

# NESPRESSO TARGETTED MARKETING IN DOWNTOWN TORONTO

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**Disclaimer: \*CONCEPTUAL STUDY FOR IBM CAPSTONE\***

## 1. INTRODUCTION

### 1.1 Background

Nespresso is a world leader<sup>1</sup> in coffee capsules, machines and accessories. The company has identified Toronto, home to 2.9 million<sup>2</sup> people, as a key new market to drive international growth.

### 1.2 Problem

Nespresso wants gain market share in Toronto and is studying the best locations for targeted marketing campaigns. Toronto covers an area of 630 square kilometers... where should Nespresso's focus its marketing budget?

## 2. DATA ACQUISITION AND CLEANING

### 2.1 Data Required

- List of neighbourhoods in Toronto, Canada
- Latitude and Longitude of these neighbourhoods
- Characteristics of these neighbourhoods – coffee shops, financial district, restaurants, parks, etc.

### 2.2 Extracting the data

- **List** – Wikipedia has a list of all neighbourhoods in Toronto that can scrapped using *Beautiful Soup*.
- **Coordinates** – The next task is to find out the co-ordinates of these neighbourhoods for which the *Geocoder* package can be utilized.
- **Features** – We can then use *Foursquare API* to get venue data related to these neighbourhoods.

### 2.3 Data Cleaning

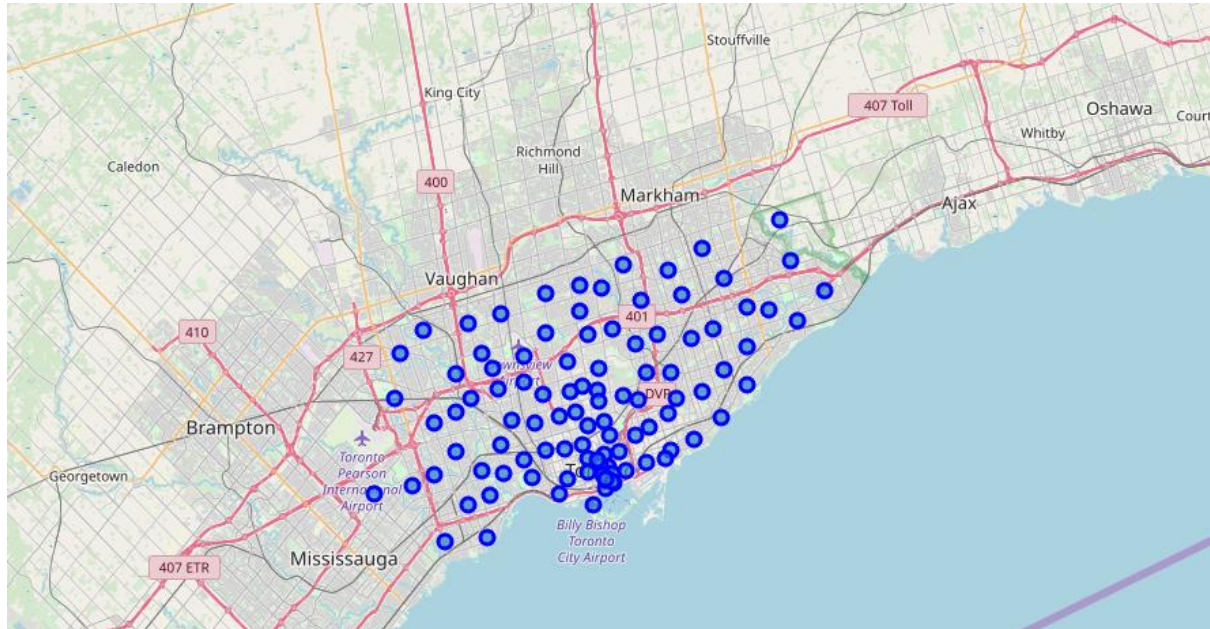
- The main adjustment needed for our raw data was to exclude areas / neighbourhoods where no location code was available. As it happens this is not a deterrent to our study as we are trying to find the best location for Nespresso's flagship store. A snapshot of our cleaned data frame head is shown below.

	Postal Code	Borough	Neighborhood	Latitude	Longitude
0	M1B	Scarborough	Rouge, Malvern	43.806686	-79.194353
1	M1C	Scarborough	Highland Creek, Rouge Hill, Port Union	43.784535	-79.160497
2	M1E	Scarborough	Guildwood, Morningside, West Hill	43.763573	-79.188711
3	M1G	Scarborough	Woburn	43.770992	-79.216917
4	M1H	Scarborough	Cedarbrae	43.773136	-79.239476

### 3. METHODOLOGY

#### 3.1 Exploratory Analysis

We use the folium **folium** library to visualize geographic details of Toronto.



We then use the **Foursquare API** to explore the key features of the boroughs and neighbourhoods in Toronto. In our study, we scan for locations within a 200 meter radius from central business district and limit the number of venues at 100. For reference, we show the head of our data table below.

	name	categories	lat	lng
0	Jimmy's Coffee	Coffee Shop	43.658421	-79.385613
1	Tim Hortons	Coffee Shop	43.658570	-79.385123
2	Somethin' 2 Talk About	Middle Eastern Restaurant	43.658395	-79.385338
3	Tim Hortons	Coffee Shop	43.657399	-79.388313
4	Indigo	Bookstore	43.657738	-79.389661

We then look at the number of unique categories that can be curated from all the returned venues. Per Foursquare and our criteria used we can have 203 unique categories.

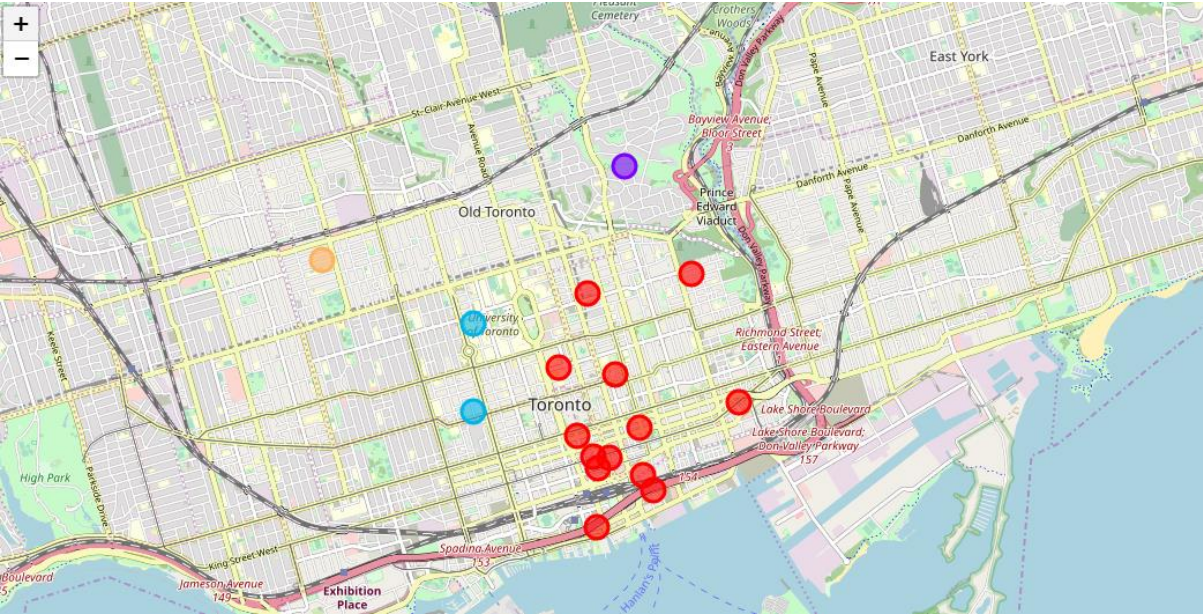
	Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
	Adelaide, King, Richmond	100	100	100	100	100	100
	Berczy Park	57	57	57	57	57	57
	CN Tower, Bathurst Quay, Island airport, Harbourfront West, King and Spadina, Railway Lands, South Niagara	16	16	16	16	16	16
	Cabbagetown, St. James Town	43	43	43	43	43	43
	Central Bay Street	82	82	82	82	82	82
	Chinatown, Grange Park, Kensington Market	100	100	100	100	100	100
	Christie	16	16	16	16	16	16
	Church and Wellesley	85	85	85	85	85	85
	Commerce Court, Victoria Hotel	100	100	100	100	100	100
	Design Exchange, Toronto Dominion Centre	100	100	100	100	100	100
	First Canadian Place, Underground city	100	100	100	100	100	100
	Harbord, University of Toronto	33	33	33	33	33	33
	Harbourfront East, Toronto Islands, Union Station	100	100	100	100	100	100
	Harbourfront, Regent Park	49	49	49	49	49	49
	Rosedale	5	5	5	5	5	5
	Ryerson, Garden District	100	100	100	100	100	100
	St. James Town	100	100	100	100	100	100
	Stn A PO Boxes 25 The Esplanade	95	95	95	95	95	95

Drilling further we then determine the top 10 most common venue types by neighbourhood.

	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	Adelaide, King, Richmond	Coffee Shop	Café	Bar	Steakhouse	Thai Restaurant	Hotel	Asian Restaurant	American Restaurant	Cosmetics Shop	Restaurant
1	Berczy Park	Coffee Shop	Cocktail Bar	Bakery	Café	Beer Bar	Cheese Shop	Steakhouse	Farmers Market	Seafood Restaurant	Hotel
2	CN Tower, Bathurst Quay, Island airport, Harbo...	Airport Service	Airport Terminal	Airport Lounge	Coffee Shop	Boat or Ferry	Bar	Sculpture Garden	Harbor / Marina	Boutique	Airport Gate
3	Cabbagetown, St. James Town	Coffee Shop	Restaurant	Pub	Italian Restaurant	Café	Bakery	Pizza Place	Chinese Restaurant	Breakfast Spot	Butcher
4	Central Bay Street	Coffee Shop	Italian Restaurant	Ice Cream Shop	Sandwich Place	Burger Joint	Café	Indian Restaurant	Spa	Sushi Restaurant	Bar

### 3.2 Clustering

We narrow this list of neighbourhoods down to 5 cluster groups using k-means.



## Examining the Clusters

### Cluster 1 = Coffee Shops

	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
1	Cabbagetown, St. James Town	Coffee Shop	Restaurant	Pub	Italian Restaurant	Café	Bakery	Pizza Place	Chinese Restaurant	Breakfast Spot	Butcher
2	Church and Wellesley	Coffee Shop	Japanese Restaurant	Sushi Restaurant	Gay Bar	Restaurant	Pub	Gastropub	Bubble Tea Shop	Men's Store	Mediterranean Restaurant
3	Harbourfront, Regent Park	Coffee Shop	Park	Café	Pub	Bakery	Mexican Restaurant	Breakfast Spot	Restaurant	Dessert Shop	Chocolate Shop
4	Ryerson, Garden District	Coffee Shop	Clothing Store	Cosmetics Shop	Fast Food Restaurant	Middle Eastern Restaurant	Café	Ramen Restaurant	Diner	Lingerie Store	Ice Cream Shop
5	St. James Town	Coffee Shop	Café	Italian Restaurant	Restaurant	Hotel	Gastropub	Beer Bar	Cocktail Bar	Clothing Store	Breakfast Spot
6	Berczy Park	Coffee Shop	Cocktail Bar	Bakery	Café	Beer Bar	Cheese Shop	Steakhouse	Farmers Market	Seafood Restaurant	Hotel
7	Central Bay Street	Coffee Shop	Italian Restaurant	Ice Cream Shop	Sandwich Place	Burger Joint	Café	Indian Restaurant	Spa	Sushi Restaurant	Bar
8	Adelaide, King, Richmond	Coffee Shop	Café	Bar	Steakhouse	Thai Restaurant	Hotel	Asian Restaurant	American Restaurant	Cosmetics Shop	Restaurant
9	Harbourfront East, Toronto Islands, Union Station	Coffee Shop	Aquarium	Hotel	Italian Restaurant	Café	Sporting Goods Shop	Brewery	Bakery	Scenic Lookout	Pizza Place
10	Design Exchange, Toronto Dominion Centre	Coffee Shop	Café	Hotel	Restaurant	American Restaurant	Italian Restaurant	Bar	Gym	Deli / Bodega	Gastropub
11	Commerce Court, Victoria Hotel	Coffee Shop	Hotel	Café	Restaurant	American Restaurant	Deli / Bodega	Bakery	Seafood Restaurant	Gastropub	Steakhouse
15	Stn A PO Boxes 25 The Esplanade	Coffee Shop	Restaurant	Café	Beer Bar	Seafood Restaurant	Hotel	Bakery	Fast Food Restaurant	Cocktail Bar	Cheese Shop
16	First Canadian Place, Underground city	Coffee Shop	Café	Restaurant	Steakhouse	Hotel	Gym	Deli / Bodega	Seafood Restaurant	Gastropub	Asian Restaurant

### Cluster 2 – Parks

	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	Rosedale	Park	Playground	Trail	Building	Department Store	Eastern European Restaurant	Dumpling Restaurant	Donut Shop	Doner Restaurant	Dog Run

### Cluster 3 – Chinatown, University

	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
12	Harbord, University of Toronto	Café	Restaurant	Bookstore	Japanese Restaurant	Bar	Bakery	Chinese Restaurant	Sandwich Place	Pub	Comfort Food Restaurant
13	Chinatown, Grange Park, Kensington Market	Café	Vegetarian / Vegan Restaurant	Bar	Chinese Restaurant	Vietnamese Restaurant	Bakery	Dumpling Restaurant	Mexican Restaurant	Coffee Shop	Comfort Food Restaurant

### Cluster 4 – Recreation

	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
17	Christie	Café	Grocery Store	Park	Italian Restaurant	Restaurant	Athletics & Sports	Diner	Nightclub	Baby Store	Convenience Store

### Cluster 5 – Airport

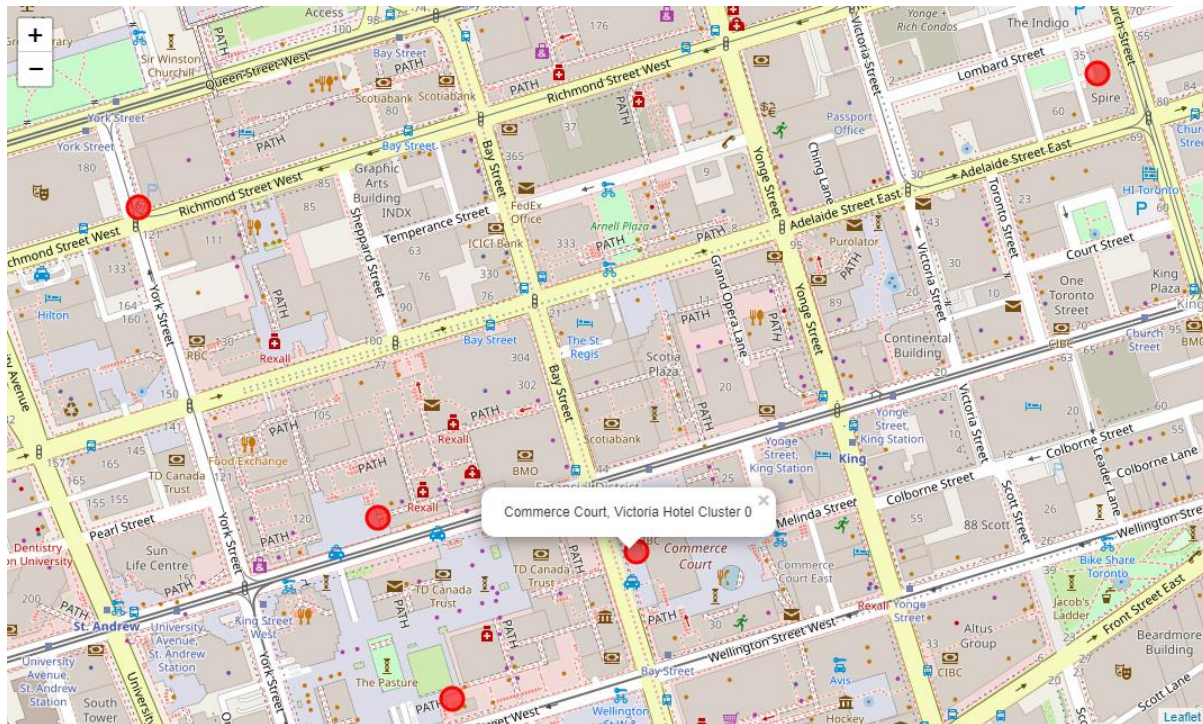
	Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
14	CN Tower, Bathurst Quay, Island airport, Harbo...	Airport Service	Airport Terminal	Airport Lounge	Coffee Shop	Boat or Ferry	Bar	Sculpture Garden	Harbor / Marina	Boutique	Airport Gate



## 4. RESULTS

As noted earlier, our premise is that areas with the highest concentration of coffee shops would also be the best locations for Nespresso to focus its marketing spend.

As shown in the exhibit below, the following neighbourhoods - **Commerce Court, Adelaide, Design Exchange, St James Town, First Canadian Place** - within downtown Toronto have the highest concentration of coffee shops. We recommend Nespresso to focus its marketing campaign in these locations.



## 5. DISCUSSION

Segmenting Toronto's 2.9 million population with diverse background is a complex task. For our company Nespresso we have focussed on identifying the best marketing locations in downtown and near central business district.

We achieved this by running algorithms to determine which neighbourhoods in Downtown Toronto have the highest incidence of coffee shops, restaurants, bars etc.

In future studies we can consider:

- overlaying demographic information by neighbourhood to determine the ideal clusters for our marketing campaign;
- running campaign efficacy studies

## 6. CONCLUSIONS

We would recommend Nespresso to focus its marketing campaign around the neighbourhoods of Commerce Court, Adelaide, Design Exchange, St James Town, First Canadian Place.

Aditya Suresh

August 2019

## **7. REFERENCES**

[1] [www.nespresso.com](http://www.nespresso.com)

[2] Toronto, Canada — Wikipedia