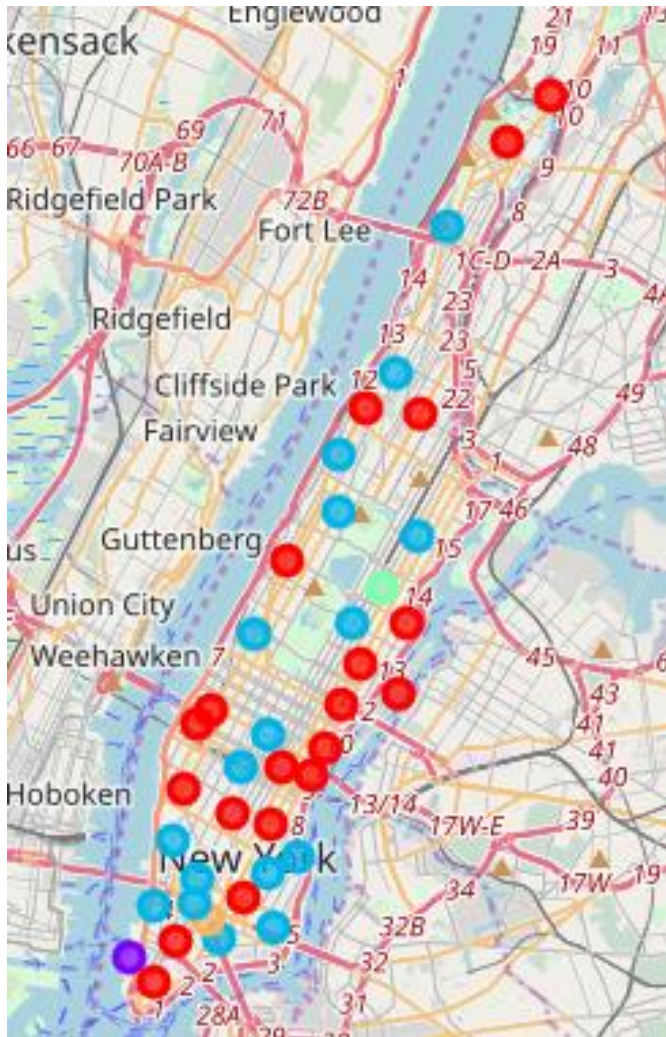


Manhattan restaurant analysis

Capstone project

Restaurant venue selection from Foursquare in 40 neighborhoods of Manhattan



938 restaurants returned by searching the top 500 venues within a radius of 500 meters per neighborhood from Foursquare

K-mean algorithm segmented the 40 neighborhoods into 5 clusters. Battery Park, Carnegie Hall, and Little Italy stand out with their unique food offerings.

Greenwich Village, Chinatown, and East Village are the most competitive neighborhoods

Neighborhood	Total venues
Greenwich Village	44
Chinatown	41
East Village	40
Turtle Bay	38
Upper West Side	37
West Village	36
Noho	34
Murray Hill	33
Flatiron	32
Midtown South	31
Sutton Place	30
Lenox Hill	29
Tudor City	28
Yorkville	28
Tribeca	27
Carnegie Hill	26
Chelsea	26
Gramercy	26
Little Italy	26
Upper East Side	26

Neighborhood	Total venues
Civic Center	24
Financial District	22
Manhattan Valley	22
Washington Heights	22
Clinton	21
Midtown	21
Hamilton Heights	19
Soho	19
Manhattanville	18
Lincoln Square	16
East Harlem	15
Inwood	15
Lower East Side	15
Central Harlem	14
Hudson Yards	14
Battery Park City	10
Morningside Heights	9
Marble Hill	2
Roosevelt Island	2
Stuyvesant Town	1

Manhattan has 75 different types of restaurant , offering wide selection of foods

Top 10 Restaurant	Total number	% Total venue
Italian Restaurant	136	14%
American Restaurant	77	8%
Mexican Restaurant	58	6%
French Restaurant	57	6%
Sushi Restaurant	47	5%
Chinese Restaurant	46	5%
Japanese Restaurant	43	5%
Seafood Restaurant	40	4%
Indian Restaurant	30	3%
Thai Restaurant	27	3%

- Italian, America, and Mexican restaurants have the most representation

Cluster 1 (red color dots on map)

20 neighborhoods

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 Marble Hill	American Restaurant	Seafood Restaurant	Vietnamese Restaurant	Gluten-free Restaurant	Ethiopian Restaurant	Falafel Restaurant	Fast Food Restaurant	Filipino Restaurant	French Restaurant	German Restaurant
3 Inwood	Mexican Restaurant	American Restaurant	Restaurant	Chinese Restaurant	Fast Food Restaurant	Latin American Restaurant	Seafood Restaurant	Spanish Restaurant	Caribbean Restaurant	Vietnamese Restaurant
5 Manhattanville	Sushi Restaurant	Italian Restaurant	Mexican Restaurant	Seafood Restaurant	Ramen Restaurant	Indian Restaurant	Falafel Restaurant	Dumpling Restaurant	Cuban Restaurant	Chinese Restaurant
6 Central Harlem	African Restaurant	American Restaurant	French Restaurant	Seafood Restaurant	Chinese Restaurant	Ethiopian Restaurant	Caribbean Restaurant	Southern / Soul Food Restaurant	Falafel Restaurant	Fast Food Restaurant
9 Yorkville	Italian Restaurant	Japanese Restaurant	Mexican Restaurant	Sushi Restaurant	Thai Restaurant	Vietnamese Restaurant	German Restaurant	Asian Restaurant	Indian Restaurant	Peruvian Restaurant
10 Lenox Hill	Italian Restaurant	Sushi Restaurant	Mexican Restaurant	Turkish Restaurant	Thai Restaurant	Afghan Restaurant	Spanish Restaurant	Greek Restaurant	Middle Eastern Restaurant	French Restaurant
11 Roosevelt Island	Greek Restaurant	Japanese Restaurant	Gluten-free Restaurant	Ethiopian Restaurant	Falafel Restaurant	Fast Food Restaurant	Filipino Restaurant	French Restaurant	German Restaurant	Vietnamese Restaurant
12 Upper West Side	Italian Restaurant	Indian Restaurant	Vegetarian / Vegan Restaurant	Seafood Restaurant	American Restaurant	Thai Restaurant	French Restaurant	Mediterranean Restaurant	Middle Eastern Restaurant	Sushi Restaurant
14 Clinton	Italian Restaurant	American Restaurant	New American Restaurant	Seafood Restaurant	French Restaurant	Vegetarian / Vegan Restaurant	Peruvian Restaurant	Ethiopian Restaurant	Thai Restaurant	Restaurant
16 Murray Hill	Italian Restaurant	Japanese Restaurant	French Restaurant	Cuban Restaurant	American Restaurant	Thai Restaurant	Jewish Restaurant	Mediterranean Restaurant	Restaurant	Peruvian Restaurant
17 Chelsea	Italian Restaurant	American Restaurant	Seafood Restaurant	Tapas Restaurant	Asian Restaurant	Japanese Restaurant	Sushi Restaurant	New American Restaurant	French Restaurant	Mexican Restaurant
27 Gramercy	Italian Restaurant	Restaurant	American Restaurant	Mexican Restaurant	Thai Restaurant	Vietnamese Restaurant	Israeli Restaurant	Latin American Restaurant	German Restaurant	Filipino Restaurant
29 Financial District	Italian Restaurant	Japanese Restaurant	Vegetarian / Vegan Restaurant	American Restaurant	Falafel Restaurant	Mexican Restaurant	Japanese Curry Restaurant	New American Restaurant	French Restaurant	Cuban Restaurant
31 NoHo	Italian Restaurant	French Restaurant	Sushi Restaurant	Mexican Restaurant	American Restaurant	Indian Restaurant	Seafood Restaurant	Venezuelan Restaurant	New American Restaurant	Greek Restaurant
32 Civic Center	Italian Restaurant	French Restaurant	Sushi Restaurant	American Restaurant	Falafel Restaurant	Cuban Restaurant	Korean Restaurant	Asian Restaurant	Australian Restaurant	Indian Restaurant
34 Sutton Place	Italian Restaurant	Indian Restaurant	American Restaurant	Mexican Restaurant	Sushi Restaurant	Cambodian Restaurant	Greek Restaurant	Latin American Restaurant	French Restaurant	Mediterranean Restaurant
35 Turtle Bay	Italian Restaurant	Sushi Restaurant	Indian Restaurant	French Restaurant	Japanese Restaurant	Mexican Restaurant	Seafood Restaurant	Greek Restaurant	American Restaurant	Ramen Restaurant
36 Tudor City	Mexican Restaurant	Greek Restaurant	Spanish Restaurant	Sushi Restaurant	American Restaurant	Restaurant	Thai Restaurant	Asian Restaurant	French Restaurant	Seafood Restaurant
38 Flatiron	Italian Restaurant	New American Restaurant	American Restaurant	Japanese Restaurant	Vegetarian / Vegan Restaurant	Mexican Restaurant	Israeli Restaurant	Chinese Restaurant	Russian Restaurant	Mediterranean Restaurant
39 Hudson Yards	Italian Restaurant	Restaurant	American Restaurant	Thai Restaurant	Pakistani Restaurant	Caucasian Restaurant	German Restaurant	Ethiopian Restaurant	Falafel Restaurant	Fast Food Restaurant

- 20 neighborhoods in Manhattan offer a mixed selection of European, Middle Eastern, and South Asian restaurants, with pop of specialty food such as Falafel.

Cluster 2 (purple color dots on map)

1 neighborhoods

	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
28	Battery Park City	Italian Restaurant	American Restaurant	Indian Restaurant	Mediterranean Restaurant	Mexican Restaurant	Seafood Restaurant	Sushi Restaurant	Chinese Restaurant	Vietnamese Restaurant	French Restaurant

----Battery Park City----

	venue	freq
0	Italian Restaurant	0.3
1	Seafood Restaurant	0.1
2	Chinese Restaurant	0.1
3	Mexican Restaurant	0.1
4	Indian Restaurant	0.1
5	Sushi Restaurant	0.1
6	Mediterranean Restaurant	0.1
7	American Restaurant	0.1
8	Tibetan Restaurant	0.0
9	Thai Restaurant	0.0

- Italian restaurant has highest representation (in terms of frequency of occurrence) in the Battery Park area than any other neighborhoods

Cluster 3 (blue color dots on map)

17 neighborhoods

	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
1	Chinatown	Chinese Restaurant	Vietnamese Restaurant	American Restaurant	Dim Sum Restaurant	Hotpot Restaurant	Malay Restaurant	Asian Restaurant	Dumpling Restaurant	Shanghai Restaurant	Greek Restaurant
2	Washington Heights	Spanish Restaurant	Latin American Restaurant	Tapas Restaurant	Mexican Restaurant	Caribbean Restaurant	Chinese Restaurant	Restaurant	Italian Restaurant	Sushi Restaurant	Ampa Restaurant
4	Hamilton Heights	Mexican Restaurant	Chinese Restaurant	Indian Restaurant	Caribbean Restaurant	Japanese Restaurant	Fast Food Restaurant	Seafood Restaurant	Spanish Restaurant	Sushi Restaurant	Mediterranean Restaurant
7	East Harlem	Mexican Restaurant	Latin American Restaurant	Thai Restaurant	French Restaurant	Restaurant	Cuban Restaurant	Seafood Restaurant	Spanish Restaurant	Vietnamese Restaurant	Ethiopian Restaurant
8	Upper East Side	Italian Restaurant	French Restaurant	Vegetarian / Vegan Restaurant	American Restaurant	Sushi Restaurant	Latin American Restaurant	Asian Restaurant	Mediterranean Restaurant	Chinese Restaurant	Seafood Restaurant
13	Lincoln Square	Italian Restaurant	French Restaurant	American Restaurant	Mediterranean Restaurant	Mexican Restaurant	Seafood Restaurant	Chinese Restaurant	Vietnamese Restaurant	German Restaurant	Falafel Restaurant
15	Midtown	American Restaurant	Sushi Restaurant	French Restaurant	Japanese Restaurant	Greek Restaurant	Chinese Restaurant	Fast Food Restaurant	Ramen Restaurant	Indian Restaurant	Mediterranean Restaurant
18	Greenwich Village	Italian Restaurant	Sushi Restaurant	French Restaurant	Indian Restaurant	Chinese Restaurant	Seafood Restaurant	Caribbean Restaurant	Vietnamese Restaurant	American Restaurant	Lebanese Restaurant
19	East Village	Mexican Restaurant	Chinese Restaurant	Ramen Restaurant	Vietnamese Restaurant	Italian Restaurant	Filipino Restaurant	Seafood Restaurant	Japanese Restaurant	Korean Restaurant	Vegetarian / Vegan Restaurant
20	Lower East Side	Japanese Restaurant	Chinese Restaurant	Latin American Restaurant	Ramen Restaurant	Italian Restaurant	Mediterranean Restaurant	French Restaurant	Filipino Restaurant	Vietnamese Restaurant	American Restaurant
21	Tribeca	Italian Restaurant	American Restaurant	Greek Restaurant	French Restaurant	Chinese Restaurant	Sushi Restaurant	Korean Restaurant	Indian Restaurant	Modern European Restaurant	New American Restaurant
23	Soho	Italian Restaurant	Mediterranean Restaurant	Vegetarian / Vegan Restaurant	American Restaurant	French Restaurant	Seafood Restaurant	Japanese Restaurant	Swiss Restaurant	Mexican Restaurant	Spanish Restaurant
24	West Village	Italian Restaurant	New American Restaurant	American Restaurant	French Restaurant	Japanese Restaurant	Sushi Restaurant	Chinese Restaurant	Moroccan Restaurant	Restaurant	Seafood Restaurant
25	Manhattan Valley	Indian Restaurant	Thai Restaurant	Mexican Restaurant	French Restaurant	Szechuan Restaurant	Italian Restaurant	Vietnamese Restaurant	Caribbean Restaurant	Korean Restaurant	Latin American Restaurant
26	Morningside Heights	American Restaurant	Restaurant	Ethiopian Restaurant	Seafood Restaurant	Indian Restaurant	Greek Restaurant	New American Restaurant	French Restaurant	Falafel Restaurant	Fast Food Restaurant
33	Midtown South	Korean Restaurant	Japanese Restaurant	Italian Restaurant	Vegetarian / Vegan Restaurant	American Restaurant	Restaurant	Seafood Restaurant	New American Restaurant	Vietnamese Restaurant	French Restaurant
37	Stuyvesant Town	German Restaurant	Vietnamese Restaurant	Eastern European Restaurant	Ethiopian Restaurant	Falafel Restaurant	Fast Food Restaurant	Filipino Restaurant	French Restaurant	Gluten-free Restaurant	Greek Restaurant

- Neighborhoods in cluster 3 have the widest and most selection of Asian and Latin American restaurants, with food ranging from dim sum, ramen, sushi, dumpling, to tapas.

Cluster 4 (key lime color dot on map)

1 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
30	Carnegie Hill	French Restaurant	Japanese Restaurant	Vietnamese Restaurant	Thai Restaurant	Italian Restaurant	Mexican Restaurant	Restaurant	American Restaurant	Argentinian Restaurant	Chinese Restaurant

----Carnegie Hill----

	venue	freq
0	Japanese Restaurant	0.12
1	French Restaurant	0.12
2	Vietnamese Restaurant	0.08
3	Thai Restaurant	0.08
4	Mexican Restaurant	0.08
5	Italian Restaurant	0.08
6	Filipino Restaurant	0.04
7	Vegetarian / Vegan Restaurant	0.04
8	Sushi Restaurant	0.04
9	Restaurant	0.04

- Japanese restaurant has highest representation (in terms of frequency of occurrence) in the Carnegie Hill area than any other neighborhoods

Cluster 5 (peach color dot on map)

1 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
22 Little Italy	Seafood Restaurant	Italian Restaurant	Japanese Restaurant	Mediterranean Restaurant	Thai Restaurant	French Restaurant	Chinese Restaurant	Spanish Restaurant	Malay Restaurant	Mexican Restaurant

----Little Italy----

	venue	freq
0	Seafood Restaurant	0.12
1	Chinese Restaurant	0.08
2	Mediterranean Restaurant	0.08
3	Japanese Restaurant	0.08
4	Italian Restaurant	0.08
5	French Restaurant	0.08
6	Thai Restaurant	0.08
7	Vietnamese Restaurant	0.04
8	Malay Restaurant	0.04
9	Middle Eastern Restaurant	0.04

- Seafood restaurant has highest representation (in terms of frequency of occurrence) in the Little Italy area than any other neighborhoods