Battle of the Neighborhoods

Business Problem

A successful Canadian businesswoman is looking for a new location to open a coffeeshop. She knows that finding the right location is crucial for its success, so she put a lot of time and effort into finding the perfect location. After a lot of research, she decided to open the coffeeshop in Downtown Toronto. She believes the best way to determine which neighborhood to open her new business is by analyzing and comparing the different neighborhoods. By doing this, she can make the best data driven decision.

Data Description

The Toronto neighborhood data was scraped from Wikipedia. It was scraped, cleaned, and put into a pandas dataframe so it can be further analyzed in a structured format. Foursquare API was used to explore the types of venues and their locations in the different Downtown Toronto neighborhoods. The venues focused on restaurants, entertainment venues, and coffee shops.

Methodology

The Toronto data was processed and explored, with a focus on Downtown Toronto. It was explored using the Foursquare API. This study applied neighborhood segmentation and clustering to analyze the neighborhood data and find the best location to open the coffeeshop. The results were visualized.

Visuals of Toronto Data

The folium library was used to visualize geographic overview of Downtown Toronto. It used the latitude and longitude values based on the neighborhoods.

API visualization and clustering venues in Downtown Toronto

Foursquare API was used to explore the 10 most common venues for each of the neighborhoods. The radius was set to 500 meters based on latitude and longitude of each of the neighborhood.

	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	Berczy Park	Coffee Shop	Cocktail Bar	Seafood Restaurant	Bakery	Beer Bar	Cheese Shop	Restaurant	Café	Irish Pub	Beach
1	CN Tower, King and Spadina, Railway Lands, Har...	Airport Service	Airport Terminal	Harbor / Marina	Airport	Airport Food Court	Airport Gate	Airport Lounge	Sculpture Garden	Boat or Ferry	Bar
2	Central Bay Street	Coffee Shop	Sandwich Place	Japanese Restaurant	Italian Restaurant	Café	Salad Place	Thai Restaurant	Department Store	Burger Joint	Bubble Tea Shop
3	Christie	Grocery Store	Café	Park	Athletics & Sports	Italian Restaurant	Diner	Nightclub	Candy Store	Restaurant	Baby Store
4	Church and Wellesley	Coffee Shop	Japanese Restaurant	Sushi Restaurant	Restaurant	Gay Bar	Men's Store	Café	Hotel	Dance Studio	Mediterranean Restaurant

The top 10 venues for each neighborhood were found by using KMeans Clustering and the value of the Kclusters was set to 5.

Clusters in Downtown Toronto
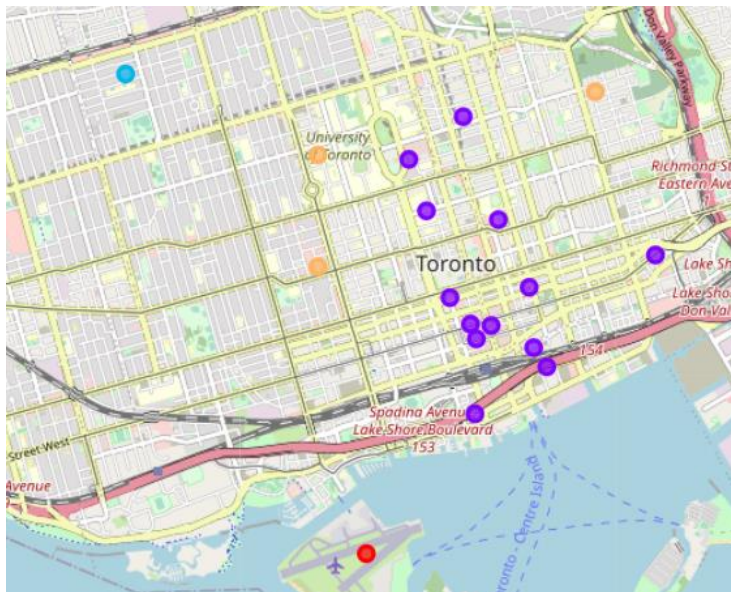
Cluster 1

	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
13	CN Tower, King and Spadina, Railway Lands, Har...	Airport Service	Airport Terminal	Harbor / Marina	Airport	Airport Food Court	Airport Gate	Airport Lounge	Sculpture Garden	Boat or Ferry	Bar

Cluster 2

	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	Regent Park, Harbourfront	Coffee Shop	Bakery	Park	Pub	Café	Theater	Restaurant	Breakfast Spot	Beer Store	Spa
1	Queen's Park, Ontario Provincial Government	Coffee Shop	Sushi Restaurant	Yoga Studio	Distribution Center	Sandwich Place	Japanese Restaurant	Italian Restaurant	Discount Store	Beer Bar	Diner
2	Garden District, Ryerson	Clothing Store	Coffee Shop	Cosmetics Shop	Bubble Tea Shop	Middle Eastern Restaurant	Café	Japanese Restaurant	Italian Restaurant	Pizza Place	Ramen Restaurant
3	St. James Town	Café	Coffee Shop	Cocktail Bar	Gastropub	American Restaurant	Clothing Store	Lingerie Store	Restaurant	Creperie	Italian Restaurant
4	Berczy Park	Coffee Shop	Cocktail Bar	Seafood Restaurant	Bakery	Beer Bar	Cheese Shop	Restaurant	Café	Irish Pub	Beach

Cluster 3

	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
6	Christie	Grocery Store	Café	Park	Athletics & Sports	Italian Restaurant	Diner	Nightclub	Candy Store	Restaurant	Baby Store

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
14	Rosedale	Park	Trail	Playground	Cupcake Shop	Doner Restaurant	Dog Run	Distribution Center	Discount Store	Diner	Dim Sum Restaurant

Cluster 5

	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
11	University of Toronto, Harbord	Café	Bookstore	Bar	Italian Restaurant	Japanese Restaurant	Theater	Bakery	Restaurant	Yoga Studio	Beer Bar
12	Kensington Market, Chinatown, Grange Park	Café	Coffee Shop	Mexican Restaurant	Vietnamese Restaurant	Vegetarian / Vegan Restaurant	Bakery	Grocery Store	Pizza Place	Bar	Park
16	St. James Town, Cabbagetown	Café	Pizza Place	Coffee Shop	Chinese Restaurant	Restaurant	Pub	Italian Restaurant	Bakery	Pet Store	Bookstore

Recommendations and Conclusions

As can be seen from the clustering results, cluster 2 has the most diverse set of venues, including coffee shops, restaurants, and entertainment venues. This indicates that it could attract more foot traffic and opportunities for growth. In addition to this, 11/13 of the neighborhoods in cluster 2 have coffee shops as the most common venue type. Opening in a neighborhood in cluster 2 is less risky as there are a diverse set of businesses around, more foot traffic and it has the most popular neighborhoods.