

IBM Data Science Professional Certificate

Opening a Restaurant in Attica



1. Introduction

An entrepreneur is considering to open a Restaurant in Attica, Greece and wants a data science team to help him. He wants to try something different from the traditional Greek cuisine and specifically his preferences are the Mexican, Italian, Middle East, Indian and Sushi gastronomies. Moreover, the construction of the Restaurant wants to be near his home which is at the north suburbs of Athens. The businessman has also bias for three boroughs and these are Kifissia, Filadelpheia and Marousi. Hence, according to the above he wants to see how many restaurants of his preference are open across the Attica, thus seeing the overall picture of the market. Ultimately, he has decided that he will choose the type of restaurant that has not been developed or is lacking in the overall Attica market as well as in the areas he prefers.

2. Data Description

The data that will be used to complete the Opening a Restaurant in Attica project will include:

1. The list of all Municipalities in Attica on the network which will be scraped from Wikipedia. Consequently, from this list we will be able to extract the latitude and longitude of each Municipality. Furthermore, after this step we will plot the locations on a map.
2. The Foursquare dataset from which we will have access to all venues from Attica and their location with the latitude and longitude coordinates.

3. Methodology

To begin with, we used the library BeautifulSoup and we scraped the data of a list of Municipalities in Attica from Wikipedia, in order to have all boroughs of Attica. Consequently, we use the library Geocoder and that allowed us to get the geographical coordinates in the form of latitude and longitude in order to be able to use them after to Foursquare API. Subsequently, we visualized the data we had in table using Folium package (Figure 1). Furthermore, we used Foursquare API to get all the venues that are within the radius of 2000 meters from our geographical locations. Finally, after linking the geographic coordinates with the venues, we will group the data according to the entrepreneur preferences keeping only the specific restaurants he wants with the correlated Borough (Figure 2).

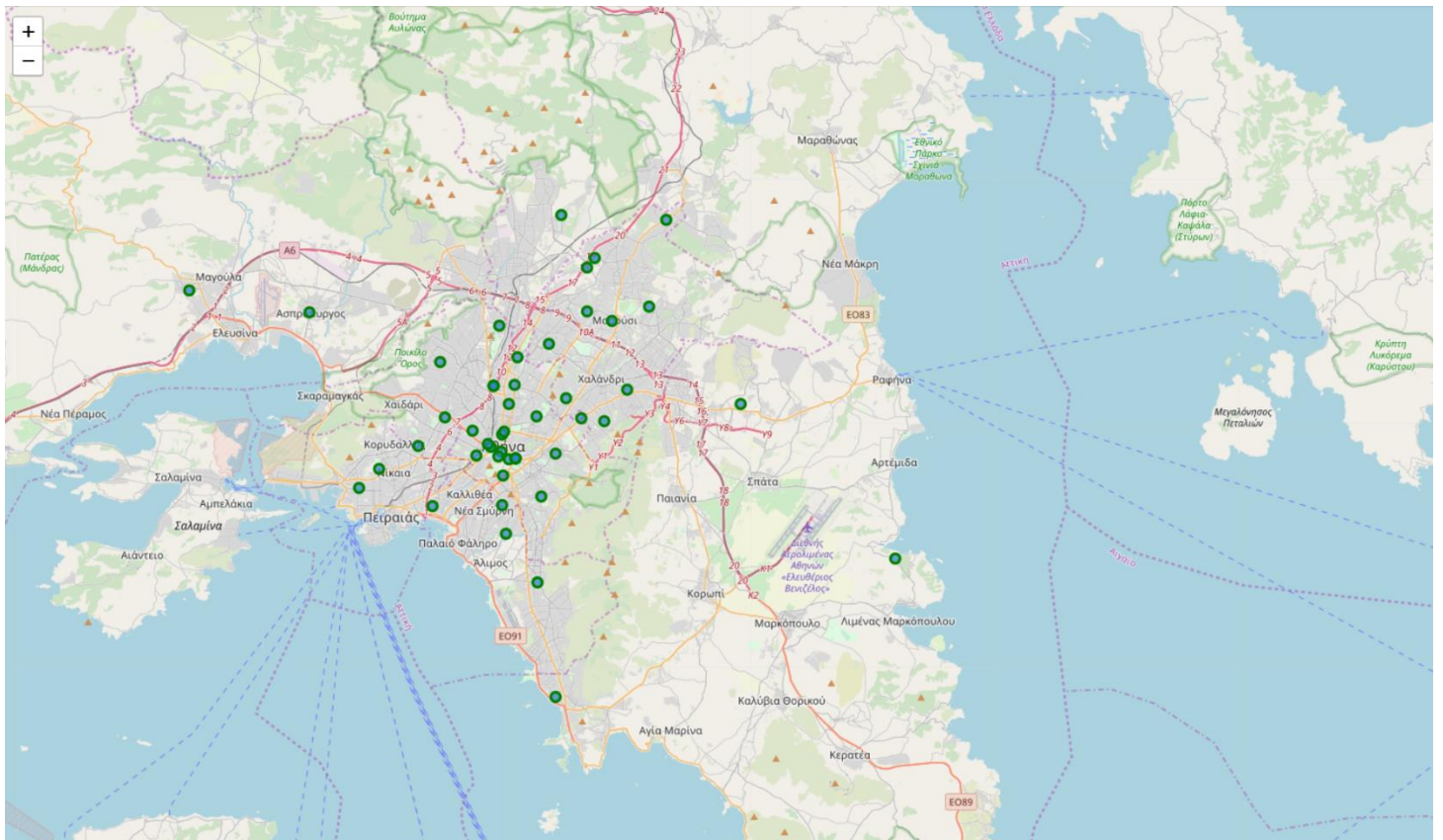


Figure 1. Map of all Attica Boroughs

[20]:

| | Neighborhood | Latitude | Longitude | VenueName | VenueLatitude | VenueLongitude | VenueCategory |
|------|------------------------|-----------|-----------|---|---------------|----------------|-------------------|
| 0 | ➤ Acharnes (13 C, 5 F) | 38.114148 | 23.769842 | Best Friends | 38.109290 | 23.771135 | Café |
| 1 | ➤ Acharnes (13 C, 5 F) | 38.114148 | 23.769842 | Κλειστό Γυμναστήριο Ολυμπιακού Χωριού | 38.109364 | 23.771130 | Basketball Court |
| 2 | ➤ Acharnes (13 C, 5 F) | 38.114148 | 23.769842 | Αθλητικές Εγκαταστάσεις Ολυμπιακού Χωριού | 38.109312 | 23.771132 | Recreation Center |
| 3 | ➤ Acharnes (13 C, 5 F) | 38.114148 | 23.769842 | Tatoi's Forest (Δάσος Τατοΐου) | 38.109342 | 23.771123 | Trail |
| 4 | ➤ Acharnes (13 C, 5 F) | 38.114148 | 23.769842 | Πιρουνάκια Grill | 38.119735 | 23.748390 | Souvlaki Shop |
| ... | ... | ... | ... | ... | ... | ... | ... |
| 4850 | ➤ Zografou (1 C, 25 F) | 38.051164 | 23.725076 | Kopa Arena | 38.036430 | 23.715132 | Soccer Field |
| 4851 | ➤ Zografou (1 C, 25 F) | 38.051164 | 23.725076 | Ilion Football Club | 38.036834 | 23.714041 | Soccer Field |
| 4852 | ➤ Zografou (1 C, 25 F) | 38.051164 | 23.725076 | Rimini | 38.036546 | 23.713150 | Food |
| 4853 | ➤ Zografou (1 C, 25 F) | 38.051164 | 23.725076 | Εύγευστον | 38.066303 | 23.712910 | Souvlaki Shop |
| 4854 | ➤ Zografou (1 C, 25 F) | 38.051164 | 23.725076 | Πλατεία Καραϊσκάκη | 38.034964 | 23.715230 | Plaza |

[28]:

| | Neighborhood | Latitude | Longitude | VenueName | VenueLatitude | VenueLongitude | VenueCategory |
|------|------------------------------|-----------|-----------|-----------------------------|---------------|----------------|---------------------------|
| 29 | ➤ Agia Paraskevi (1 C, 19 F) | 38.006736 | 23.731845 | Klimataria (Κληματαριά) | 38.007392 | 23.734319 | Greek Restaurant |
| 60 | ➤ Agia Paraskevi (1 C, 19 F) | 38.006736 | 23.731845 | Ο Τσαντάκιας | 38.017707 | 23.726888 | Greek Restaurant |
| 65 | ➤ Agia Paraskevi (1 C, 19 F) | 38.006736 | 23.731845 | Pame Tsipouro Pame Kafeneio | 38.001166 | 23.738696 | Greek Restaurant |
| 71 | ➤ Agia Paraskevi (1 C, 19 F) | 38.006736 | 23.731845 | Το Ρόδι | 38.004539 | 23.715749 | Middle Eastern Restaurant |
| 74 | ➤ Agia Paraskevi (1 C, 19 F) | 38.006736 | 23.731845 | Γη | 37.992385 | 23.724406 | Greek Restaurant |
| ... | ... | ... | ... | ... | ... | ... | ... |
| 4804 | ➤ Zografou (1 C, 25 F) | 38.051164 | 23.725076 | Τα Χέρια Της Αφροδίτης | 38.045554 | 23.732131 | Greek Restaurant |
| 4806 | ➤ Zografou (1 C, 25 F) | 38.051164 | 23.725076 | Ξηρόμερο | 38.043060 | 23.706366 | Greek Restaurant |
| 4808 | ➤ Zografou (1 C, 25 F) | 38.051164 | 23.725076 | Τα Μπινελίκια | 38.036515 | 23.737100 | Greek Restaurant |
| 4809 | ➤ Zografou (1 C, 25 F) | 38.051164 | 23.725076 | Pasta Bar | 38.037256 | 23.739359 | Italian Restaurant |
| 4820 | ➤ Zografou (1 C, 25 F) | 38.051164 | 23.725076 | il Posto Di Pasta | 38.056525 | 23.712353 | Italian Restaurant |

Figure 2. Restaurant for each Municipality with Foursquare API (Before and after the data processing).

4. Results

From the analysis and the categories that the entrepreneur prefers, the results shown that the type of Mexican Restaurants are lesser than the others in the Attica region. Due to the lack of Mexican restaurants in the Attica region (Figure 3), the entrepreneur will choose to open a Mexican restaurant in one of the three municipalities that he prefers. The results for each preferred municipality show that the Municipality of Marousi (Figure 6) does not have a Mexican Restaurant as opposed to the municipalities of Kifissia and Filadelpheia (Figure 4,5).

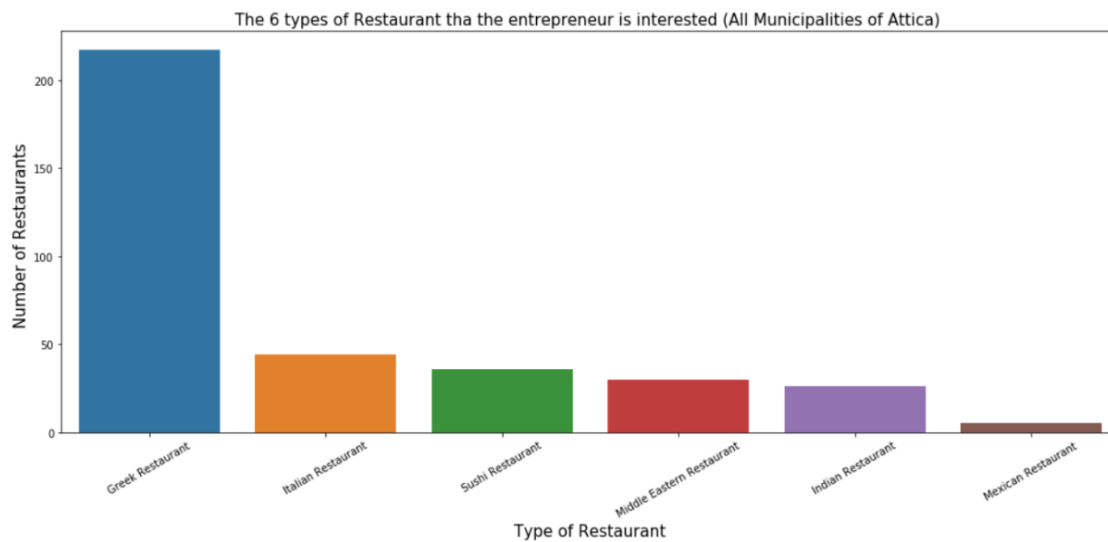


Figure 3. Number for each type of entrepreneur's desired Restaurants in Attica Region.

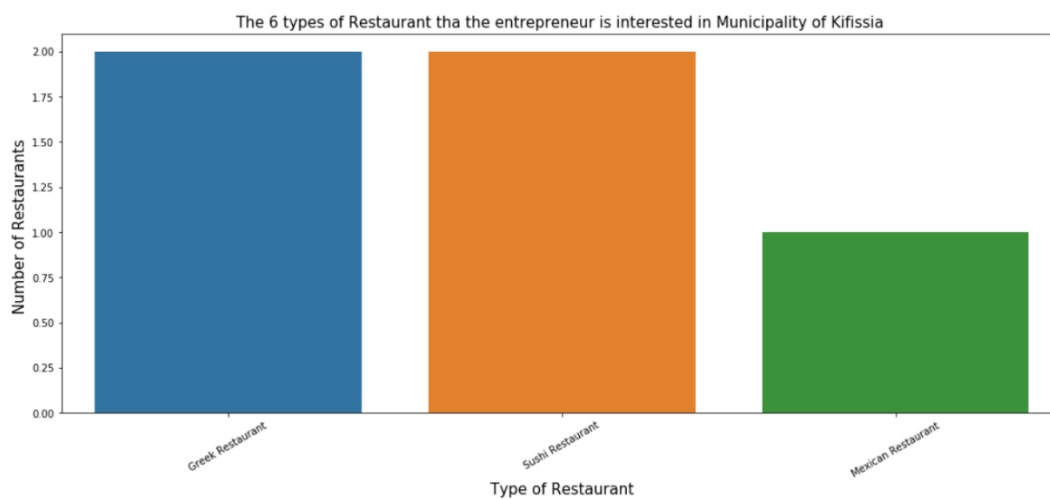


Figure 4. Number for each type of entrepreneur's desired Restaurants in Municipality of Kifissia.

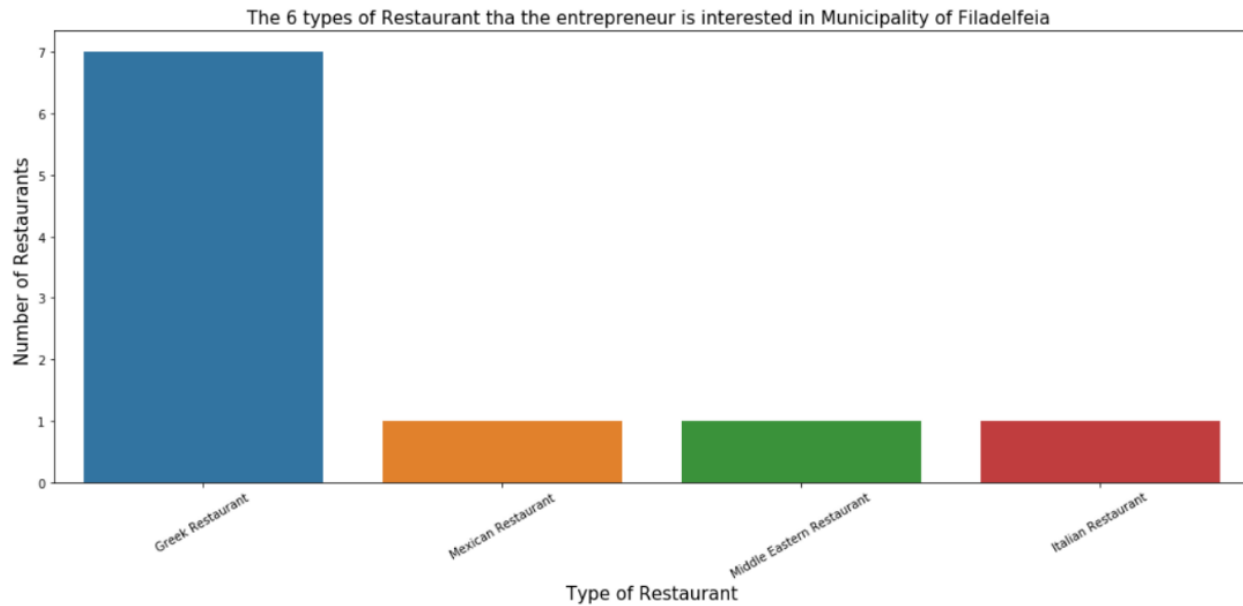


Figure 5. Number for each type of entrepreneur's desired Restaurants in Municipality of Filadelpheia.

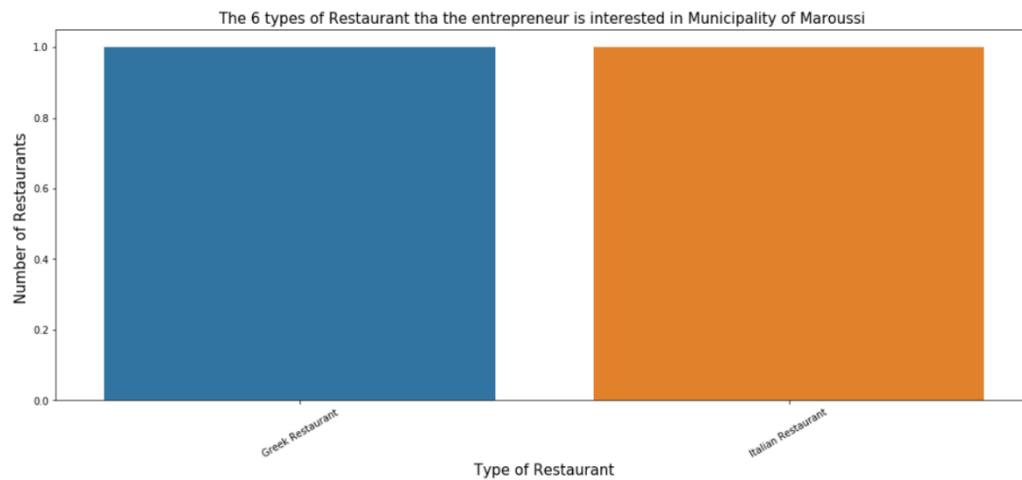


Figure 6. Number for each type of entrepreneur's desired Restaurants in Municipality of Marousi.

5. Conclusion

In Conclusion, based on the above results the best option for the entrepreneur is to open a Mexican restaurant in the Municipality of Maroussi. The Borough of Marousi has population of 72,333 inhabitants according to the 2011 census and is not very far from the centre of Athens. Moreover, is important to note and underscore that before the construction of the Mexican Restaurant, it is imperative to research how the existing Mexican Restaurants respond to the market.



