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BATTLE OF THE NEIGHBORHOODS MIAMI EDITION

INTRODUCTION

If you have never visited Miami before, you probably have some preconceived notions—perhaps involving sun, sand, and the fact that temperatures average between 60 and 75 degrees in the winter. But there is a lot more to the city than its beaches and nightlife.

Miami an easy city for foreigners to move to is the large international community. Besides the nice weather all year around, there are other factors that should be consider when relocating to the area, according to US census there are 374,661 adults (78.8k of whom are between the ages of 25 and 30) in Miami.

With that being said, project is aimed to analyze the features of neighborhoods in Miami-Dade based on venues (taking into account the age of a person between 25-30 that wants to relocate), in order to obtain for the best neighborhood and hopefully make the decision easier for people considering moving.

DATA

- 1. List of neighborhoods of the City of Miami and zip codes. Due to the lack of available data used data from just the City of Miami. This can be found here.
- There is usually a common confusion between the City of Miami and Miami-Dade County. Miami-Dade County is one of the three counties in South Florida with Broward, and Palm Beach counties. Miami-Dade County has nineteen cities, six towns, and nine villages, one of them includes the City of Miami, which I used its neighborhoods in the in the development of this project.
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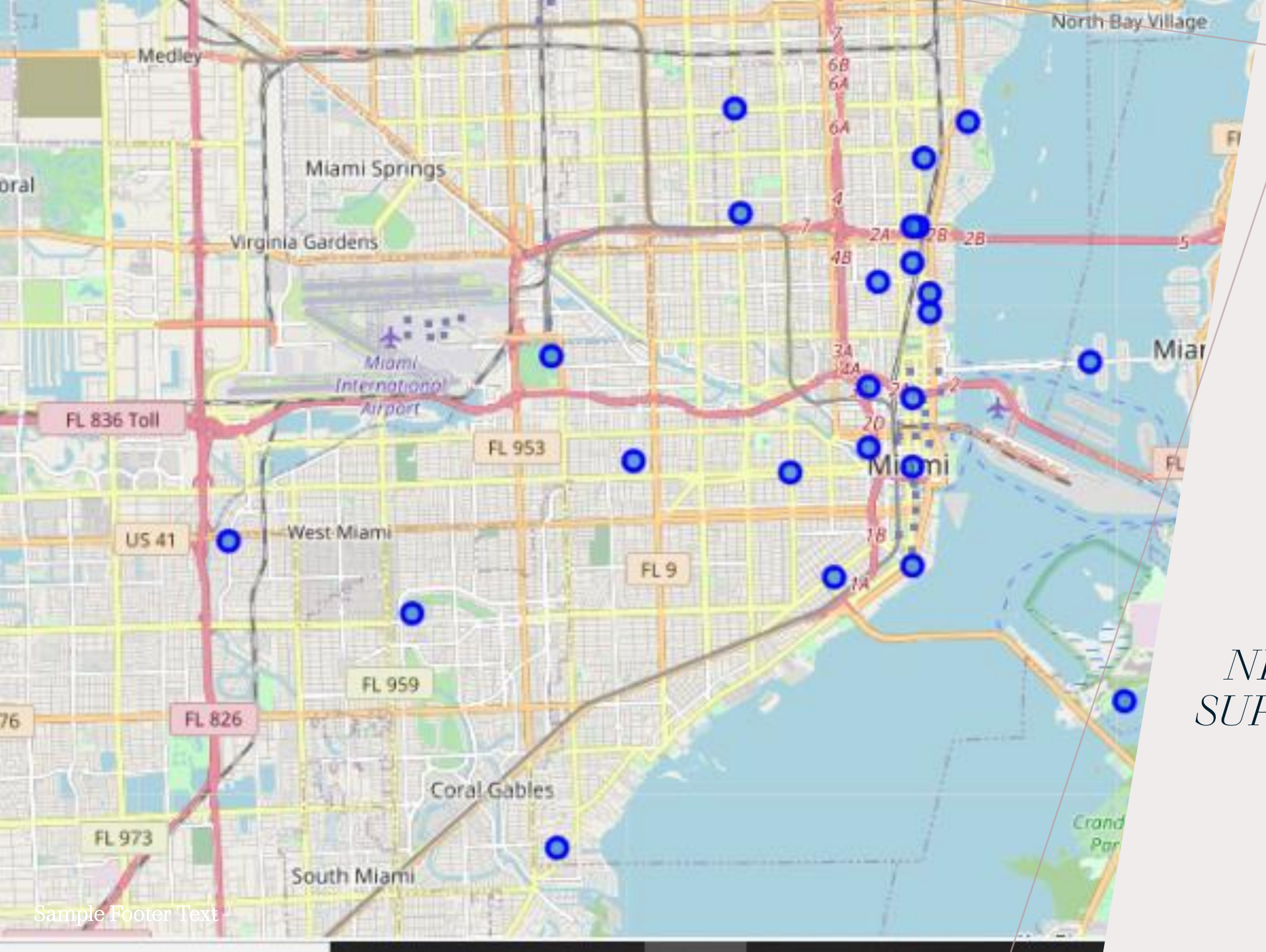
- 2. Two Bedroom Median rent: Miami is listed as 9th most expensive city in the US to rent a 2-bedroom apartment. This data is an important consideration when picking a neighborhood to live in. Using multiple sources like Zillow and Zumper and I created a excel file and then I inserted a token into the phyton library to be able to add the excel table to the notebook.
- 3. Foursquare API:
- This project would use Four-square API which provides location-based experiences with diverse information about venues, users, photos, and check-ins. The API supports real time access to places, Snap-to-Place that assigns users to specific locations, and Geo-tag.

METHODOLOGY

- The project will analyze the features of neighborhoods in the City of Miami based on venues, considering the average age of people relocating to the city is between 25-30.
- Foursquare will be used to obtain the venues located in the City of Miami. Ratings and likes will be used as well to stablish a comparison between neighborhoods.
- Using a comparative analysis through clusters will obtain the best neighborhood and hopefully make the decision easier for when people is considering moving.
- Finally, I will use the data obtained from the average rate to establish what would be the most appropriate area for somebody that is considering relocating to Miami



MAP OF MIAMI WITH NEIGHBORHOODS SUPERIMPOSED ON TOP.

FOUR SQUARE API

- Next, using the Foursquare API we explored the neighborhoods and got the top 100 venues in each neighborhood within a radius of 500 meters. The search return 510 venues across all neighborhoods.
- There are 139 unique Venue Categories

CLUSTERING

- Throughout Clustering segmentation, we will be able to partition the neighborhoods into groups of that have similar characteristics.
- After clustering the different neighborhoods, we were supposed to be able examine each cluster and determine the discriminating venue categories that distinguish each cluster. However, we were just able to obtain 2 clusters data on them.

CLUSTER 1 (RED)

	Neighborhood	Latitude	Longitude	Cluster Labels	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
1	Arts & Entertainment District	25.799	-80.190	0.0	Ice Cream Shop	Restaurant	Coffee Shop	Spa	Food Truck	Cupcake Shop	Cuban Restaurant	Paper / Office Supplies Store	Park	Pizza Place
2	Brickell	25.758	-80.193	0.0	Hotel	Italian Restaurant	Japanese Restaurant	Café	Juice Bar	Restaurant	Bar	Bank	Salon / Barbershop	Sandwich Place
3	Buena Vista	25.813	-80.192	0.0	Café	Coffee Shop	Boutique	Italian Restaurant	Jewelry Store	Art Gallery	Clothing Store	Leather Goods Store	Chinese Restaurant	Furniture / Home Store
5	Coral Way	25.750	-80.283	0.0	Liquor Store	Pharmacy	Mobile Phone Shop	Monument / Landmark	Golf Course	Burger Joint	Dive Bar	Food Truck	Café	Eastern European Restaurant
6	Design District	25.813	-80.193	0.0	Café	Boutique	Italian Restaurant	Jewelry Store	Coffee Shop	Art Gallery	Clothing Store	Cocktail Bar	Shopping Mall	Chinese Restaurant
7	Downtown	25.774	-80.193	0.0	Peruvian Restaurant	Hotel	Lounge	Cocktail Bar	Italian Restaurant	New American Restaurant	Coffee Shop	Pharmacy	Brazilian Restaurant	Chinese Restaurant
8	Edgewater	25.802	-80.190	0.0	Restaurant	Coffee Shop	Sandwich Place	Cuban Restaurant	Gym	Food Truck	Pizza Place	Art Gallery	Greek Restaurant	Breakfast Spot
9	Flagami	25.762	-80.316	0.0	Pet Store	Bakery	Seafood Restaurant	Department Store	Food	Fast Food Restaurant	Latin American Restaurant	Spanish Restaurant	Cupcake Shop	Eastern European Restaurant
10	Grapeland Heights	25.792	-80.258	0.0	Lounge	Gym / Fitness Center	Hotel	Hotel Pool	Bus Station	Golf Course	Restaurant	Auto Garage	Bar	Eastern European Restaurant
12	Liberty City	25.832	-80.225	0.0	Southern / Soul Food Restaurant	Bar	Food	Women's Store	Eastern European Restaurant	Fish Market	Fast Food Restaurant	Farmers Market	Event Space	Empanada Restaurant

CLUSTER 1 (RED)

13	Little Haiti	25.824	-80.191	0.0	Home Service	Shopping Mall	Pub	Pizza Place	Pilates Studio	Pharmacy	New American Restaurant	Italian Restaurant	Ice Cream Shop	Gym
14	Little Havana	25.773	-80.215	0.0	Latin American Restaurant	Pharmacy	Shoe Store	Grocery Store	Mexican Restaurant	Discount Store	Donut Shop	Event Space	Empanada Restaurant	Eastern European Restaurant
15	Lummus Park	25.777	-80.201	0.0	Seafood Restaurant	Fish Market	American Restaurant	Hotel	Soccer Field	Restaurant	Spanish Restaurant	Eastern European Restaurant	Fast Food Restaurant	Farmers Market
16	Midtown	25.807	-80.193	0.0	Italian Restaurant	Coffee Shop	Restaurant	Pizza Place	Gym / Fitness Center	Peruvian Restaurant	Mobile Phone Shop	Breakfast Spot	Pharmacy	Pet Store
17	Overtown	25.787	-80.201	0.0	Wings Joint	Farmers Market	Southern / Soul Food Restaurant	Baseball Stadium	Athletics & Sports	Diner	Discount Store	Dive Bar	Dog Run	Donut Shop
18	Park West	25.785	-80.193	0.0	Nightclub	Café	Theater	Lounge	Resort	Gym / Fitness Center	Flea Market	Japanese Restaurant	Pizza Place	Pharmacy
19	The Roads	25.756	-80.207	0.0	Shopping Plaza	Moving Target	Health & Beauty Service	Salon / Barbershop	Lawyer	Latin American Restaurant	Gas Station	Italian Restaurant	Event Space	Empanada Restaurant
20	Upper Eastside	25.830	-80.183	0.0	Gas Station	Pizza Place	Department Store	Tennis Court	Motel	Sushi Restaurant	Italian Restaurant	Dive Bar	Event Space	Empanada Restaurant
21	Venetian Islands	25.791	-80.161	0.0	Athletics & Sports	IT Services	Boat or Ferry	Bar	Lounge	Park	Diner	Discount Store	Dive Bar	Dog Run
23	West Flagler	25.775	-80.243	0.0	Pharmacy	Comfort Food Restaurant	Latin American Restaurant	Bakery	Gas Station	Concert Hall	Dessert Shop	Diner	Discount Store	Dive Bar
24	Wynwood	25.804	-80.199	0.0	Art Gallery	Bar	Food Truck	Restaurant	Coffee Shop	Theater	Ice Cream Shop	Cocktail Bar	Asian Restaurant	Café

CLUSTER 2 (GREEN)

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: miami_merged.loc[miami_merged['Cluster Labels'] == 2, miami_merged.columns[[0] + list(range(3, miami_merged.shape[1]))]]
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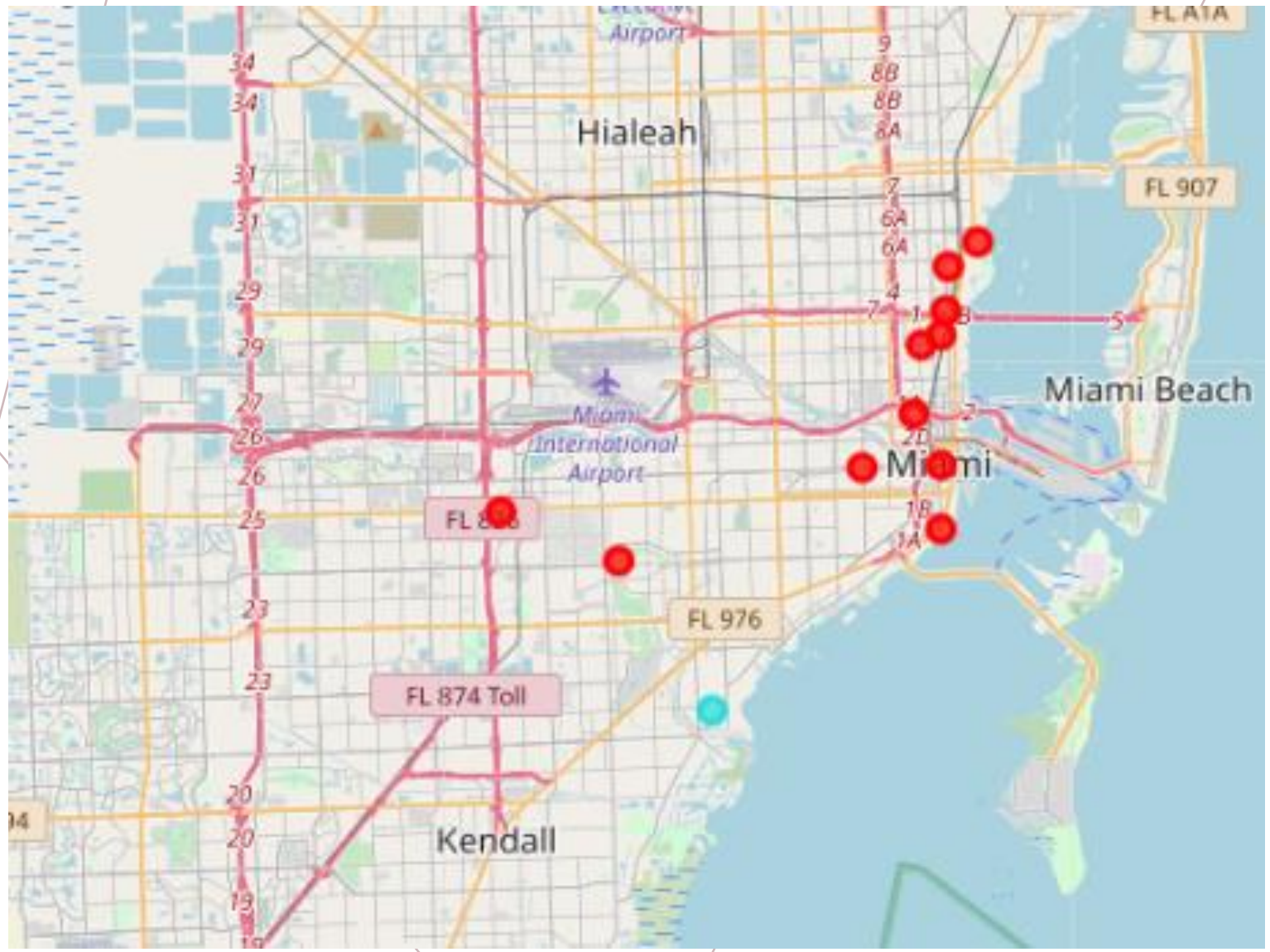
	Neighborhood	Latitude	Longitude	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
4	Coconut Grove	25.712	-80.257	2	Boat or Ferry	Park	Donut Shop	Fish Market	Fast Food Restaurant	Farmers Market	Event Space	Empanada Restaurant	Eastern European Restaurant	Women's Store

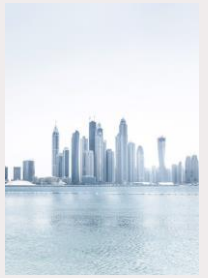


MAP CLUSTERS

FROM THE CLUSTERING DATA AND THE PLOT IN THE ABOVE MAP VIEW, WE CAN SEE THAT CLUSTER NUMBER 2, IS MORE DISTANT FROM DOWNTOWN AND FOR THE SAME REASON MORE PRONE TO PARKS AND VENUES DEDICATED TO OUTDOORS ACTIVITIES. IN CONTRAST WITH CLUSTER NUMBER 1, WHICH IS MORE FOCUS ON BUSINESS RELATED TO ENTERTAINMENT AND RESTAURANTS.

RENT AND VENUE AVERAGE RATING DATA

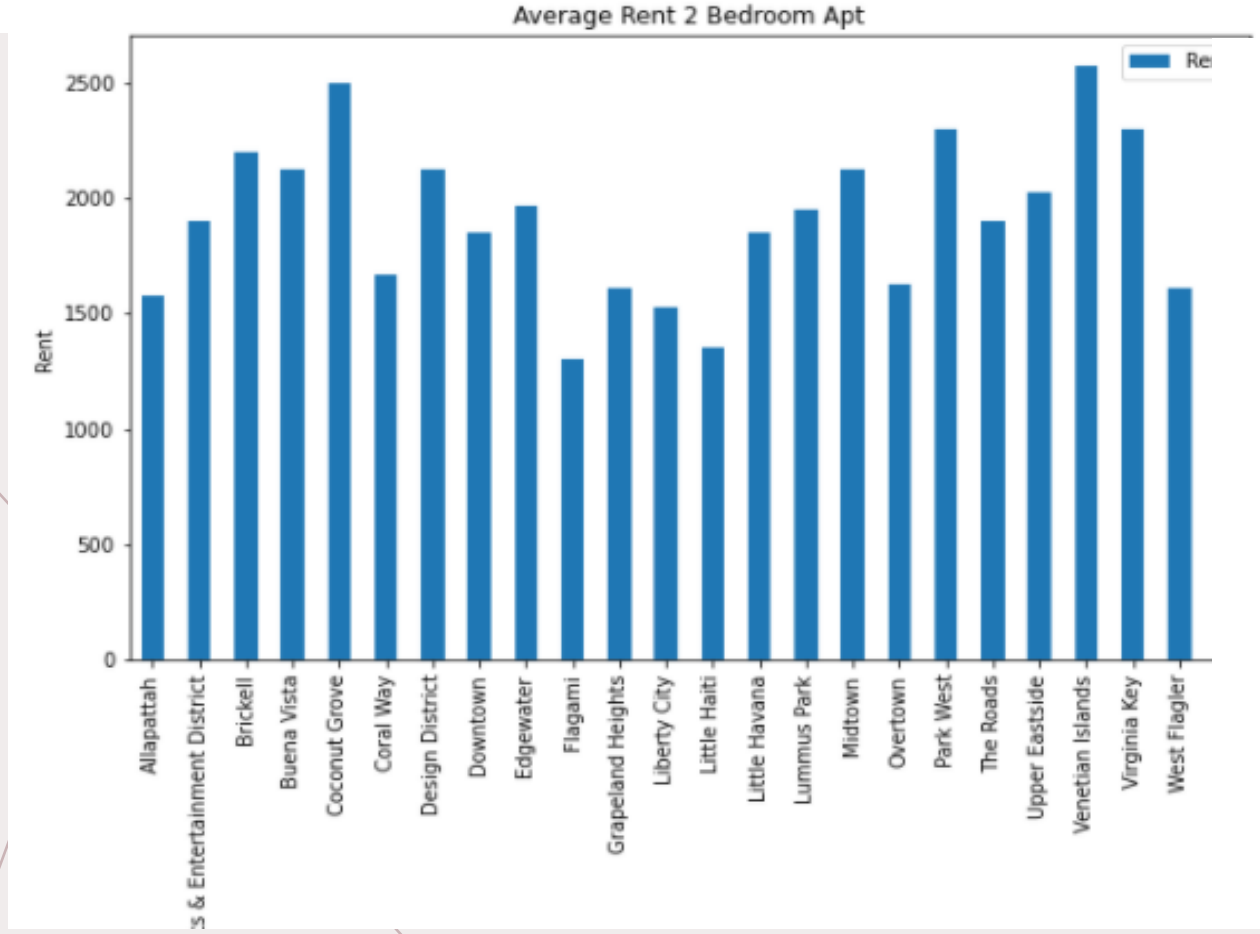
- Given that through clustering the results provided could seem a little vague, we use data from a 2-bedroom apartment rent in each neighborhood, and with the Square API we obtain the rating of each venue in the city and we grouped by neighborhoods.

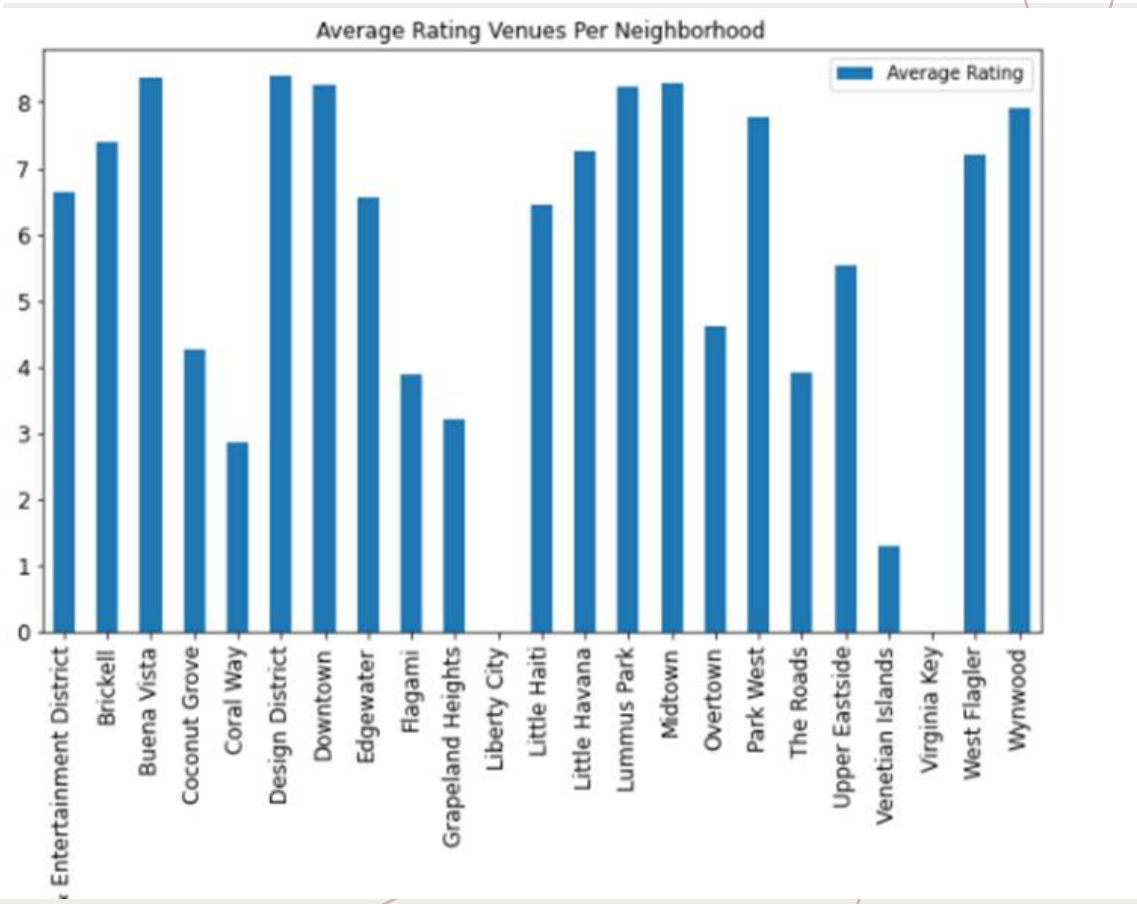


	Neighborhood	Rent
0	Allapattah	1577
1	Arts & Entertainment District	1900
2	Brickell	2196
3	Buena Vista	2122
4	Coconut Grove	2500
5	Coral Way	1669
6	Design District	2122
7	Downtown	1850
8	Edgewater	1970
9	Flagami	1300
10	Grapeland Heights	1611
11	Liberty City	1531
12	Little Haiti	1350
13	Little Havana	1854
14	Lummus Park	1950
15	Midtown	2125
16	Overtown	1629
17	Park West	2300
18	The Roads	1898
19	Upper Eastside	2026
20	Venetian Islands	2575
21	Virginia Key	2300
22	West Flagler	1612
23	Wynwood	2050

	Neighborhood	Average Rating
5	Design District	8.378947
2	Buena Vista	8.371795
14	Midtown	8.274
6	Downtown	8.268627
13	Lummus Park	8.24
22	Wynwood	7.903704
16	Park West	7.781481
1	Brickell	7.401923
12	Little Havana	7.257143
21	West Flagler	7.216667
0	Arts & Entertainment District	6.642105
7	Edgewater	6.546667
11	Little Haiti	6.434783
18	Upper Eastside	5.528571
15	Overtown	4.62
3	Coconut Grove	4.25
17	The Roads	3.9
8	Flagami	3.872727
9	Grapeland Heights	3.211111
4	Coral Way	2.85
19	Venetian Islands	1.283333
10	Liberty City	0
20	Virginia Key	0

RENT VS AVERAGE RATING VENUES PER NEIGHBORHOOD





RESULTS AND CONCLUSION

After the K-Means Clustering machine learning algorithm, we got 2 clusters. we can see that cluster Number 2, is more distant from downtown and for the same reason more prone to parks and venues dedicated to outdoors activities. In contrast with cluster Number 1, which is more focus on business related to entertainment and restaurants. Therefore, if the person who is relocated in more interested in outdoors activities rather than restaurants and commercial areas the neighborhood to move would be Coconut Grove.

And after comparing the rent price vs the average venue rating per neighborhood we draw to the conclusion that in based on terms of affordability and variety of activities the best neighborhood to initially consider when relocating to Miami would be Arts and Entertainment District.

There are also other factors that should be consider for proper analysis. The city of Miami is part of Miami-Dade County which has nineteen cities, six towns, and nine villages. No apparent differences in government structure or population exist between these three categories. Due of the lack of data we couldn't include incorporate communities such as Miami Beach, Coral Gables, Hialeah, Pinecrest, Homestead, which I would consider would affect substantially the results and would bring us to more accurate decision.