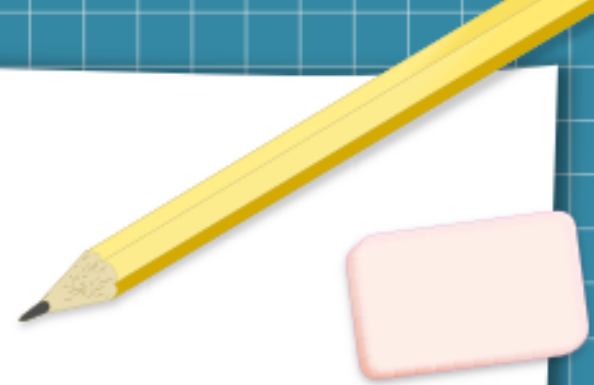


Battle of the neighborhoods

What is the best location to open a new restaurant in Miami ?

Introduction



- **Miami** is a coastal metropolis in Florida, USA
- 40th largest city in the USA
- 3rd most populous metropolis on the East Coast
- 50+ new restaurant in the last 12 months

✓ **Perfect place to open a new commerce !**



Problem description



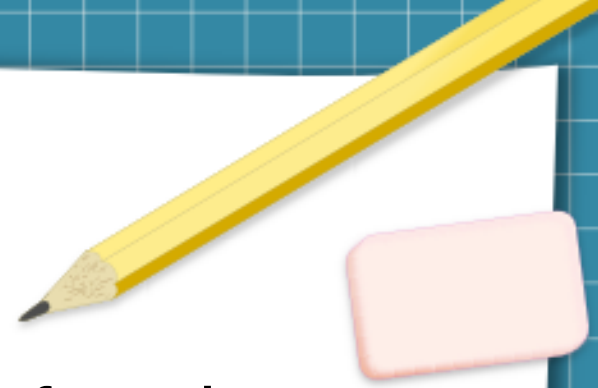
Let's say we want to open a new pizza place ...

- What is the best place to open a new venue ?
- Isn't Miami already saturated in italian food ?

Case study : Pucci's pizza in **Park West**

- Always full of clients → Perfectly located
- Is it possible to find a similar location ?

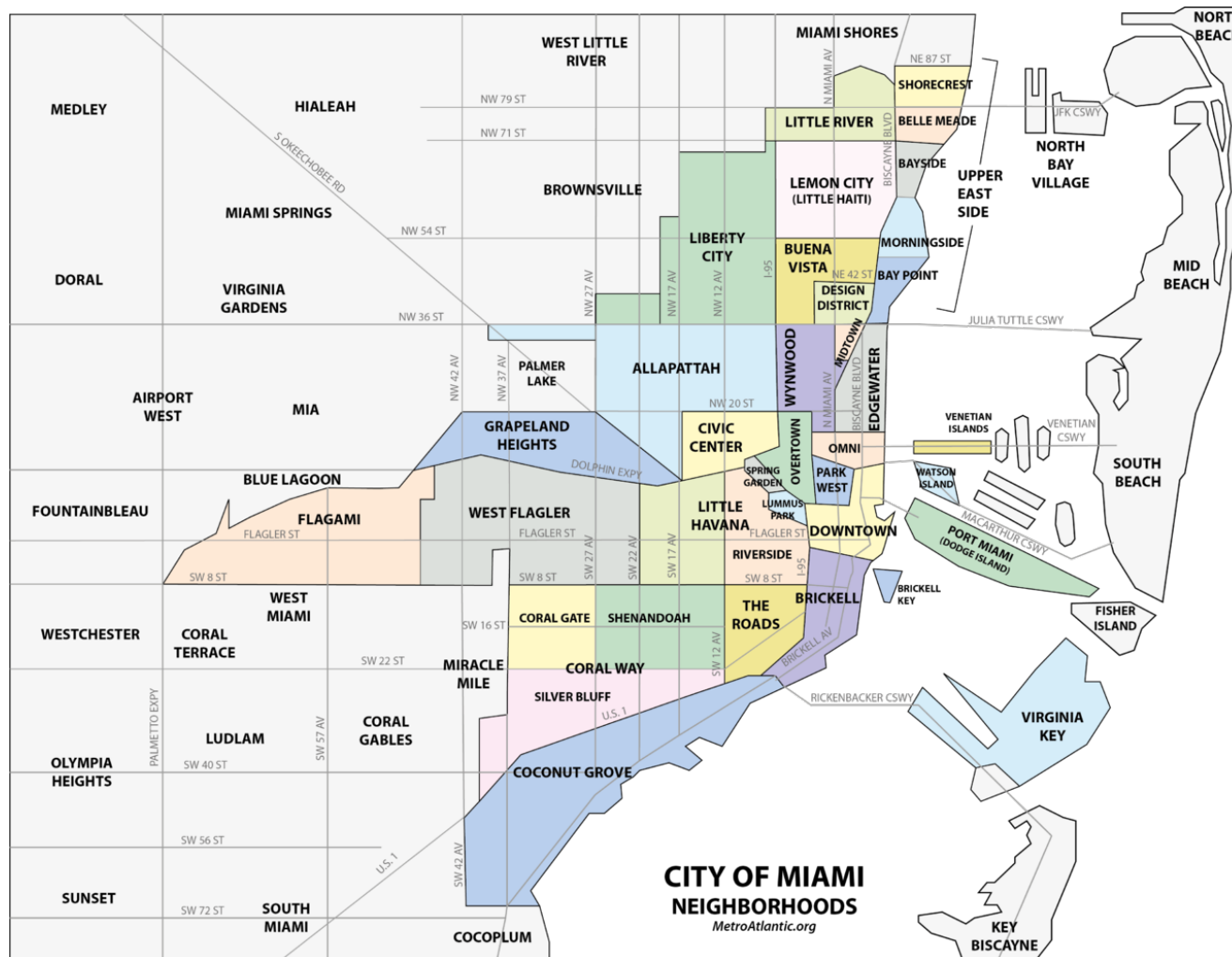
Methodology



1. Getting the geographical informations of each neighborhood in Miami
2. Listing all the venues of each neighborhood
3. Analyzing these informations to make statistics about the most common venues
4. Using clustering methods to group districts according to venues frequency
5. Looking in the cluster containing Park West to find the most interesting neighborhood among it.

Miami Neighborhood

25 Districts, with sub-neighborhoods



Miami Neighborhood

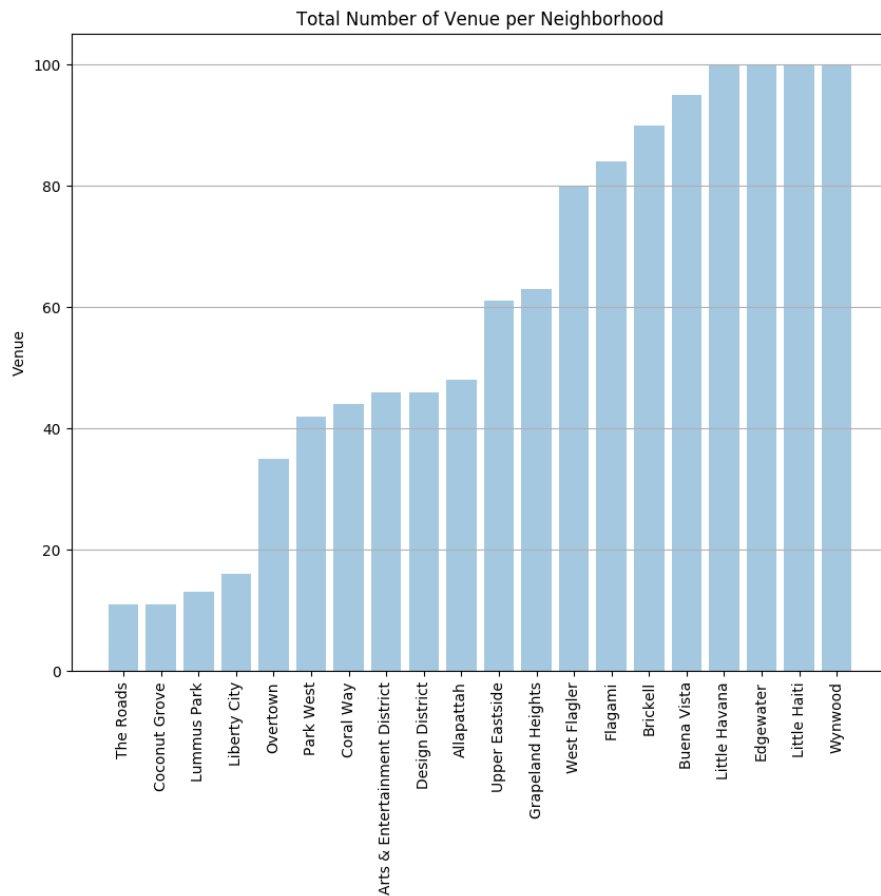
Gettings informations about the neighborhoods¹

| | Neighborhood | Population | Density | Latitude | Longitude | Area |
|----|-------------------------------|------------|---------|----------|-----------|----------|
| 0 | Allapattah | 54.289 | 4.401 | 25.815 | -80.224 | 12.3356 |
| 1 | Arts & Entertainment District | 11.033 | 7.948 | 25.799 | -80.190 | 1.38815 |
| 2 | Brickell | 31.759 | 14.541 | 25.758 | -80.193 | 2.1841 |
| 3 | Buena Vista | 9.058 | 3.54 | 25.813 | -80.192 | 2.55876 |
| 4 | Coconut Grove | 20.076 | 3.091 | 25.712 | -80.257 | 6.49499 |
| 5 | Coral Way | 35.062 | 4.496 | 25.750 | -80.283 | 7.79849 |
| 6 | Design District | 3.573 | 3.623 | 25.813 | -80.193 | 0.986199 |
| 8 | Edgewater | 15.005 | 6.675 | 25.802 | -80.190 | 2.24794 |
| 9 | Flagami | 50.834 | 5.665 | 25.762 | -80.316 | 8.97335 |
| 10 | Grapeland Heights | 14.004 | 4.13 | 25.792 | -80.258 | 3.3908 |
| 11 | Liberty City | 19.725 | 3.733 | 25.832 | -80.225 | 5.28395 |
| 12 | Little Havana | 22.722 | 2.21 | 25.764 | -80.221 | 7.75 |

1. https://en.wikipedia.org/wiki/List_of_neighborhoods_in_Miami

Miami Neighborhood

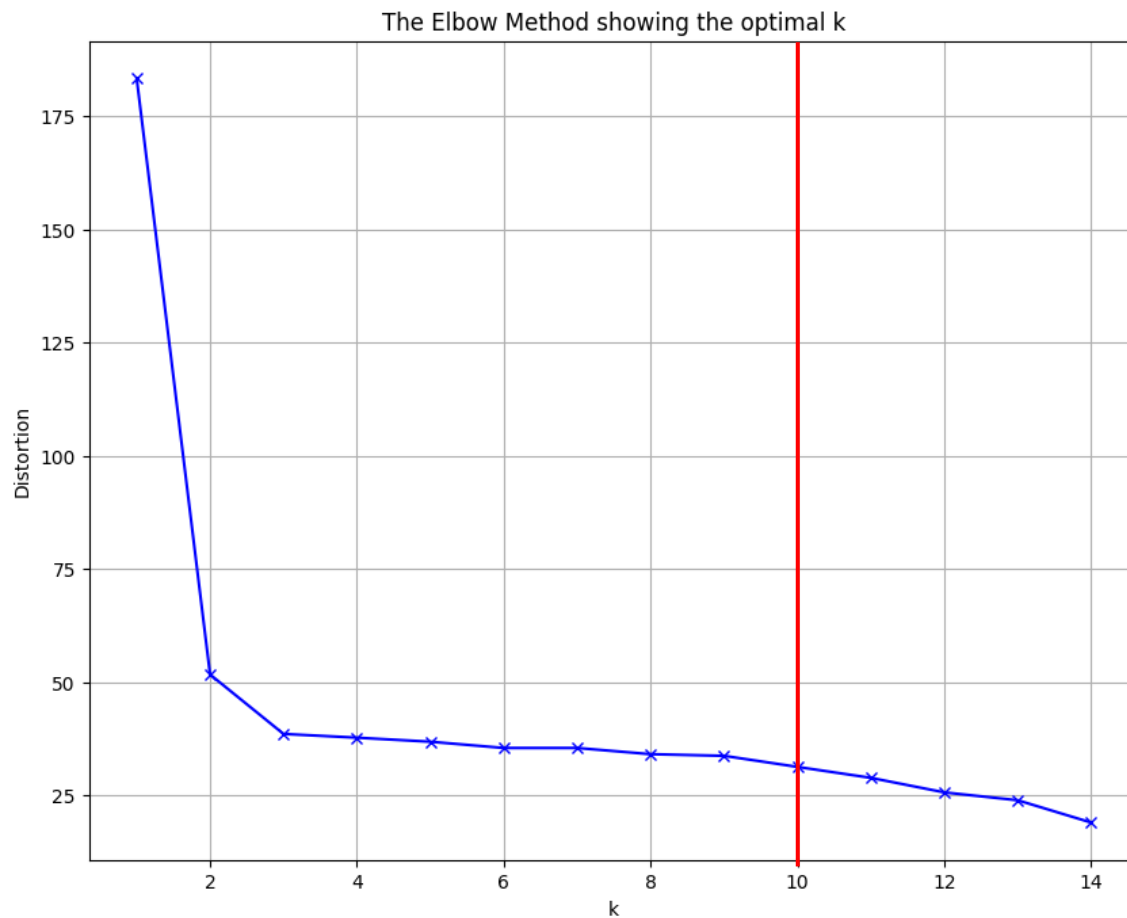
Listing the venues of each neighborhood²



| | Neighborhood | 1st Most Common Venue | 2nd Most Common Venue | 3rd Most Common Venue | 4th Most Common Venue | 5th Most Common Venue |
|---|-------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 0 | Allapattah | Fast Food Restaurant | Gas Station | Park | Seafood Restaurant | Nightclub |
| 1 | Arts & Entertainment District | Restaurant | Pizza Place | Ice Cream Shop | Sandwich Place | Gym |
| 2 | Brickell | Hotel | Italian Restaurant | Japanese Restaurant | Bar | Gym |
| 3 | Buena Vista | Pizza Place | Café | Italian Restaurant | Art Gallery | Juice Bar |
| 4 | Coconut Grove | Garden | Park | Trail | Plaza | Boat or Ferry |

Clustering the districts

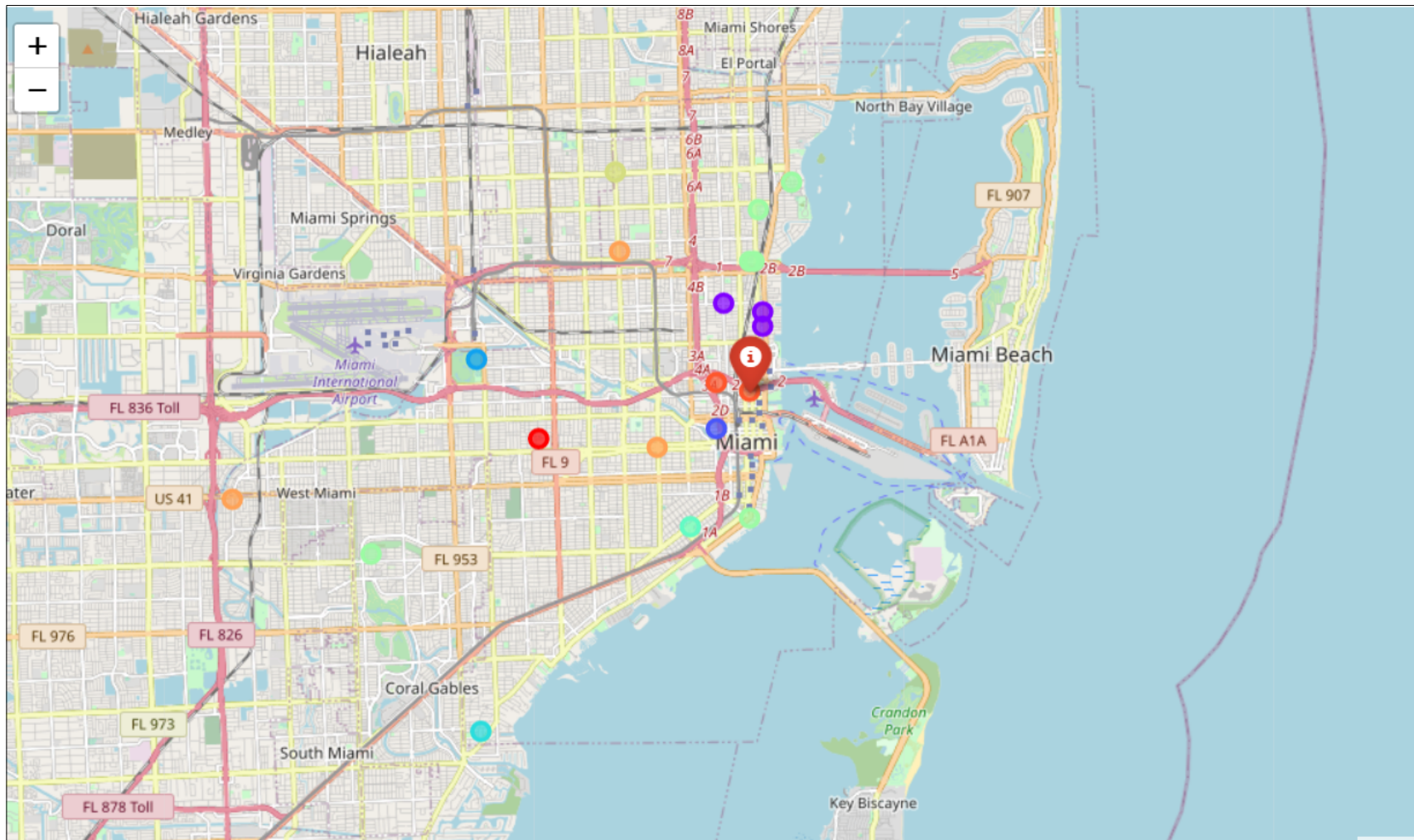
Using k-means clustering³ to group neighborhoods



3. <https://scikit-learn.org/stable/modules/generated/sklearn.cluster.KMeans.html>

Clustering the districts

Using k-means clustering ($k=10$)



Clustering the disctrics



Park West in a cluster with only one other district

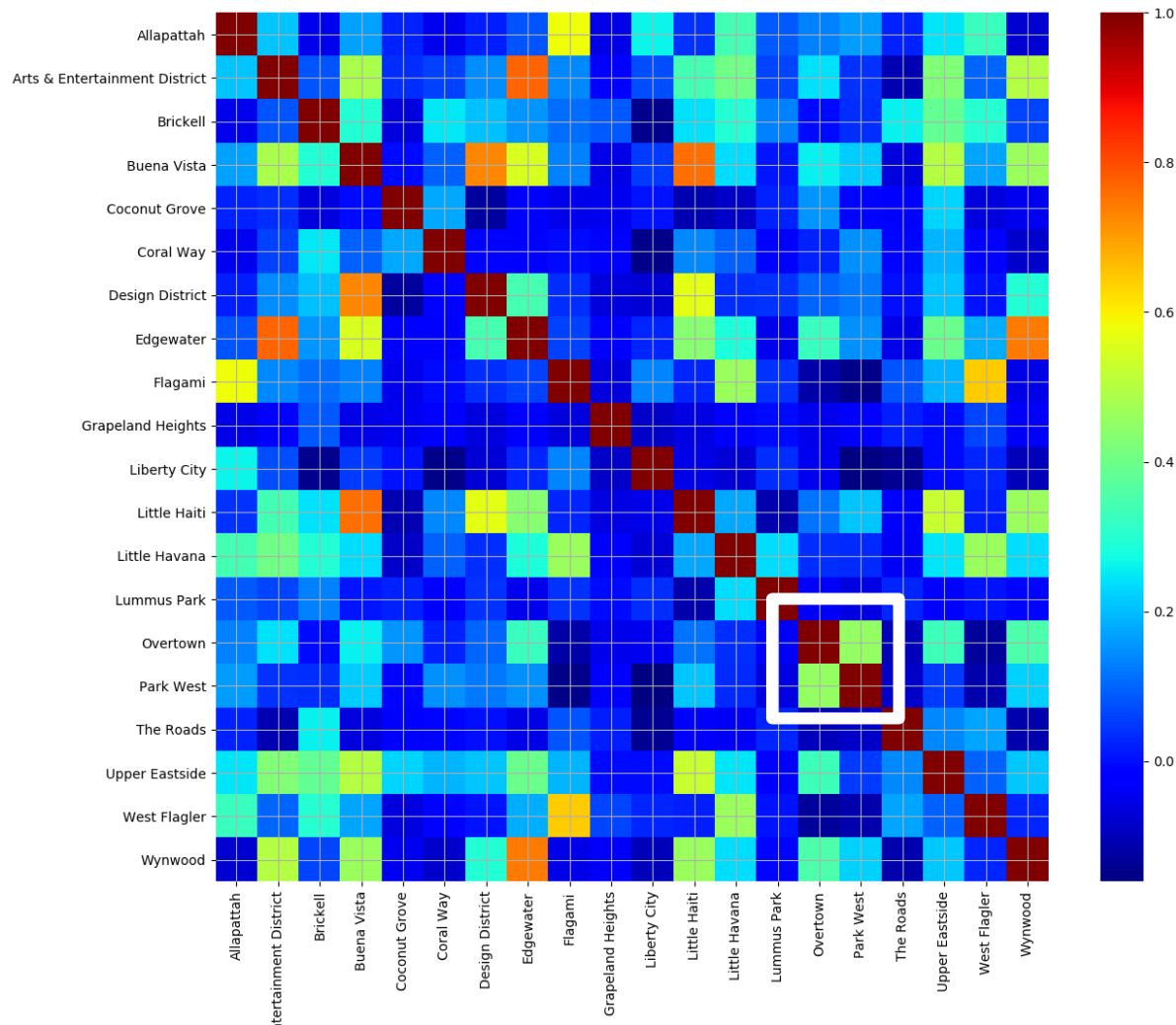
- Overtown is the most similar neighborhood
 - Same kind of venues, nearly same location
- Only 1 pizza place in Park West, 0 in Overtown
 - Explanation of the success of Pucci's Pizza
 - Overtown is the perfect candidate for a new italian restaurant !

Clustering the districts

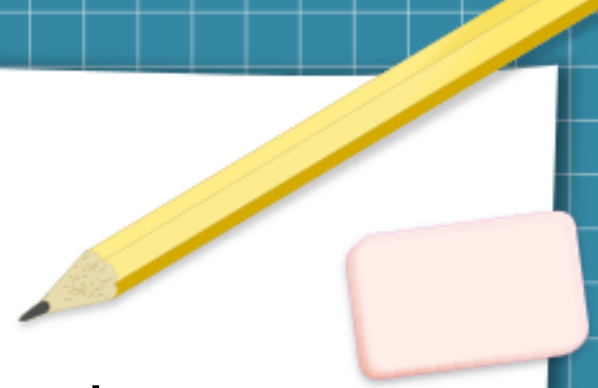
The clustering method has been able to group all the districts with lots of italian food, separating Park West from them !

| | Neighborhood | 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 |
|----|-----------------|----------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|------------------------|---------------------------|------------------------|-----------------------|------------------------|
| 2 | Brickell | 6 | Hotel | Italian Restaurant | Japanese Restaurant | Bar | Gym | Argentinian Restaurant | Latin American Restaurant | Lounge | Spa | Pool |
| 3 | Buena Vista | 6 | Pizza Place | Café | Italian Restaurant | Art Gallery | Juice Bar | Park | Coffee Shop | Gym | Seafood Restaurant | Cosmetics Shop |
| 5 | Coral Way | 6 | Golf Course | Pool | Café | Dance Studio | Italian Restaurant | Cuban Restaurant | Breakfast Spot | Burger Joint | Canal Lock | Cocktail Bar |
| 6 | Design District | 6 | Italian Restaurant | Art Museum | Clothing Store | Shopping Mall | Café | Coffee Shop | Boutique | Jewelry Store | Cosmetics Shop | Ice Cream Shop |
| 12 | Little Haiti | 6 | Art Gallery | Pizza Place | Boutique | Café | Italian Restaurant | Gym | Caribbean Restaurant | Coffee Shop | Pharmacy | Sandwich Place |
| 19 | Upper Eastside | 6 | Park | Italian Restaurant | Gym | Pizza Place | Gas Station | Coffee Shop | Sushi Restaurant | Argentinian Restaurant | American Restaurant | Pub |
| 16 | Overtown | 9 | Park | Nightclub | Restaurant | Coffee Shop | Bar | American Restaurant | Art Gallery | Speakeasy | Chinese Restaurant | Event Space |
| 17 | Park West | 9 | Café | Nightclub | Theater | Lounge | Performing Arts Venue | Gym / Fitness Center | Art Gallery | Science Museum | Pizza Place | Light Rail Station |

Choice ?



Conclusion



Proposal of an IA-based analysis to find the best location for a new italian restaurant in Miami

- We were able to find the best place
- Our methodology can be used for any kind of venue in any City
- Clustering allows us to easily filter the neighborhoods
- Conclusion of the k-means analysis are validated by the correlation matrix