

# Searching for Optimal Locations for Cloud Kitchens in Mumbai

By Ameya Kulkarni

Email ID: [ameya.kulkarni2014@gmail.com](mailto:ameya.kulkarni2014@gmail.com)

## Data

---

For this project, we have relied on the Foursquare location data (as instructed!) for details on existing restaurants, while for information about the city of Mumbai (location coordinates, populations, etc.), multiple websites have been scrapped.

The city of Mumbai is divided into administrative wards, and details about its population and areas are available on the web [8]. Unfortunately, location details about these wards are not available online. Pin code information about the ward offices was combined with latitude-longitude data of pin codes was used to identify the location of ward offices. It was assumed that these ward offices represent the central territory of each ward [9][10].

The city is also divided into suburbs with reliable location information, though inconveniently details about population and area are not [11].

We have used the suburb locations and the Foursquare location data to create a dataset of restaurants and other food establishments, their locations, and their category/type.

The category type serves as the base data for the cuisine recommendations. The Foursquare location data provided 70 unique categories, though the true number might be closer to 60 (once similar types are combined).

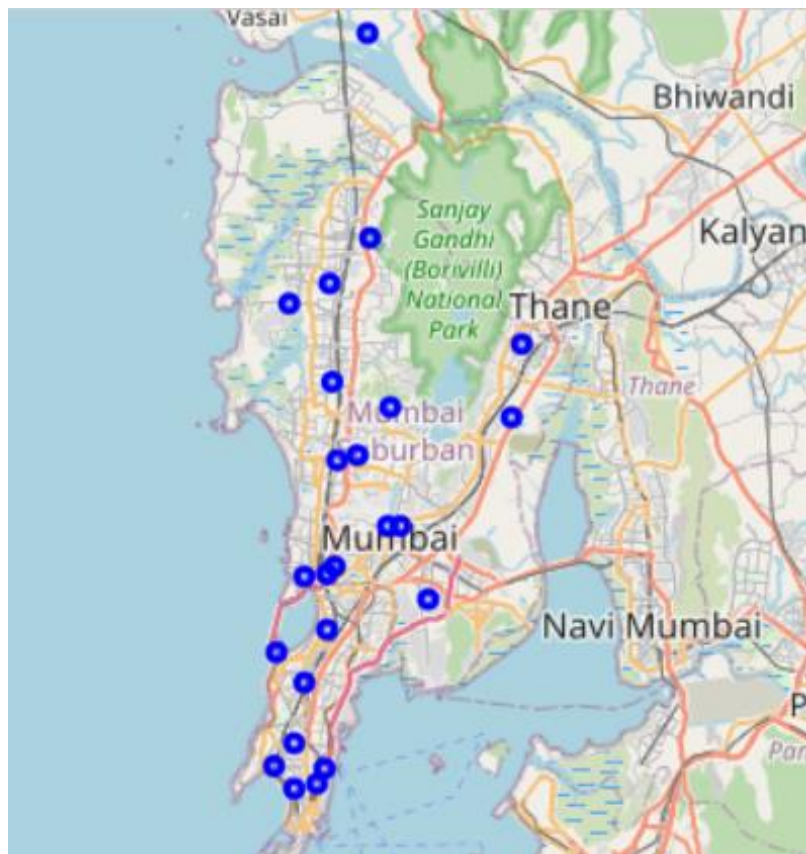
All other parameters required for this analysis has been derived from these datasets.

## Overview of datasets

City-centre data:

- Total number of city centers = 24
- Total population of all city centers = 1,19,76,439
- Average city center population = 4,99,018
- Total area = 483 sq. km
- Average city center area = 20 sq. km
- Average inter-city center distance = 16 km
- Average number of venues within 15 km = 501
  - Dine-in: ~370
  - Café: ~50
  - Eatery: ~83
- Average delivery time from all venues = 1.02 hr
  - Average delivery time from venues within 15 km = 0.54 hr
  - Average delivery time by category (venues within 15 km)
    - Dine-in: ~ 0.54 hr
    - Café: ~0.55 hr
    - Eatery = ~0.55 hr

City-centre Locations (in blue)

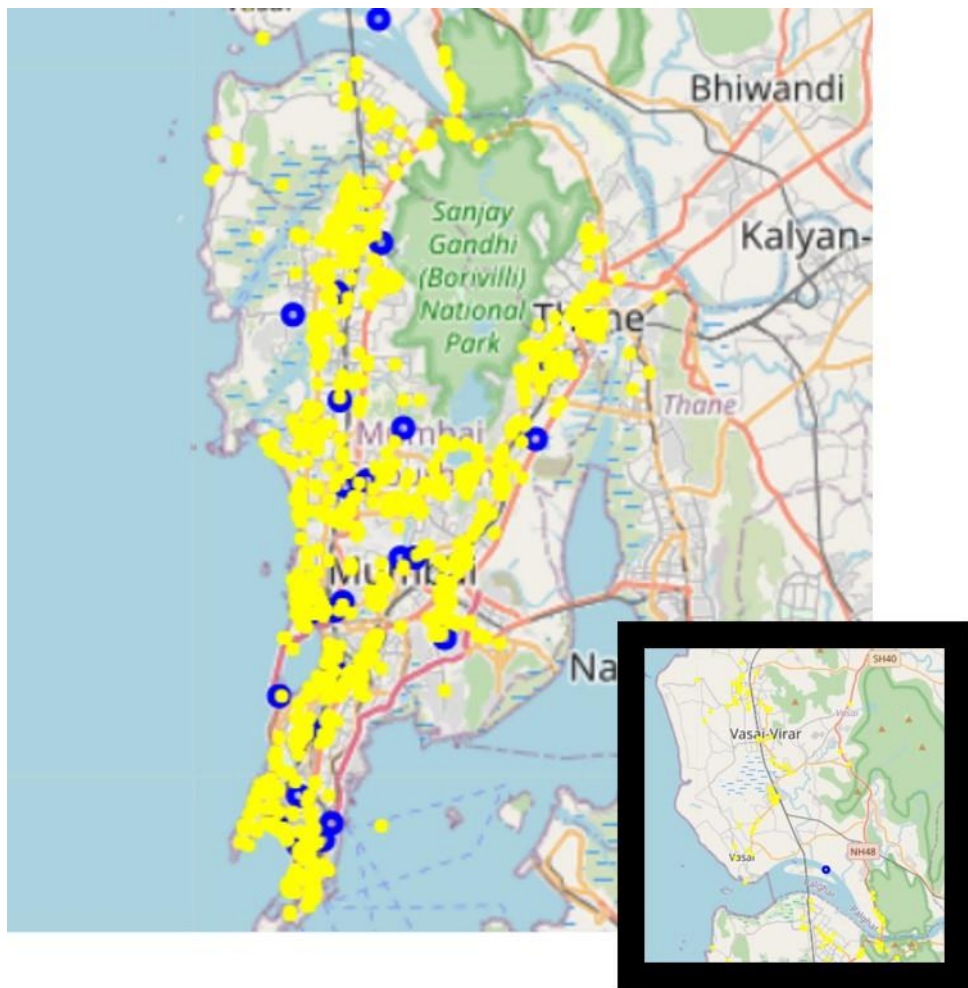


Venue location data:

- Total number of restaurants = 1,181
- Average number city centers within serviceable distance (15 km) = 9
- Average distance to city center within serviceable distance (15 km) = 7.2

Venue Type	Count	Average count of City centres within 15 km	Average distance to City centres within 15 km
Café	103	9	7.3
Dine in	844	8	7.2
Eatery	182	9	7.1

Venue Locations (in yellow)



## Links

- 8 - <http://www.demographia.com/db-mumbaidistr91.htm>
- 9 - <https://indiamapia.com/Mumbai/Mumbai.html>
- 10 - <https://memumbai.com/wards/>
- 11 - [https://en.wikipedia.org/wiki/List\\_of\\_neighbourhoods\\_in\\_Mumbai](https://en.wikipedia.org/wiki/List_of_neighbourhoods_in_Mumbai)