Battle of the Neighborhoods – NYC vs Portland OR

# Introduction

When people move between cities they need an easy way to narrow down their choices of where to live in the new city. One way to do this would be to look for neighborhoods in the new city that are similar to the neighborhood they are moving from. Answering the question: In which neighborhoods should I look for a new home in my new city? This kind of tool/analysis would also be helpful to real estate agencies by providing their customers/prospective customers with additional tools for their home search. For this project I am limiting the analysis to moving between Portland, OR and NYC.

# Data

I will be using Foursquare location data for all neighborhoods in Portland OR and NYC to identify the venues within each neighborhood so that I can cluster the neighborhoods across both cities by the top 10 venue categories. Specific data examples include:

* + Venue name
  + Venue category
  + Neighborhood of venue

I will also be using CSV data containing the list of neighborhoods for each city and their latitude and longitude.

# Methodology

Retrieved nearby venue information for all neighborhoods across New York City and Portland Oregon. Created dataframe of all categories returned by the API with the corresponding value for each neighborhood as to whether that category existed in the neighborhood. Normalized the neighborhood-category dataframe by taking the mean of each category. Ran K-means clustering analysis for several K values to determine the K value that gave the best mix of neighborhoods across both cities. Developed dashboard to allow user to select their destination city and current neighborhood of residence to see both on a Folio map and in a table a list of comparable neighborhoods in the destination city.

# Results

The best k value for the clustering was 6. Meaning at a k value of 6 all clusters contained neighborhoods for both cities. At other k values there were some clusters that only had neighborhoods from one of the cities.

# Discussion

The clusters were pretty spread out across areas/boroughs of each city. I did not see certain boroughs in NYC mapping exclusively to certain areas in Portland. There was one cluster, cluster #3, that was almost entirely NYC neighborhoods and none of these neighborhoods was in Manhattan. The top ten venue categories in cluster #6 matched exactly for the 6 neighborhoods listed including 4 from Portland and 2 from NYC.

# Conclusion

This tool could be a good starting point for someone looking to narrow their search for neighborhoods in their destination city. Anyone moving from a NYC neighborhood in cluster #3 may want to expand their search given the limited number of Portland neighborhoods mapped to this cluster.