

# Explore and find the patterns for neighborhoods in Amsterdam

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## Data acquisition and visualization

Based on the previous section discussion, there are some factors will effect our decision such as:

Number of venues that we can obtains The diverse ecology venues that Amsterdam having Number of neighborhoods, and how dense the population are First the data will be obtain by extract information how Amsterdam, Netherlands are formed administratively and separated into different small regions, this can be like sampling the Amsterdam areas equally in such a way we can easily to explore using some external API that is very useful.

Number of venues with certain radius will be obtain by using Foursquare API. coordinate of Amsterdam center will be obtained using Google Maps API geocoding Some wrong locations will be fixed by manually adding using google maps.

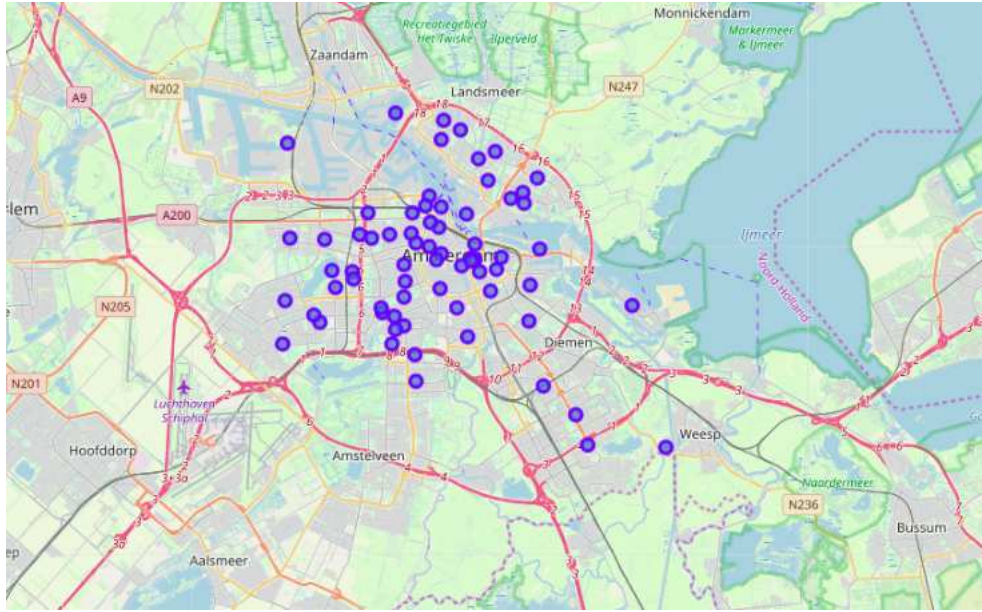


Figure 1: distribution of neighborhoods

## Venues at center area

	Neighborhood	Common Venue	Common Venue	Common Venue	Common Venue	Common Venue	Common Venue	Common Venue	Common Venue	Common Venue	Common Venue	Common Venue	Common Venue	Common Venue	Common Venue
0	Binnenstad	Hotel	Café	Bar	French Restaurant	Dessert Shop	Bookstore	Marijuana Dispensary	Thrift / Vintage Store	Steakhouse	Italian Restaurant	Furniture / Home Store	Plaza	Beer Bar	Sauna
1	Grachtengordel	Hotel	Bar	Restaurant	Bookstore	French Restaurant	Cheese Shop	Chocolate Shop	Sandwich Place	Café	Coffee Shop	Bakery	Italian Restaurant	Canal	Res
2	Haarlemmerbuurt	Bar	Café	Italian Restaurant	Marijuana Dispensary	Deli / Bodega	Restaurant	Yoga Studio	Organic Grocery	Tapas Restaurant	Sandwich Place	Supermarket	Steakhouse	Plaza	C
3	Jodenbuurt	Marijuana Dispensary	Hotel	Bar	Italian Restaurant	Coffee Shop	Café	Theater	Sandwich Place	Gastropub	Brewery	Plaza	History Museum	Steakhouse	Res
4	Jordaan	Bar	Café	Coffee Shop	Hotel	Furniture / Home Store	Pizza Place	Thai Restaurant	Museum	Record Shop	Restaurant	Salad Place	Italian Restaurant	Indonesian Restaurant	Br
5	Kadikje	Zoo Exhibit	Restaurant	Plaza	Supermarket	Italian Restaurant	Hotel	Science Museum	Planetarium	Park	Museum	Middle Eastern Restaurant	Mexican Restaurant	Yoga Studio	Ice
6	Lastage	Bar	Hotel	Chinese Restaurant	Hostel	Italian Restaurant	Marijuana Dispensary	Cocktail Bar	Bagel Shop	Café	Coffee Shop	Pizza Place	Breakfast Spot	Grocery Store	M
7	Oostelijke Eilanden	Park	Gym / Fitness Center	Café	Bus Stop	Breakfast Spot	Mediterranean Restaurant	Pub	Hotel	Restaurant	Seafood Restaurant	Music Venue	Snack Place	Brewery	
8	Oosterdokseiland	Hotel	Restaurant	Bar	Hotel Bar	Italian Restaurant	Hostel	Pub	Boat or Ferry	Steakhouse	Coffee Shop	Thai Restaurant	Japanese Restaurant	French Restaurant	I
9	Plantage	Zoo Exhibit	Bar	Hotel	Café	Pizza Place	Breakfast Spot	Restaurant	Museum	History Museum	Italian Restaurant	Coffee Shop	Mediterranean Restaurant	Indonesian Restaurant	Jap
10	Rapenburg	Bar	Hotel	Hostel	Coffee Shop	Italian Restaurant	Pizza Place	Breakfast Spot	History Museum	Boat or Ferry	Chinese Restaurant	Science Museum	Marijuana Dispensary	Jewelry Store	L
11	Uilenburg	Bar	Hotel	Italian Restaurant	Marijuana Dispensary	Hostel	Bagel Shop	Café	Chinese Restaurant	Coffee Shop	Pizza Place	Cocktail Bar	History Museum	Grocery Store	Ga
12	Westelijke Eilanden	Coffee Shop	Bar	Café	Restaurant	Italian Restaurant	Yoga Studio	Sandwich Place	Chinese Restaurant	Plaza	Gym / Fitness Center	Breakfast Spot	Organic Grocery	Flea Market	C
13	Weteringschans	Bar	Café	Art Museum	Italian Restaurant	Coffee Shop	Restaurant	Museum	Hotel	Beer Garden	Marijuana Dispensary	Park	Steakhouse	Indian Restaurant	Veg

Figure 2: most common venues at each neighborhood

The figure shows the most common venue at each neighborhood.

segmentation discusstion

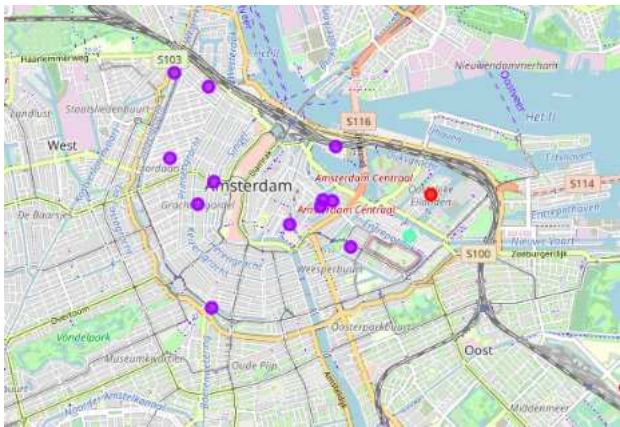


Figure 3: segmentation based on venues obtained from foursquare

	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
8	Oostelijke Eilanden	Park	Gym / Fitness Center	Café	Bus Stop	Breakfast Spot	Mediterranean Restaurant	Pub	Hotel	Restaurant	Seafood Restaurant

Figure 4: cluster - 1

	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	Binnenstad	Hotel	Café	Bar	French Restaurant	Dessert Shop	Bookstore	Marijuana Dispensary	Thrift / Vintage Store	Steakhouse	Italian Restaurant
1	Grachtengordel	Hotel	Bar	Restaurant	Bookstore	French Restaurant	Cheese Shop	Chocolate Shop	Sandwich Place	Café	Coffee Shop
2	Haarlemmerbuurt	Bar	Café	Italian Restaurant	Marijuana Dispensary	Deli / Bodega	Restaurant	Yoga Studio	Organic Grocery	Tapas Restaurant	Sandwich Place
3	Jodenbuurt	Marijuana Dispensary	Hotel	Bar	Italian Restaurant	Coffee Shop	Café	Theater	Sandwich Place	Gastropub	Record Shop
4	Jordaan	Bar	Café	Coffee Shop	Hotel	Furniture / Home Store	Pizza Place	Thai Restaurant	Museum	Record Shop	Coffee Shop
6	Lastage	Bar	Hotel	Chinese Restaurant	Hostel	Italian Restaurant	Marijuana Dispensary	Cocktail Bar	Bagel Shop	Café	Coffee Shop
7	Oosterdokseiland	Hotel	Restaurant	Bar	Hotel Bar	Italian Restaurant	Hostel	Pub	Boat or Ferry	Steakhouse	Coffee Shop
9	Plantage	Zoo Exhibit	Bar	Hotel	Café	Pizza Place	Breakfast Spot	Restaurant	Museum	History Museum	Italian Restaurant
10	Rapenburg	Bar	Hotel	Hostel	Coffee Shop	Italian Restaurant	Pizza Place	Breakfast Spot	History Museum	Boat or Ferry	Coffee Shop
11	Oudenoord	Bar	Hotel	Italian Restaurant	Marijuana Dispensary	Hostel	Bagel Shop	Café	Chinese Restaurant	Coffee Shop	Coffee Shop
12	Westelijke Eilanden	Coffee Shop	Bar	Café	Restaurant	Italian Restaurant	Yoga Studio	Sandwich Place	Chinese Restaurant	Plaza	Gym
13	Weteringschans	Bar	Café	Art Museum	Italian Restaurant	Coffee Shop	Restaurant	Museum	Hotel	Beer Garden	Coffee Shop

Figure 5: cluster - 2

<pre># examine each classified group center_merged.loc[center_merged['Cluster Labels'] == 2, center_merged.columns[[1] + list(range(5, center_merged.shape[1]))]]</pre>											
	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
5	Kadijken	Zoo Exhibit	Restaurant	Plaza	Supermarket	Italian Restaurant	Hotel	Science Museum	Planetarium	Park	Coffee Shop

Figure 6: cluster - 3

As we can see from above frames, the group 1, is the neighbor named 'Oostelijke Eilanden' is populated with natural and friendly venues such as gyms, parks and bus stop.

Whereas, in the group 2, they are mostly populated with food and beverage groups with so many bars, cafe, and Hotels.

And in the group 3, we can easily see that, there are so many zoo exhibit for tourists to visit.