

Reccomended locations to open a new Beer Bar for Stanley Park Brewing Co

IBM Capstone Project

Fernando Silva

Data collected on: Jun 01, 2021

Agenda

- Problem Statement
- Data Acquisition
- Methodology
- Data Analysis
- Conclusion
- Future Work



 Problem Statement - Location for a Stanley Park Beer Bar Co. in Toronto

- Why does it matter?
 - Potential high profitability
 - Location can be a business advantage
- Challenges
 - Covid 19 restrictions
 - Obstacles amplified
- Objective
 - Find less competitive locations with high traffic of people
 - Use a classifier algorithm to group locations based on criteria



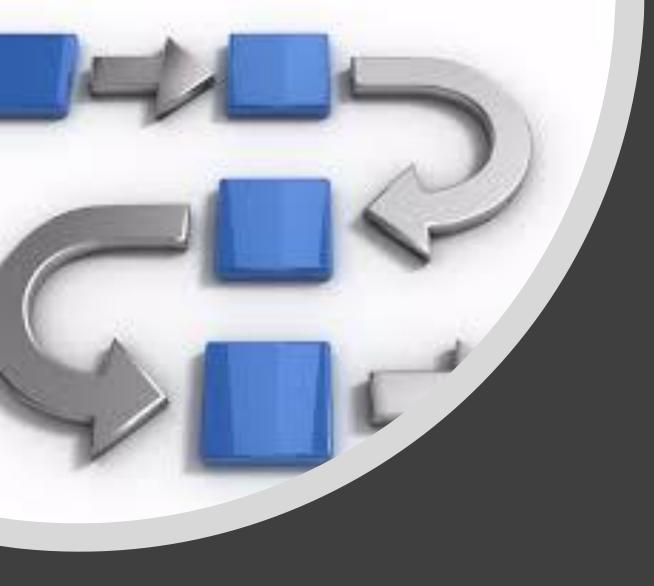
Data acquisition

• Date: Jun 01, 2021

• Sources:

- Wikipedia:
 - Neighbourhood names and addresses in Toronto
- Foursquare:
 - Geographical location of neighbourhoods in Toronto
 - Venues in each neighbourhood within 1000 m of the neighbourhood geographical coordinate
- Open Data Toronto
 - Popular locations in Toronto provided by Visitor Services. Popularity is measured by the field "Attraction Level"
 - Geospatial location of neighbourhoods



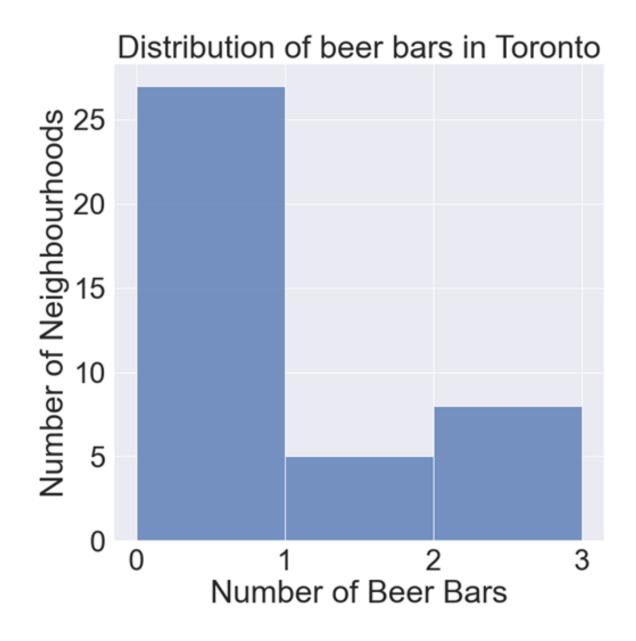


Methodology

- Relating data from data sources
 - Extracting information based on criteria
 - Filtering data
 - Combining data from sources to get insights
- Location Criteria
 - Least amount of beer bars
 - Close to popular attractions
- Machine Learning Method
 - K-means
 - popular clustering algorithm
 - groups the data into clusters based on similarity of data points

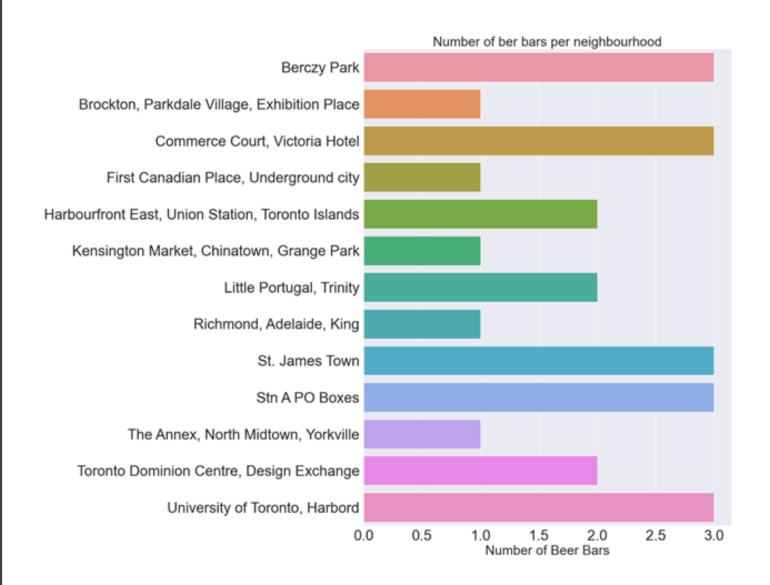
Exploratory Data Analysis – Beer Bars

- Most common number of beer bars in neighbourhoods is zero
- 26 neighbourhoods do not have a beer bar
- 5 neighbourhoods have 1 to 2 beer bars
- 6 neighbourhoods have 2 to 3 beer bars.



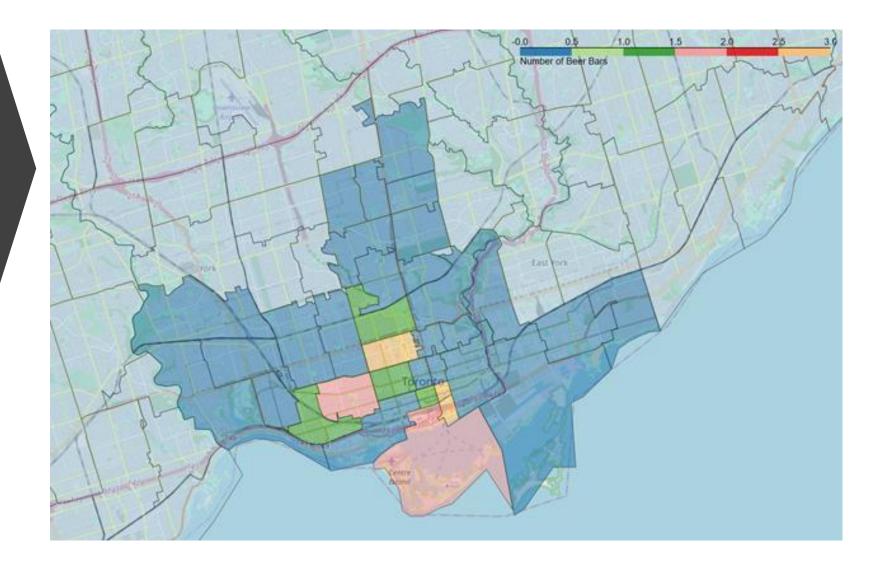
Exploratory Da ta Analysis – Beer Bars

- University of Toronto, Harbord, Berczy Park, Commerce Court, Victoria Hotel, St. James Town, and in Stn A PO Boxes most competitive neighbourhoods
- The largest count of beer bars in the data set was 3



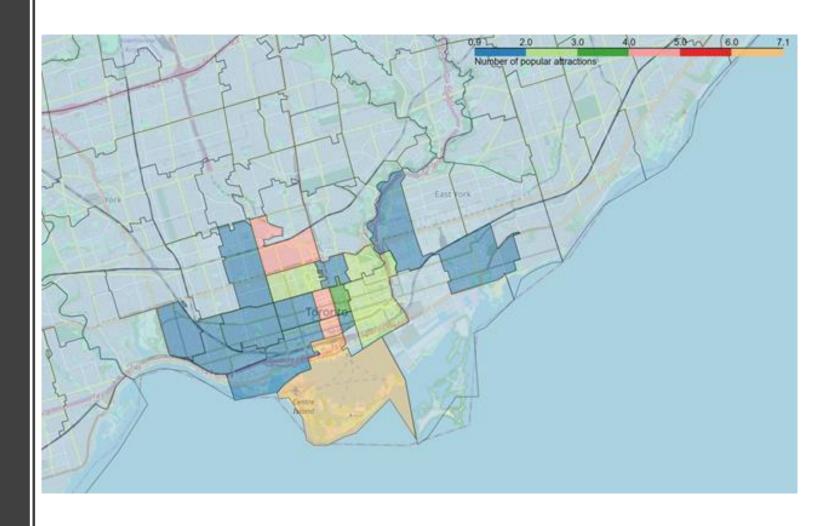
Exploratory Data Analysis – Beer Bars

- Number of beer bars increase towards the shore of the lake and around Toronto University
- Popular attractions in the some of those neighbourhoods
- University of Toronto, Harbord, higher number of young people in the neighbourhood that study in the university



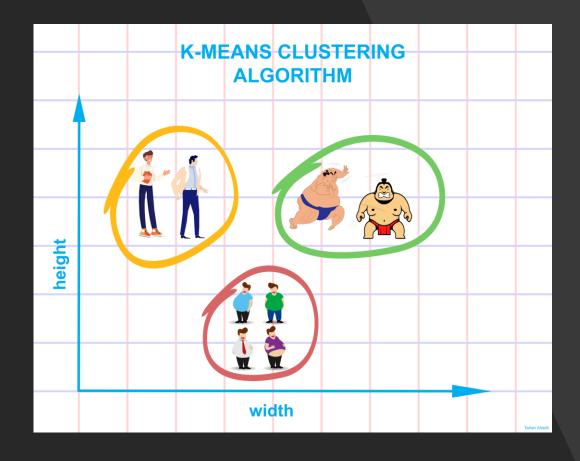
Exploratory Data Analysis – Popular Attractions

- Harbourfront East, Union Station, Toronto Islands - highest number of popular attractions (8 in total)
- Number of popular attractions in neighbourhoods - measure of high traffic of people in those areas.
- Neighbourhoods that popular attractions also have beer bars



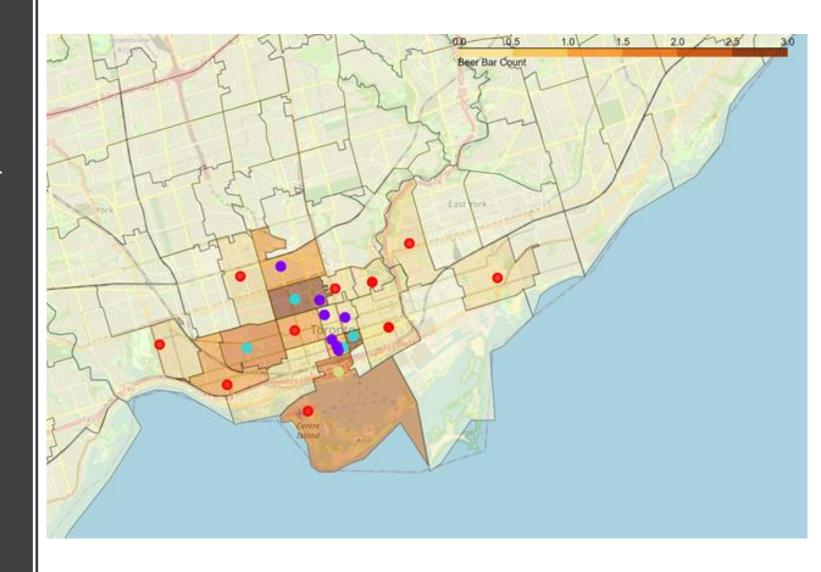
Exploratory Data Analysis – K-means

- Why K-means?
 - popular clustering algorithm that provides an idea of the structure of the dataset
 - Method that groups the data into clusters based on how similar the data points are to one another.



Exploratory Data Analysis – Kmeans

- Neighbourhoods with popular attractions coloured by number of beer bars
- Markers coloured in purple (cluster #1) represent locations that have relatively high number of popular attractions and relatively low number of beer bars



Reccomended Neighbourhoods Based on Criteria*

Neighborhood	Cluster	Beer Bar Cou	nt	Popular Attraction count
Queen's Park, Ontario Provincial Government	1		0	4
Garden District, Ryerson	1		0	3
Central Bay Street	1		0	4
Richmond, Adelaide, King	1		1	5
Toronto Dominion Centre, Design Exchange	1		1	4
First Canadian Place, Underground city	1		1	4
The Annex, North Midtown, Yorkville	1		1	4

^{*}Least amount of beer bars and close to popular attractions

Neighborhood	Cluster	Beer Bar Count	Popular Attraction count
Harbourfront East, Union Station, Toronto Islands	3	2	7

Cluster #3, which represents neighbourhood *Harbourfront East, Union Station, Toronto Islands*, is also recommended due to the high number of popular attractions, 7 in total, despite having the second highest number of beer bars in the region, 2 in total.

- Beer bars are concentrated towards the shore of the lake and around University of Toronto
- Number of popular attractions in neighbourhoods was chosen as a measure of high traffic of people in those areas
- K-means was chosen as the machine learning method
- The model was able to identify neighbourhoods with relatively low number of beer bars and relatively high number of popular attractions.



- K-means was chosen as the machine learning method
- The model was able to identify neighbourhoods with relatively low number of beer bars and relatively high number of popular attractions.
- Clusters labeled as #1, met the criteria, and, therefore, are the recommended locations to open a new Beer Bar for Stanley Park Brewing Co.



• Cluster #3, which represents neighbourhood Harbourfront East, Union Station, Toronto Islands, is an alternative due to low number og beer bars (2) compared to the number of popular attractions (7)



Future Directions



• Real Estate data such as price and location availability may bring significant improvements to this analysis.

