# Capstone Project

## The Battle of Neighbourhood

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# Introduction

Being a Indian and Love for the Indian food all over the world is amazing but availability of Indian food and taste is not easy to find.

Switzerland is one of the famous tourist place and one of the favourite place for the Indians but the Availability of Indian food is not that much even if the location is in Downtown.

This Project will help us to find the location in Switzerland (Zurich) and its nearby areas where Asian food can be available as Indian Food specifically will narrow our search.

Prior launching any restaurant, it’s important to know if the business as a good opportunity. In order to do so, this report will try to gather data about other restaurant localization, competitors and best localization.

These data could be use for a business plan afterward

# Problem

- As the goal of this is to create a business plan in the end, we need to make sure data from API are correct. We also need to check that customer could be interested in this specific business.

- In order to do so, a survey in Zurich will be done in addition to data gathering. I'll go in the cities and check at different hours if restaurants are working, if streets are full and so on, and what kind of restaurant works well. This survey will allow to validate the data

# Data Collection

- The idea of doing the project and data collection is taken from one of the template shared in Coursera project. I will keep the idea of clustering the city by area and then plot heatmap to find better area.

- I will change some data:

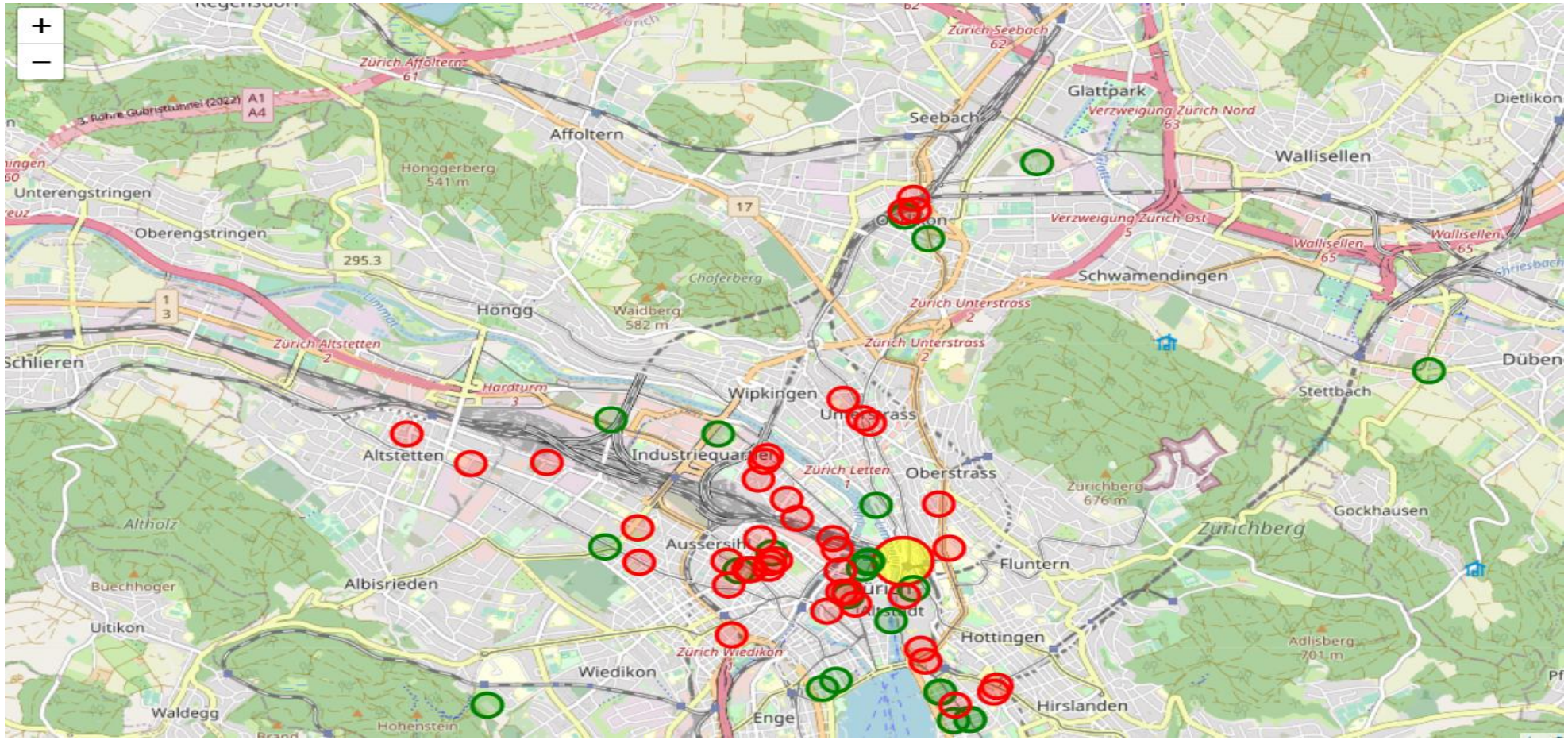
  Country/City: Switzerland

- I will use the following API:

- Foursquare API: to find restaurant/venues
- Google API: reverse geolocalisation

# Methodology

Resturants and hotels around centre of Zurich generated with the help of folium library.



# Methodology

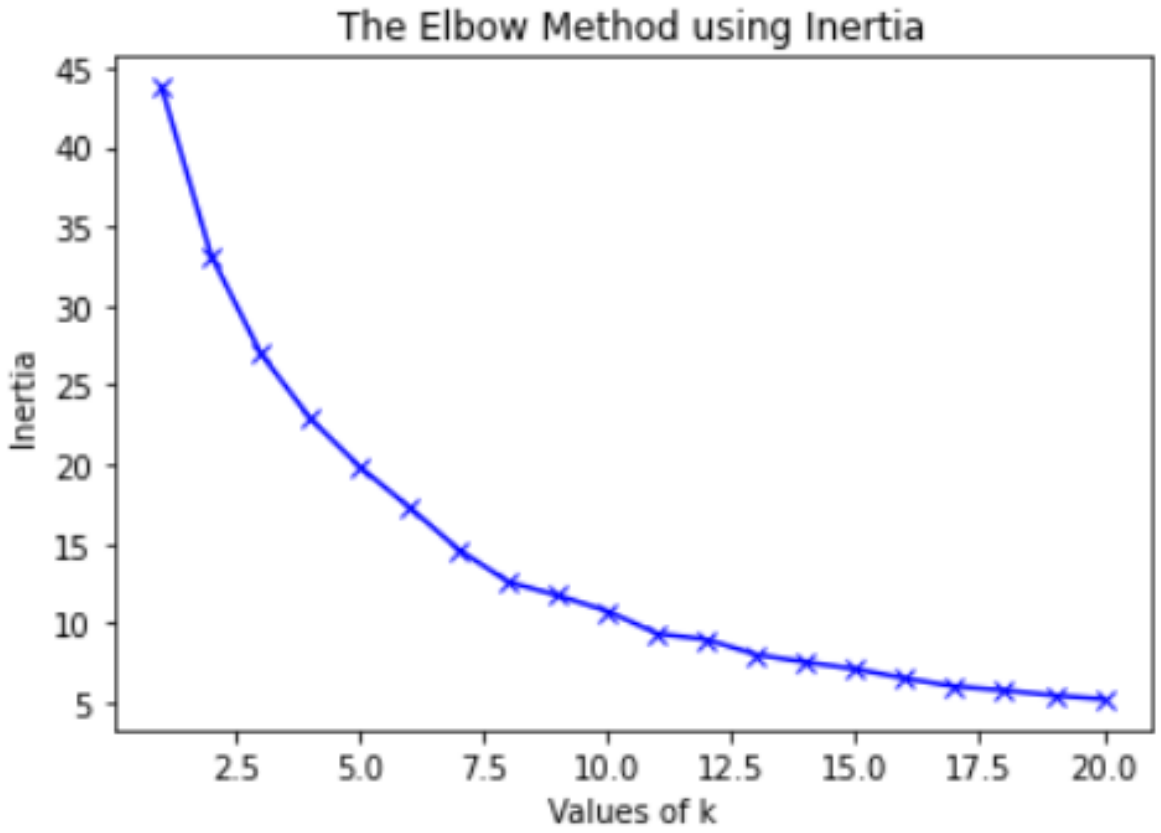
- One hot encoding

One hot encoding is a process which categorical data variables are converted into a form that could be provided to ML algorithms to do a better jobs in prediction. For K-means clustering  Algorithm we have use Euclidian Model.

Due to high variety in the venues, only top 10 common venues are selected and new dataframe is made, which is used in K means Clustering Algorithm.

# Methodology

Eucliandian Model



# Results and Discussion

The analysis of whole project is summerised in following points:-

1. Most of the Asian Resturants lies near the Downtown of the Zurich.

2. During clustering, if we taking cluster value>11, there is no value that is found in that cluster visible in the last cluster where k = 12

3. There are other Resturants that are found along with Asian food Resturants like American Resturants, food court, Bar, winery shop and many more.

4. Cluster 1 is the downtown of the Zurich where majorly are Resturants lie.

# Results and Discussion

Below result in tabular showing most of the **Asian resturants** lie near Zurich and Winterthur area.

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **276** | 139.0 | Bezirk Dietikon | Weiningen (ZH) | 39.922925 | -75.108330 | 0 | Chinese Restaurant | Vietnamese Restaurant | Sushi Restaurant | Thai Restaurant | Ramen Restaurant | Asian Restaurant | Japanes Restaur |
| **220** | 111.0 | Bezirk Uster | Uster | -23.547422 | -46.296131 | 0 | Japanese Restaurant | Resort | Sushi Restaurant | Asian Restaurant | Chinese Restaurant | Motel | Noodle House |
| **212** | 107.0 | Bezirk Winterthur | Wiesendangen | 40.353320 | -74.659265 | 0 | Chinese Restaurant | Sushi Restaurant | Japanese Restaurant | Asian Restaurant | Hotel Pool | Resort | Ramen Restaur |
| **66** | 34.0 | Bezirk Winterthur | Winterthur | 49.354265 | 4.653665 | 0 | Asian Restaurant | Chinese Restaurant | Resort | Japanese Restaurant | Bed & Breakfast | Sushi Restaurant | Thai Restaur |
| **68** | 35.0 | Bezirk Winterthur | Winterthur | 39.308990 | -74.531310 | 0 | Asian Restaurant | Chinese Restaurant | Resort | Japanese Restaurant | Bed & Breakfast | Sushi Restaurant | Thai Restaur |
| **70** | 36.0 | Bezirk Winterthur | Winterthur | 39.362880 | -74.426380 | 0 | Asian Restaurant | Chinese Restaurant | Resort | Japanese Restaurant | Bed & Breakfast | Sushi Restaurant | Thai Restaur |
| **72** | 37.0 | Bezirk Winterthur | Winterthur | 39.341885 | -74.481930 | 0 | Asian Restaurant | Chinese Restaurant | Resort | Japanese Restaurant | Bed & Breakfast | Sushi Restaurant | Thai Restaur |
| **74** | 38.0 | Bezirk Winterthur | Winterthur | 47.507565 | 8.683199 | 0 | Asian Restaurant | Chinese Restaurant | Resort | Japanese Restaurant | Bed & Breakfast | Sushi Restaurant | Thai Restaur |
| **180** | 91.0 | Bezirk Winterthur | Winterthur | 47.507928 | 8.778716 | 0 | Asian Restaurant | Chinese Restaurant | Resort | Japanese Restaurant | Bed & Breakfast | Sushi Restaurant | Thai Restaur |
| **100** | 51.0 | Bezirk Horgen | WÃ¤denswil | 40.565680 | -74.342530 | 0 | Chinese Restaurant | Asian Restaurant | Sushi Restaurant | Japanese Restaurant | Motel | Resort | Thai Restaur |
| **240** | 121.0 | Bezirk Meilen | Zollikon | 47.341435 | 8.578001 | 0 | Thai Restaurant | Japanese Restaurant | Asian Restaurant | Sushi Restaurant | Vietnamese Restaurant | Chinese Restaurant | Resort |
| **0** | 1.0 | Bezirk ZÃ¼rich | ZÃ¼rich | 39.558495 | -75.358970 | 0 | Chinese Restaurant | Motel | Asian Restaurant | Resort | Sushi Restaurant | Bed & Breakfast | Japanes Restaur |
| **2** | 2.0 | Bezirk ZÃ¼rich | ZÃ¼rich | 39.942390 | -75.032190 | 0 | Chinese Restaurant | Motel | Asian Restaurant | Resort | Sushi Restaurant | Bed & Breakfast | Japanes Restaur |
| **4** | 3.0 | Bezirk ZÃ¼rich | ZÃ¼rich | 39.900932 | -74.961514 | 0 | Chinese Restaurant | Motel | Asian Restaurant | Resort | Sushi Restaurant | Bed & Breakfast | Japanes Restaur |
| **6** | 4.0 | Bezirk ZÃ¼rich | ZÃ¼rich | 39.767690 | -74.890980 | 0 | Chinese Restaurant | Motel | Asian Restaurant | Resort | Sushi Restaurant | Bed & Breakfast | Japanes Restaur |

# Conclusion

- During the Analysis this project will be helpful to those who are looking for the food and have craving for other kind of food like Swiss food, Pizzas, Italian food, European food and of course who has love for towards the cocktail and mocktail side as well.

- The clusters will help in finding nearby food trucks, deli/bodegas, bakeries, sandwich places, fast food restaurants, food courts, American restaurants, Indian restaurants, wings joints, snack places, Czech restaurants, cafeterias, dim sum restaurants, diners, Eastern European restaurants, falafel restaurants, Ethiopian restaurants, empanada restaurants, and dumpling restaurants.