

Capstone Project - The Battle of the Neighbourhoods

Applied Data Science Capstone by IBM/ Coursera

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Best Restaurants Surfing through Zomato - New Delhi

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Introduction: Business Problem

This project aims to select the nearest restaurant listed out in Zomato based on the **specified location** . Specifically this report will be targeted to the customers who wants to have a dine-in in the restaurant of their likings.

New Delhi being the capital of India is filled with people with various likings, taste and preferences. When there is a weekend the tendency of the people is to spend a quality time with family and explore different places surrounding them. With the advancement in technology various apps provide the details of the places, restaurants and venues. Zomato being one of the popular app in this category provides details of the restaurants, ratings, the type of cuisine, the feedbacks given by the peer customers helps the people to identify more conveniently with just few clicks.

We will focus on the top restaurants in neighborhoods and the 5 most common venues in each neighborhood so that the best place to spend weekend suited to an individual's needs can be selected.

The following questions will be focused on and answered:

- Which type of cuisine is commonly found in the restaurants?
- Whether the cost specified under each restaurant is affecting its rating?
- Listing out the restaurants that provides Pre-Book option
- What are the restaurants surrounding the specified location?
- Final one to list out the other options/venues surrounding the location to spend the valuable time.

Data

Based on definition of our problem, factors that will influence our decision are:
number of restaurants in the neighborhood (any type of restaurant)

number of and distance of venues in the neighborhood, if any

We decided to use regularly spaced grid of locations, centered around city center, to define our neighborhoods.

Following data sources will be needed to extract/generate the required information:

number of restaurants and their type and location in every neighborhood will be obtained using **Foursquare API**

coordinate of the venues for the selected restaurant will be obtained using **Foursquare API**

The dataset has been gathered from **Kaggle**

Reference: <https://www.kaggle.com/sominwadhwa/where-what-to-eat-in-delhi-india-mapbox-w-plotly>

This is going to be interesting...!

Methodology

- In this project we will direct our efforts on detecting areas of New Delhi that have restaurants, particularly those with other venues.
- In first step we will concentrate on the cuisines of the restaurant. It will show a analysis of how many restaurants offers particular type of cuisine which helps to find out which cuisine is liked by the people in New Delhi.
- Second step in our analysis will be to find out whether the cost is affecting the rating. Since if we choose a restaurant the first thing to be noted is to find out the ratings of the restaurant in order to find the top restaurants. In this analysis we will find out whether the cost of the food is affecting the rating.
- Third step is mainly for the dine in where people check whether pre-book of table is available or not. This is most essential in the case of family day out.
- In Fourth step we will find the nearby restaurant for the location specified. Here we will use Foursquare API to find out only the restaurants nearby the location and also other nearby venues to plan the weekend accordingly.
- In fifth and final step we will focus on most promising areas and within those create clusters of locations that are the neighborhood of the New Delhi and they are clustered based on the categories of the venues in those locality. We will present map of all such locations but also create clusters (using k-means clustering) of those locations to identify general zones / neighborhoods / addresses which should be a starting point for final 'street level' exploration.

Sneak Peak into the Dataset

	Restaurant ID	Restaurant Name	Country Code	City	Address	Locality	Locality Verbose	Longitude	Latitude	Cuisines	...	Currency	Has Table booking	Has Online delivery	de
9546	5915730	Namlı Gurme	208	Üstanbul	Kemankeş Karamustafa Paşa Mahallesi, Rühtü...	Karakıy	Karakıy, Üstanbul	28.977392	41.022793	Turkish	...	Turkish Lira(TL)	No	No	
9547	5908749	Ceviz Aşacı	208	Üstanbul	Koşuyolu Mahallesi, Muhtetin İstifndaşı Cadd...	Koşuyolu	Koşuyolu, Üstanbul	29.041297	41.009847	World Cuisine, Patisserie, Cafe	...	Turkish Lira(TL)	No	No	
9548	5915807	Huqqa	208	Üstanbul	Kuruçeşme Mahallesi, Muallim Naci Caddesi, N...	Kuruçeşme	Kuruçeşme, Üstanbul	29.034640	41.055817	Italian, World Cuisine	...	Turkish Lira(TL)	No	No	
9549	5916112	Aşk Kahve	208	Üstanbul	Kuruçeşme Mahallesi, Muallim Naci Caddesi, N...	Kuruçeşme	Kuruçeşme, Üstanbul	29.036019	41.057979	Restaurant Cafe	...	Turkish Lira(TL)	No	No	
9550	5927402	Walter's Coffee Roastery	208	Üstanbul	Cafeaşı Mahallesi, Bademaltısı Sokak, No 21/B...	Moda	Moda, Üstanbul	29.026016	40.984776	Cafe	...	Turkish Lira(TL)	No	No	

Analysis

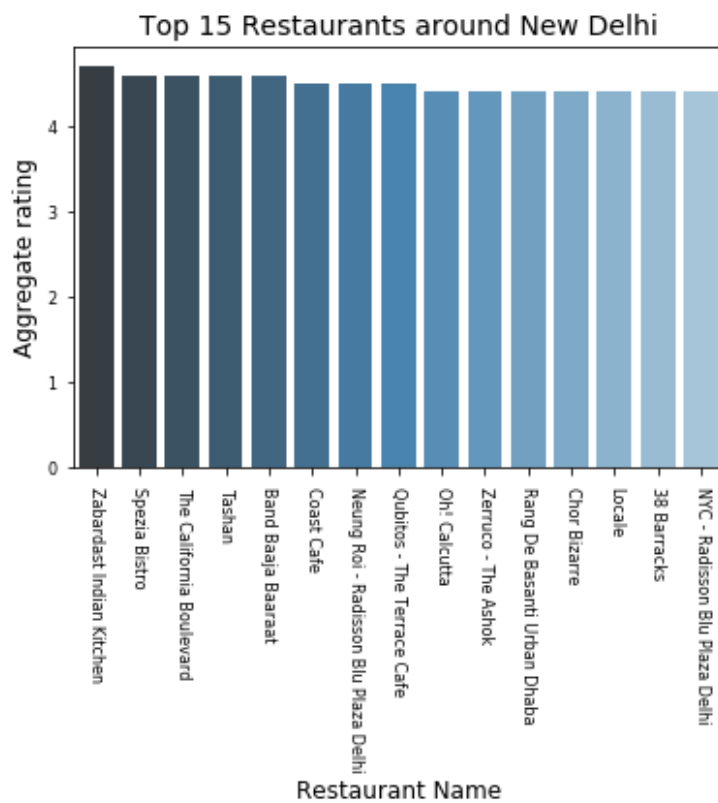
1. Number of Cuisines offered by the Restaurant



2. Are ratings affected by how cheap/expensive a restaurant is?



3. Pre-booking a Lunch/Dinner on Perfect Weekend?



4. Looking for a Restaurant near you?

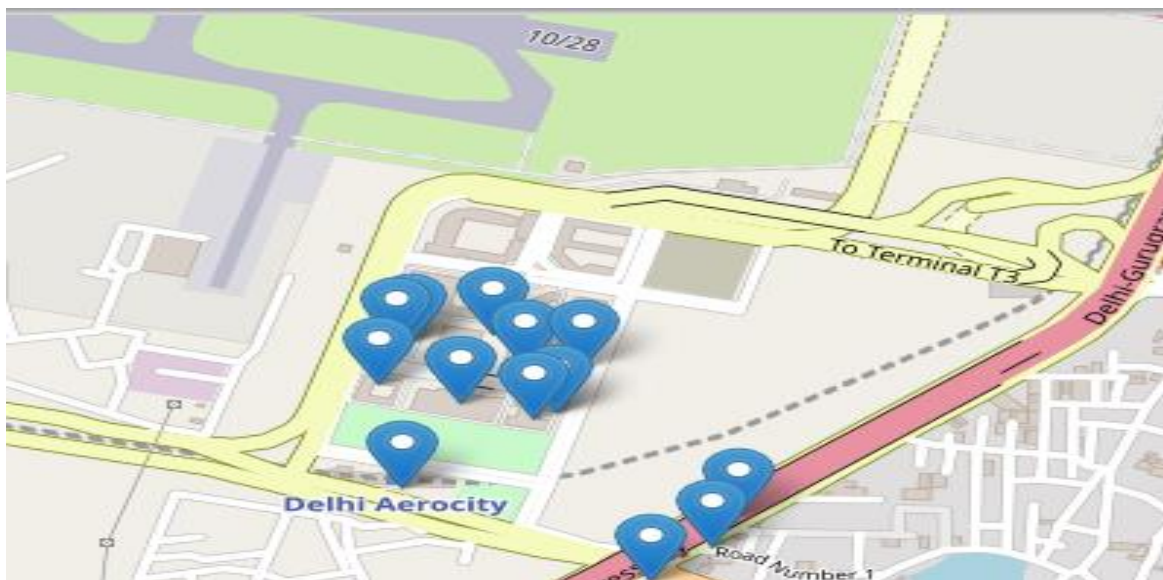
Restaurants around location

DEL

Kheer

Other Venues:

	name	categories
0	Holiday Inn New Delhi International Airport	Hotel
1	Roseate House	Hotel
2	Worldmark	Shopping Mall
3	Starbucks	Coffee Shop
4	Neung Roi	Thai Restaurant
5	The Radisson Blu Plaza	Hotel
6	Cafe Delhi Heights	Punjabi Restaurant
7	Lemon Tree Premier	Hotel
8	Delhi Aerocity Metro Station	Train Station
9	Ibis Delhi Airport Hotel	Hotel
10	The Hangar Lounge & Bar	Hotel Bar
11	Red Fox Hotel, Aerocity	Hotel
12	Vishal Mega Mart	Accessories Store
13	Hotel Le Seasons, Delhi	Bed & Breakfast
14	Radisson Commercial Plaza	Plaza
15	Hotel Classic Diplomat	Hotel

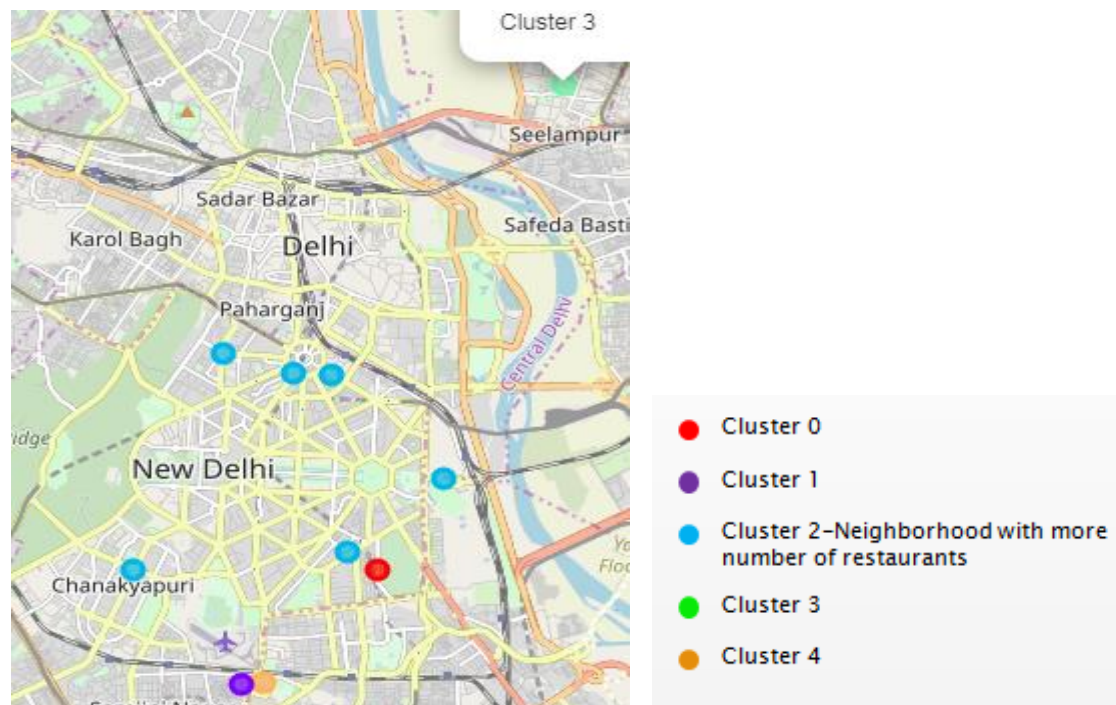


5. Explore Neighborhoods in New Delhi

	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
Neighborhood						
Barakhamba Road	19	19	19	19	19	19
Chanakyapuri	6	6	6	6	6	6
Connaught Place	74	74	74	74	74	74
Gautampuri	2	2	2	2	2	2
Gole Market	10	10	10	10	10	10
Golf Links	1	1	1	1	1	1
INA Colony	4	4	4	4	4	4
Khan Market	44	44	44	44	44	44
Laxmibai Nagar	5	5	5	5	5	5
Pragati Maidan	7	7	7	7	7	7

	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	Barakhamba Road	Indian Restaurant	Hotel	Portuguese Restaurant	Molecular Gastronomy Restaurant	Coffee Shop	Fast Food Restaurant	Gastropub	Café	Italian Restaurant	Bistro
1	Chanakyapuri	Nightclub	Arcade	Hotel Bar	Indian Restaurant	Performing Arts Venue	Restaurant	Fast Food Restaurant	Deli / Bodega	Dessert Shop	Donut Shop
2	Connaught Place	Café	Indian Restaurant	Bar	Coffee Shop	Chinese Restaurant	Fast Food Restaurant	Clothing Store	Lounge	Bistro	Italian Restaurant
3	Gautampuri	Tourist Information Center	Tea Room	Food	Dessert Shop	Donut Shop	Eastern European Restaurant	Fabric Shop	Fast Food Restaurant	Flea Market	Food Truck
4	Gole Market	Indian Restaurant	Hotel	Bengali Restaurant	Theater	Café	Snack Place	Fabric Shop	Fast Food Restaurant	Japanese Restaurant	Donut Shop

6. Clustering the Neighborhood



Results and Discussion

Our analysis shows that although there is a great number of restaurants in New Delhi , people prefer those restaurants with highest rating and those restaurants where other venues can be easily reached through to plan out for a perfect weekend. This project helps us to find those Top rated restaurants in the specified Locality along with other places that can be visited.

We have even specified the distance of each venue from the locality in order to choose from the best and have shorter distance than to travel further.

With the help of Clustering we were able to identify that most of the neighbourhoods of New Delhi has been mainly clustered based out of the restaurants in their locality this shows that with the increasing population the tendency of the people to spend their weekend in restaurants has been increasing proportionally.

I also performed data analysis through this information by adding the coordinates of localities and the data provided by Zomato such as ratings, cost for two, type of cuisine offered, upvotes etc., . In future studies, these can be used for further analysis of how a restaurant is progressing and which will be the best location to open a new restaurant based on the other restaurant's parameters.

Conclusion

As a result, people are turning to big cities to start a business or work. For this reason, the migration population is also increasing tremendously which leads the people to hang around during the weekends. This led to the increase of restaurants and the cuisines offered by them. With this analysis people can find out the restaurants nearby and other venues to plan out accordingly.

Not only for people but also business man who wants to start over new restaurants can use the similar data analysis for finding out the perfect location to start out.