

Define the best location (Neighborhood) in Fort Lauderdale City for a Coffee Shop To Go

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1. Introduction / Business Problem

1.1 Background

We live in a world where everyday people generate data of his behavior and there are a lot of machines that recompile that information. Also, there are a business that uses lots of data available in their systems for making the wiser decision possible for invest their money.

In this world of velocity of information, people try hard to reduce the time of the unnecessary activities in their routine, like having the coffee cup that keep you going all day. Thinking in this, we could think that people that has no public transports, and drives long distances to their home to their jobs, or people who travels for shopping or entertainment and wants to improve the use of their time would be interested in a modality of coffee to go, like the auto-services of the junk food.

1.2. Problem

Where is the best place to locate a coffee shop? When you are trying to open a new local just the information that you can recompile inside the business is not enough because there are some geographical variables that can make a difference in choosing the best location and make a positive impact on the business on the short, middle and long ride. The idea of a good location depends of the objectives of the owner(s), but we must be near of the clients, be accessible to the potential clients, near of the raw material supplier because we could also need to reduce logistic cots.

1.3. Interests

People that can be interested in this business idea is the people that want to initiate in their own coffee shop or someone who is looking to open a new local or to relocate the one that is actually working but needs to improve the affluence of people or reduce some logistic costs at Fort Lauderdale - Florida.

2. Data

2.1. Data Sources

Most of the venues like the coffee shop at the United States has their location and ranking at the Foursquare application, the Fort Lauderdale at the Florida State, has a lot of traffic of tourists for entertainment or for shopping, but there is also the reality of the people who lives there and uses their own cars for their rides to the jobs at the morning.

Other web information I'll be using is the location of the banks or other business offices, and some residential neighborhoods that can help to make clear where are middle points that we can identify for the location we are seeking. There could be also some points of interest like the airport or the rental cars offices where some journeys begin.

The principal links to the web information that was used at this project

Foursquare: <https://developer.foursquare.com/places>

Fort Lauderdale Site Address: <http://data-fortlauderdale.opendata.arcgis.com/datasets/site-address-points-address>

Fort Lauderdale Zoning Districts: <http://data-fortlauderdale.opendata.arcgis.com/datasets/zoning-districts-land-use-planning?orderBy=ZONEDESC>

Fort Lauderdale Airport's Traffic: https://es.wikipedia.org/wiki/Aeropuerto_Internacional_de_Fort_Lauderdale-Hollywood#Estad%C3%ADsticas

3. Methodology

The idea of finding a good location needs to considerate that there are many possible places to choose, and most be some features in the selected location.

The Machine Learning choose to perform the principal analysis is Clustering with K-means, because we need to use the geographic information of all the neighborhoods at the Fort Lauderdale City to find out which ones are more similar at the venues and the kind of possible clients at that location.

Finding a cluster of neighborhoods with similar characteristics gives us the opportunity of choosing between them one that satisfy the objectives of the business and not only the potential clients.

4. Analysis

It's possible to visualize that there is a hug number of tourists using the airport of Fort Lauderdale, and how is the tendency thru the years. It's also possible using the maps to visualize where are some important points at the tourist routs as the rental cars, the marina, the ferry, where are some places at the

surroundings that call the attention of many tourist as the Orlando Outlets Theme Parks, Outlets, etc, this places demand that the tourist uses a particular car for executing the leisure plan.

Fort Lauderdale has a total of 89 neighborhoods, this are the places that we will consider choosing location.

At the South Florida there are two main international airports, one is in Miami and the second is at Fort Lauderdale, what neighborhood is the nearest to Palm Beach and Orlando.

We can see for the statistics of annual traffic of the airport, the tourists and local visitor are growing in number.

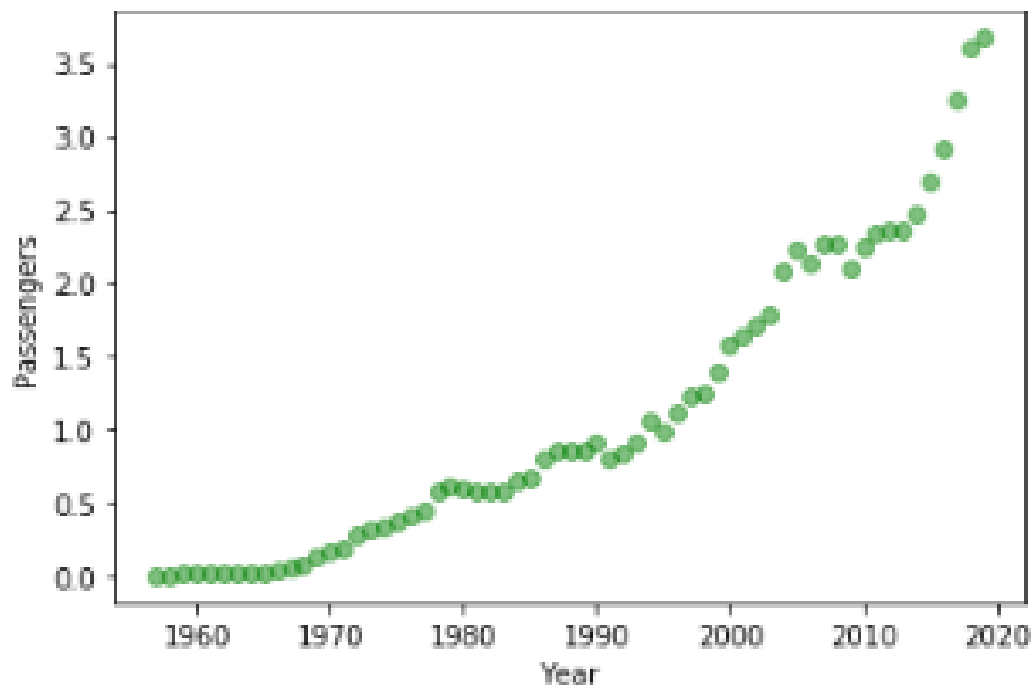


Figure 1. Annual Traffic at Fort Lauderdale's Airport

At figure1, we can appreciate that the number of passengers has an exponential growing throw the years, so we can estimate that a good part of this will start their journeys throw the Florida at this point, perhaps with the rental of a car or the reservation at a Hotel, which gives us the idea that a good location could be near these places, where the potential clients are the tourists.

In the other hand is very useful the use of the Foursquare API venues, to identify the places with more similar venues, so we can find the features that can permit use suggest a neighborhood that could host the coffee shop.

In addition, Fort Lauderdale has some information about Land Using, so it gives us an idea of how is composed the land plan of Fort Lauderdale:

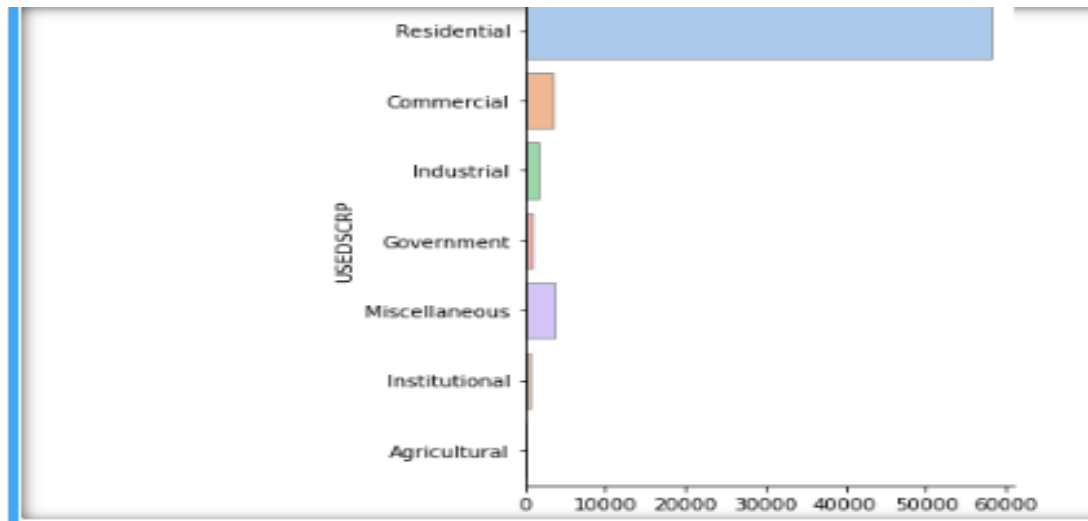


Figure 2. Land use at Fort Lauderdale

From the figure 2, we can see that there's a lot of residential's land and there's a category not so clear Miscellaneous that is similar in number to the Commercial use of land. It's also very evident that there are few government and institutional lands, there are a small number of Industry. So, we can see that defining areas of residential and business can give us an idea of location, if the final interest is internal clients.

4.1. Segmentation – Cluster K-means

After the descriptive analysis and the cleansing process, we have aggroup the neighborhoods with the most common venues that Foursquare has at their database, at the figure 3, we can see the first seven neighborhoods, which shows an example of the diversity of the venues according the neighborhood.

	Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
0	Bal Harbour	Restaurant	Mexican Restaurant	Health & Beauty Service	Jewelry Store	Furniture / Home Store	Grocery Store	Arts & Crafts Store	Optical Shop	Motel	Paper / Office Supplies Store
1	Bay Colony	Frozen Yogurt Shop	Harbor / Marina	Pharmacy	Canal	Fast Food Restaurant	Soccer Field	BBQ Joint	Lake	Gym	Pool
2	Bay Colony Club	Pool	Italian Restaurant	Canal	Sushi Restaurant	Women's Store	Dive Bar	Food Truck	Food	Flower Shop	Fast Food Restaurant
3	Bermuda Riviera	Hotel	American Restaurant	Residential Building (Apartment / Condo)	Seafood Restaurant	Coffee Shop	Bank	Pharmacy	Clothing Store	Chinese Restaurant	Restaurant
4	Beverly Heights	Italian Restaurant	Mexican Restaurant	American Restaurant	Bar	Bakery	Ice Cream Shop	Asian Restaurant	History Museum	Liquor Store	Beach
5	Boulevard Park Isles	Scenic Lookout	Women's Store	Discount Store	Food Truck	Food	Flower Shop	Fast Food Restaurant	Falafel Restaurant	Electronics Store	Dry Cleaner
6	Breakwater Surf Club	Beach	Art Gallery	Surf Spot	Harbor / Marina	Women's Store	Dog Run	French Restaurant	Food Truck	Food	Flower Shop
7	Central Beach	Hotel	Beach	Hotel Bar	Mexican Restaurant	American Restaurant	Gym	Restaurant	Seafood Restaurant	Bar	Clothing Store

Figure 3. 10 Most Common Venues grouped by Neighborhood

So, with this groups, we have identified that we need 8 clusters according to our data, using the elbow method, which is very common for this part of the process.

The idea is to identify where are the more similar neighborhoods at the Map, so we can start imagining possible locations. In the map, that we can see at the Figure 4, the red points are the Cluster Number 4, that has the more representative venues for establishing an initial location for the coffee shop.

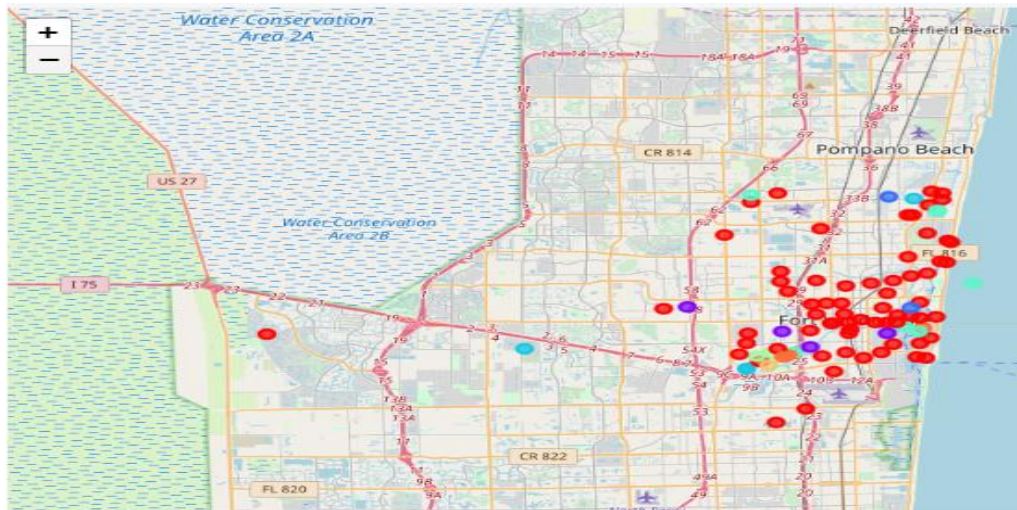


Figure 4. Map of Fort Lauderdale with Clusters

5. Results and Discussion

From the Analysis of the Data and the Clusters, we can see there are some potential client at touristic points, some at the residential places with proximity to marinas or to ferries, because these represent some places where people spends time and could enjoy of the Coffee To Go. The Cluster Number 4, of the Analysis has the major number of neighborhoods, but some of them has the characteristics that we believe are important to choosing the location of the coffee shop. At this Cluster, I will like to highlight that there are 9 neighborhoods:

- ✓ Bermuda Riviera (Hotel – Residential Building)
- ✓ City View (Coffee Shop – Train Station – Hotel)
- ✓ Galt Ocean Mile (Hotel – Residential Building-Some Restaurants)
- ✓ Harbor Drive (Harbor-Marina - Hotel - Boat - Ferry - Coffee Shop)
- ✓ Harbour Inlet (Harbor Marina / Hotel)
- ✓ Harbour Isles (hotel Harbor-Marina / Café)
- ✓ Poinciana Park (Rental Car location / Hotel / Coffee Shop)
- ✓ South Lauderdale Beach (Boat or Ferry – Rental Car Location)
- ✓ Sunset (Rental Car Location – Gas Station)

But like the logic will be to not have so many competitors at the area, but still look the most similar neighborhoods without an existing coffee shop, I would suggest to analyze additional characteristics in Harbour Inlet, and South Lauderdale Beach, and if the stakeholder is sure that the services and the products that will offer could compete with the services of the market, I'll suggest based on their characteristics to look Poinciana Park, Harbour Drives and Harbour Isles.

6. Conclusion

The purpose of this project was to find a good location for a coffee shop at Fort Lauderdale Florida. The limitation of the project is that we only considerate the perspective of the data available outside, specially the geographic data, to visualize the opportunities that the business can make with two kind of potential clients, the residents and the tourists. This project must be complemented with other information that the stakeholders, the future owners consider necessary to stand out with their brand, and to try to reduce some logistic costs, operational. There are also the other considerations when they try to precise a street, because it must be accessible and must be between those kinds of place residential and industry/commercial zones, or between the hotel/ rental car and the entertainment or attractive places.