IBM Data Science Capstone Project

Introduction

In this capstone project for Applied data science, I would like to find an solution for new entry business owner to find a restaurant.

Background

In order to run a restaurant in Toronto, business owner should find a good local, which can drive a great traffic of clients and which also impacts the client segment the. With limited resource, it is always to locate a place. Therefore, we suggest deciding based on existing restaurants, which will a great proof to decide whether an area suits to open a restaurant. Based on this theory, we decide to select a place where has high density of restaurants

Problem

How to use limited information to find a location, which is useful to run a restaurant. In the realty there are so many facts could be consider when selecting location? While each fact has different impact.

Methodology and Analysis

Based on the dataset from Wikipedia, we can find easily find the high density by calculate the restaurant per mile. We can group area by zip and use sum of total restaurants to divide the size of each area. To further refine the place with high density of restaurants, we can utilize the machine learning to find a location where the distance to ten nearby restaurants is the smallest.

	Cluster Labels	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	3	Business reply mail Processing Centre, South C...	Yoga Studio	Brewery	Garden Center	Garden	Light Rail Station	Fast Food Restaurant	Farmers Market	Park	Pizza Place	Restaurant
1	1	East Toronto, Broadview North (Old East York)	Convenience Store	Park	Metro Station	Food Court	Convention Center	Dance Studio	Deli / Bodega	Department Store	Dessert Shop	Diner
2	2	Harbourfront East, Union Station, Toronto Islands	Coffee Shop	Aquarium	Café	Hotel	Brewery	Fried Chicken Joint	Restaurant	Italian Restaurant	Sporting Goods Shop	Scenic Lookout
3	4	New Toronto, Mimico South, Humber Bay Shores	American Restaurant	Café	Fried Chicken Joint	Liquor Store	Fast Food Restaurant	Mexican Restaurant	Pharmacy	Pizza Place	Restaurant	Coffee Shop
4	0	North Toronto West, Lawrence Park	Coffee Shop	Clothing Store	Spa	Fast Food Restaurant	Diner	Mexican Restaurant	Park	Rental Car Location	Restaurant	Chinese Restaurant

Conclusion

In a summary, this project was conducted to select a location where the chance of successful is high. We decide the location based the density of existing restaurant at Toronto. The clusters of restaurant show the concentration of restaurant that not only solves the business problem but opens doors to further analysis to decide the branch. Following our theory, we select a location whether the distance to ten closet restaurants are the smallest.