



# OPTIMAL COFFEE SHOP LOCATION IN SEATTLE, WA



# PROBLEM AT HAND

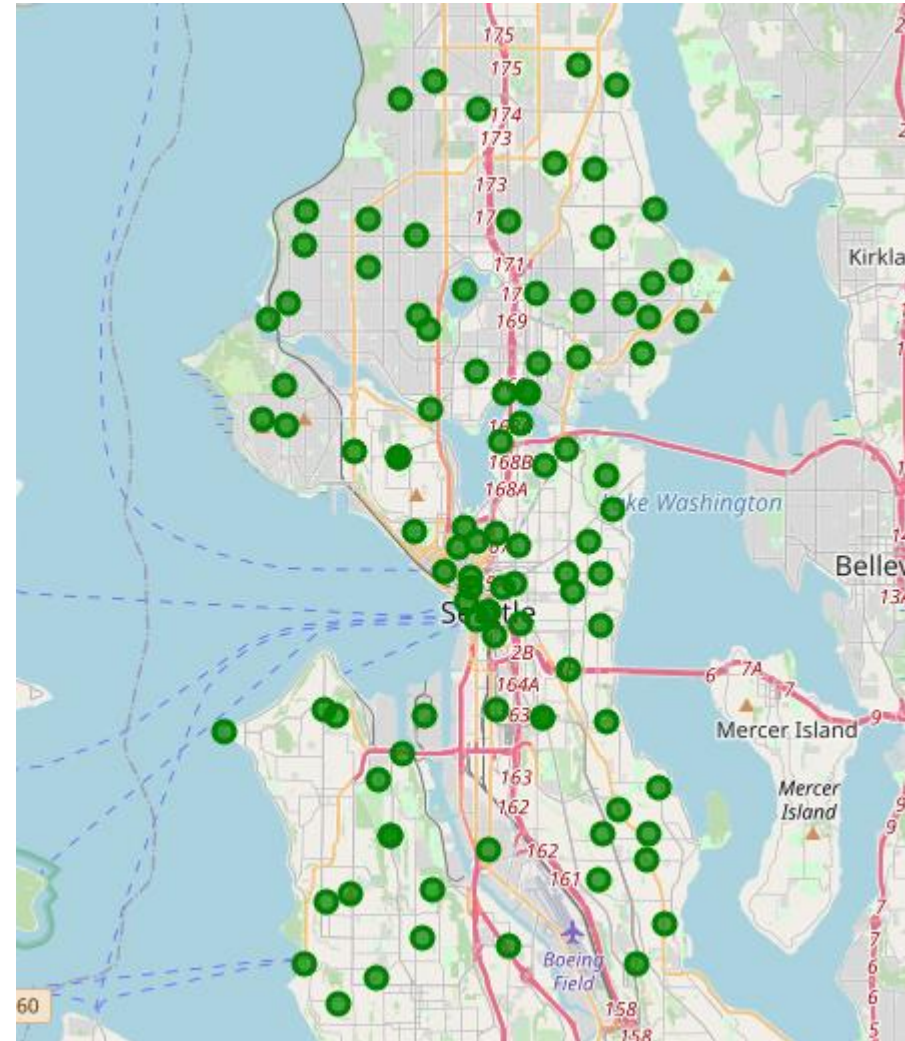
- Our client is looking to expand his business to the North, and he requested to explore the Seattle city's neighborhoods and determine the best location for opening a coffee shop.
- Researching the neighborhoods might significantly narrow the areas to consider for a coffee shop opening

# ACQUIRING AND CLEANING DATA

- The Seattle neighborhood distribution data – collected from the Wikipedia page [https://en.wikipedia.org/wiki/List\\_of\\_neighborhoods\\_in\\_Seattle](https://en.wikipedia.org/wiki/List_of_neighborhoods_in_Seattle)
- Location data (i.e. latitude and longitude) – collected from geopy Python library
- Venues data for each neighborhood – collected from Foursquare
- Neighborhood names were cleaned from extra symbols (like references, alternative names, etc.)
- Removed large neighborhoods, which consist of smaller ones

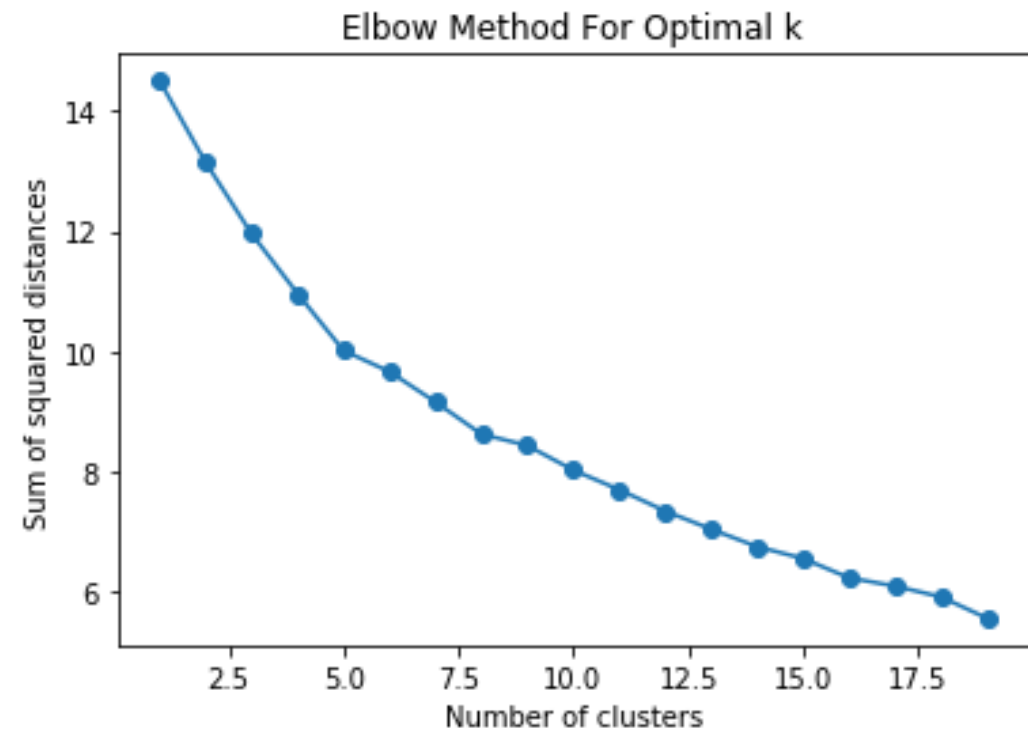
# NEIGHBORHOODS VISUALIZATION

- The final dataset has
  - 100 neighborhoods
  - 310 unique venue categories



# NUMBER OF CLUSTERS

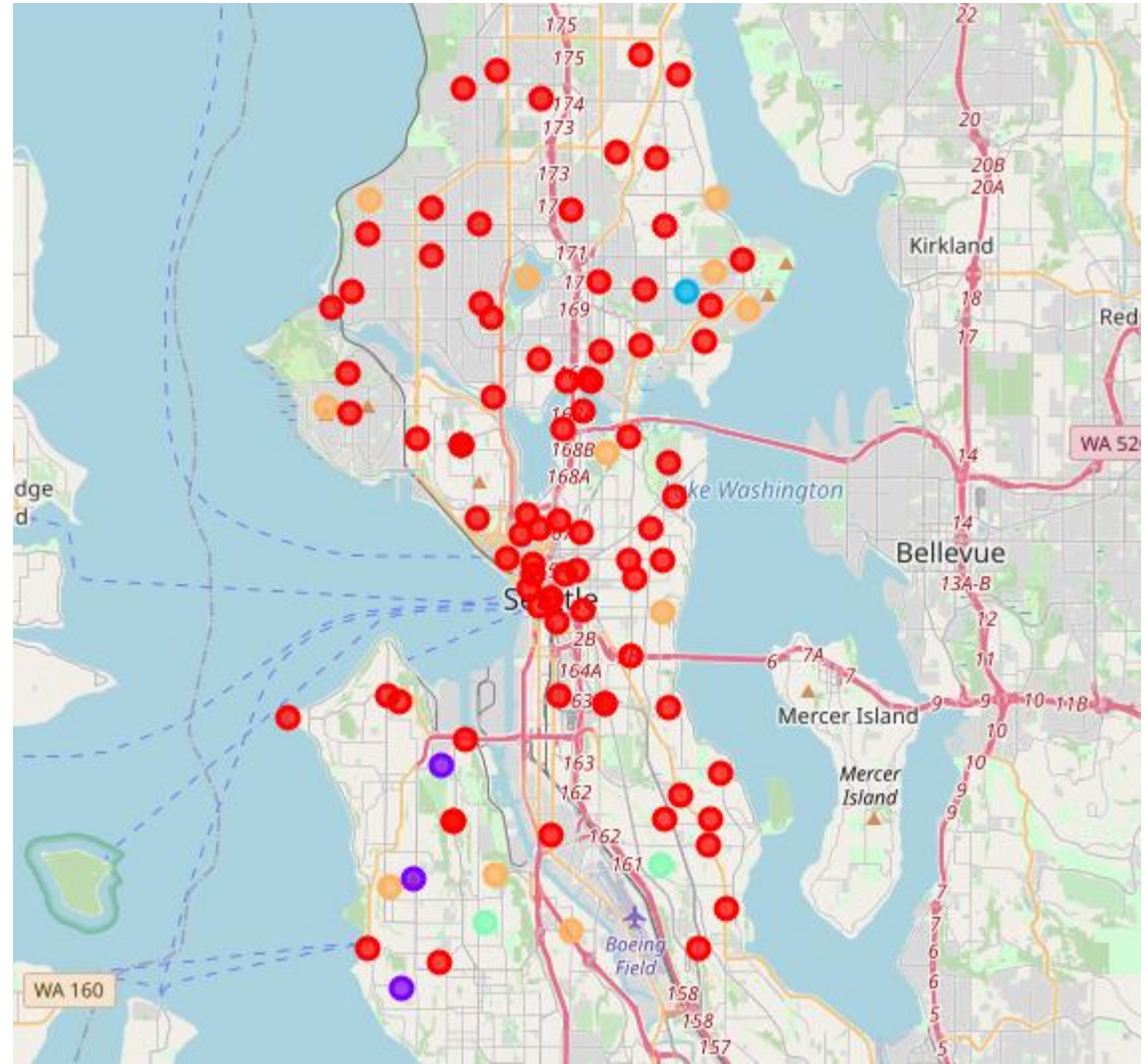
- The Elbow method was used to determine the optimal number of clusters for the dataset
- The number of clusters estimated for our research = **5**





# CLUSTERING

- The result of dividing Seattle neighborhoods into clusters based on most common venues
- Most of the neighborhoods fell into one cluster, which means the infrastructure of the city is quite similar



# CLUSTER 0

	neighborhood	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	Broadview	Food Truck	Pizza Place	Beer Bar	Sushi Restaurant	Resort	Furniture / Home Store	Video Store	Thai Restaurant	Antique Shop	Convenience Store
1	Bitter Lake	Fast Food Restaurant	Ice Cream Shop	Gym	Szechuan Restaurant	Seafood Restaurant	Sandwich Place	Pet Store	Noodle House	Mobile Phone Shop	Hotpot Restaurant
2	Crown Hill	Pet Store	Sports Bar	Mexican Restaurant	Fast Food Restaurant	Taco Place	Grocery Store	Sandwich Place	Burger Joint	Coffee Shop	Pizza Place
3	Greenwood	Coffee Shop	Mexican Restaurant	Spa	Bar	Pizza Place	Bookstore	Toy / Game Store	French Restaurant	Bakery	Theater
4	Haller Lake	Coffee Shop	Dance Studio	Lake	Playground	Scenic Lookout	Park	Fast Food Restaurant	Fabric Shop	Fair	Falafel Restaurant
5	Pinehurst	Coffee Shop	Hotel	Café	Cocktail Bar	Japanese Restaurant	Park	Italian Restaurant	Gym	Donut Shop	Pizza Place
6	Maple Leaf	Coffee Shop	Toy / Game Store	Video Store	Ice Cream Shop	Hawaiian Restaurant	Gym / Fitness Center	Music Store	Flower Shop	Dive Bar	Restaurant
7	Cedar Park	Supermarket	Vietnamese Restaurant	Zoo Exhibit	Fish & Chips Shop	Fair	Falafel Restaurant	Farm	Farmers Market	Fast Food Restaurant	Field
8	Meadowbrook	Soccer Field	Restaurant	Pizza Place	Park	Coffee Shop	Zoo Exhibit	Event Space	Fabric Shop	Fair	Falafel Restaurant
9	Olympic Hills	Farmers Market	Middle Eastern Restaurant	Zoo Exhibit	Fish Market	Falafel Restaurant	Farm	Fast Food Restaurant	Field	Financial or Legal Service	Fish & Chips Shop

- Cluster 0 is the largest neighborhood cluster in Seattle
- Its top venues are the ones for eating out, including coffee shops often being the hot spots

# CLUSTER 0 DECOMPOSITION

	neighborhood	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	Broadview	Food Truck	Pizza Place	Beer Bar	Sushi Restaurant	Resort	Furniture / Home Store	Video Store	Thai Restaurant	Antique Shop	Convenience Store
1	Bitter Lake	Fast Food Restaurant	Ice Cream Shop	Gym	Szechuan Restaurant	Seafood Restaurant	Sandwich Place	Pet Store	Noodle House	Mobile Phone Shop	Hotpot Restaurant
2	Cedar Park	Supermarket	Vietnamese Restaurant	Zoo Exhibit	Fish & Chips Shop	Fair	Falafel Restaurant	Farm	Farmers Market	Fast Food Restaurant	Field
3	Olympic Hills	Farmers Market	Middle Eastern Restaurant	Zoo Exhibit	Fish Market	Falafel Restaurant	Farm	Fast Food Restaurant	Field	Financial or Legal Service	Fish & Chips Shop
4	Victory Heights	Garden	Marijuana Dispensary	Business Service	Playground	Zoo Exhibit	Financial or Legal Service	Falafel Restaurant	Farm	Farmers Market	Fast Food Restaurant
5	Hawthorne Hills	Dry Cleaner	Massage Studio	Bank	Automotive Shop	Café	Pharmacy	Hardware Store	Park	American Restaurant	Fish Market
6	Laurelhurst	Pharmacy	Bus Stop	Park	Gift Shop	Café	Playground	Cafeteria	Zoo Exhibit	Farm	Farmers Market
7	Northlake	Seafood Restaurant	Park	Bus Stop	Harbor / Marina	Eastern European Restaurant	Diner	Pizza Place	Boat or Ferry	Lounge	Art Gallery
8	Phinney Ridge	Zoo Exhibit	Bar	Café	Pizza Place	Dessert Shop	Music Venue	Salon / Barbershop	Pub	Playground	Pie Shop

- Dropped the neighborhoods with coffee shops among the top venues
- Filtered the rest on having other places to eat in the top venues (e.g. restaurants or bars)
- Established 29 potential areas for opening a coffee shop



# CLUSTER 4

	neighborhood	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	North Beach	Beach	Park	Financial or Legal Service	Fair	Falafel Restaurant	Farm	Farmers Market	Fast Food Restaurant	Field	Zoo Exhibit
1	Matthews Beach	Trail	Playground	Park	Zoo Exhibit	Field	Fabric Shop	Fair	Falafel Restaurant	Farm	Farmers Market
2	View Ridge	Park	Bus Stop	Art Gallery	Food Court	Financial or Legal Service	Fair	Falafel Restaurant	Farm	Farmers Market	Fast Food Restaurant
3	Windermere	Greek Restaurant	Park	Pizza Place	Food & Drink Shop	Fast Food Restaurant	Food Court	Fabric Shop	Fair	Falafel Restaurant	Farm
4	Green Lake	Park	Trail	Theater	Tennis Court	Beach	Zoo Exhibit	Event Space	Fair	Falafel Restaurant	Farm
5	Briarcliff	Bus Stop	Athletics & Sports	Trail	Park	Food	Farmers Market	Fabric Shop	Food Court	Fair	Falafel Restaurant
6	Interlaken	Park	Cemetery	Scenic Lookout	Ethiopian Restaurant	Fabric Shop	Fair	Falafel Restaurant	Farm	Farmers Market	Fast Food Restaurant
7	Leschi	Park	Grocery Store	Pet Store	Pizza Place	Bus Stop	Zoo Exhibit	Fast Food Restaurant	Fabric Shop	Fair	Falafel Restaurant
8	South Park	Park	Library	Brewery	Bar	Financial or Legal Service	Fair	Falafel Restaurant	Farm	Farmers Market	Fast Food Restaurant
9	Gatewood	Park	Coffee Shop	Print Shop	Trailer Park	Gym	Pet Store	Farmers Market	Event Space	Fabric Shop	Fair
10	Riverview	Park	Bus Station	Trail	Baseball Field	Bus Stop	Flower Shop	Floating Market	Fish Market	Fish & Chips Shop	Food

- Cluster 4 consists mainly of park areas with some recreation places to follow
- There already are some food courts and fast food restaurants around, since people tend to stop by for snacks in between their walks
- Established 11 potential areas for opening a coffee shop

# CONCLUSIONS

- Determined 40 optimal neighborhoods for opening a coffee shop
- The recommendations would be later passed on to the stakeholder for consideration
- The results of this research should be used for further additional exploration

