# Exploring venues in Chandigarh, India using Foursquare and Zomato API

## 1. Introduction

### 1.1 Background

Whenever a person searches for a venue in a new city, they're highly interested in the best places that the city has to offer. The person might want to know how good a given restaurant is or the price range it falls under. This extra information would help decide which venue to choose amongst the many venues in the city. Combining the location of the venues in the city with their price and rating information would surely help visitors in a city make better informed decisions about the places they should visit. Chandigarh is composed of a number of sectors spread across a total area of 114 sq Km. There are many venues (especially restaurants, hotels and cafes) which can be explored. This project explores various venues in Chandigarh and attributes the data based on user ratings and average price. To explore this information, this project involves the juxtaposition of both the Foursquare API and the Zomato API to fetch complete information of various venues (including name, address, category, rating, and price). Further, a map of the venues with specific color attributes will be plotted to highlight their position, and information about these venues. Such plots imbibe bountiful information in the form of their colored representations and location on the map. This enables any visitor to take a quick glance and decide what place to visit.

### 1.2 Interested audience

The target audience for such a project is twofold. Firstly, any person who is visiting Chandigarh, India can use the plots and maps from this project to quickly select places that suit their budget and rating preferences. Secondly, a company can use this information to create a website or a mobile application, which is updated on a regular basis, to allow individuals to the city or even expand same functionality to other places.

## 2. Data

### 2.1 Data Sources

To get location and other information about various venues in Chandigarh, I used two APIs and decided to combine the data from both of them together.
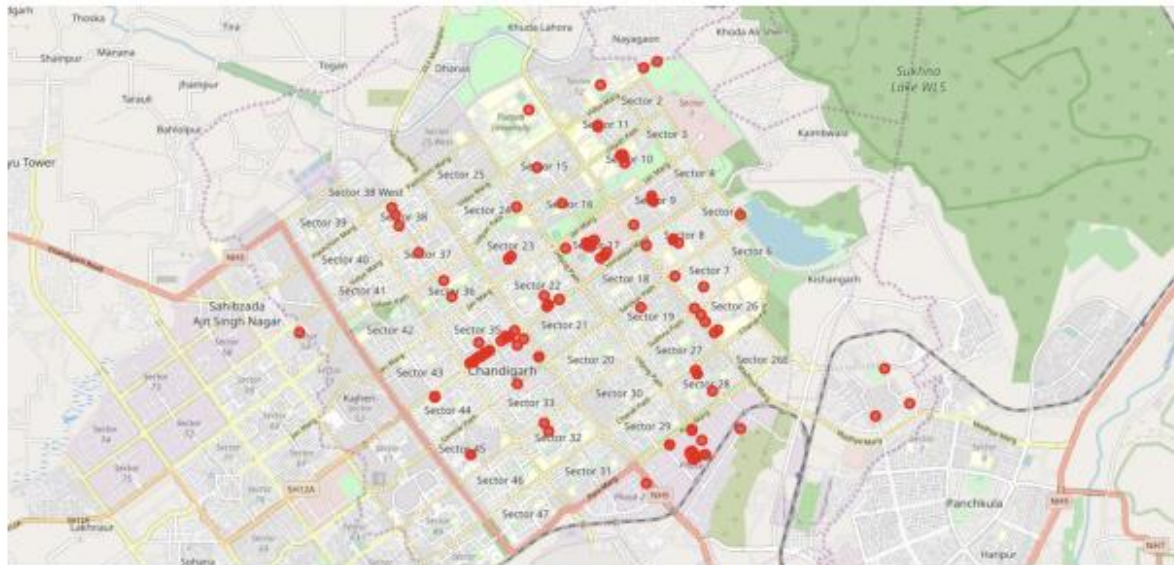
Using the Foursquare's explore API (which gives venues recommendations), I fetched venues up to a range of 4 kilometers from the center of Chandigarh and collected their names, categories and locations (latitude and longitude).

Using the name, latitude and longitude values, I used the Zomato search API to fetch venues from its database. This API allows to find venues based on search criteria (usually the name), latitude and longitude values and more. Given that the data from the two APIs did not align completely, I had to use data cleaning to combine the two datasets properly.

From Foursquare API (https://developers.zomato.com/api), I retrieved the following for each venue:

• Name: The name of the venue.

• Category: The category type as defined by the API.

• Latitude: The latitude value of the venue.

•Longitude: The longitude value of the venue.

From Zomato API (https://developers.zomato.com/api), I retrieved the following for each venue:

• Name: The name of the venue.

• Address: The complete address of the venue.

• Rating: The ratings as provided by many users.

• Price range: The price range the venue belongs to as defined by Zomato.

• Price for two: The average cost for two people dining at the place. I later convert the same to average price per person by dividing by 2.

• Latitude: The latitude value of the venue.

• Longitude: The longitude value of the venue.

**2.2 Data Cleaning**



Figure 1: Venues retrieved from Foursquare API

*Figure 2: Venues retrieved from Zomato API*

From figure 1 and figure 2, we can clearly see that some venues from the two APIs do not align with each other. Thus, I decided to combine them using their latitude and longitude values.

To combine the two datasets, I had to check that the latitude and longitude values of each corresponding venue match. After careful analysis, I decided to drop all corresponding venues from the two datasets that had their latitude and longitude values different by more than 0.0004 from one another. Thus, I rounded both the latitude and longitude values up to 4 decimal places. Then, I calculated the difference between the corresponding latitude and longitude values and saw if the difference was less than 0.0004 which should ideally mean that the two locations are the same. This removed many outliers from the two datasets. Once this was done, I observed that there were still some venues which were not correctly aligned.

They can be categorised as follows:

1. There are venues that have specific restaurants/cafes inside them as provided by Zomato API (Pizza Hut inside Elante Mall).

2. Two locations are so close that they have practically same latitude and longitude values (The Pizza Kitchen and Zara).

3. Some venues have been replaced with new venues (Underdoggs has now been replaced by The Brew Estate).

Venues belonging to category 1 and 3 are perfect to keep. However, the venues that belong to category 2 should be dropped. After careful inspection and removal, the final dataset had a total of 49 venues with which we can work.

As a final dataset, we're left with 49 venues with 8 columns as described in figure 3.

| | categories | venue | latitude | longitude | price_range | rating | address | average_price |
|---|---|---|---|---|---|---|---|---|
| 0 | Hotel Bar | Sundarams | 30.7302 | 76.7735 | 1.0 | 3.4 | Hotel Aroma Complex, Himalaya Marg, Sector 22 ... | 175.0 |
| 1 | Sandwich Place | Backpackers Cafe | 30.7475 | 76.7933 | 3.0 | 4.3 | SCF 16, Inner Market, Sector 9 D, Sector 9, Ch... | 600.0 |
| 2 | Ice Cream Shop | Softy Corner | 30.7405 | 76.7816 | 1.0 | 4.6 | SCO 87, Sector 17, Chandigarh | 150.0 |
| 3 | Fast Food Restaurant | Hot Millions | 30.7408 | 76.7822 | 2.0 | 2.2 | SCO 73 & 74, Sector 17 D, Sector 17, Chandigarh | 400.0 |
| 4 | Bakery | Nik Baker's | 30.7216 | 76.7601 | 2.0 | 4.5 | SCO 441 - 442, Sector 35 C, Sector 35, Chandigarh | 350.0 |

*Figure 3: Final data aggregated from both APIs*