

Seattle Housing Market

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Introduction

Dec 2020 — Seattle \$772K

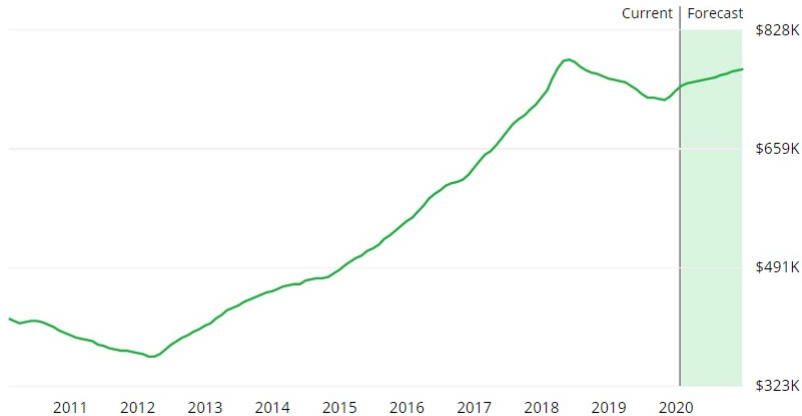


Figure: Seattle Market Overview

Introduction

- There are sixty neighborhoods in Seattle, separated by their zip codes.
- Buyers consider both the affordability of the house and amenities around the house
- The goal of this project is to provide neighborhood-level information to potential buyers in the Seattle housing market.

Data

- The zip code list of Seattle is from zip-codes.com. The link is <https://www.zip-codes.com/city/wa-seattle.asp>.
- To locate each neighborhood, I find coordinates of Seattle neighborhoods with OpenCage Geocoder API.
- The numbers and types of venues in each neighborhood are collected from the Foursquare API.
- I find the average housing prices from www.zillow.com. The limitation of this dataset is that there are only 34 neighborhoods available.
- To draw the choropleth map of housing prices, I use the boundaries of zip code areas from ArcGIS Hub.

Methodology

- From the venue data, there are more than three hundred categories of venues, including different types of restaurants, bars, parks, gym, etc. The first step of the analysis is to find the structure of the data. I use the K-means algorithm to find the typical amenities in a neighborhood.
- I illustrate the distribution of housing prices in Seattle with a Choropleth map. For the set of neighborhoods with both venue and housing price information, I provide both information on the same map.

Neighborhood Clustering

Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
0	Coffee Shop	Hotel	Cocktail Bar	Bakery	Breakfast Spot	Italian Restaurant	Sandwich Place	Seafood Restaurant	Sushi Restaurant	French Restaurant
1	Park	Coffee Shop	Pizza Place	Vietnamese Restaurant	Brewery	Grocery Store	Gas Station	Playground	Pub	Bakery
2	Coffee Shop	Pizza Place	Sandwich Place	Bar	Mexican Restaurant	Burger Joint	Park	Bakery	Ice Cream Shop	Pet Store
3	Park	Convenience Store	Coffee Shop	Pizza Place	Gym	Motel	Bus Station	Storage Facility	Baseball Field	Organic Grocery

Figure: Top 10 Most Common Venues In Each Cluster

I separate the sixty neighborhoods into four clusters. There are 17 neighborhoods in cluster 0, 9 neighborhoods in cluster 1, 33 in cluster 2, and 1 in cluster 3.

Neighborhood Clustering

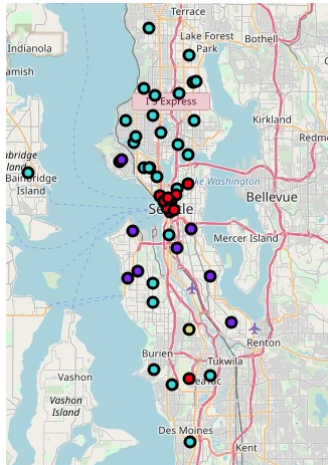


Figure: Neighborhoods In Each Cluster

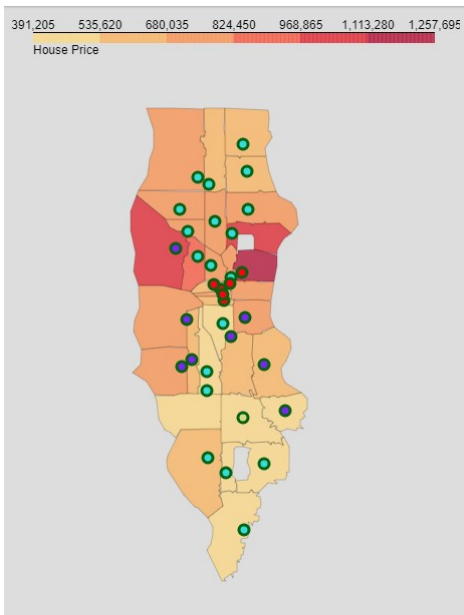
Red: cluster 0; purple: cluster 1; green: cluster 2; yellow: cluster 3.

Housing Prices

Cluster Labels	price
0	787416.666667
1	688837.500000
2	658410.526316
3	411600.000000

Figure: Average Housing Price

Location Recommendation



Conclusion

Seattle provides neighborhoods of various characteristics that could satisfy the needs of different people. In this project, I create a map to illustrate both categories of information that could help the city dwellers pick the neighborhood that suits their preferences.