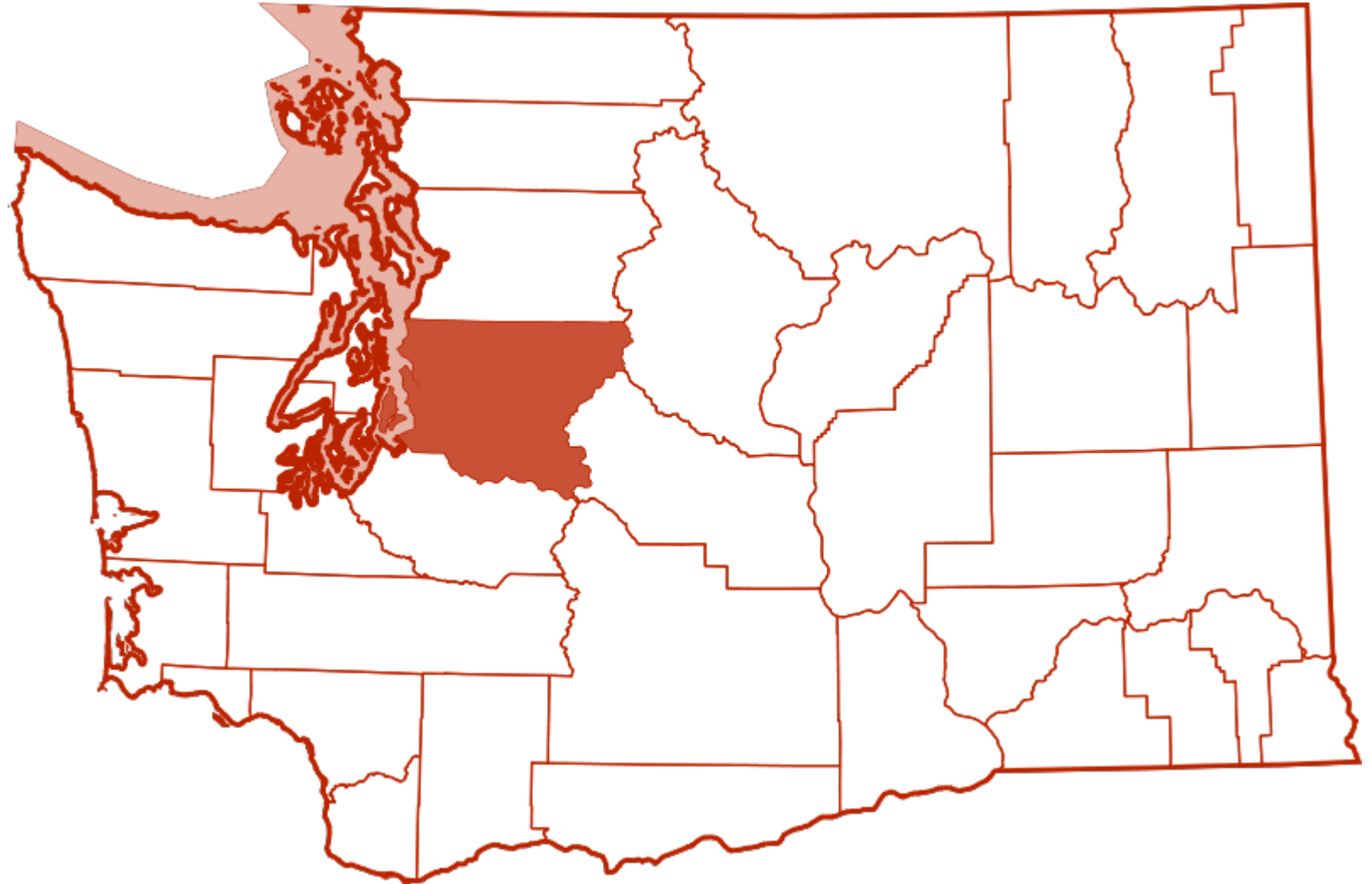


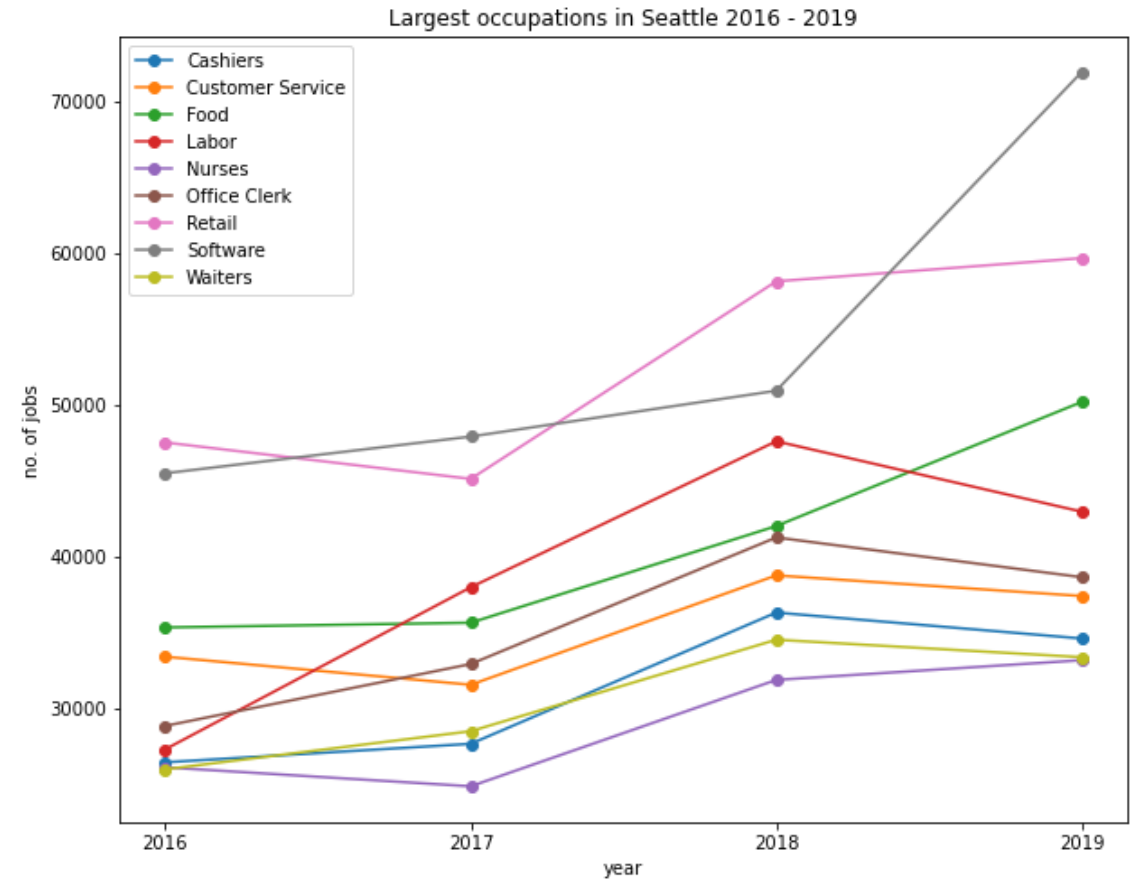
KING COUNTY, WASHINGTON: HOUSING MARKET

CATHERINE FRITZ



BUSINESS UNDERSTANDING

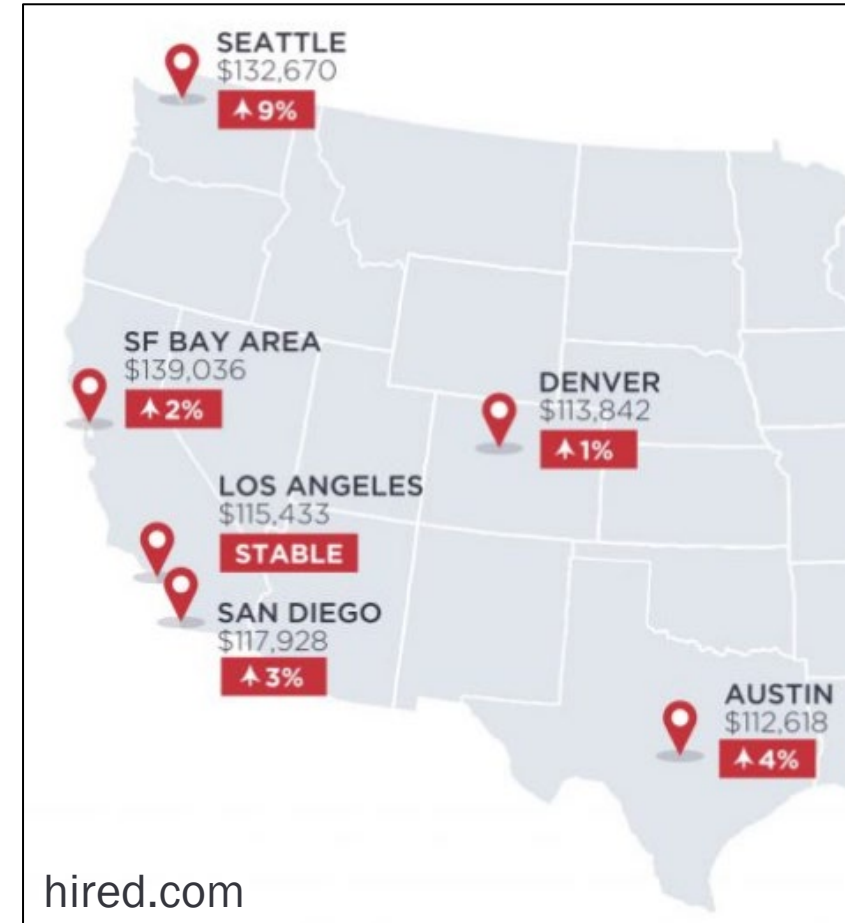
- Between 2016 and 2019, Seattle's population increased by 134,000.
- U.S. Department of Labor & Statistics:
 - “Software Developers, Software Quality Assurance Analysts and Testers” - Seattle's largest occupation category in 2019.
- Help workers new or moving to Seattle area to understand what are the major influences on housing prices



BUSINESS UNDERSTANDING

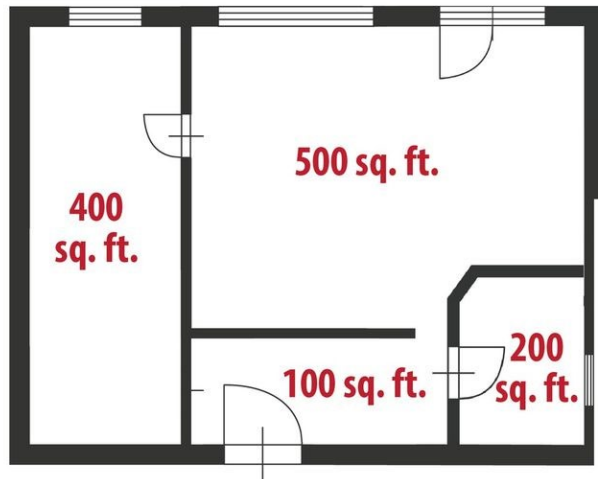
- Assumptions:
 - Target is Software Developers, Software Quality Assurance Analysts and Testers
 - Range: \$64,240 - \$164,590 (U.S. Department of Labor and Statistics)
 - Property prices between \$105,000 and \$1,000,000 based on mortgage recommendations for salary (www.mortgagecalculators.info)

2016 Average software engineer salary offers



DATA UNDERSTANDING: PROPERTY FEATURES

- The King County House Sales dataset provided information on the following features for each house.

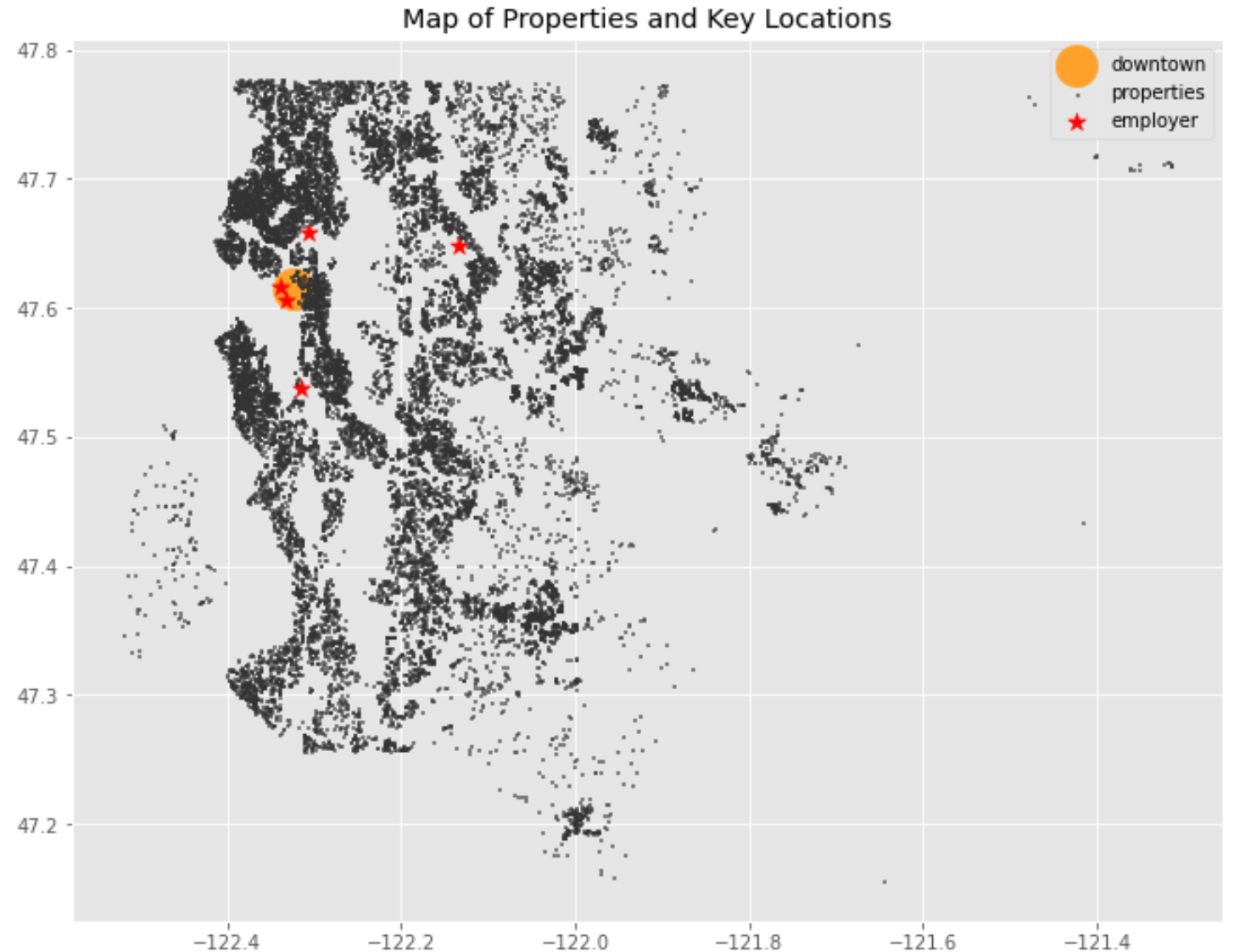


Data considered to affect price:

- Month house was sold
- No. of bedrooms and bathrooms
- Square footage of home, lot, and neighbors
- No. of floors and their square footage
- If the house has a view to a waterfront
- Condition and quality of house
- Year house was built or renovated
- Location information

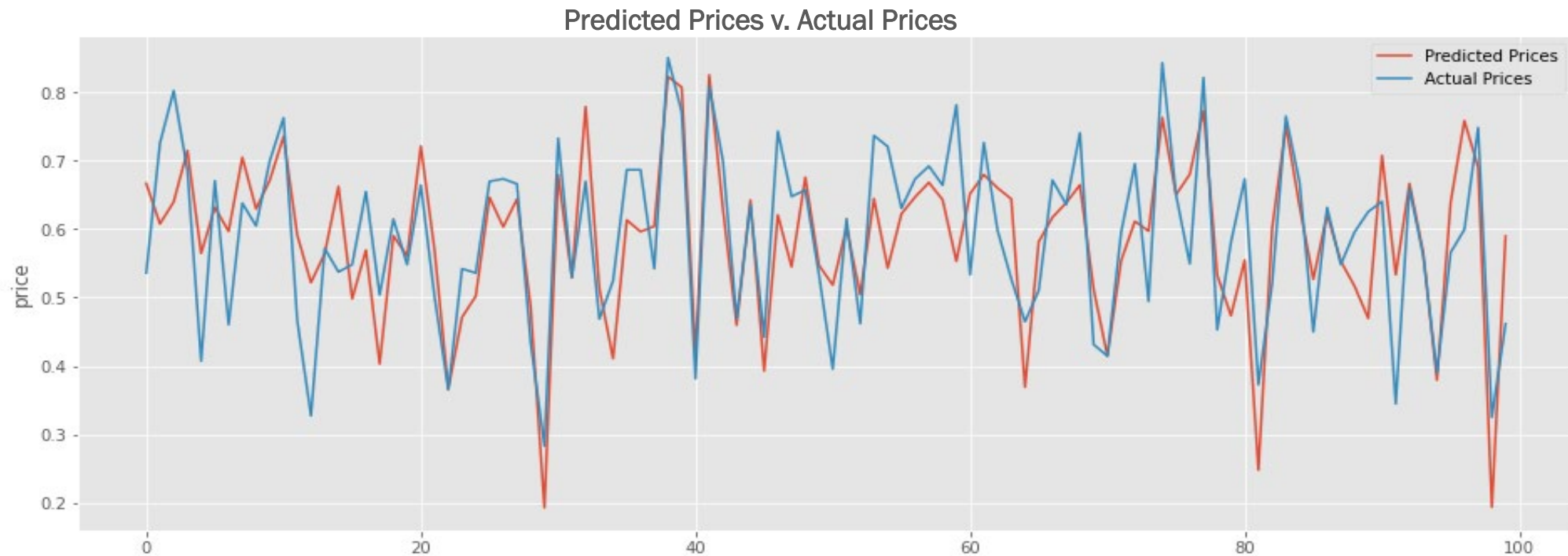
DATA PREPARATION: LOCATION

- Added values to provided data for each property:
 - Average distance to top 5 employers
 - Distance of each house to the central downtown area
- Chose to use distance to downtown



MODEL

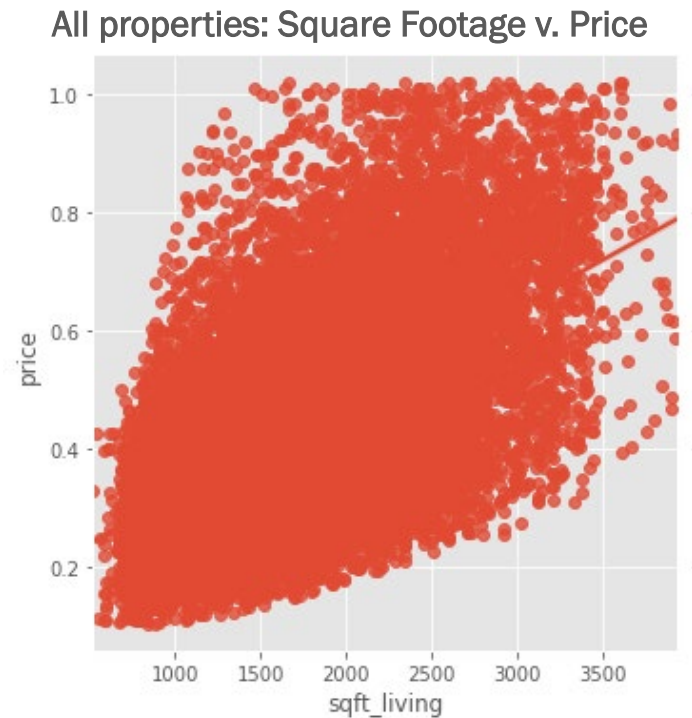
- Method: multivariate linear regression
- Accuracy: 70.9%



EVALUATION – SQUARE FOOTAGE

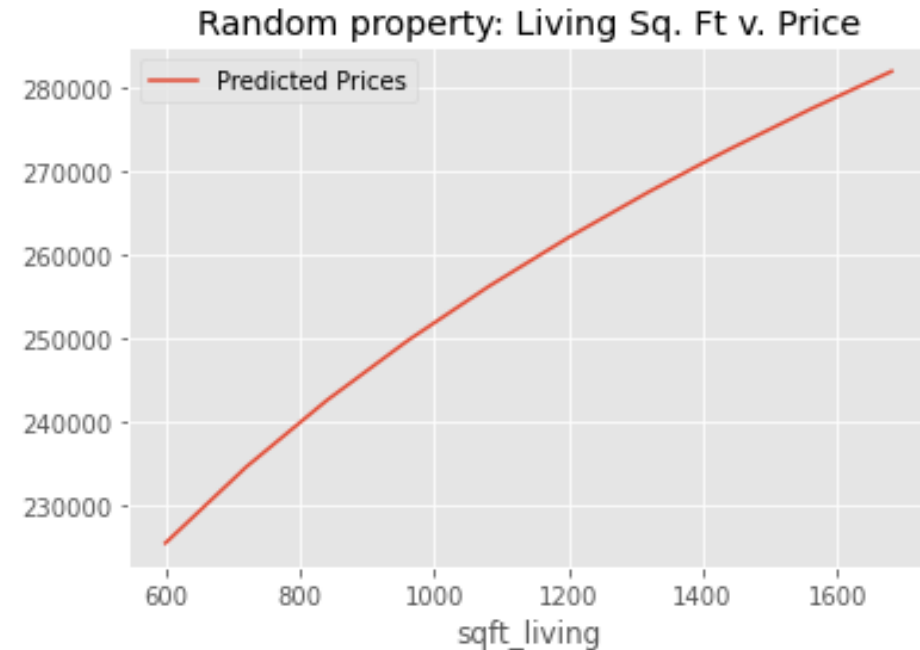
General trend:

- Price increases as square footage increases



Price change for a random property:

- % change removing 200 sq. ft.: -5%

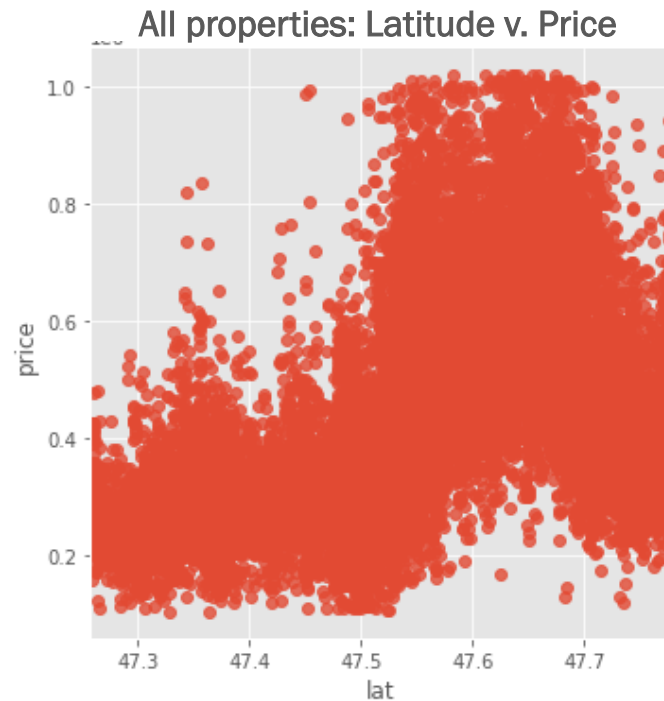


➤ Price increases with added square footage

EVALUATION – LATITUDE

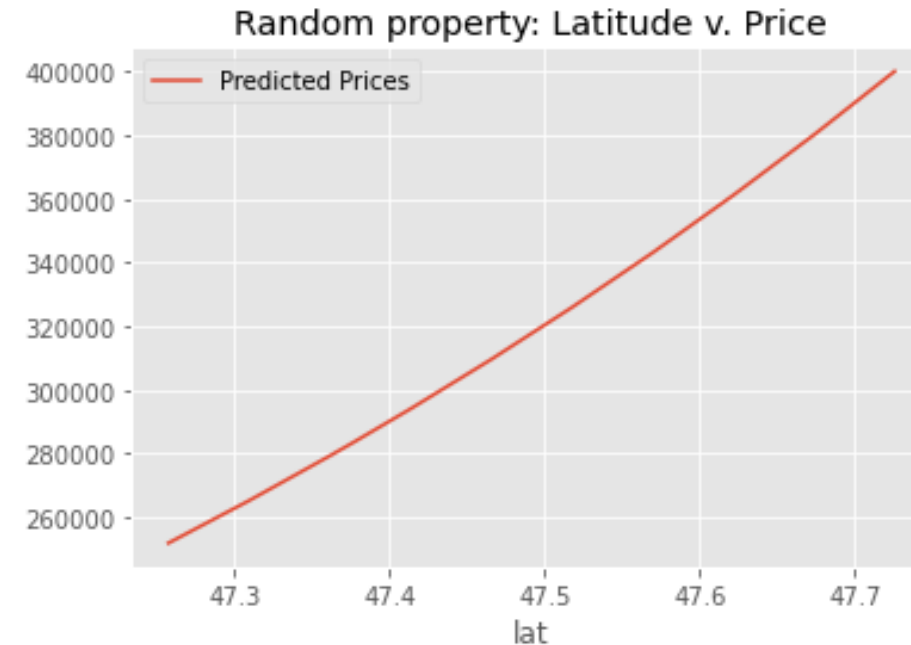
General trend:

- Price increases as properties move north



Price change for a random property:

- % change moving south 0.1 deg.: -10%



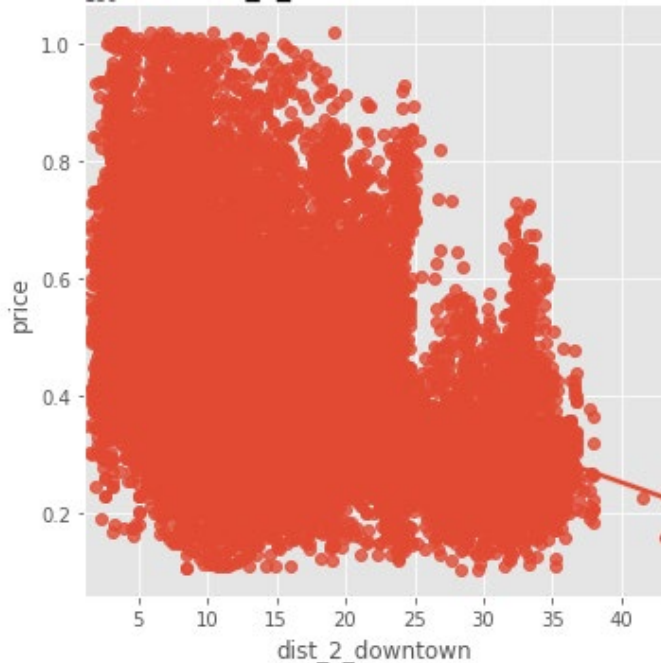
✓ Moving property 7 miles south saves about %10

EVALUATION – DISTANCE FROM DOWNTOWN

General trend:

- Price decreases as farther away from downtown

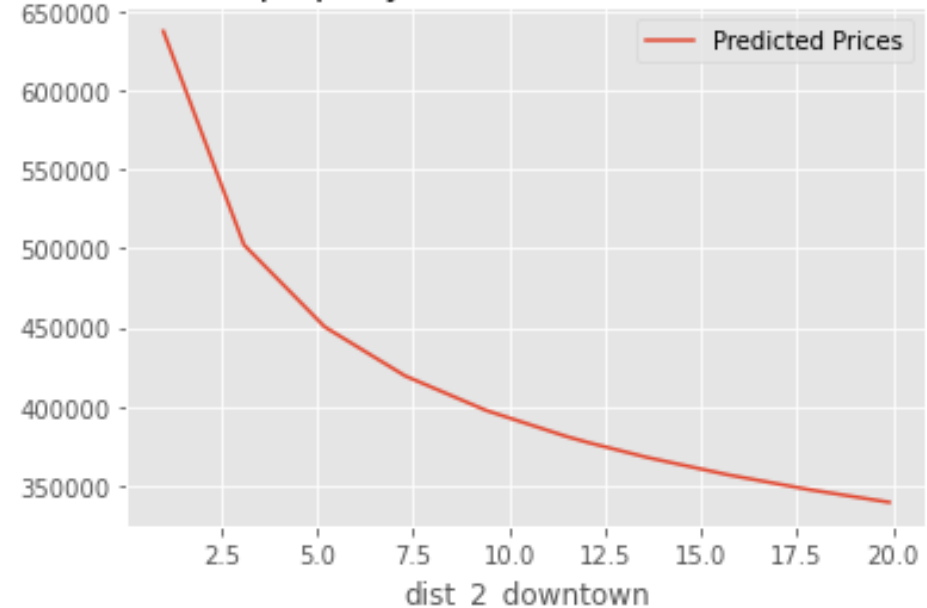
All properties: Distance to Downtown v. Price



Price change for a random property:

- % change from 1-5 mi.: -18%
- % change from 5-10 mi.: -12%
- % change from 10-15 mi.: -10%

Random property: Distance to Downtown v. Price



✓ Property at least 5 miles from downtown for larger % savings

EVALUATION - WATERFRONT

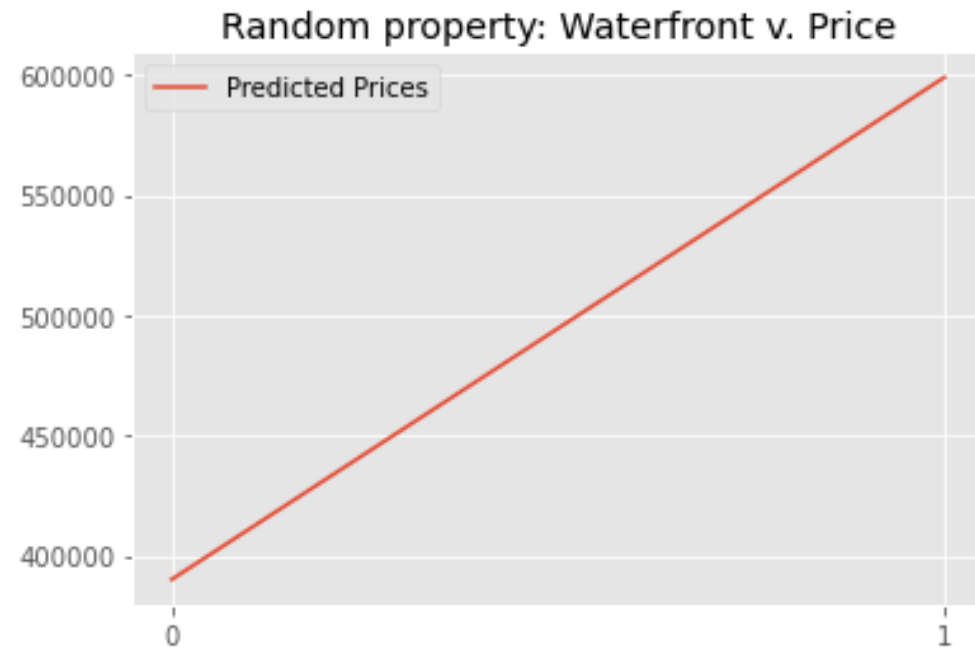
General trend:

- Being on the water increases price



Price change for a random property:

- Removing waterfront % change: -35%



➤ Waterfront adds considerable cost

RECOMMENDATIONS

- Avoid a waterfront property
- Live at least 5 miles from downtown
- Live south of downtown
- Reduce square footage if necessary



FUTURE WORK



- Look at proximity to public transportation
- Provide spectrum to waterfront feature based on distance from waterfront
- Look at properties outside of assumption



THANK YOU

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ADDITIONAL INFORMATION CAN BE FOUND AT
[HTTPS://GITHUB.COM/CMFRITZ/DSC-PHASE-2-PROJECT](https://github.com/cmfritz/dsc-phase-2-project)