

# **Places to dine at in New Delhi**

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## **1. Introduction**

### **1.1 Problem statement**

New Delhi is a big city and new restaurants open up everyday.

The area of Delhi is very large too with mix and match of all sorts of places. It hosts a population of 1.9 crores.

When it comes to food, there are thousands of options as well.

The city is crowded with a lot of restaurants and fine places to dine in. It becomes tricky to find restaurants that offer customer satisfaction

And doesn't create a hole in your packet.

### **1.2 Solution**

The intent is to analyse types of restaurants on the basis of their location, ratings and price. For some one who wants to dine at the best restaurants in Delhi, this is a one stop solution. This project is the final delivery of the IBM Data Science Professional Certificate, and its objective is to find out the best restaurants keeping different criteria in mind such as price and ratings which are key factors in determining a place to dine in when we are looking out for options. The target audience would be anyone who is looking out for restaurants where they can relish good food and also fits in their budget.

## **2. Data acquisition and cleaning**

### **2.1 Source of Data**

a) Foursquare API to select the number of restaurants and their locations in New Delhi.

b) Zomato API to fetch ratings and average price of the restaurants using my developer credentials.

I will first create a dataset thought the Foursquare API to explore several types of venues, such as ID, name, latitude, longitude, neighborhood, and distance (in meters) to Connaught place which is a hub for restaurants in Delhi.

And then I will use Zomato API to fetch price for two and ratings of the restaurants. My main intent for using Zomato API is to fetch the average price and ratings.

I will then create the combined data set which I would then use further for my analysis.

Using the Foursquare API

```
url = 'https://api.foursquare.com/v2/venues/explore?&client_id={}&client_secret={}&v={}&ll={},{}&radius={}&limit={}'.format(
```

```
CLIENT_ID,  
CLIENT_SECRET,  
VERSION,  
CP_latitude,  
CP_longitude,  
radius,  
LIMIT,  
)
```

Using Zomato API

```
url = ('https://developers.zomato.com/api/v2.1/search?q={}'+  
'&start=0&count=1&lat={}&lon={}&sort=real_distance').format(row['name'], row['lat'],  
row['lng'])
```

## 2.2 Data cleaning

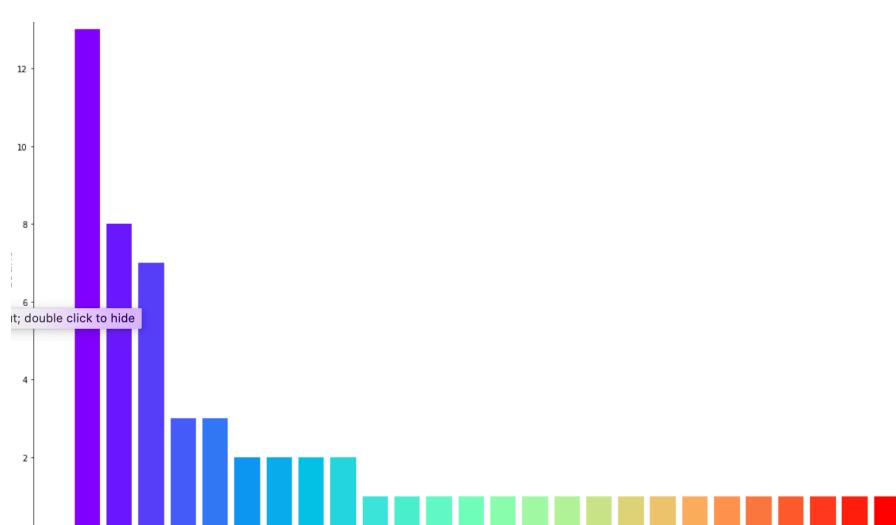
Data is taken from two sources foursquare api and Zomato API, Foursquare API fetches the name of the restaurants where I use Zomato API to fetch ratings and price of restaurants.

The data is then combined to only bring out those options which are common results in both the API's and if latitude and longitude differs by max of 0.0004. This also gives the assurance that I am referring to the same data.

## 3. Exploratory Data Analysis

### 3.1

Data is plotted on the map to figure out the type of restaurants available

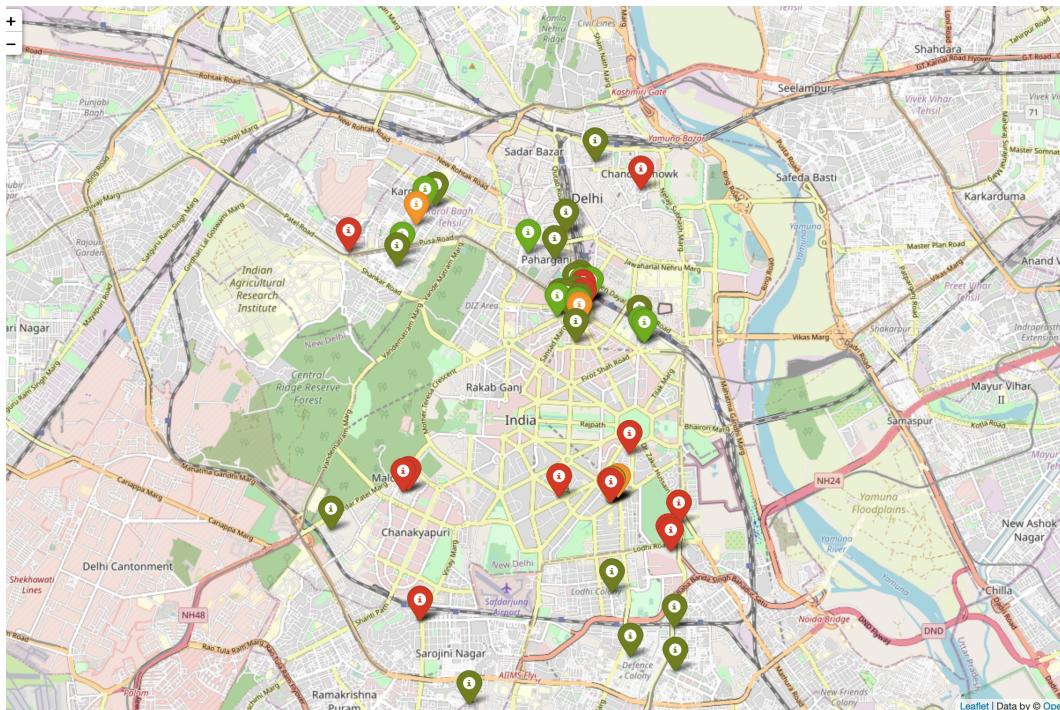


From the below plot it is clear that maximum number of restaurants are Indian restaurants followed by Cafes.

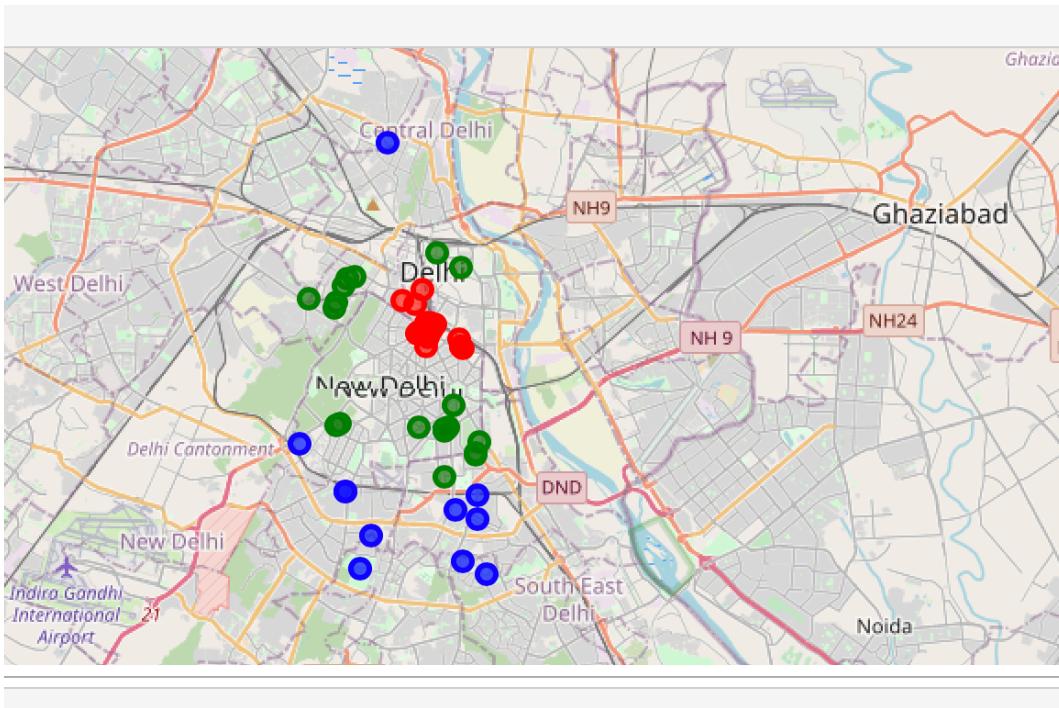
### 3.2 Plotting the restaurants on Map on the basis of price range

```
color_map = {'1.0': 'green', '2.0': 'darkgreen', '3.0': 'orange', '4.0': 'red'}
```

Green means the restaurants are the cheapest and Red indicates restaurants are the most expensive,



### 4. Modeling



I applied classification model to cluster the restaurants into three different clusters indicated by three different colors:

**Cluster '0' is marked with colour green.**

**Cluster '1' is marked with colour red.**

**Cluster '2' is marked with colour blue.**

### **Analysis of clusters:**

The venues for cluster 0 have mean price range of 3.09 and rating spread around 4.10.

The venues for cluster 1 have mean price range of 2.00 and rating spread around 3.75

The venues for cluster 2 have mean price range of 2.73 and rating spread around 4.08

### **5 Conclusions:**

Based on our analysis above, we can draw a number of conclusions that will be useful to aid any visitor visiting Delhi, India.

We saw that most of the restaurants in Delhi are Indian restaurants and cafe.

We also saw that restaurants have different pricing range but majority of the restaurants have Lower price range.

Finally, through clusters we identified that there are many venues which are relatively lower priced but have an average rating of 3.75

On the other hand, there are few venues which are high priced and have average rating of 4.10.

If you're looking for the best places, with the highest rating but might also carry a high price tag, you should visit restaurants marked by cluster 0.

If you are looking for good restaurants which are not very expensive but have fairly good rating, visit the restaurants marked by cluster 1.

If you're looking for cheap places with relatively high rating, you should check restaurants marked by cluster 2.

The purpose of this project was to explore the places that a person visiting Delhi could visit. The venues have been identified using Foursquare and Zomato API and have been plotted on the map. Based on the visitor's venue rating and price requirements, he/she can choose amongst the three places.