Best Location for an Italian Restaurant in Manhattan, New York

Introduction: Business Problem

New York city has many restaurants that cater to a large number of people with its **wide variety of cuisines** choices. These cuisines come from various ethnic groups who have come to the city from various parts of the world.

However, for any one trying to open a restaurant in the Manhattan, New York city, the choice on the location for the restaurant can be daunting due to the abundance of restaurants around.

In this project, we are trying to find a location for an **Italian Restaurant** in Manhattan, New York city using data science such that there is little or no competition around offering the same cuisine.

Data:

Based on the problem, we will need the following data for finding the best location for an Italian Restaurant in
New York

Neighborhood and Boroughs data including latitude and longitude data in order to segment them which
can be found on 'https://geo.nyu.edu/catalog/nyu_2451_34572'.

Venue Data for each borough and neighborhood which can be retrieved through Foursquare.

With the above data, we will look at top 10 venues in each of the clusters formed by using K means algorithm and then decide the location based results.

Map of Manhattan:

Methodology:

New York city has many restaurants that cater to a large number of people with its **wide variety of cuisines** choices. These cuisines come from various ethnic groups who have come to the city from various parts of the world.

In this project, we will find the top 10 venues in the neighborhoods of Manhattan and cluster them using K means algorithm in order to find the top 10 venues of each neighborhood. Based upon this, we will choose the best location for an Italian Restaurant

Map of Manhattan after clustering:

Clusters:

	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	Bakery	Cocktail Bar	Coffee Shop	Spa	American Restaurant	Salon / Barbershop	Optical Shop	Bar	Dim Sum Restaurant
6	Central Harlem	Chinese Restaurant	Gym / Fitness Center	African Restaurant	American Restaurant	Bar	Fried Chicken Joint	Seafood Restaurant	French Restaurant	Café	Market
19	East Village	Pizza Place	Coffee Shop	Dessert Shop	Cocktail Bar	Mexican Restaurant	Juice Bar	Japanese Restaurant	Bar	Gym / Fitness Center	New American Restaurant
20	Lower East Side	Chinese Restaurant	Art Gallery	Café	Cocktail Bar	Coffee Shop	Park	Yoga Studio	Women's Store	Pizza Place	Pharmacy
22	Little Italy	Chinese Restaurant	Italian Restaurant	Spa	Bubble Tea Shop	Bakery	Mediterranean Restaurant	Café	Hotel	Pizza Place	Thai Restaurant
25	Manhattan Valley	Yoga Studio	Pizza Place	Bar	Thai Restaurant	Chinese Restaurant	Coffee Shop	Health Food Store	Peruvian Restaurant	Park	Noodle House
27	Gramercy	Italian Restaurant	Coffee Shop	Playground	Pizza Place	Bar	Diner	Taco Place	Pub	Park	Mexican Restaurant
30	Carnegie Hill	Coffee Shop	Café	Yoga Studio	Pizza Place	Bar	Bookstore	Grocery Store	Gym	Gym / Fitness Center	Japanese Restaurant

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13	Lincoln Square	Plaza	Gym / Fitness Center	Café	Italian Restaurant	Concert Hall	Performing Arts Venue	Theater	American Restaurant	Wine Shop	Indie Movie Theater
14	Clinton	Theater	Coffee Shop	Gym / Fitness Center	Gym	Wine Shop	Hotel	Italian Restaurant	Sandwich Place	Pizza Place	Spa
15	Midtown	Hotel	Clothing Store	Coffee Shop	Theater	Pizza Place	Cuban Restaurant	Spa	Tailor Shop	Café	Gym
16	Murray Hill	Sandwich Place	Coffee Shop	Japanese Restaurant	Pizza Place	Gym / Fitness Center	Mediterranean Restaurant	Burger Joint	Hotel	Chinese Restaurant	Steakhouse
28	Battery Park City	Park	Hotel	Gym	Boat or Ferry	Memorial Site	Beer Garden	Gourmet Shop	Plaza	Food Court	Shopping Mall
29	Financial District	Coffee Shop	Hotel	Gym / Fitness Center	Salad Place	Cocktail Bar	Japanese Restaurant	Falafel Restaurant	Park	Pizza Place	Café
32	Civic Center	Hotel	Spa	Coffee Shop	Yoga Studio	Gym / Fitness Center	French Restaurant	Park	Sushi Restaurant	Cocktail Bar	Café
33	Midtown South	Korean Restaurant	Hotel	Japanese Restaurant	Burger Joint	Café	Dessert Shop	Coffee Shop	Indie Theater	Hotel Bar	Gym / Fitness Center
39	Hudson Yards	Italian Restaurant	Hotel	Gym / Fitness Center	American Restaurant	Dog Run	Coffee Shop	Boat or Ferry	Gym	Café	Park

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0	Marble Hill	Sandwich Place	Gym	American Restaurant	Coffee Shop	Yoga Studio	Deli / Bodega	Supplement Shop	Steakhouse	Seafood Restaurant	Pizza Place
2	Washington Heights	Café	Bakery	Mobile Phone Shop	Pizza Place	Grocery Store	Chinese Restaurant	Latin American Restaurant	Tapas Restaurant	New American Restaurant	Park
3	Inwood	Mexican Restaurant	Café	Bakery	Pizza Place	Lounge	Restaurant	Park	Chinese Restaurant	Deli / Bodega	American Restaurant
4	Hamilton Heights	Pizza Place	Coffee Shop	Mexican Restaurant	Café	Deli / Bodega	Chinese Restaurant	Sushi Restaurant	Cocktail Bar	Yoga Studio	Caribbean Restaurant
5	Manhattanville	Coffee Shop	Seafood Restaurant	Italian Restaurant	Deli / Bodega	Park	Fried Chicken Joint	Mexican Restaurant	Food & Drink Shop	Bank	Bar
7	East Harlem	Mexican Restaurant	Bakery	Deli / Bodega	Thai Restaurant	Latin American Restaurant	Pizza Place	Dance Studio	Steakhouse	Doctor's Office	Cocktail Bar
11	Roosevelt Island	Deli / Bodega	Park	Gym / Fitness Center	Greek Restaurant	Dog Run	Liquor Store	Outdoors & Recreation	Sandwich Place	Scenic Lookout	Food & Drink Shop
26	Morningside Heights	Park	American Restaurant	Coffee Shop	Bookstore	Deli / Bodega	Burger Joint	Tennis Court	Pizza Place	Supermarket	Café
36	Tudor City	Café	Park	Mexican Restaurant	Deli / Bodega	Pizza Place	Thai Restaurant	Gym	Greek Restaurant	Garden	Dog Run

Out[53]:

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	Upper East Side	Italian Restaurant	Bakery	Exhibit	Gym / Fitness Center	Spa	Cosmetics Shop	Hotel	Juice Bar	Pizza Place	Yoga Studio
	Yorkville	Coffee Shop	Italian Restaurant	Gym	Bar	Deli / Bodega	Mexican Restaurant	Sushi Restaurant	Wine Shop	Japanese Restaurant	Diner
0	Lenox Hill	Italian Restaurant	Coffee Shop	Pizza Place	Cocktail Bar	Sushi Restaurant	Café	Gym	Burger Joint	Gym / Fitness Center	Sporting Goods Shop
2	Upper West Side	Italian Restaurant	Wine Bar	Bakery	Coffee Shop	Ice Cream Shop	Seafood Restaurant	Middle Eastern Restaurant	Bagel Shop	Mediterranean Restaurant	Bar
7	Chelsea	Art Gallery	Coffee Shop	Italian Restaurant	Ice Cream Shop	American Restaurant	Seafood Restaurant	Bookstore	Boutique	Juice Bar	Market
8	Greenwich Village	Italian Restaurant	Coffee Shop	Café	Bakery	Sushi Restaurant	Gym	Wine Bar	Dessert Shop	Comedy Club	Indie Movie Theater
1	Tribeca	Park	Italian Restaurant	Wine Bar	Café	Spa	American Restaurant	Art Gallery	Steakhouse	Skate Park	Scenic Lookout
3	Soho	Italian Restaurant	Mediterranean Restaurant	Coffee Shop	Art Gallery	Gym	Spa	Café	Clothing Store	French Restaurant	Paper / Office Supplies Store
4	West Village	Wine Bar	Italian Restaurant	Park	American Restaurant	New American Restaurant	Coffee Shop	Jazz Club	Bakery	Cocktail Bar	Seafood Restaurant
1	Noho	Italian Restaurant	Coffee Shop	Grocery Store	Wine Shop	Bar	Sushi Restaurant	Japanese Restaurant	Seafood Restaurant	Greek Restaurant	Thai Restaurant
4	Sutton Place	Italian Restaurant	Gym / Fitness Center	Park	Coffee Shop	Bagel Shop	Gym	Mexican Restaurant	Latin American Restaurant	Hotel	Health & Beauty Service
5	Turtle Bay	Italian Restaurant	Coffee Shop	Wine Bar	Park	Deli / Bodega	Hotel	Café	Sushi Restaurant	French Restaurant	Karaoke Bar
8	Flatiron	Gym / Fitness Center	Italian Restaurant	Park	Cosmetics Shop	Gym	Outdoor Sculpture	Yoga Studio	Wine Shop	Camera Store	Japanese Restaurant

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37	Stuyvesant Town	Boat or Ferry	Park	Bar	Pet Service	Gas Station	Farmers Market	German Restaurant	Gym / Fitness Center	Baseball Field	Harbor / Marina

Result and Discussion:

We now have the information about the top 10 venues in each neighborhood of Manhattan as we have now clustered the neighborhood data using K means.

The first cluster has '8' neighborhoods and there is no Italian restaurant among the top venues of the neighborhood.

The second cluster has '9' neighborhoods and there are some neighborhoods with Italian restaurant in the top 10 venues.

The third cluster has '9' neighborhoods and there are some no neighborhoods with an Italian restaurants in the top 10 venues.

The fourth cluster has '13' neighborhoods and the neighborhoods in the cluster has quite a number of Italian restaurants among its top venues.

The fifth cluster has only '1' neighborhood and the neighborhood does not have any Italian restaurants among its top venues.

Conclusion:

In this project, we are looking for a good location for a restaurant in Manhattan. As there are hundreds of restaurants in Manhattan, it is very hard to pinpoint a particular location.

In this project, we are looking at the top 10 venues in the location to choose a place for a Italian Restaurant. The fourth cluster has quite a number of Italian restaurants as the top venues, hence,the neighborhoods in the cluster may not be the best locations for an Italian Restaurant as there is too much competition.

The first cluster also has some neighborhoods where Italian restaurants are among the top venues.

The ideal location for an Italian Restaurants would be the remaining neighborhoods in the clusters 2, 3 and 5.

However, Final decision must be taken by stake holders based on other factors such as their investment, value of real estate, proximity to locations such as

movie theaters or parks, socio-economic conditions of the people in the neighborhood and their preferences and so on.