



# Capstone Project

IBM DATA SCIENCE PROFESSIONAL CERTIFICATE

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# Coursera - Capstone Project

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## Introduction

### Background

Canada aims to invite 1 million immigrants over the next three years, the nation would need to welcome approximately 350,000 roughly 1 percent of its current population. Toronto is the provincial capital of Ontario and the most populous city in Canada, with a population of 2,731,571 as of 2016. The city continues to grow and attract immigrants. A study by Ryerson University showed that Toronto was the fastest-growing city in North America.

### Business Problem

Immigrating to a new country is a challenging task whether alone or with a family. Hence, choosing where to live is crucial for any immigrant and requires informed decision making. This project will focus to resolve this challenge.

This project aims to aid immigrants to identify the right neighborhood to settle in Toronto, based on their personal preferences. The project will explore different localities of Toronto and identify various venues of interest in each neighborhood.

# Data

Following is the data required for this study:

- **Postal codes** in Canada through Wikipedia

**Source** - [https://en.wikipedia.org/wiki/List\\_of\\_postal\\_codes\\_of\\_Canada:\\_M](https://en.wikipedia.org/wiki/List_of_postal_codes_of_Canada:_M)

This is a list of postal codes in Canada where the first letter is M. Postal codes beginning with M are located within the city of Toronto in the province of Ontario. Only the first three characters are listed, corresponding to the Forward Sortation Area.

Postcode ↕	Borough ↕	Neighbourhood ↕
M1A	Not assigned	Not assigned
M2A	Not assigned	Not assigned
M3A	North York	Parkwoods
M4A	North York	Victoria Village
M5A	Downtown Toronto	Harbourfront
M6A	North York	Lawrence Heights
M6A	North York	Lawrence Manor
M7A	Queen's Park	Not assigned
M8A	Not assigned	Not assigned
M9A	Downtown Toronto	Queen's Park
M1B	Scarborough	Rouge

- **Geospatial data** of Toronto Neighborhoods in csv format

**Source** - [http://cocl.us/Geospatial\\_data](http://cocl.us/Geospatial_data)

The data incorporates various longitudes and latitudes of Toronto neighborhoods

	Postcode	Borough	Neighbourhood	Latitude	Longitude	Cluster
0	M4E	East Toronto	The Beaches	43.676357	-79.293031	0
1	M4K	East Toronto	The Danforth West,Riverdale	43.679557	-79.352188	0
2	M4L	East Toronto	The Beaches West,India Bazaar	43.668999	-79.315572	0
3	M4M	East Toronto	Studio District	43.659526	-79.340923	0
4	M4N	Central Toronto	Lawrence Park	43.728020	-79.388790	1

- **Foursquare Database** for location information such as venues, tips and photos

Source - <http://foursquare.com>

	PostCode	Borough	Neighborhood	BoroughLatitude	BoroughLongitude	VenueName	VenueLatitude	VenueLongitude	VenueCategory
0	M4E	East Toronto	The Beaches	43.676357	-79.293031	Glen Manor Ravine	43.676821	-79.293942	Trail
1	M4E	East Toronto	The Beaches	43.676357	-79.293031	The Big Carrot Natural Food Market	43.678879	-79.297734	Health Food Store
2	M4E	East Toronto	The Beaches	43.676357	-79.293031	Grover Pub and Grub	43.679181	-79.297215	Pub
3	M4E	East Toronto	The Beaches	43.676357	-79.293031	Upper Beaches	43.680563	-79.292869	Neighborhood
4	M4E	East Toronto	The Beaches	43.676357	-79.293031	Dip 'n Sip	43.678897	-79.297745	Coffee Shop

Details of each neighborhood such as parks, beaches, schools, bars and etc will be utilized in making an informed decision to choose best location to settle.