

Open a Mexican Food (Oaxaca) Restaurant

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1.1 Introduction

The approach of my project is based on the fact that I have one Mexican Restaurant (Oaxacan Food) in Mexico City and I like to open a second one in another neighbourhood of Mexico City.

I want to use the techniques learned in the course to find neighbourhoods in Mexico City which can be good candidates to place the new restaurant.

I would like to explore only 4 of 16 districts of Mexico City. These districts are:

- Benito Juárez
- Coyoacán
- Cuauhtémoc
- Miguel Hidalgo

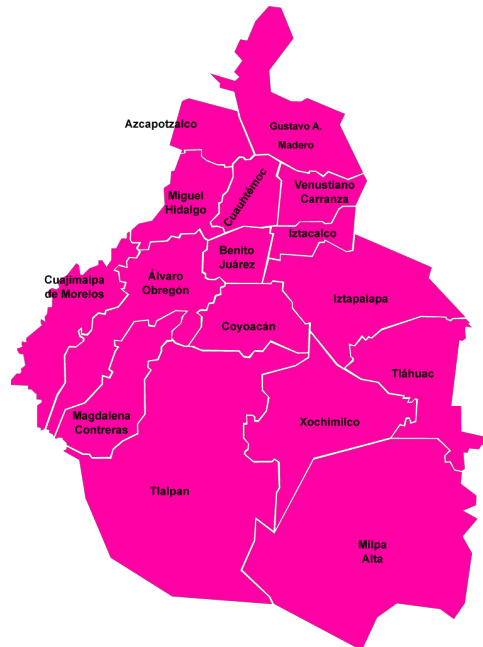


Figure 1. Mexico City Districts

The restaurant will be of Oaxacan cuisine, which is a very tasty type of Mexican food.

Oaxaca is one of the main gastronomic centers of Mexico whose cuisine is internationally known.

Oaxacan cuisine is a regional cuisine of Mexico, centered in the city of Oaxaca, capital of the state of the same name located in southern Mexico. Like the rest of Mexican cuisine, Oaxacan food is based on basic foods such as corn, beans, and chilies, but there is a wide variety of other ingredients and food preparations due to the influence of the state's varied geography and indigenous cultures. In the well-known features of the kitchen include ingredients such as chocolate (often drunk in a hot preparation with spices and other condiments), Oaxacan cheese, mezcal and grasshoppers with dishes like tlayudas, tamalesoaxaqueños and seven notable varieties of mole.



Figure 2. Oaxaca State

I will collect information of the neighbourhoods in Mexico City which has restaurants of different types of food not only Mexican Food.

I will collect the places of interest of my current neighborhood using the Foursquare API, and then I will explore the venues for each of the neighbourhoods in other districts of Mexico City.

Finally, I will use KMEANS to find neighbourhoods similar to my current restaurant neighborhood in terms of the places of interest found on Foursquare.



1.2 Data

1.2.1 For my current restaurant

My current restaurant is located in a neighbourhood in Mexico City called "Credito Constructor". It has the following coordinates: 19.3658436 -99.1815044

I used the Foursquare API with the explore endpoint which returns a list of recommended venues near the current location. I limit the search to a radius of 1000 meters and 100 venues at most.

GET <https://api.foursquare.com/v2/venues/explore>

The result were 100 venues returned with 59 unique categories.

1.2.2 For new restaurant

To get data from Mexico City neighbourhoods I will use data from

<https://download.geonames.org/export/zip>. Specifically I downloaded a MX.zip file.

This file contains information of all the estates in the country of Mexico, but we only need the list of 16 Districts and Neighborhoods in Mexico City.

	Delegacion	Colonia
0	Coyoacan	Villa Coyoacan
1	Coyoacan	Delegacion Politica Coyoacan
2	Coyoacan	Barrio Santa Catarina
3	Coyoacan	Barrio La Concepcion
4	Coyoacan	Barrio San Lucas

To get geographical coordinates I used Nominatim from geopy.geocoders:

	Delegacion	Colonia	Latitud	Longitud
0	Coyoacan	Villa Coyoacan	19.350175	-99.162254
1	Coyoacan	Barrio La Concepcion	19.344669	-99.157403
2	Coyoacan	Barrio San Lucas	19.315626	-99.132968
3	Coyoacan	Parque San Andres	19.345394	-99.148279
4	Coyoacan	Del Carmen	19.354290	-99.161797

The resulting list includes 257 neighbourhoods in districts: Benito Juarez, Coyoacan, Cuauhtemoc and Miguel Hidalgo.

Then, I used the Foursquare API with the explore endpoint to get the recommended venues for each neighbourhood (using radius of 1000 meters and limit of 100 venues per neighbourhood).

Neighborhood	Neighbourhood Latitude	Neighbourhood Latitude	Venue	Venue Latitude	Venue Longitude	Venue Category
Villa Coyoacan	19.350175	-99.162254	Coyoacán	19.350126	-99.163159	Neighborhood
Villa Coyoacan	19.350175	-99.162254	El Kiosko de Coyoacán	19.349964	-99.162764	Plaza
Villa Coyoacan	19.350175	-99.162254	Tierra Garat Coyoacán	19.349609	-99.160795	Coffee Shop
Villa Coyoacan	19.350175	-99.162254	Tostadas Amatista	19.351255	-99.163793	Mexican Restaurant
Villa Coyoacan	19.350175	-99.162254	Fuente de los Coyotes	19.349150	-99.163446	Historic Site

The resulting dataframe has 11,231 rows with 353 unique categories.