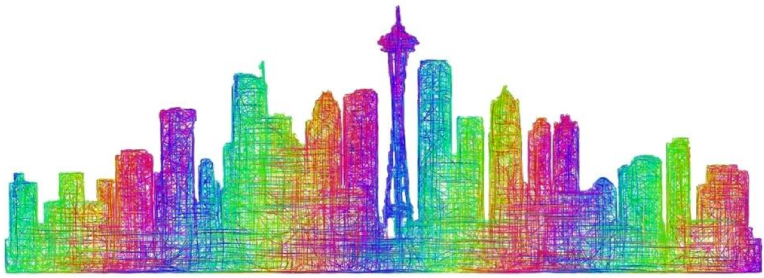




Variables



- Stakeholders can evaluate the relative cost – benefit of features with this model
- Normalized variables → coefficients can be compared



Conclusions

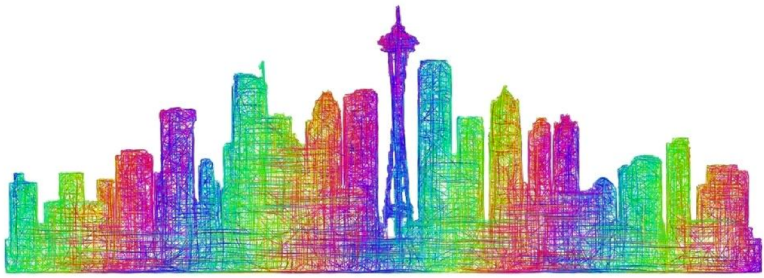
- The model developed predicted rental prices with a

  +/- 15% mean error

- The relative effect of features could be evaluated using the coefficients of the linear regression

Future work:

- Inclusion of additional zip code data, and distance to downtown.



Questions: