Opening new Yoga Studio in Seattle, WA

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Business Problem:

❖ Seattle has population of approximately 3.4 Million and home to major Tech corporations like Microsoft, Amazon and many others.

❖ People in the city are health conscious and look for services for their wellbeing.

❖ Identify suitable locations to open new Yoga Studio to fulfill that demand.

❖ Single location for individual or multiple location for big business.

❖ This also helps people to choose what options they have and where the yoga studios are located.
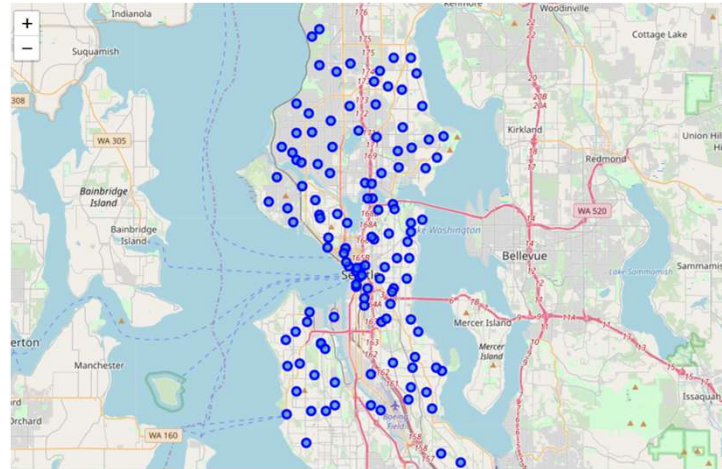
Data

- ❖ Data required
  - List of Neighborhoods in Seattle
  - Latitude and Longitude coordinates of Neighborhood
  - Venue data of Yoga Studio

- ❖ Sources of data
  - Wikipedia page for neighborhood
  - https://en.wikipedia.org/wiki/Category:Neighborhoods_in_Seattle
  - Geocoder package for Latitude and Longitude
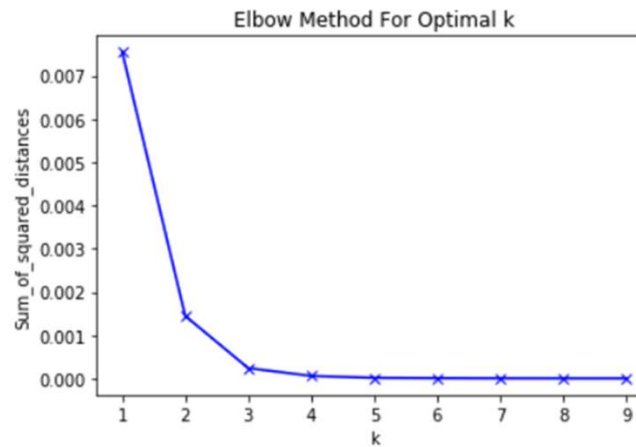 - Foursquare API for venue data

Methodology

- ❖ Web scraping Wikipedia page for neighborhood list.

- ❖ Get Latitude and Longitude coordinates using Geocoder package.

- ❖ Use folium to create a Seattle map and superimpose neighborhoods.

- ❖ Use Foursquare API to get venue data.

- ❖ Group data by neighborhood and taking the mean of the frequency of occurrence of each venue category.
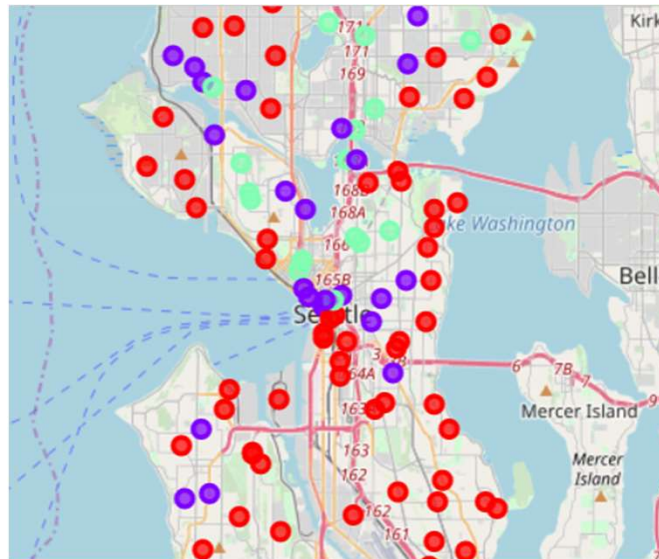
Methodology

* Filter venue category by Yoga Studio.

* Determine optimal K=3 for K-means algorithm by elbow method.

* Perform clustering on the data by K-means clustering.

* Visualize the clusters in a map using Folium.

Elbow Method For Optimal k

Results

❖ Categorize the neighborhoods into 3 clusters

- Cluster 0: Neighborhoods with low number to no yoga studio (red circles).

- Cluster 1: Neighborhoods with moderate number of yoga studio (purple circles).

- Neighborhoods with high concentration of yoga studio (mint circles).

Discussion:

❖ Most of the yoga studios are located in cluster 2 which is mostly located near Seattle downtown and north of the city.

❖ Moderate number of yoga studios are located in cluster 1 which is mostly centrally located around the city.

❖ Very few yoga studios are located in cluster 0 and located on east and west side of the city.

Conclusion and Recommendation:

❖ Open new Yoga Studio in cluster 0 neighborhoods with little or no competition.

❖ Final decision on optimal yoga studio location will be made by stakeholders based on

- Attractiveness of each location (proximity to park or water).

- Proximity to major roads, real estate availability, prices.

- Social and economic dynamics of every neighborhood etc.