Opening a new restaurant in Toronto

Introduction

- During this pandemic time due to COVID-19, restaurants remains one of the most important essential services. Although, dine-in facility has been currently suspended, the takeout is still active. Despite this situation, one of my friends has decided to open a new restaurant as he believes that eventually business will pick up once this pandemic is over. He decides to open a restaurant based on some theme.
- The main objective of this capstone project is to *find the most suitable location for one of my friends to open a new themed restaurant in the Toronto city*.

Description of Data

- By doing the exploratory analysis on this data and transforming the data to the desired format in the preprocessing and data wrangling stages, this business problem can be solved by one of the machine learning algorithms. In our case, we are going to use “K-Means Clustering

Model Development

- “Foursquare API”, we will pull list of venues in the neighborhood that are in the radius of 500m using the existing credentials of “Foursquare API” to retrieve the data. After this, we will group the venues by neighborhood before processing them to a technique called “one-hot encoding” where the variable is removed, and a new binary variable is added for each unique integer value. This can be done by One hot encoder module in the preprocessing package.

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After this, we will try to get the top 5 venues for each neighborhood before processing to the modelling phase. In the modelling phase, we will build a model using the machine learning algorithm to recommend a location to build a new restaurant.
In this project, we have used a machine learning algorithm called “K-Means Clustering” which will form the clusters of similar type. After tuning to find the optimum “k” value, we will train our model and fit them into it. In our project, we have formed 2 clusters. After analyzing both the clusters, I will recommend my friend to open a new restaurant in the neighborhood of “Cluster 1” as there are only few restaurants in the place and opening up a new themed restaurant will have a very good business.

Interpretation

- In this project, we found the most suitable location for one of my friends to open a new themed restaurant in the London city by following data science methodology and machine learning algorithms such as Clustering

Appendix