

# Capstone Project:

Finding the best location to open a bakery in Toronto city.



DataScience





We will explore the suitability of opening a new bakery near Toronto, Canada. There are already too many bakeries in the city, but if we are going to open a small business, I would like to explore any location that may still be a feasible suggestion, or not at all.

We can assume many parameters, such as the following descending priorities:

- Close to active business areas, such as the city center.
- Close to residential area.
- Close to work area.
- Far enough from other bakeries or food shops,

In addition to the above search priorities, we also focus on areas where there are no direct competitors. We also prefer locations with complementary businesses nearby (such as academic centers, hotels, shopping malls), which may help us attract potential customers. This business problem may arouse the interest of any future business owners nearby who will follow similar search methods and use any other search methods to enrich them before making business decisions.

# Data acquisition

In order to solve our business problems, we will analyze the following neighborhood factors before making business decisions:

- distance to town center
- - any existing bakery in the neighborhood
- - number of and distance to lively business (e.g restaurants, markets, shopping centre),

**Required information will be extracted and generated as data sources by:**

- Geospatial coordinates of town center and neighborhood using Geopy Library
- Geospatial coordinates and addresses can also be retrieved by using Google Cloud Service
- Google Map API
- Venue data using Foursquare API

# Methodology

Bar graphs to analyze  
venues and their category

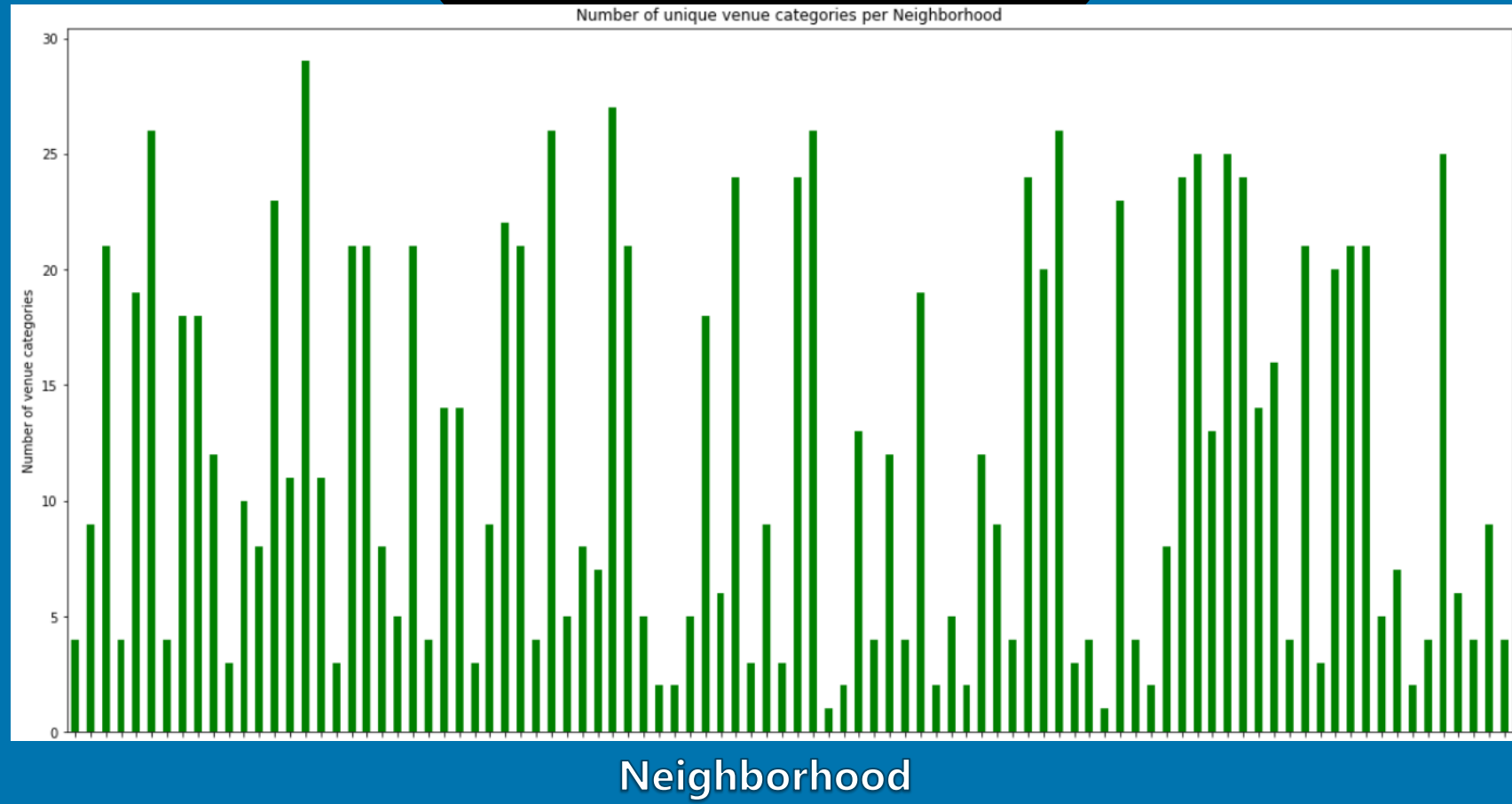
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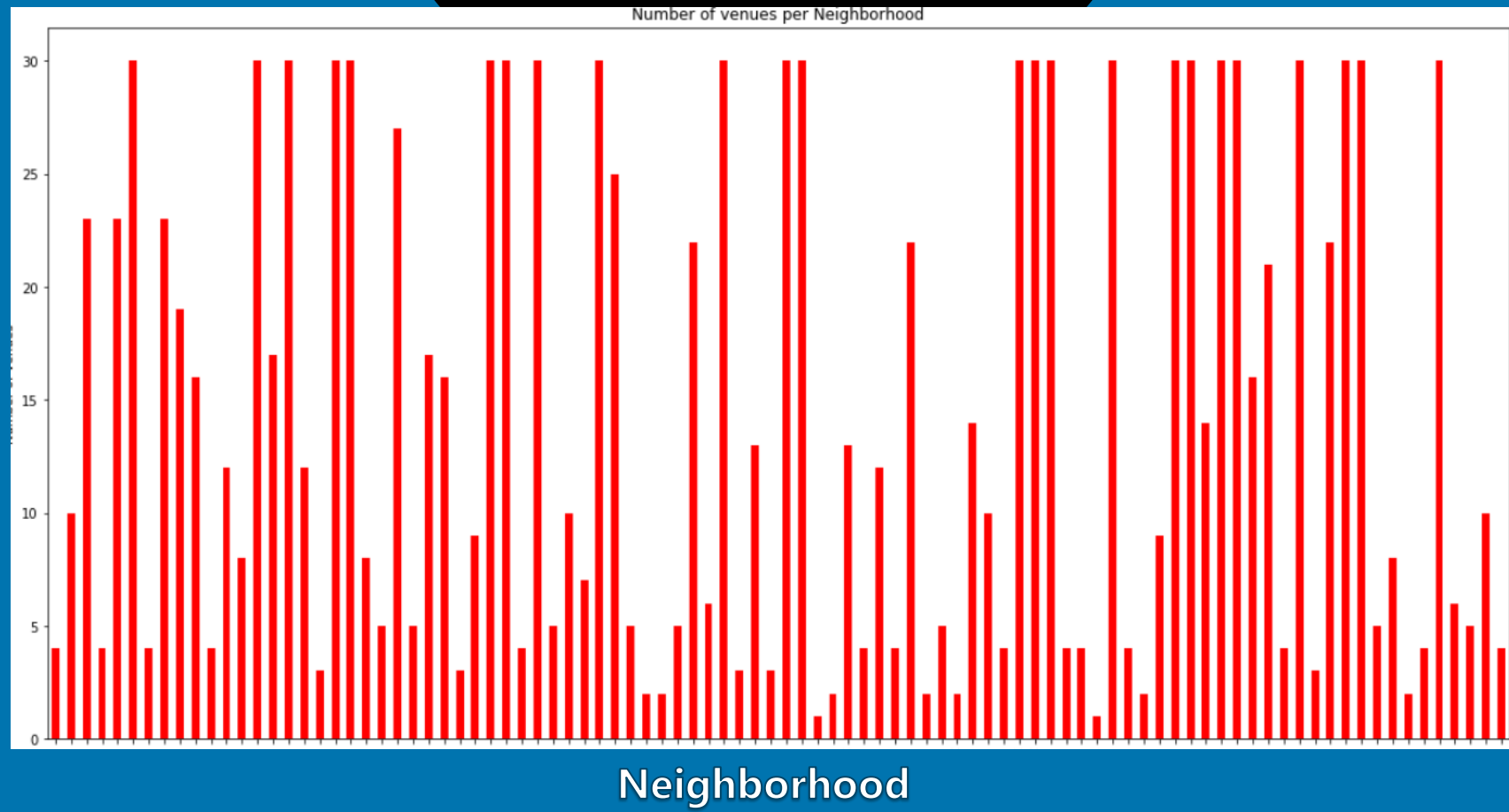
Choosing the accurate K

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K-means Clustering

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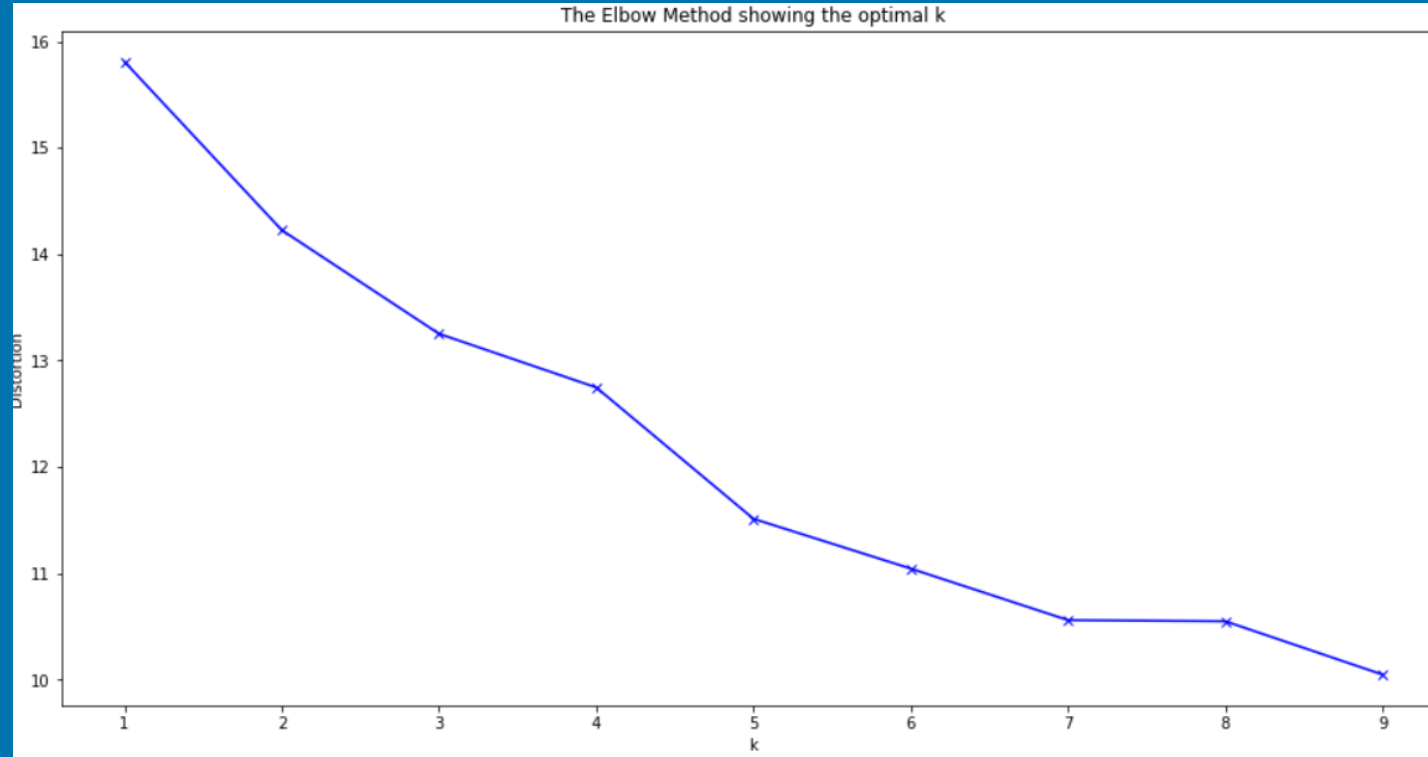




DataFrame with top 10 venues from each neighborhood was created

	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	Agincourt	Lounge	Latin American Restaurant	Breakfast Spot	Skating Rink	Women's Store	Ethiopian Restaurant	Electronics Store	Eastern European Restaurant	Drugstore	Donut Shop
1	Alderwood, Long Branch	Pizza Place	Skating Rink	Sandwich Place	Pub	Dance Studio	Pool	Gym	Coffee Shop	Pharmacy	Dog Run
2	Bathurst Manor, Wilson Heights, Downsview North	Coffee Shop	Bank	Pet Store	Mobile Phone Shop	Diner	Sandwich Place	Deli / Bodega	Restaurant	Ice Cream Shop	Supermarket
3	Bayview Village	Café	Japanese Restaurant	Chinese Restaurant	Bank	Dessert Shop	Event Space	Ethiopian Restaurant	Electronics Store	Eastern European Restaurant	Drugstore
4	Bedford Park, Lawrence Manor East	Coffee Shop	Restaurant	Sandwich Place	Italian Restaurant	Grocery Store	Sushi Restaurant	Comfort Food Restaurant	Pharmacy	Pizza Place	Pub

**Optimum number  
Of K which is 5**





## City neighborhoods after clustering.

