Battle of the Neighbourhoods: Recommending neighbourhoods in Toronto to open a Cannabis retail store

1. Introduction

Cannabis has been legal in Canada for medical purposes since 2001. However, on 17th October 2018, the Federal Government of Canada legalized the use of cannabis for recreational use. Since then, a number of retail dispensaries have come up in and around Toronto.
Initially, the Ontario government allotted limited retail licenses through a lottery system. This has created a shortage of stores in Toronto. Currently, there are only 11 legal stores in the entire city of Toronto. The government has since announced and taken efforts to create a more open market and aims to issue 20 licenses every month. (Freeman & Aguilar, 2019)
Even though there are a few legal retail stores operating in Toronto, many consumers still depend on the black market to acquire their goods. The reason for this as quoted by many is 'due to a lack of store in their neighborhood'. Most cannabis stores in Toronto are packed around the Downtown Toronto area.
So, for this Capstone Project, given the government's initiative to make stores more accessible, I thought it would be interesting to identify neighborhoods to open a cannabis dispensary.

1.1 Background

For the purpose of this project, I have formulated a hypothetical scenario to serve as a case study–

'We are a new Cannabis retail company, named XYZ co., and have recently acquired a license to open a retail store in Toronto. We sell a range of products from flowers, terpenes, vapes to glassware and edibles.
As a response to our product offering we have two customer groups according to age. First group consists of customers between the ages of 21 and 40 and the second group is between the ages of 40 and 65. Majority of our sales comes from the first group. Therefore, we are looking for neighborhoods that have a high percentage of population within this age group. Within these age groups, a high number of our customers are single and married couples with no children. In terms of income, we have observed that our customers earn at least $ 30,000 annually.

We want to explore the neighborhoods in Toronto to find the best suited neighborhood to open our new store'

Based on the information stated above and characteristics of a Cannabis store the following criterion and weights were decided in order to identify an 'ideal neighborhood':

	Criteria	**Weight**
1.	Above average population	0.025
2.	Above average population density	0.075
3.	High percentage of population between the age of 21-40	0.2
4.	Average percentage of population between the age of 40-64	0.2
5.	Average income above 30,000$	0.1
6.	High percentage of population without children	0.1
7.	High percentage of never married population	0.1

1.2 Problem Statement

'To identify the top 10 neighborhoods in Toronto to open a new Cannabis Retail Store for XYZ co. using neighborhood census data and Foursquare API location data.'

1.3 Aim

The aim of this project is to identify and recommend neighborhoods to XYZ co., for opening a new cannabis retail store based on the information provided.
With this in mind, the project seeks to answer the following questions:

a.) How many cannabis retail stores are there in Toronto? And what is their distribution by neighborhood?
b.) Based on the decided criterion, which neighborhoods are ideal for opening a new retail store?

1.4 Target Audience

This project is an exploratory and prescriptive analytics study in the retail cannabis business in Toronto.

This project is intended for retailers looking to open a new cannabis store as well as for government and planning authorities to identify neighborhoods that are currently under served by existing stores.

2. Data Description

2.1. Data Requirements:

To accomplish this project, the following data will be required:

a.) **Census Data on Neighborhood level:** To map the demographics of neighborhoods in Toronto, Census data on population, population density, number of people in the age groups of 21-39 and 40-64 and average income.
b.) **Crime Rate on Neighborhood level:** Data on different crimes related to property and person to calculate the crime rate in every neighborhood
c.) **Venues in a Neighborhood:** To identify neighborhood clusters, location data on venues.
d.) **Toronto Neighborhood Boundaries:** To visualize geospatial data, neighborhood shapes and boundaries will be required

2.2. Data Collection:

The data required for this project will be collected from:
a.) **Neighborhood**

This dataset is available on the Toronto Open Data Portal and is described as -
'*Boundaries of Toronto Neighbourhoods.*'
Data Format required: .geojson (for boundaries)

b.) **Neighborhood Profiles**

This dataset is available on the Toronto Open Data Portal and is described as –
'*The Neighbourhood Profiles provide a portrait of the demographic, social and economic characteristics of the people and households in each City of Toronto neighbourhood. The data is based on tabulations of 2016 Census of Population data from Statistics Canada.*'

c.) **Neighbourhood Crime Rates (Boundary File)**
This dataset is available on the Toronto Police Service - Public Safety Data Portal and is described as -
'*Toronto Neighbourhoods Boundary File includes 2014-2018 Crime Data by Neighbourhood. Counts are available for Assault, Auto Theft, Break and Enter,*

Robbery, Theft Over and Homicide. Data also includes four-year averages and crime rates per 100,000 people by neighbourhood based on 2016 Census Population.'

d.) **Foursquare API**

Foursquare is a technology company that has built a huge location dataset through crowd-sourcing. Fousquare's data is currently used by companies like Uber, Snapchat, Twitter and Apple Maps.

For this project, Foursquare API will be used to collect data on:

i.) Cannabis Retail Stores in Toronto

ii.) Neighborhood Venues (100 locations within a radius of 1km from the coordinates of every neighborhood)