

Data Science Capstone Project



Oaxacan Restaurant in Mexico City



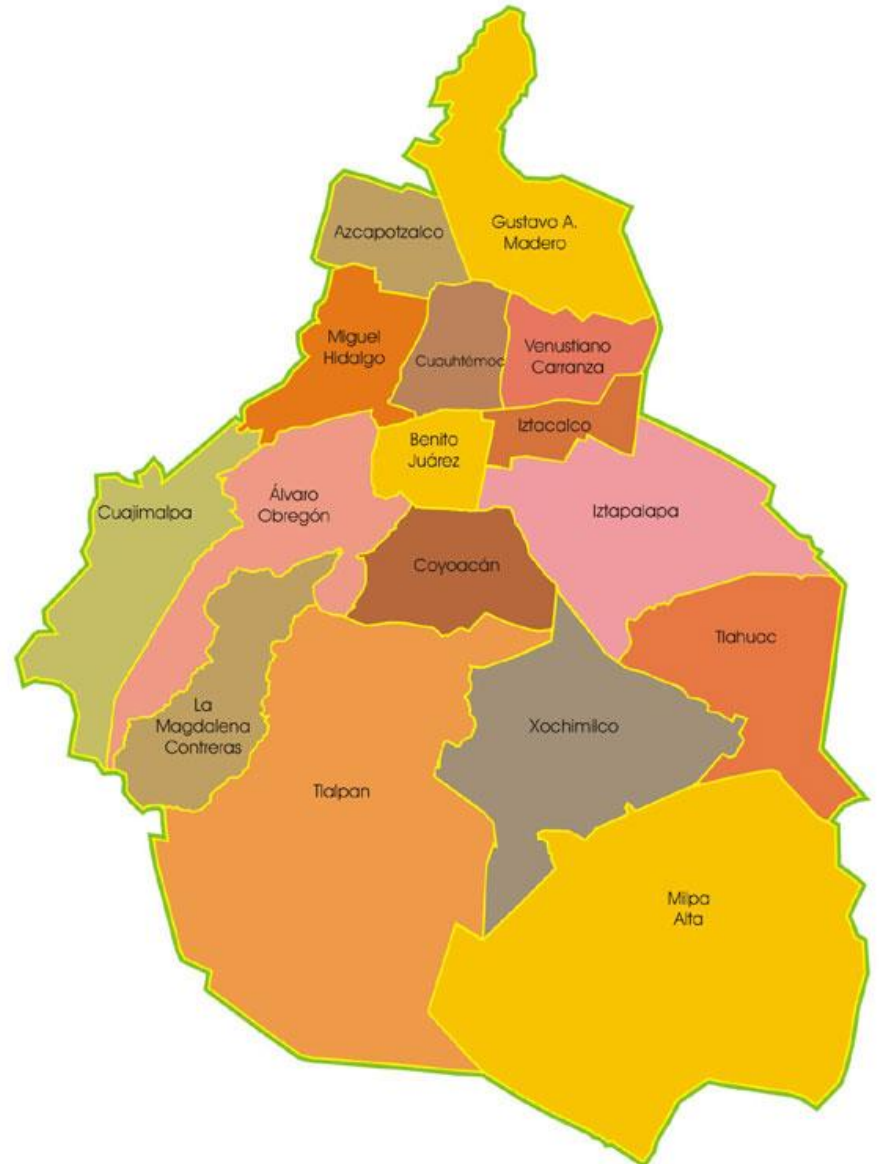
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IBM Data Science Courses

Introduction

- ▶ The main idea in this project is to define the best place to establish an Oaxacan Restaurant in Mexico City. Oaxaca is a state located in the south of the country and traditionally has been characterized by its cultural and gastronomic richness, which many visitors and tourists have been delighted during the to visit the Oaxaca City. Oaxaca has 8 geographical regions, most of these regions are populated by indigenous culture and they have developed clear differences among them in their traditions, dress, languages, and food. The restaurant will offer in the menu with five classical Oaxacan Food daily; but additionally, will also be available seasonal menu and it will change monthly. The seasonal menu will be a representative dish from one specific region.

México City Shapes

- ▶ We needed the shapes or points of each polygon for all districts and the perimeter for Mexico City; we moved to ["https://www.inegi.org.mx/app/mapas/"](https://www.inegi.org.mx/app/mapas/) and fortunately we got the information. The problem was the information was hard to manipulate, because i got an raw file with more than 200,000 characters by record with 20,000 points for the shapes.
- ▶ I used SQL and SAS Language with different advanced techniques to manipulate the data, and finaly I developed the Json files to use with folium packages to show the maps.



Data

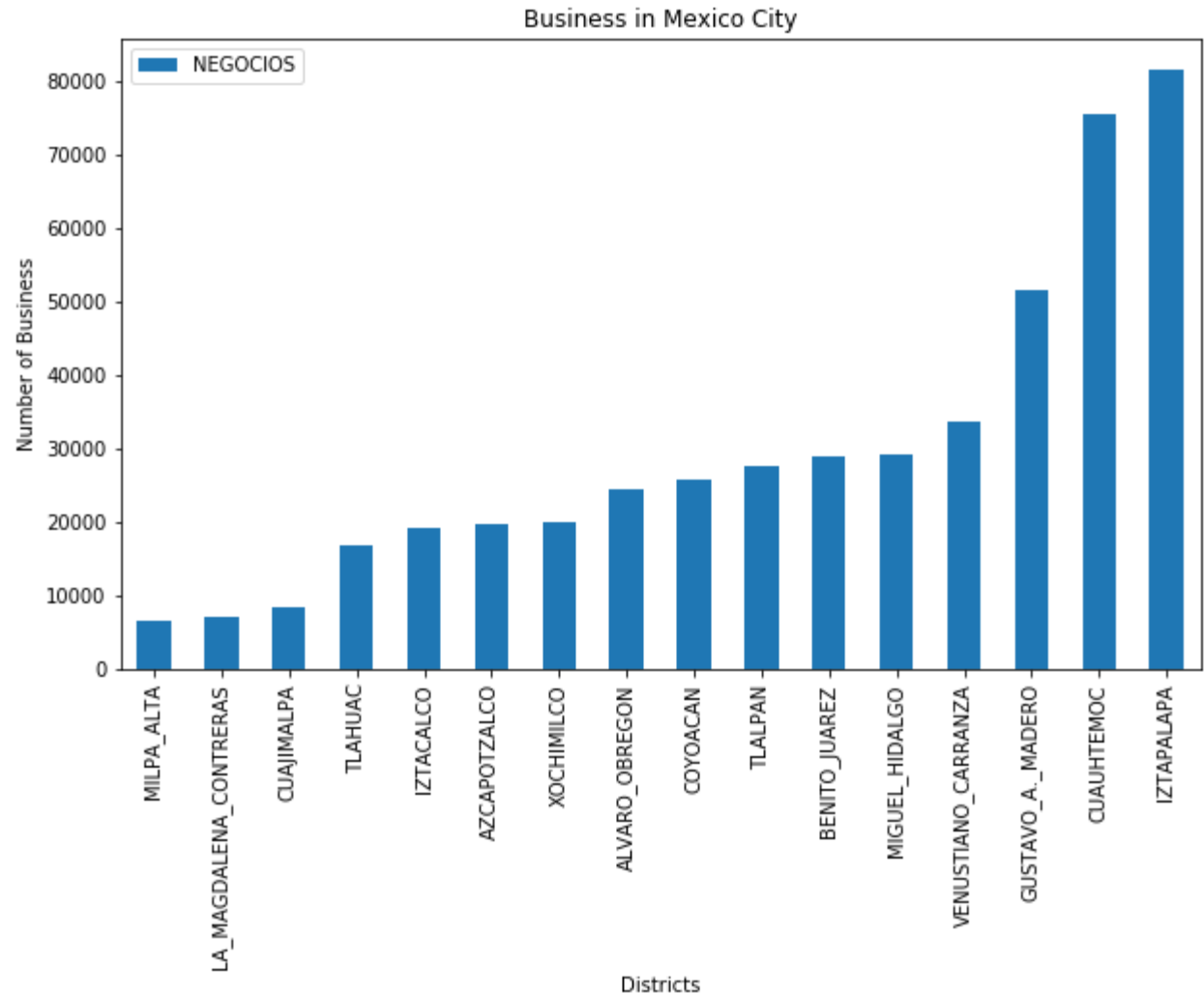
- ▶ In order to develop analysis to make the best decision we have to analyze the geographical region in Mexico City; we have to choose the districts located in the center of city. We will start exploring the geographical zones and identify the types of establishments that there are in the goal zone, we will be focused on Traditional Oaxacan Restaurants using information from Foursquare API. We will search for information in the institutions and government offices like Secretary of Economy and National Institute of Statistics and Geographical information (INEGI) to identify the types of establishments and business created in the Mexico City, and this will be used as a complement of Foursquare's information.

Data Gathering and Manipulation

- ▶ Firstly to get the required information we moved to INEGI Web page ["https://www.inegi.org.mx/app/mapa/denue/"](https://www.inegi.org.mx/app/mapa/denue/) and we selected Mexico City. we could get the following information and with these data we started the project.
- ▶ The Data Set contains 476853 records and 41 Columns: ID, NOM_ESTAB, RAZ_SOCIAL, CODIGO_ACT, NOMBRE_ACT, PER_OCU, TIPO_VIAL, NOM_VIAL, TIPO_V_E_1, NOM_V_E_1, TIPO_V_E_2, NOM_V_E_2, TIPO_V_E_3, NOM_V_E_3, NUMERO_EXT, LETRA_EXT, EDIFICIO, EDIFICIO_E, NUMERO_INT, LETRA_INT, TIPO_ASENT, NOMB_ASENT, TIPOCENCOM, NOM_CENCOM, NUM_LOCAL, COD_POSTAL, CVE_ENT, ENTIDAD, CVE_MUN, MUNICIPIO, CVE_LOC, LOCALIDAD, AGEB, MANZANA, TELEFONO, CORREOELEC, WWW, TIPOUNIECO, LATITUD, LONGITUD, FECHA_ALTA
- ▶ I Could not upload the file because it is so heavy~300MB
- ▶ *Before the following Analysis I worked a lot on data cleaning, standardization and Data Quality, at the end I summarized the information by District. I used SQL and SAS Language to developed the previous tasks*

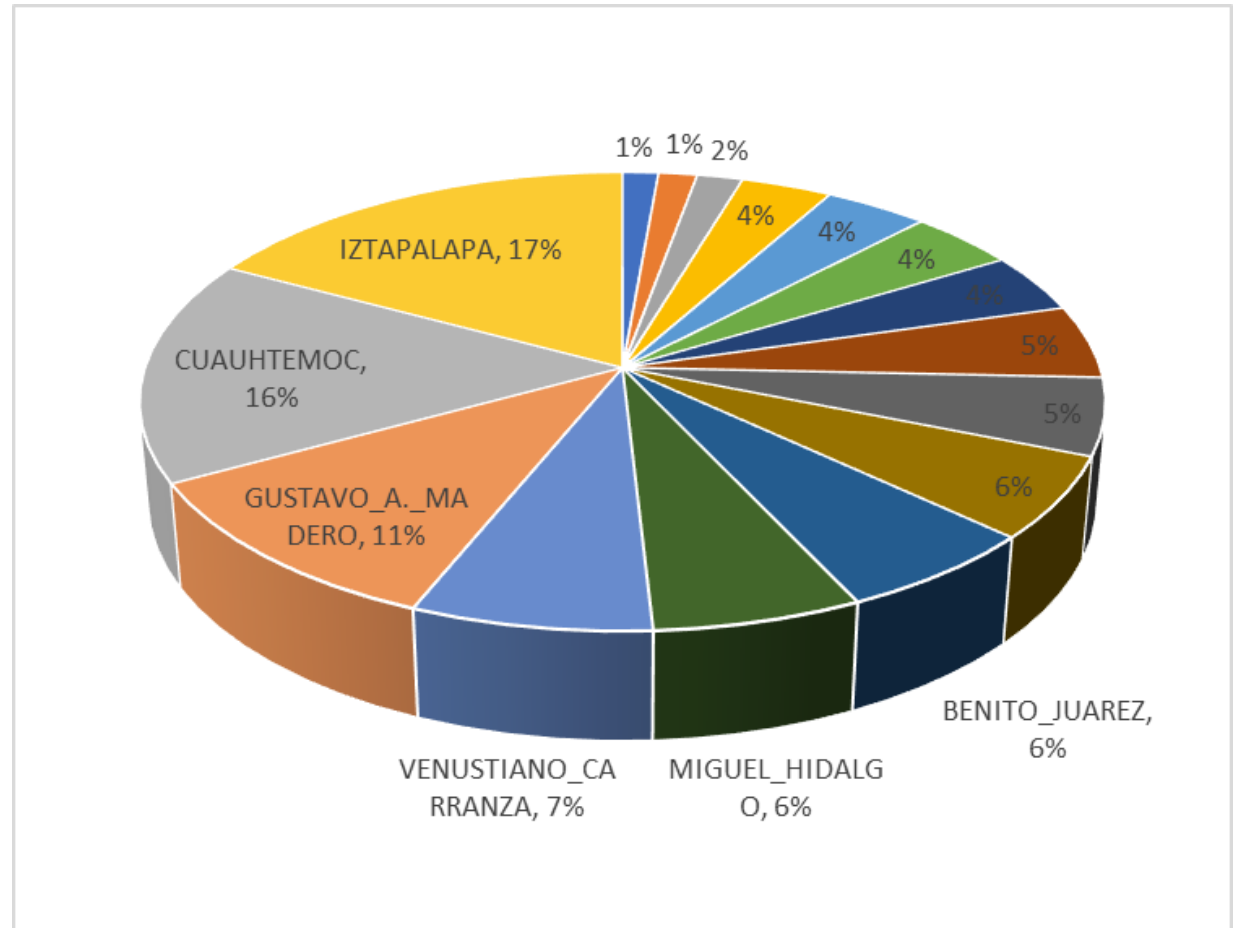
Data Analytics: Business in México City

- ▶ In Mexico City are almost half million of business registered, and the 65% are located in 6 district: BENITO_JUAREZ, MIGUEL_HIDALGO, VENUSTIANO_CARRANZA, GUSTAVO_A._MADERO, CUAUHTEMOC, and IZTAPALAPA



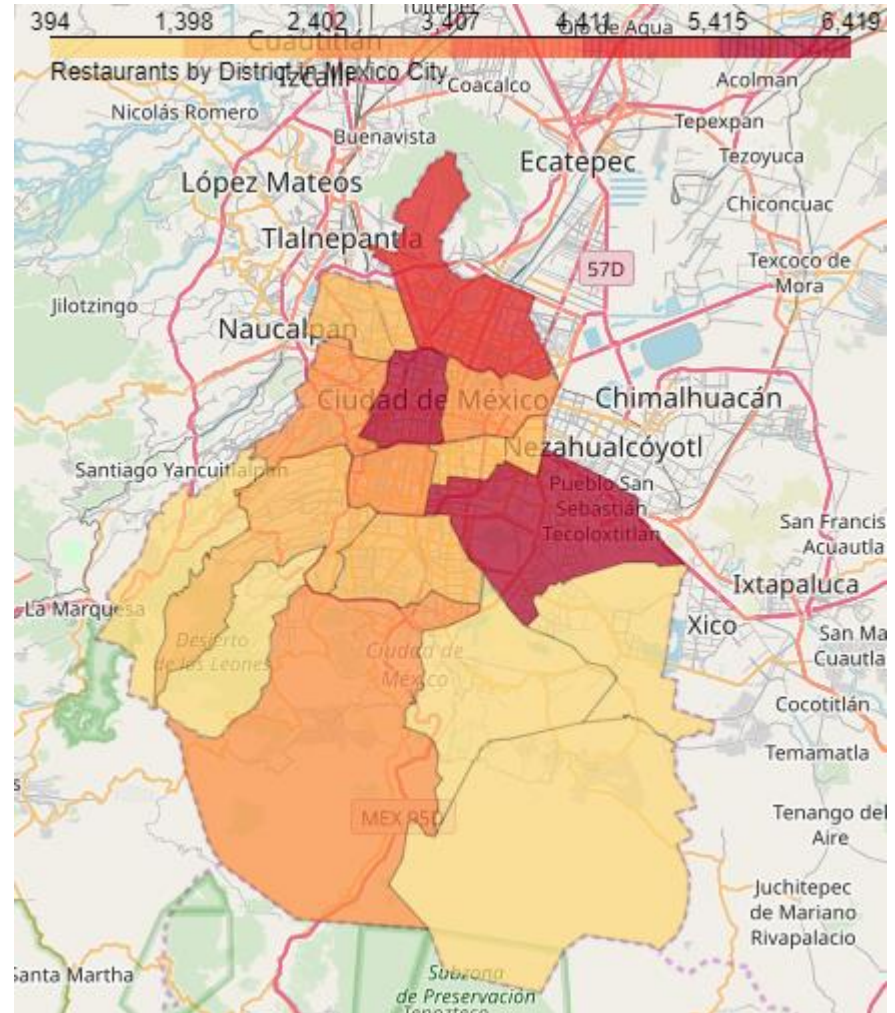
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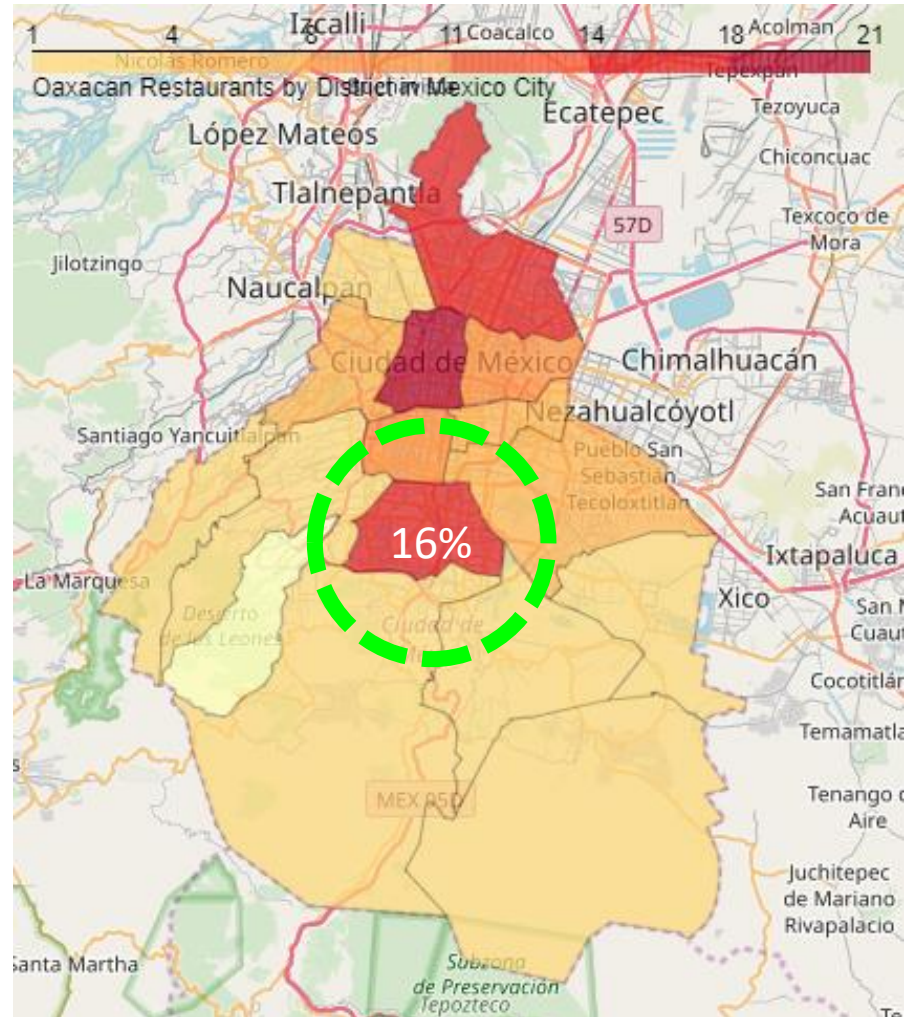
Data Analytics: Restaurants in México City

- ▶ Most of the restaurants are located in the center and north of the City, the same 6 Districts holds about the 65%.
- ▶ Cuauhtémoc, Iztapalapa and GAM are the three more important districts because there are 4 of each 10 restaurants
- ▶ Miguel Hidalgo and Benito Juárez are Districts that have interesting location, these two districts is almost in the center.



Data Analytics: Oaxacan Restaurants in CDMX

- ▶ Analyzing only Oaxacan Restaurants, the distributions is different, Coyoacan becomes one of the most relevant Districts. It holds 6% of all restaurants, but 16% of Oaxacan Restaurants.
- ▶ Accordint to this graphic, Benito Juárez, Venustiano Carranza and Miguel Hidalgo are the three Districts as the Target, because these are centric districts and does not hold so many oaxacan restaurants

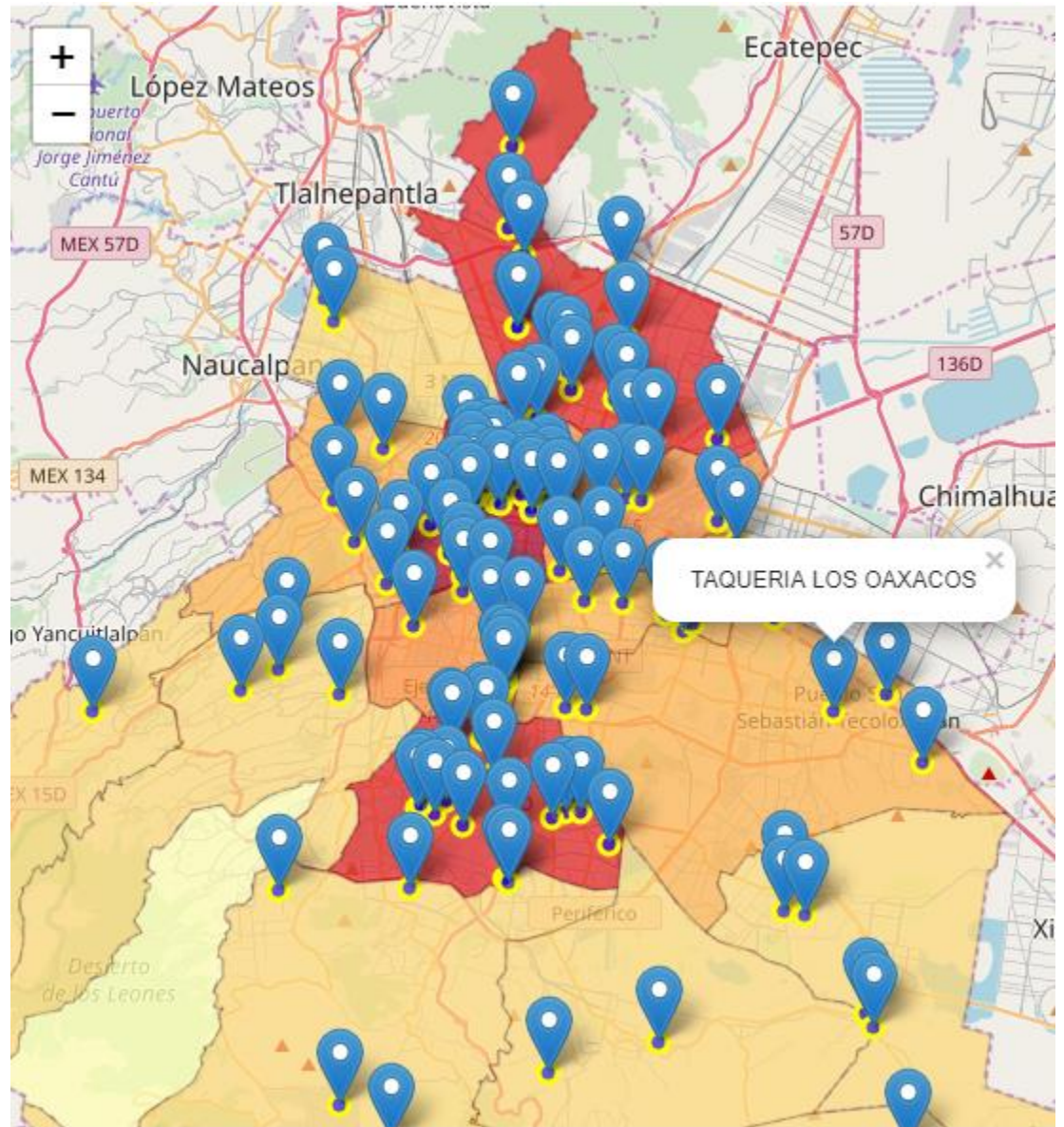


Data Analytics: Business and Restaurants Distribution

DISTRICT CDMX	ALL BUSINESS		RESTAURANTS		OAXACAN RESTAURANTS	
MILPA_ALTA	6582	1.38%	453	1.10%	1	0.93%
LA_MAGDALENA_CONTRERAS	7103	1.49%	600	1.46%	0	0.00%
CUAJIMALPA	8404	1.76%	707	1.71%	1	0.93%
TLAHUAC	16760	3.51%	1115	2.70%	4	3.74%
IZTACALCO	19184	4.02%	1888	4.58%	5	4.67%
AZCAPOTZALCO	19886	4.17%	2066	5.01%	2	1.87%
XOCHIMILCO	19956	4.18%	1393	3.38%	3	2.80%
ALVARO_OBREGON	24633	5.17%	2166	5.25%	4	3.74%
COYOACAN	25871	5.43%	2390	5.80%	17	15.89%
TLALPAN	27691	5.81%	2408	5.84%	4	3.74%
BENITO_JUAREZ	28929	6.07%	2862	6.94%	10	9.35%
MIGUEL_HIDALGO	29257	6.14%	2867	6.95%	5	4.67%
VENUSTIANO_CARRANZA	33609	7.05%	3200	7.76%	8	7.48%
GUSTAVO_A._MADERO	51681	10.84%	4665	11.31%	15	14.02%
CUAUHTEMOC	75587	15.85%	6360	15.42%	21	19.63%
IZTAPALAPA	81720	17.14%	6093	14.78%	7	6.54%
Total	476853		41233		107	

Oaxacan Restaurants

- ▶ Using the Geolocalization data, we can figure out that Cuauhtémoc, Coyoacán, Gustavo A. Madero and Benito Juárez holds the 60% of the Oaxacan Restaurants.
- ▶ Venustiano Carranza and Miguel Hidalgo are interesting districts to establish a new Oaxacan restaurant



Conclusions

- ▶ To conclude, it is necessary develop a Deep research about the restaurant industry in México City, Official statistics or economic indicators from government offices would also help to make the Best Decission.
- ▶ According to the Data Analyzed, Miguel Hidalgo, Venustiano Carranza and Benito Juarez are target districts to establish a New Oaxacan restaurants.

Recommendations

Oaxacan food is really appreciated in Mexico City, and you if it is offered with a good mezcal, should be a successful Restaurant

It is necessary to develop alliances with product providers in order to offer fresh products at fair price

Marketing and Digital platforms will be necessary to impact positively to the customers, so it should be considered in the Investment required

Operational Costs would also define the place to establish the place for the new restaurant, rents in Miguel Hidalgo is higher than the other two districts

