**Where are the most appropriate neighborhood in Toronto to locate your new KFC restaurant?**

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**Introduction**

There are currently dozens of KFC restaurants located in Toronto among hundreds outlets from other giant fast food chains. But with the strong consumer awareness of American food and beverages and fast growing of Food consumption in the city. It is expected that the market is still expanding rapidly in coming years. However, it is not easy to find a suitable location for your new KFC restaurant here. The objective of this analytics, is to solve that problem based on neighborhoods and corresponding venues data in Toronto in addition other data.

**About dataset**

I collect and merge data from various sources including Wikipedia and open data from [Toronto portal](https://www.toronto.ca/city-government/data-research-maps/open-data/). My goal is to find which neighborhood attracts the most for people set up their restaurants. Besides, I consider other feature like average income of people, crime rate, population density for my evaluation to be more accuracy. I am using Google APIs to get coordinates of Toronto neighborhoods. From the coordinates, I will use Foursquare APIs to get data about all of restaurant venues available in these district, especially fast food outlets. My final data is shown as below



**About the features**

The dataset contains features that I think affect to opening a new restaurant the most. They comprise:

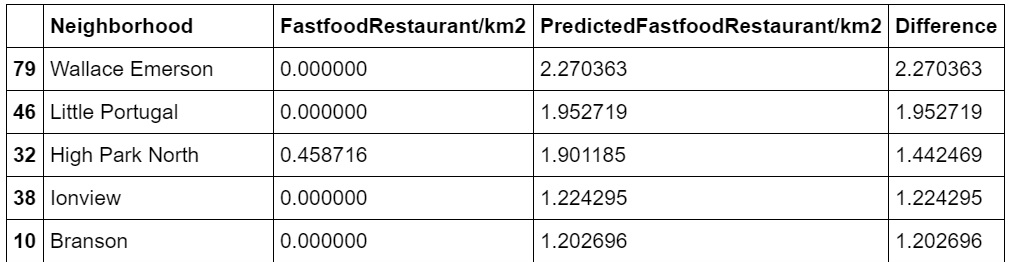
* PoDensity: Population density, the more population density, the more fast food restaurants operate there
* AvgIncome: Average Income of citizen, people tend to spend in restaurant more frequently when their income higher
* TotalCrimeCase: The total number of crime incidents occur in the neighborhood, safer places attract more restaurants
* HomePrices: Housing prices affect to outlet renting prices for opening new restaurant, affect to profit of restaurants
* Latitude, Longitude, Restaurant: serve for visualizing
* Area, Restaurant, Fastfood Restaurant: serve for calculating density of restaurant and fastfood restaurant per square kilometre

**The model**

After a while visualizing data and calculating correlation coefficient between fast food restaurant density and other feature, I find out that just population density and total crime incidents per square kilometer have linear correlation with density of fast food restaurant. Therefore I’m using linear regression to find the correlation between density of fast food restaurant and two these features.

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**Result and discussion**



The purpose of my machine learning model is to find out which neighborhoods having less fast food outlets than others. As you can see above, there are some neighborhoods that my model told that, they should be placed more fast food restaurants. Above are five neighborhoods with highest difference.

Wallace Emerson and Little Portugal have quite small areas. It's not easy to find a store for rent here and do not have many choices. While Branson and Ionview area mainly are residents' houses. It seems like **High Park North** is the ideal neighborhood for opening the new KFC restaurant!

**References**

1. <https://www.toronto.ca/city-government/data-research-maps/open-data/open-data-catalogue/#e3a085d5-8e94-e279-4c17-33c209141464>
2. <https://www.toronto.ca/city-government/data-research-maps/open-data/open-data-catalogue/public-safety/>
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