

The Battle of Neighborhoods Report

Introduction/Business Problem

Peter Parker is a manager of Chinese and Italian restaurants in New York. Due to his success, he has decided to expand the franchises of his restaurants to Miami. However, the budget he has to carry out this business is limited, so initially he will only be able to open one restaurant. That is why investors have asked Mr. Parker to conduct a market study to define the location of the restaurant and the type of food it will sell, Chinese or Italian. The above, taking into account the current offer of restaurants in the city.

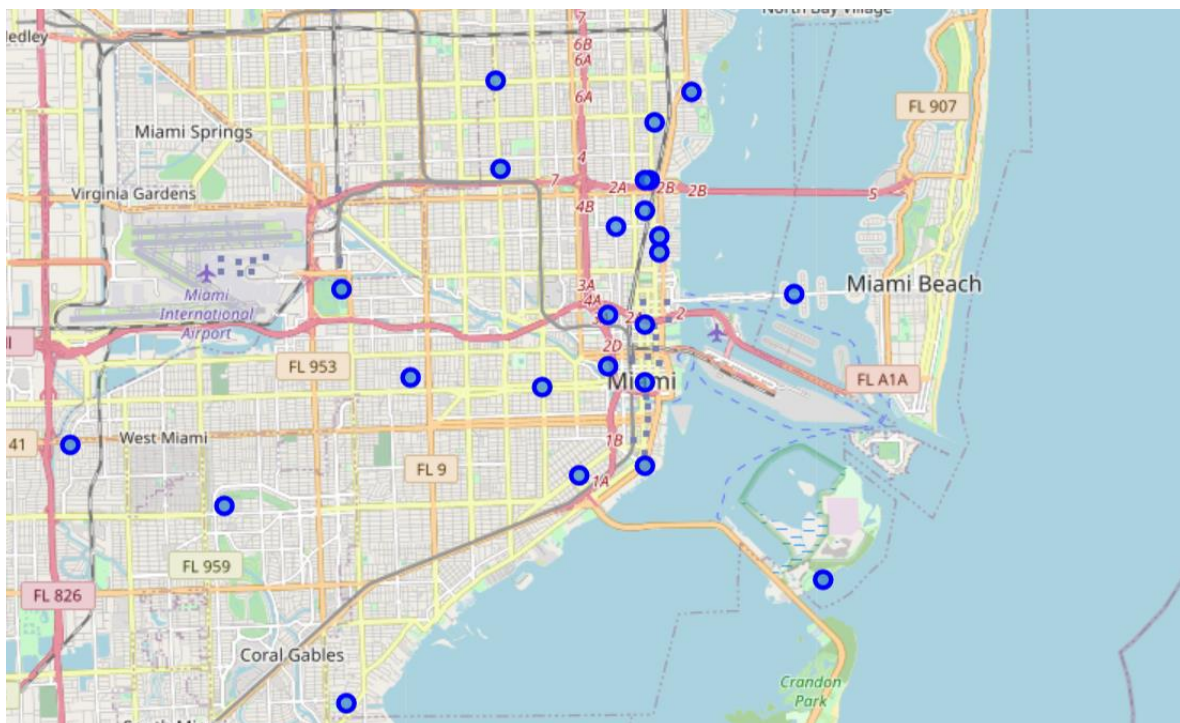
Data section

For Mr. Parker's study, the information of restaurants in the city of Miami will be taken through the Foursquare API, and the data of the neighborhoods from the following link: https://en.wikipedia.org/wiki/List_of_neighborhoods_in_Miami. The above with the purpose of knowing the offer of restaurants in the city, for each neighborhood. So that it is possible to identify which are the 5 neighborhoods with the lowest offer, for which the offer of Chinese and Italian restaurants will be reviewed and the neighborhood and the type of food to choose will be decided.

In this way we will have all the Miami neighborhoods available in the link provided above, where the coordinates are also found. In this way, the corresponding analysis of the venues extracted from Foursquare can be made.

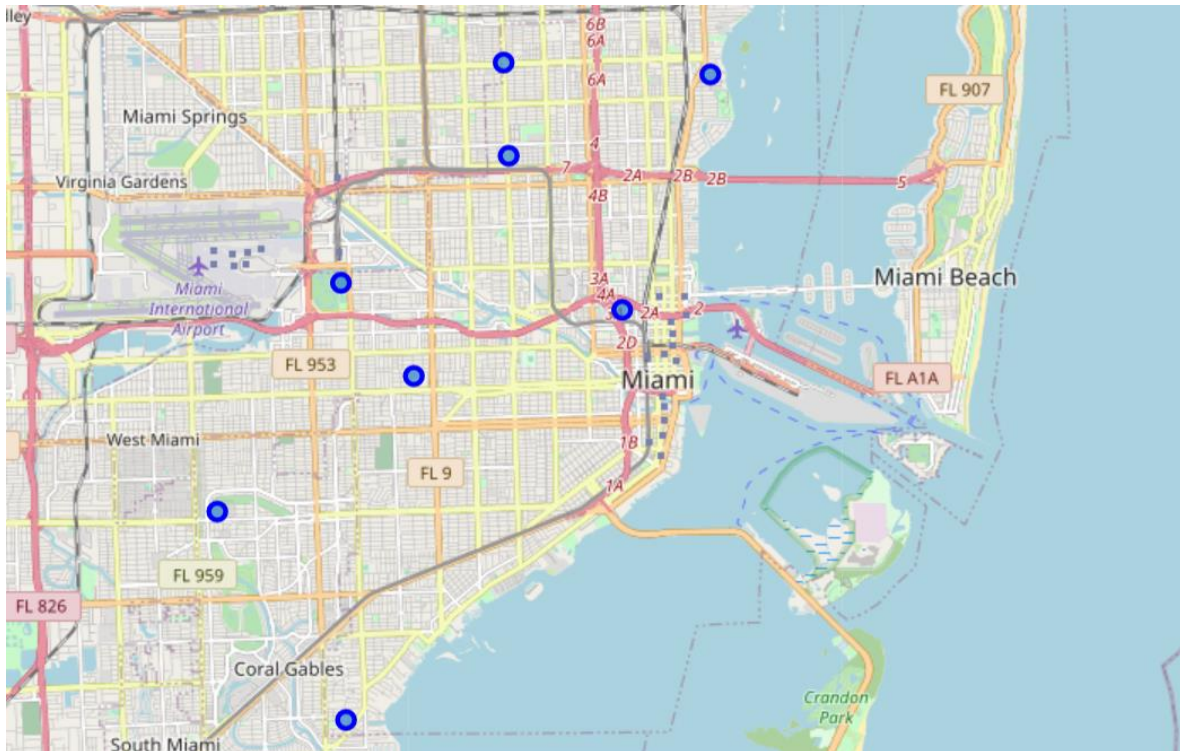
Methodology section

To begin, the web scraping of the data of the Miami neighborhoods was carried out, so that the names and coordinates of each one were obtained. In this step, the records that did not have their respective coordinates were excluded. From the above, 24 neighborhoods were obtained, located as follows:



Once the city neighborhoods were obtained, the Foursquare API was used to obtain the venues for each one. In this step, a radius of 500 meters and a limit of 100 was used, additionally a query was used to filter venues related to restaurants.

Using the venues of each neighborhood, it was possible to find the offer of restaurants they have, so that those with the lowest offer were identified that represent an opportunity to open a restaurant. Initially, the idea was to identify the 5 neighborhoods with the lowest supply so that these were the main candidates for the location, however, within the neighborhoods with the lowest supply, some had the same number of venues, so it was decided to take the 8 neighborhoods with the lowest offer, located as follows:



Now, for all the neighborhoods, the 5 main categories were found, to then proceed to clustering by k-means. The above with the purpose of grouping the neighborhoods by their similarities and then being able to relate the ideal neighborhoods by their location, with the offer of restaurants and reach the final decision.

Results section

The filter of the neighborhoods with the fewest number of venues was performed, where the neighborhood with the least amount was Allapattah, as shown below:

Neighborhood	
Allapattah	1
Liberty City	2
Coconut Grove	2
Grapeland Heights	2
Coral Way	4
Upper Eastside	4
West Flagler	4
Overtown	4

For the above-mentioned neighborhoods, the 5 most popular categories are:

Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
Allapattah	Southern / Soul Food Restaurant	Wings Joint	Chinese Restaurant	Food Truck	Food Court
Coconut Grove	American Restaurant	Fried Chicken Joint	Arepa Restaurant	Argentinian Restaurant	French Restaurant
Coral Way	Food Truck	Seafood Restaurant	Burger Joint	Café	Wings Joint
Grapeland Heights	Restaurant	Wings Joint	Chinese Restaurant	Food Truck	Food Court
Liberty City	Food	Southern / Soul Food Restaurant	Wings Joint	Chinese Restaurant	Food Truck
Overtown	Southern / Soul Food Restaurant	Wings Joint	Food Court	Chinese Restaurant	Food Truck
Upper Eastside	Pizza Place	Food Court	Sushi Restaurant	Italian Restaurant	Wings Joint
West Flagler	Comfort Food Restaurant	Bakery	Latin American Restaurant	Cuban Restaurant	Wings Joint

From which we can see that Allapattah, Grapeland Heights, Liberty City and Overtown have categories related to Chinese food, while only Upper Eastside has the category of Italian food. Which gives us to understand that it is possible that the offer of Italian food is low.

Now, I proceeded to perform a K-means clustering of all the neighborhoods to understand the similarities between the neighborhoods and their tastes. From the above, the following 3 clusters are obtained:

- Cluster 1:

Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
Grapeland Heights	Restaurant	Wings Joint	Chinese Restaurant	Food Truck	Food Court

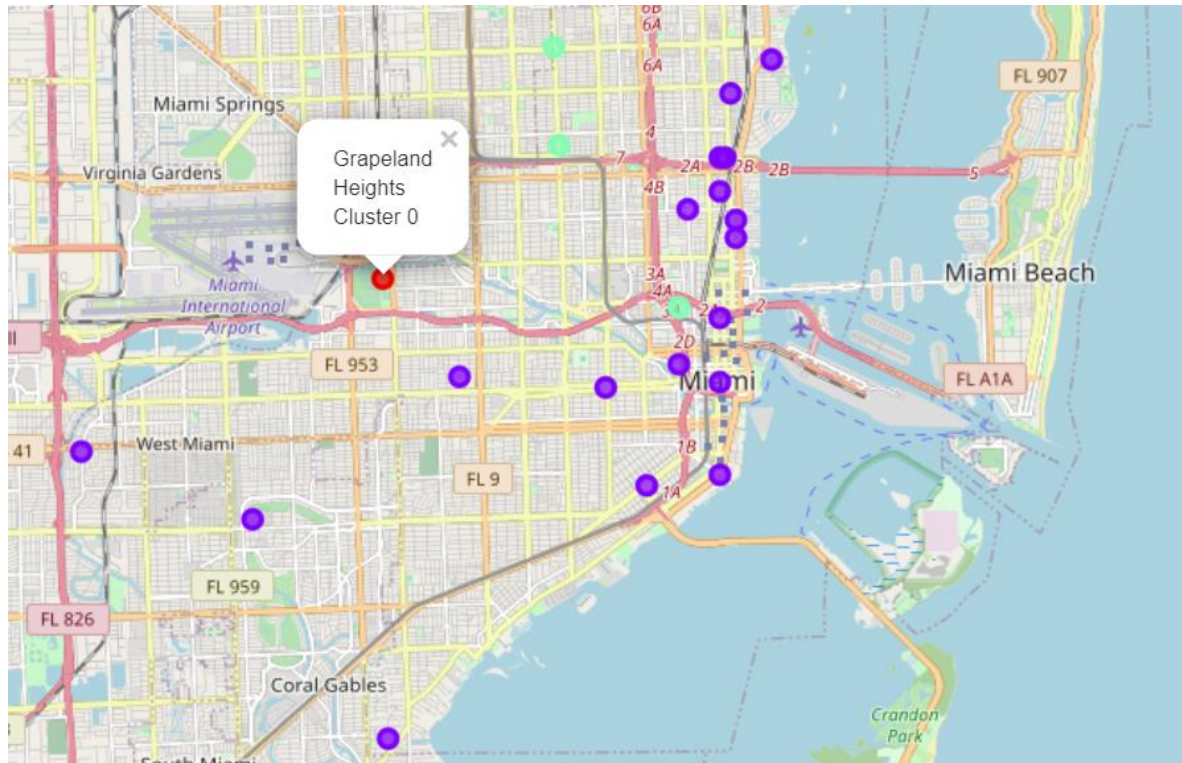
- Cluster 2:

Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
Arts & Entertainment District	Restaurant	Pizza Place	Tapas Restaurant	Sandwich Place	Cuban Restaurant
Brickell	Restaurant	American Restaurant	Café	Italian Restaurant	Japanese Restaurant
Buena Vista	Café	Pizza Place	Restaurant	Italian Restaurant	American Restaurant
Coconut Grove	American Restaurant	Fried Chicken Joint	Arepa Restaurant	Argentinian Restaurant	French Restaurant
Coral Way	Food Truck	Seafood Restaurant	Burger Joint	Café	Wings Joint
Design District	Café	Pizza Place	Sandwich Place	Italian Restaurant	Japanese Restaurant
Downtown	Italian Restaurant	Peruvian Restaurant	Restaurant	American Restaurant	Brazilian Restaurant
Edgewater	Restaurant	Pizza Place	Food Truck	American Restaurant	Bakery
Flagami	Bakery	Seafood Restaurant	Spanish Restaurant	Latin American Restaurant	Restaurant
Little Haiti	Pizza Place	Spanish Restaurant	Caribbean Restaurant	Italian Restaurant	Donut Shop
Little Havana	Latin American Restaurant	Bakery	Taco Place	Deli / Bodega	Mexican Restaurant
Lummus Park	Seafood Restaurant	American Restaurant	BBQ Joint	Spanish Restaurant	Diner
Midtown	Restaurant	Sandwich Place	Pizza Place	Italian Restaurant	Bakery
Park West	Restaurant	Café	Pizza Place	Gastropub	Bistro
The Roads	Vegetarian / Vegan Restaurant	Italian Restaurant	Soup Place	Latin American Restaurant	Restaurant
Upper Eastside	Pizza Place	Food Court	Sushi Restaurant	Italian Restaurant	Wings Joint
West Flagler	Comfort Food Restaurant	Bakery	Latin American Restaurant	Cuban Restaurant	Wings Joint
Wynwood	Food Truck	Restaurant	Café	Mexican Restaurant	Caribbean Restaurant

- Cluster 3:

Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
Allapattah	Southern / Soul Food Restaurant	Wings Joint	Chinese Restaurant	Food Truck	Food Court
Liberty City	Food	Southern / Soul Food Restaurant	Wings Joint	Chinese Restaurant	Food Truck
Overtown	Southern / Soul Food Restaurant	Wings Joint	Food Court	Chinese Restaurant	Food Truck

From the above, we find that of the neighborhoods that are within our options for the location of the restaurant, three of them make up cluster 3 where there seems to be a penchant for fast food. In cluster 2 there is a great offer of Italian food or pizza places, as well as most of the neighborhoods. And finally in cluster 1 is the Grapeland Heights neighborhood which is within the location options and is close to the airport:



From the above, the recommendation for Mr. Parker is to choose to locate the new restaurant in Grapeland Heights, given that the area is strategic due to its proximity to the airport and it still lacks gastronomic development. And since there does not seem to be competition for Italian food, he should choose this type of restaurant, since in the rest of the city this is one of the categories with the largest offer.

Discussion section

Although the choice was to locate an Italian restaurant in the Grapeland Heights neighborhood, it should be noted that the study carried out previously to arrive at the result, still has some gaps. For example, the offer of restaurants was not taken for the entire neighborhood but only for a perimeter of 500 meters, which could imply variations with respect to reality.

Additionally, the type of neighborhood in question was not taken into consideration, and therefore it may be difficult to find a place to locate the restaurant or there may not be enough demand.

However, if only the present information is taken into account, Grapeland Heights seems to be the best option for Mr. Parker, given that it has a strategic location, and it does not seem to have enough offer of Italian food. Remember that, in the vast majority of the city, Italian food is in the top 5 categories, which could indicate that citizens have a preference for this type of food.

Conclusion section

Peter Parker must say where to open a new restaurant in the city of Miami, which can be Chinese or Italian food. For which he must report to investors where to locate the new restaurant and what type of food will be served there. This led us to analyze the information of Miami neighborhoods and find where the best opportunity is.

From the results it was obtained that the Grapeland Heights neighborhood is the best option because it has a strategic position, close to the airport. Additionally, it is a neighborhood that still has growth potential in the gastronomic sector, which could imply that the profits of a restaurant in this area are high.

On the other hand, the restaurant must be Italian food since in the city this type of food seems to be desired, however, in this neighborhood there is currently no offer of this type. So the value proposition could be attractive to citizens.