

IBM Data Science Professional Course

Coursera Capstone Project

The Battle of Neighborhoods

Starting a new Indian Restaurant in Delhi, India



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Introduction:

Delhi is a union territory in India containing New Delhi, a capital of India. According to Census 2011, Delhi's city population is about 11 Million which second-highest in India. Delhi's urban area has a 2016 estimated population of over 26 Million which is world's second-largest urban area. According to Euromonitor International, Delhi ranked as 28th-most visited city in the world and first in India by foreign visitors in 2015. Therefore, there are already many Restaurants, Hotels, Coffee Shops etc. They all have different types of food from different parts of the country and also world. Increasing population and tourism are increasing the demand for good quality Restaurants.

According to Indian Medical Science (Ayurveda), we should eat only local food for good health. Understanding Indian culture is actually incomplete without even tasting the Indian food. The tourists mostly from foreign countries always want to taste Indian Regional food. Many people have to avoid foreign foods to maintain good health. Regularly eating continental food is not hygienic. It also creates so many economic problems. The people should always prefer Local food. Now days, due to Covid-19 pandemic, people are realising the importance of eating home-made or local food. The situation between India and China is rapidly lowering the

Chinese market in India. The Chinese food has occupied the large part of food industry in India. Hence, preferring to eat Indian food is the best solution to make the country self-dependant.

Actually it is very complicated process to open a Restaurant serving the Indian food from all parts of India. Because, there is already an oversupply of such Restaurants in Delhi as it is a capital of India. But finding a place for such Restaurant is very important step. It will decide whether the Restaurant will run successfully or not.

Business Problem:

The aim of the project is to analyze and find area in Delhi, India where a new Indian Regional Food Restaurant can be started and run successfully. Actually there is oversupply of Restaurants, Hotels and food options in Delhi. There are many restaurants serving Indian food. But as mentioned earlier, increasing the number of such local food restaurants is very important to raise Indian economy and make India self-dependent.

Using various types of Data science and Machine Learning techniques and mainly Foursquare API, the project provides a solution to the Business Problem, '**Where to start new Indian Regional Food Restaurant in Delhi, India?**'

Interest:

This project is useful to the businessmen, investors and developers who want to start a new Indian Restaurant in Delhi, India. As Delhi is capital of India, there are varieties of food Restaurants. It is required to find area in Delhi with very less number of Indian food Restaurants. My project will help Businessmen to start and develop their Business in the Hoteling sector.

Starting an Indian Restaurant will increase the demand of raw food materials that produce in remote areas of country. Indian farmers will get their productions for sell in market. It will definitely help to solve a problem of unemployment. And therefore, it will automatically raise the Indian economy.

Data:

For this project, following data is necessary:

- The list of suburbs (neighborhoods) in Delhi, India. This data is the main dataset of the project which decides the scope of the project. I used the data on website https://en.wikipedia.org/wiki/Category:Neighbourhoods_in_Delhi
- The latitude and longitude coordinates of each neighborhood should be found using **Geocoder**. This helps to draw maps with neighborhoods superimposed on top.
- The venues data particularly related to Indian Restaurants from **Foursquare**. It will be used for clustering of neighborhoods.

How the data can be used to solve the problem?

The Wikipedia page ([https://en.wikipedia.org/wiki/Category:Neighbourhoods in Delhi](https://en.wikipedia.org/wiki/Category:Neighbourhoods_in_Delhi)) contains the list of 138 suburbs (neighborhoods) in Delhi, India. The data should be extracted and transformed into dataframe. This can be done using **BeautifulSoup** in Jupyter Notebook. The latitude and longitude coordinates of all the neighborhoods can be found with the help of **Geocoder**.

The Foursquare has access firmographic data and rich community-sourced content for more than 60 million commercial places around the world. It has data of 62M+ global venues, 190+ countries, 50 territories, 900+ venue categories, 30+ attribute fields and more than 150K developers on platform. Using **Foursquare**, all the venues in all the neighborhoods and their categories can be listed. Then the data with venue category 'Indian Restaurant' should be extracted. It will help to create clusters.

The data should be visualized with the help of maps using **Folium**. Finally, using K-means clustering, the data will be transformed into a specified number of clusters that will help to understand results and conclusion of the analysis.