



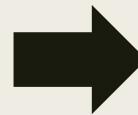
A GLOBAL WORLD

Using Data Science to Make More
Informed Decisions

PROBLEM



An employee must move from New York City to London to take on a new role at her company. She wants to live in a neighborhood that offers many of the same amenities as her hometown



DATA SOURCES

New York City data set from [NYU](#)

London data set from [Wikipedia](#)

Venue data from Foursquare API

METHODOLOGY

TRANSFORMING NYC DATA

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```

JSON File

Borough	Neighborhood	Latitude	Longitude
Bronx	Wakefield	40.894705	-73.847201
Bronx	Co-op City	40.874294	-73.829939
Bronx	Eastchester	40.887556	-73.827806
Bronx	Fieldston	40.895437	-73.905643
Bronx	Riverdale	40.890834	-73.912585

Data Frame

TRANSFORMING LONDON DATA

Location	London borough	Post town	Postcode district	Dial code	OS grid ref
Abbey Wood	Bexley, Greenwich ^[7]	LONDON	SE2	020	TQ465785
Acton	Ealing, Hammersmith and Fulham ^[8]	LONDON	W3, W4	020	TQ205805
Addington	Croydon ^[8]	CROYDON	CR0	020	TQ375645
Addiscombe	Croydon ^[8]	CROYDON	CR0	020	TQ345665
Albany Park	Bexley	BEXLEY, SIDCUP	DA5, DA14	020	TQ478728
Aldborough Hatch	Redbridge ^[9]	ILFORD	IG2	020	TQ455895
Aldgate	City ^[10]	LONDON	EC3	020	TQ334813
Aldwych	Westminster ^[10]	LONDON	WC2	020	TQ307810
Alperton	Brent ^[11]	WEMBLEY	HA0	020	TQ185835
Anerley	Bromley ^[11]	LONDON	SE20	020	TQ345695
Angel	Islington ^[8]	LONDON	EC1, N1	020	TQ345665
Aperfield	Bromley ^[11]	WESTERHAM	TN16	01959	TQ425585
Archway	Islington ^[12]	LONDON	N19	020	TQ285875
Ardleigh Green	Havering ^[12]	HORNCHURCH	RM11	01708	TQ535895

Wikipedia Page

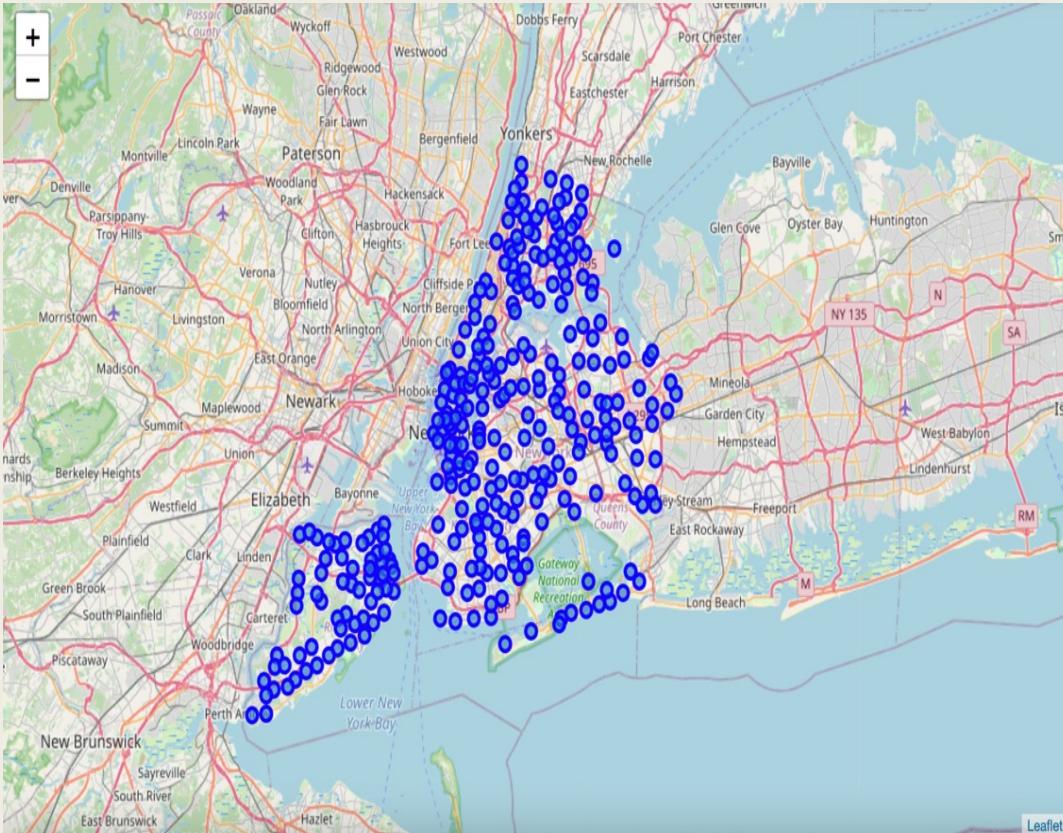
Borough	Neighborhood	PostTown	OSGridRef
Bexley, Greenwich	Abbey Wood	LONDON	TQ465785
Ealing, Hammersmith and Fulham	Acton	LONDON	TQ205805
Croydon	Addington	CROYDON	TQ375645
Croydon	Addiscombe	CROYDON	TQ345665
Bexley	Albany Park	BEXLEY, SIDCUP	TQ478728

Data Frame

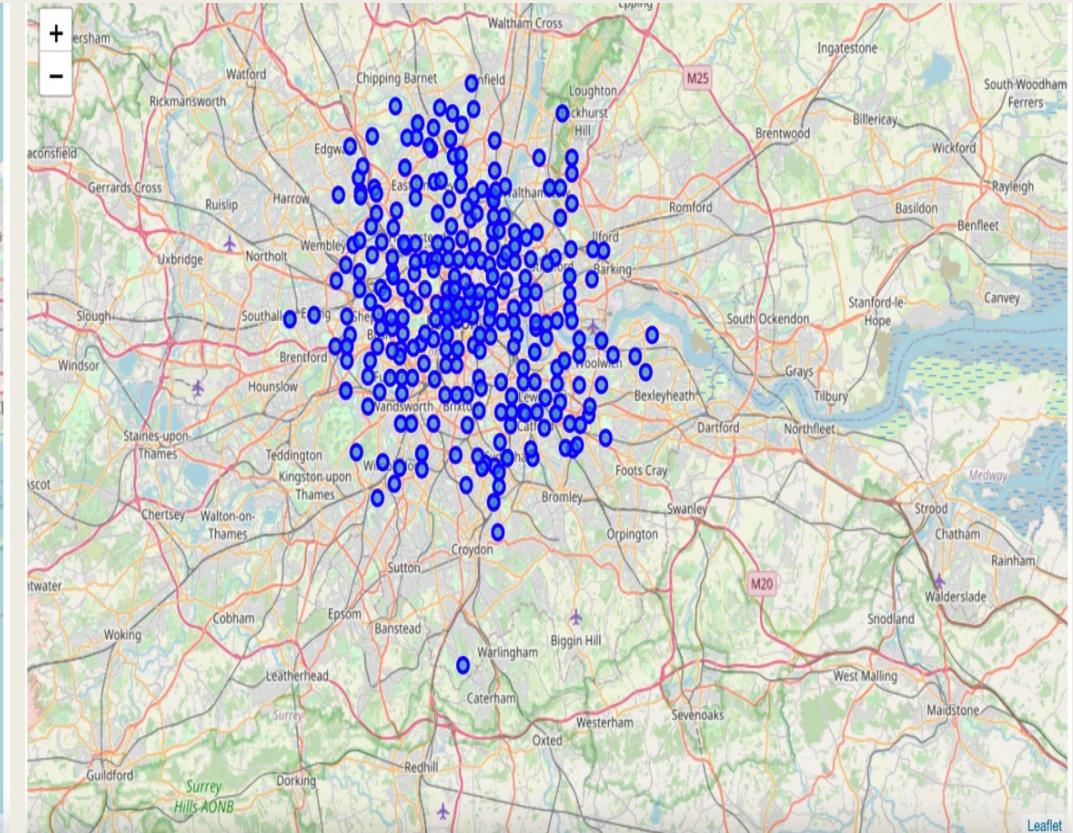
MERGING DATA

City	Neighborhood	Latitude	Longitude
London	Chelsea (Kensington and Chelsea)	51.482096	-0.164778
New York City	Chelsea (Manhattan)	40.744035	-74.003116
New York City	Chelsea (Staten Island)	40.594726	-74.189560
London	Childs Hill (Barnet)	51.563647	-0.204811
New York City	Chinatown (Manhattan)	40.715618	-73.994279
London	Chinatown (Westminster)	51.511252	-0.131875
London	Chinbrook (Lewisham)	51.431244	0.029005
London	Chingford (Waltham Forest)	51.632025	0.014819
London	Chiswick (Hounslow, Ealing, Hammersmith and Fu...)	51.492616	-0.265268
London	Church End (Barnet)	51.599373	-0.188951
London	Church End (Brent)	51.492616	-0.265268

MAPPING NEIGHBORHOODS



Map of New York City



Map of London

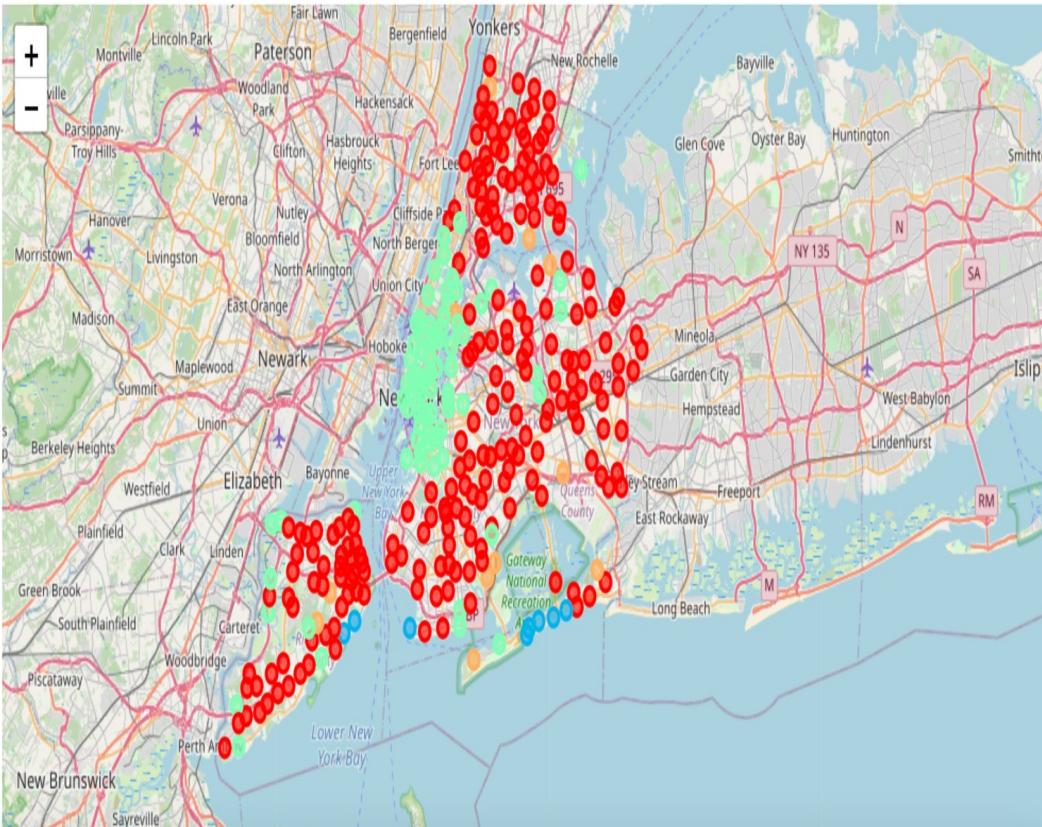
TOP VENUES BY NEIGHBORHOOD

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
Abbey Wood (Bexley, Greenwich)	Playground	Grocery Store	Campground	Indian Restaurant	Fabric Shop	Factory	Falafel Restaurant	Farm	Financial or Legal Service	Farmers Market
Acton (Ealing, Hammersmith and Fulham)	Gym / Fitness Center	Pub	Grocery Store	Indian Restaurant	Train Station	Park	Fast Food Restaurant	Supermarket	Chinese Restaurant	Bakery
Aldgate (City)	Coffee Shop	Hotel	Gym / Fitness Center	Restaurant	Middle Eastern Restaurant	Cocktail Bar	Café	Italian Restaurant	Food Truck	French Restaurant
Aldwych (Westminster)	Hotel	Theater	Coffee Shop	Restaurant	Café	Ice Cream Shop	Bakery	Steakhouse	Museum	History Museum
Allerton (Bronx)	Donut Shop	Pizza Place	Sandwich Place	Supermarket	Food	Fast Food Restaurant	Bus Station	Pharmacy	Discount Store	Gas Station

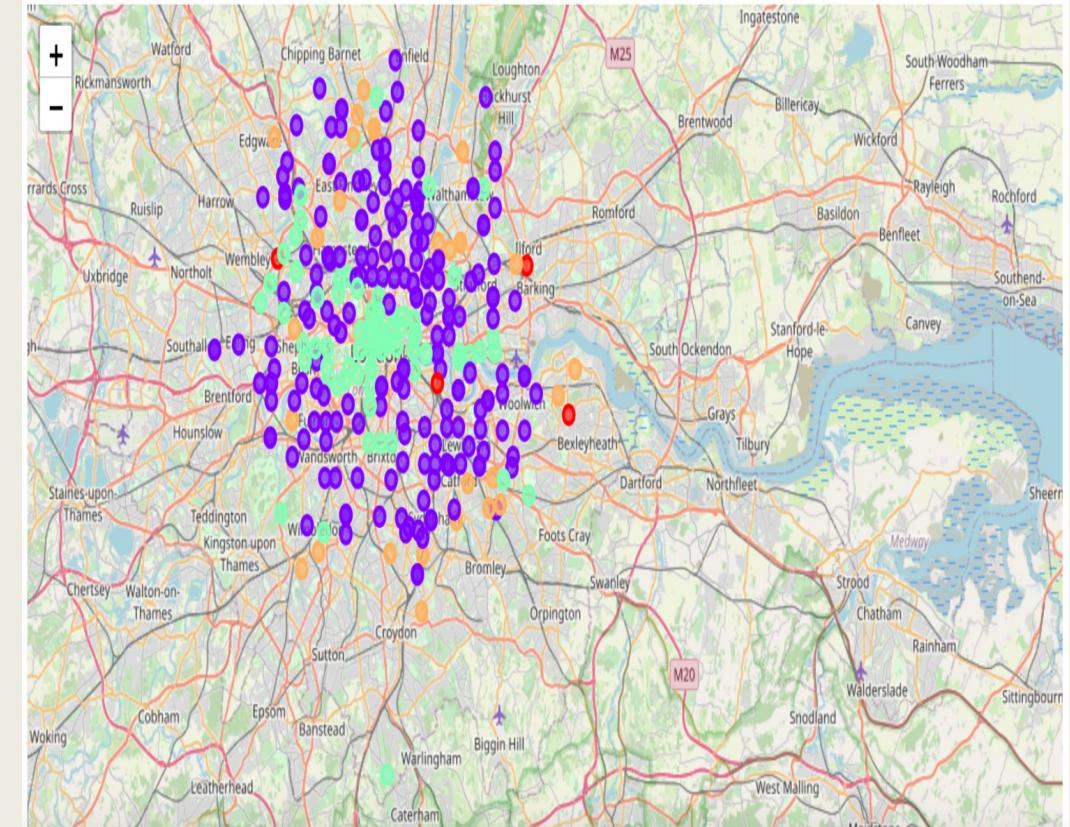
RESULTS



MAPPING CLUSTERS



Cluster Map of New York City



Cluster Map of London

RED CLUSTER (0)

Pizza Places, Delis/Bodegas & Pharmacies

merged.loc[merged['Cluster Labels'] == 0, merged.columns[[1] + list(range(5, merged.shape[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 Wakefield (Bronx)	Pharmacy	Caribbean Restaurant	Supermarket	Fast Food Restaurant	Gas Station	Bagel Shop	Ice Cream Shop	Food	Bakery	Dessert Shop	
1 Co-op City (Bronx)	Mattress Store	Accessories Store	Pizza Place	Fast Food Restaurant	Shopping Mall	Pharmacy	Bakery	Bank	Harbor / Marina	Seafood Restaurant	
2 Eastchester (Bronx)	Caribbean Restaurant	Fast Food Restaurant	Diner	Burger Joint	Shopping Mall	Grocery Store	Cocktail Bar	Seafood Restaurant	Pizza Place	Sandwich Place	
4 Riverdale (Bronx)	Bank	Sandwich Place	Bar	Medical Supply Store	Mexican Restaurant	Pharmacy	Pizza Place	Japanese Restaurant	Diner	Donut Shop	
5 Kingsbridge (Bronx)	Pizza Place	Bar	Sandwich Place	Mexican Restaurant	Deli / Bodega	Burger Joint	Diner	Bakery	Donut Shop	Park	
6 Marble Hill (Manhattan)	Spanish Restaurant	Bank	Sandwich Place	Pizza Place	Donut Shop	Supplement Shop	Pharmacy	Mexican Restaurant	Bakery	Supermarket	
7 Woodlawn (Bronx)	Pizza Place	Pub	Food Truck	Deli / Bodega	Bar	Rental Car Location	Ice Cream Shop	Train Station	Bakery	Donut Shop	

PURPLE CLUSTER (1)

Pubs, Cafés, Coffee Shops, Grocery Stores & Parks

merged.loc[merged['Cluster Labels'] == 1, merged.columns[[1] + list(range(5, merged.shape[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
307	Acton (Ealing, Hammersmith and Fulham)	Gym / Fitness Center	Pub	Grocery Store	Indian Restaurant	Train Station	Park	Fast Food Restaurant	Supermarket	Chinese Restaurant	Bakery
312	Archway (Islington)	Pub	Coffee Shop	Italian Restaurant	Grocery Store	Café	Pizza Place	Japanese Restaurant	Seafood Restaurant	Asian Restaurant	Pool
314	Balham (Wandsworth)	Coffee Shop	Pub	Grocery Store	Pizza Place	Bakery	Italian Restaurant	Indian Restaurant	Bar	Fast Food Restaurant	Supermarket
315	Bankside (Southwark)	Pub	Coffee Shop	Italian Restaurant	Café	Wine Bar	Seafood Restaurant	Bakery	Street Food Gathering	Asian Restaurant	Gym / Fitness Center
318	Barnsbury (Islington)	Grocery Store	Pub	Park	Coffee Shop	Café	Theater	Brewery	Rental Car Location	Breakfast Spot	Bar
319	Battersea (Wandsworth)	Coffee Shop	Grocery Store	Italian Restaurant	Pub	Bar	Hotel	Park	Track	Cocktail Bar	Furniture / Home Store

BLUE CLUSTER (2)

Beaches

merged.loc[merged['Cluster Labels'] == 2, merged.columns[[1] + list(range(5, merged.shape[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
85	Sea Gate (Brooklyn)	Beach	Supermarket	Paper / Office Supplies Store	Park	Construction & Landscaping	Spa	Falafel Restaurant	Farm	Factory	Financial or Legal Service
178	Rockaway Beach (Queens)	Beach	Ice Cream Shop	Latin American Restaurant	Bar	Bagel Shop	Food Stand	BBQ Joint	Restaurant	Pharmacy	Hotel
179	Neponsit (Queens)	Beach	Park	Bus Stop	Fast Food Restaurant	Financial or Legal Service	Film Studio	Filipino Restaurant	Field	Zoo Exhibit	Fish Market
190	Belle Harbor (Queens)	Beach	Spa	Boutique	Italian Restaurant	Deli / Bodega	Pub	Event Space	Chinese Restaurant	Bakery	Bagel Shop
191	Rockaway Park (Queens)	Beach	Italian Restaurant	Spa	Bagel Shop	Pizza Place	Donut Shop	Deli / Bodega	Bar	Pub	Boutique
204	South Beach (Staten Island)	Beach	Pier	Athletics & Sports	Theme Park	Skate Park	Deli / Bodega	Soccer Field	American Restaurant	BBQ Joint	Food
232	Midland Beach (Staten Island)	Baseball Field	Beach	Other Great Outdoors	Basketball Court	Food	Bookstore	Chinese Restaurant	Bus Stop	Bagel Shop	Deli / Bodega
302	Hammels (Queens)	Beach	Taco Place	Supermarket	Wine Shop	Fried Chicken Joint	Gym / Fitness Center	Farmers Market	Fast Food Restaurant	Bakery	Pharmacy

GREEN CLUSTER (3)

Coffee Shops, Hotels & a variety of other venues

merged.loc[merged['Cluster Labels'] == 3, merged.columns[[1] + list(range(5, merged.shape[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
12	City Island (Bronx)	Harbor / Marina	Boat or Ferry	Seafood Restaurant	Deli / Bodega	American Restaurant	Park	Italian Restaurant	Flower Shop	Fish Market	Spanish Restaurant
49	Greenpoint (Brooklyn)	Bar	Coffee Shop	Cocktail Bar	Yoga Studio	Pizza Place	Café	Record Shop	Mexican Restaurant	French Restaurant	Italian Restaurant
52	Sheepshead Bay (Brooklyn)	Sandwich Place	Turkish Restaurant	Seafood Restaurant	Italian Restaurant	Grocery Store	Harbor / Marina	Bar	Bank	Russian Restaurant	Pharmacy
59	Prospect Heights (Brooklyn)	Bar	Mexican Restaurant	Plaza	Wine Shop	Sushi Restaurant	Bakery	Cocktail Bar	Coffee Shop	New American Restaurant	Ice Cream Shop
61	Williamsburg (Brooklyn)	Pizza Place	Coffee Shop	Wine Bar	American Restaurant	Latin American Restaurant	Bar	Cocktail Bar	Nightclub	South American Restaurant	Bakery
64	Brooklyn Heights (Brooklyn)	Park	Wine Shop	Coffee Shop	Yoga Studio	Italian Restaurant	Pizza Place	Cocktail Bar	Middle Eastern Restaurant	Deli / Bodega	Gym / Fitness Center

ORANGE CLUSTER (4)

Parks & Grocery Stores

merged.loc[merged['Cluster Labels'] == 4, merged.columns[[1] + list(range(5, merged.shape[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
3	Fieldston (Bronx)	Bus Station	Park	Plaza	Coffee Shop	River	Playground	Café	Art Gallery	Pizza Place	Medical School
27	Clason Point (Bronx)	Park	Scenic Lookout	Recording Studio	Pool	Boat or Ferry	Playground	Grocery Store	Falafel Restaurant	Farm	Film Studio
76	Mill Island (Brooklyn)	Golf Course	Pool	Harbor / Marina	Gym Pool	BBQ Joint	Playground	Park	Seafood Restaurant	Tourist Information Center	Flower Shop
91	Bergen Beach (Brooklyn)	Harbor / Marina	Playground	Baseball Field	Park	Gym	Comfort Food Restaurant	Athletics & Sports	Falafel Restaurant	Farm	Film Studio
110	Roosevelt Island (Manhattan)	Park	Bus Line	Deli / Bodega	Athletics & Sports	Boat or Ferry	Pizza Place	Gym	Sandwich Place	Tram Station	Pharmacy
148	South Ozone Park (Queens)	Park	Bar	Hotel	Fried Chicken Joint	Donut Shop	Deli / Bodega	Intersection	Moving Target	Food Truck	Fast Food Restaurant

SUMMARY



RED CLUSTER (0) - *Pizza Places, Delis/Bodegas & Pharmacies*

Most prevalent in NYC
Very few in London



PURPLE (1) - *Pubs, Cafés, Coffee Shops, Grocery Stores & Parks*

Most prevalent in London
None in NYC



BLUE (2) - *Beaches*

Only in NYC



GREEN (3) - *Coffee Shops, Hotels & a variety of other venues*

Located in the city centers of both NYC and London



ORANGE (4) - *Parks & Grocery Stores*

Located in the outskirts of both NYC and London