

# Machine Learning Capstone

## Data

### Miami Neighborhood Data

Neighborhood data will be scraped from [https://en.wikipedia.org/wiki/List\\_of\\_neighborhoods\\_in\\_Miami](https://en.wikipedia.org/wiki/List_of_neighborhoods_in_Miami).

Only neighborhood names and coordinates will be used from this.

Here is a partial screenshot:

Neighborhoods in Miami <sup>[2]</sup>					
Neighborhood ◂	Demonym ◂	Population 2010 ◂	Population/ Km² ◂	Sub-neighborhoods	Coordinates ◂
Allapattah		54,289	4,401		25.815,-80.224
Arts & Entertainment District		11,033	7,948		25.799,-80.190
Brickell	Brickellite	31,759	14,541	West Brickell	25.758,-80.193
Buena Vista		9,058	3,540	Buena Vista East Historic District and Design District	25.813,-80.192
Coconut Grove	Grovite	20,076	3,091	Center Grove, Northeast Coconut Grove, Southwest Coconut Grove, and the West Grove (Black Grove)	25.712,-80.257
Coral Way		35,062	4,496	Coral Gate, Golden Pines, Shenandoah, and Silver Bluff	25.750,-80.283

## Preprocessing

After scraping, the data will be fed into a pandas dataframe with the irrelevant columns removed.

The neighborhood containing Chicago Boys Town will be appended to this dataframe because the objective is to find a neighborhood like a gay neighborhood, so I'm interested in which Miami neighborhoods cluster with a gay neighborhood in Chicago.

## Foursquare

Foursquare is used to ascertain various venues for each neighborhood.

The venue information is processed to return the top 10 venues by count for each neighborhood. This is saved in a dataframe and the neighborhoods are then clustered using kmeans clustering.

See the attached notebook for details.

	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
0	Allapattah	Park	Food & Drink Shop	Pizza Place	Cosmetics Shop	South American Restaurant	Discount Store	Video Store	Bakery	Grocery Store
1	Arts & Entertainment District	Art Gallery	Restaurant	Ice Cream Shop	Bar	New American Restaurant	Juice Bar	Beer Garden	Pizza Place	Peruvian Restaurant
2	Brickell	Hotel	Italian Restaurant	Pizza Place	Bar	Restaurant	Yoga Studio	Latin American Restaurant	Argentinian Restaurant	Japanese Restaurant
3	Buena Vista	Art Gallery	Coffee Shop	Italian Restaurant	Furniture / Home Store	Café	Pizza Place	Grocery Store	South American Restaurant	Cosmetic Shop
4	Coconut Grove	Park	Boat or Ferry	Trail	Playground	Cosmetics Shop	Garden	Plaza	American Restaurant	Harbor Marina

Figure 1: Sample of Neighborhoods with Counted Venues

	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
1	Arts & Entertainment District	Art Gallery	Restaurant	Ice Cream Shop	Bar	New American Restaurant	Juice Bar	Beer Garden	Pizza Place	Peruvian Restaurant
2	Brickell	Hotel	Italian Restaurant	Pizza Place	Bar	Restaurant	Yoga Studio	Latin American Restaurant	Argentinian Restaurant	Japanese Restaurant
3	Buena Vista	Art Gallery	Coffee Shop	Italian Restaurant	Furniture / Home Store	Café	Pizza Place	Grocery Store	South American Restaurant	Cosmetic Shop
5	Coral Way	Grocery Store	Café	Tennis Court	Park	Pool	Dive Bar	Sports Bar	Burger Joint	Seafood Restaurant

Figure 2: Sample of Cluster which contains KitKat