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**1- Introduction: Business Problem**

**Where you discuss the business problem and who would be interested in this project.**

**Description:** In this project we will try to find an optimal location for a restaurant specialized in Dominican Food, the stakeholders owns two locations in Patterson NJ(USA) already, but she is interested in expanding her business to another state, in this case Georgia.

**Background:** The stakeholder knows there is a lot of people traveling through Georgia, due to Atlanta having an international airport, and being a busy city, she wants to make sure to get an ideal place, not too far from the airport, and where this type of restaurant is not common.

We will use our Data Science skills to find the ideal place that meets with these criteria, close to the airport, and in an area where restaurants are common, but here are not Dominican Restaurants yet, is OK any other type of Caribbean restaurants.

**2- Data**

We were given 3 specific cities closed to the Airport to investigate (**Atlanta, Decatur and Kennesaw**), and then select the best place for our Dominican Restaurant.

* First, I used Foresquare API to collect the venues within 10 miles of each city center.
* Second, I filtered the results and collected just the restaurants found within 10 miles of each city center.
* Third, I performed a search to make sure there were no other Dominican restaurants in the area.
* Finally, I generated a plot with each restaurant found in each city center, to have a visual of how close are these restaurants to each other, this will give us an overview of the data that we're working with to find the best city to place our Dominican Restaurant.

# 3- Methodology and Analysis

### Section which represents the main component of the report where you discuss and describe any exploratory data analysis that you did, any inferential statistical testing that you performed, if any, and what machine learnings were used and why.

I applied the same analytics and Model implementation to each city, to understand how close the restaurants in relationship to each city center and the proximity between restaurants are.

**First** - I grouped the restaurants by categories and distance to understand the types of restaurants I was dealing with, the variety of restaurants in the areas, and how far are these located form the city center.

**Second** - I filtered how many restaurants were within 2 miles of each city center, just to get an overview of the locations and number of restaurants close to the city centers.

**Third** - I plotted the restaurants by categories and distance from the city centers, to get a visual of the distance for each restaurant we found for each city.

**Fourth** - I ran a Kmeans cluster on each city to get a visual of the restaurant's density, also plot a cluster on each city map.

# 4- Results

### **Atlanta:**

* These are all the type of restaurants we found in the area of Atlanta within 10 miles from the city center.
* Within 2 miles from the city center, we found 12 restaurants.
* From the 12 restaurants the further one is Vegetarian / Vegan Restaurant, located 3292 meters from the city center.
* The closes one is an American Restaurant, located within 781 meters from the city center.

### **Decatur**

* These are all the type of restaurants we found in the area of Decatur within 10 miles from the city center.
* Within 2 miles from the city center, we found 4 restaurants.
* From the 4 restaurants the further one is Spanish Restaurant, located 477 meters from the city center.
* The closes one is an American Restaurant, located within 42 meters from the city center.

### **Kennesaw**

* These are all the type of restaurants we found in the area of Kennesaw within 10 miles away from the city center.
* No restaurants where found within 2 miles from the city center.

# 5- Discussion

### Section where you discuss any observations you noted and any recommendations you can make based on the results.

Base on the Data Analysis and after implementing clusters to the restaurants for each city, there are some interesting things to pay attention to.

Our Stakeholder wants to open the restaurant in one of these 3 cities because they are closer to the Atlanta Airport, which may attract a new type of customers to the restaurant.

Base on the observation, Atlanta besides being closer to the airport, has more variety of restaurants, but even though it has the biggest variety, it does not have a Dominican restaurant nearby, which gives us a good advantage.

We could see that in Atlanta the restaurants are closer to each other, making it easier for the customer to find out about the Dominican Restaurant while visiting another one, or even while visiting another type of veneu, with Atlanta having 12 restaurants within two miles of the city center, while Decatur had 4 and Kennesaw none, this tells us that Atlanta is a walking city, which might impact the number of people visiting the restaurant.

The last thing we could perceive base on the clustering process was, how close where the restaurants in relationship to another restaurant, also we got the closer clusters in Atlanta, then Decatur and Kennesaw had sparse clusters, which means there is a high chance that if a customer visits a restaurant in one of these cities, they might not see the Dominican restaurant while wondering on the nearby areas, not as if they were in Atlanta, based on the clusters information.

# 6- Conclusion

### Section where you conclude the report.

In conclusion, due to the probabilities of getting new customers, the good place within walking distance from other restaurants, the variety of restaurants, which could decide that in this city we might see a big variety of customers with different likes that might be interested in trying food from the Dominican Restaurant, taking in consideration that it will be the first restaurant offering this type of food in the area, and the fact that is the closes city to the Airport, in conclusion, Atlanta is the best city from the 3 cities provided by our Stakeholder, if she wants to open a Dominican restaurant in Georgia.