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IBM Applied Data Science Capstone Project

Opening up a Fast Food Restaurant in Chennai

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Introduction

The India online food delivery market attained a value of nearly USD 2,926 million in 2019. In the past three years, the industry has shown a year on year growth of 100%. The industry growth is highly fluctuating and is dependent on investments. It is expected to witness a robust growth in the coming few years.

Evolving lifestyles, urbanization, and growing nuclear families have long supported the upward trend of the restaurant market in India. The QSR's (Quick Service Restaurants) and the casual dining restaurants together constitute over 74 percent of the market and are growing exponentially. The QSR industry has spearheaded restaurant trends such as expansion to small cities in India, and different formats such as dine-in, in-mall outlets, and drive-thrus, which has provided the customers an easy access to eating out. Additionally, due to the growing exposure to the international cultures and lifestyles, Indians have started experimenting with food. They are developing their tastes for different cuisines, apart from traditional Indian cuisine. According to a new report by EMR titled, 'India Online Food Delivery Market Report and Forecast 2020-2025′, the India online food delivery market reached a value of almost USD 2.92 billion in 2019. Rapid digitization and growth in both online buyer base and spending will help India's online food industry to become a $8 billion market by 2022.

Business Problem

The objective of this capstone project is to analyze the neighborhood in Chennai and choose the best place for people who are looking to start up a Fast Food Restaurant through data analysis and clustering.

Target Audience

This project will be useful for people who are looking to get into food industry business and particularly opening up a fast food restaurant in Chennai. Here, the food is prepared in bulk and served fast. The restaurants also have minimum table service and there is usually provision for both eating at the outlet and take-home. This can be done with minimum investment under 5 lakhs.

Also, since consumers are becoming more health conscious, there is need for healthy fast food restaurants. People having ideas of healthy fast foods can open up their own restaurants as people are looking for it and if they can balance the taste of the food, health of the consumer, along with the right price to be paid in the right way, it will be a sure success for both the producer and the consumer.

Data required for the analysis

1. List of neighborhoods in Chennai: -
   This data is essential to determine the scope of the project and its feasibility in the location.

2. Location data of List of neighborhoods in Chennai: -
   This data is essential to determine the location of the neighborhoods in Chennai in order to visualize in the real world through the map.

3. Venues near the neighborhoods in Chennai: -
   This data, in particular the fast food restaurants in Chennai is required in order to choose the best place for opening up a fast food restaurant.

Source of data and methods to extract it

For the list of neighborhoods in Chennai, it can be extracted from Wikipedia from the link https://en.wikipedia.org/wiki/Areas_of_Chennai . The list of neighborhoods is extracted from the link through web scrapping package in python called BeautifulSoup.

For the location of the list of neighborhoods, it can be extracted with the help of geocoder library in python once the list of neighborhoods is converted into a data frame.

Venues near the neighborhoods in Chennai can be collected from Foursquare database through their API. Foursquare database consists of more than 105 million places worldwide and are being constantly updated. Hence from their database we can collect our current data on fast food restaurants in Chennai.

This project uses data cleaning, data wrangling methods and also K-means clustering to cluster the venue categories in the neighborhoods and Folium library in python to visualize the fast food restaurant clusters in the map of Chennai.