

The background is a deep blue gradient with a subtle pattern of white dots, resembling a starry night sky. Overlaid on the left side are several concentric circles and arcs in a lighter blue color. A prominent circular scale with degree markings from 140 to 260 is visible, along with other smaller circular elements and arrows, creating a technical or architectural feel.

THE BATTLE OF THE NEIGHBORHOODS

SELECTING THE BEST LOCATION TO OPEN AN SUSHI RESTAURANT IN
MANHATTAN, NEW YORK CITY

INTRODAUCTION

- New York City is famous for its excellent cuisine. Its food culture includes an array of international cuisines influenced by the city's immigrant history. Sushi restaurants have become lately so popular in the United States that now it seems that there is one on every corner in almost every city, big or small. Starting a sushi restaurant can be a great business opportunity, but you need to “rise” above others to stay on the game in the long run.

BUSINESS PROBLEM

- My clientele wants to open a restaurant in the Manhattan area, so my solemn focus on that area. The objective is to locate and recommend to the CEO which neighborhood of New York City will be the best choice to start a restaurant. They also expect to understand the logic and reasons that lead me to my recommendations.

DATA SELECTION

- To identify the characteristics of our competitors' venues in Manhattan, we would first need to find out the number of sushi bars in Manhattan currently and their location.
- We then used Google Map API to find their geographic coordinates based on their postal code addresses.
- In Manhattan, there is 1111 sushi bars are currently operating.

DATA SELECTION

- Google Map API was used to find their geographic coordinates of the 5 locations shortlisted for our sushi bar:

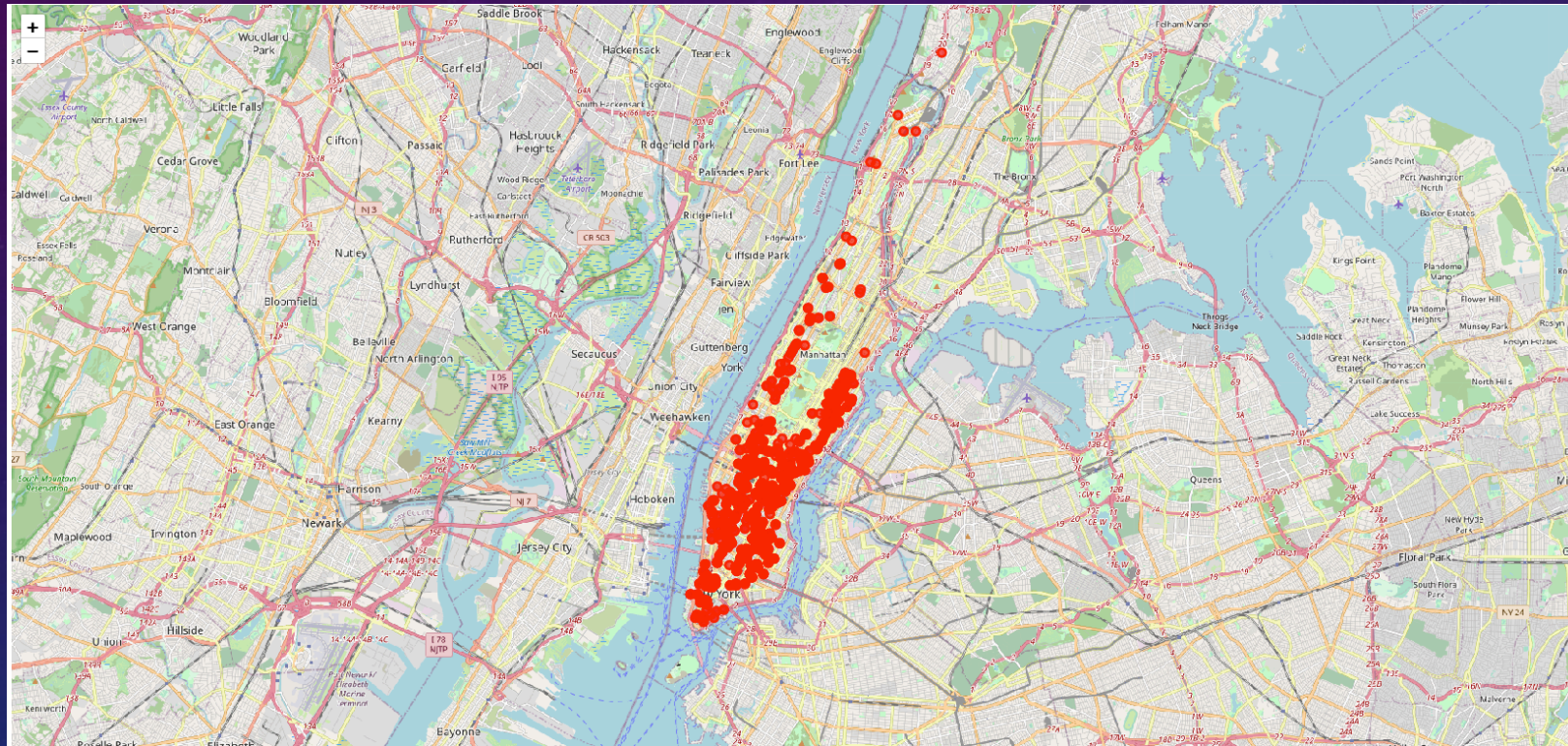
| | Neighborhood | Neighborhood Latitude | Neighborhood Longitude | Venue | Venue Latitude | Venue Longitude | Venue Category |
|---|--------------|-----------------------|------------------------|-----------------------|----------------|-----------------|---------------------|
| 0 | Marble Hill | 40.876551 | -73.910660 | Planet Tokyo | 40.886233 | -73.909479 | Sushi Restaurant |
| 1 | Chinatown | 40.715618 | -73.994279 | Nakaji | 40.715912 | -73.996597 | Sushi Restaurant |
| 2 | Chinatown | 40.715618 | -73.994279 | Shinsen | 40.715608 | -73.996611 | Japanese Restaurant |
| 3 | Chinatown | 40.715618 | -73.994279 | Bondi Bar | 40.721247 | -73.996264 | Sushi Restaurant |
| 4 | Chinatown | 40.715618 | -73.994279 | Sushumai Asian Fusion | 40.721155 | -73.987337 | Sushi Restaurant |

METHODOLOGY

- Addresses are converted into their equivalent latitude and longitude values.
- Foursquare API is used to explore neighborhoods in Manhattan, New York.
- After that, explore function to get sushi restaurant categories in each neighborhood.

[illegible]

METHODOLOGY



METHODOLOGY

- Then using this feature to group the neighborhoods into clusters K-means clustering algorithm will be use to complete this task. And also, the Folium library to visualize the neighborhoods in Manhattan and its emerging 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 |
|---|-------------------|-----------------------|-------------------------------|-------------------------------|---------------------------|-------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|------------------------|
| 0 | Battery Park City | Sushi Restaurant | Japanese Restaurant | Noodle House | Theme Restaurant | Indian Chinese Restaurant | Bakery | Chinese Restaurant | Cocktail Bar | Deli / Bodega | Fish Market |
| 1 | Carnegie Hill | Sushi Restaurant | Japanese Restaurant | Vegetarian / Vegan Restaurant | Indian Chinese Restaurant | Asian Restaurant | Seafood Restaurant | Sandwich Place | Sake Bar | Restaurant | Ramen Restaurant |
| 2 | Central Harlem | Sushi Restaurant | Vegetarian / Vegan Restaurant | Japanese Restaurant | Bakery | Chinese Restaurant | Cocktail Bar | Deli / Bodega | Fish Market | Grocery Store | Hawaiian Restaurant |
| 3 | Chelsea | Sushi Restaurant | Japanese Restaurant | Asian Restaurant | Fish Market | Vegetarian / Vegan Restaurant | Seafood Restaurant | Sandwich Place | Sake Bar | Restaurant | Ramen Restaurant |
| 4 | Chinatown | Sushi Restaurant | Japanese Restaurant | Vegetarian / Vegan Restaurant | Bakery | Chinese Restaurant | Cocktail Bar | Deli / Bodega | Fish Market | Grocery Store | Hawaiian Restaurant |

RESULTS

- Using K-mean to clustering data area with less number of sushi bars
- Cluster 0

```
manhattan_merged.loc[manhattan_merged['Cluster Labels'] == 0, manhattan_merged.columns[[1] + list(range(5, manhattan_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 |
|----|-------------------|-----------------------|-----------------------|-------------------------------|-------------------------------|-----------------------|---------------------------|-----------------------|-----------------------|-----------------------|------------------------|
| 1 | Chinatown | Sushi Restaurant | Japanese Restaurant | Vegetarian / Vegan Restaurant | Bakery | Chinese Restaurant | Cocktail Bar | Deli / Bodega | Fish Market | Grocery Store | Hawaiian Restaurant |
| 11 | Roosevelt Island | Sushi Restaurant | Asian Restaurant | Japanese Restaurant | Bakery | Chinese Restaurant | Cocktail Bar | Deli / Bodega | Fish Market | Grocery Store | Hawaiian Restaurant |
| 19 | East Village | Sushi Restaurant | Japanese Restaurant | Vegetarian / Vegan Restaurant | Bakery | Chinese Restaurant | Cocktail Bar | Deli / Bodega | Fish Market | Grocery Store | Hawaiian Restaurant |
| 21 | TribeCa | Sushi Restaurant | Noodle House | Theme Restaurant | Japanese Restaurant | Bakery | Chinese Restaurant | Cocktail Bar | Deli / Bodega | Fish Market | Grocery Store |
| 22 | Little Italy | Sushi Restaurant | Japanese Restaurant | Noodle House | Bakery | Chinese Restaurant | Cocktail Bar | Deli / Bodega | Fish Market | Grocery Store | Hawaiian Restaurant |
| 23 | Soho | Sushi Restaurant | Japanese Restaurant | Noodle House | Poke Place | Theme Restaurant | Indian Chinese Restaurant | Bakery | Chinese Restaurant | Cocktail Bar | Deli / Bodega |
| 27 | Gramercy | Sushi Restaurant | Japanese Restaurant | Vegetarian / Vegan Restaurant | Bakery | Chinese Restaurant | Cocktail Bar | Deli / Bodega | Fish Market | Grocery Store | Hawaiian Restaurant |
| 28 | Battery Park City | Sushi Restaurant | Japanese Restaurant | Noodle House | Theme Restaurant | Bakery | Chinese Restaurant | Cocktail Bar | Deli / Bodega | Fish Market | Grocery Store |
| 31 | Noho | Sushi Restaurant | Japanese Restaurant | Vegetarian / Vegan Restaurant | Bakery | Chinese Restaurant | Cocktail Bar | Deli / Bodega | Fish Market | Grocery Store | Hawaiian Restaurant |
| 32 | Civic Center | Sushi Restaurant | Japanese Restaurant | Noodle House | Theme Restaurant | Bakery | Chinese Restaurant | Cocktail Bar | Deli / Bodega | Fish Market | Grocery Store |
| 35 | Turtle Bay | Sushi Restaurant | Japanese Restaurant | Asian Restaurant | Steakhouse | Seafood Restaurant | Indian Chinese Restaurant | Bakery | Chinese Restaurant | Cocktail Bar | Deli / Bodega |
| 36 | Tudor City | Sushi Restaurant | Asian Restaurant | Japanese Restaurant | Vegetarian / Vegan Restaurant | Steakhouse | Smoothie Shop | Hawaiian Restaurant | Bakery | Chinese Restaurant | Cocktail Bar |
| 37 | Stuyvesant Town | Sushi Restaurant | Japanese Restaurant | Vegetarian / Vegan Restaurant | Bakery | Chinese Restaurant | Cocktail Bar | Deli / Bodega | Fish Market | Grocery Store | Hawaiian Restaurant |
| 39 | Hudson Yards | Sushi Restaurant | Asian Restaurant | Japanese Restaurant | Cocktail Bar | Bakery | Chinese Restaurant | Deli / Bodega | Fish Market | Grocery Store | Hawaiian Restaurant |

RESULTS

- Cluster 1

```
manhattan_merged.loc[manhattan_merged['Cluster Labels'] == 1, manhattan_merged.columns[[1] + list(range(5, manhattan_merged.shape[1]))]]
```

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26]:
```

| | 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 | Upper East Side | Sushi Restaurant | Japanese Restaurant | Asian Restaurant | Fish Market | Vegetarian / Vegan Restaurant | Seafood Restaurant | Hawaiian Restaurant | Bakery | Chinese Restaurant | Cocktail Bar |
| 9 | Yorkville | Sushi Restaurant | Japanese Restaurant | Vegetarian / Vegan Restaurant | Fish Market | Indian Chinese Restaurant | Asian Restaurant | Sandwich Place | Sake Bar | Restaurant | Ramen Restaurant |
| 10 | Lenox Hill | Sushi Restaurant | Asian Restaurant | Japanese Restaurant | Fish Market | Vegetarian / Vegan Restaurant | Seafood Restaurant | Hawaiian Restaurant | Bakery | Chinese Restaurant | Cocktail Bar |
| 13 | Lincoln Square | Sushi Restaurant | Japanese Restaurant | Smoothie Shop | Chinese Restaurant | Grocery Store | Vegetarian / Vegan Restaurant | Bakery | Cocktail Bar | Deli / Bodega | Fish Market |
| 14 | Clinton | Sushi Restaurant | Japanese Restaurant | Asian Restaurant | Chinese Restaurant | Seafood Restaurant | Cocktail Bar | Bakery | Deli / Bodega | Fish Market | Grocery Store |
| 15 | Midtown | Sushi Restaurant | Asian Restaurant | Seafood Restaurant | Japanese Restaurant | Restaurant | Bakery | Ramen Restaurant | Vegetarian / Vegan Restaurant | Sandwich Place | Sake Bar |
| 16 | Murray Hill | Sushi Restaurant | Japanese Restaurant | Asian Restaurant | Restaurant | Bakery | Ramen Restaurant | Vegetarian / Vegan Restaurant | Sake Bar | Sandwich Place | Seafood Restaurant |
| 17 | Chelsea | Sushi Restaurant | Japanese Restaurant | Asian Restaurant | Fish Market | Vegetarian / Vegan Restaurant | Seafood Restaurant | Hawaiian Restaurant | Bakery | Chinese Restaurant | Cocktail Bar |
| 24 | West Village | Sushi Restaurant | Japanese Restaurant | Vegetarian / Vegan Restaurant | Sake Bar | Fish Market | Asian Restaurant | Sandwich Place | Seafood Restaurant | Restaurant | Ramen Restaurant |
| 30 | Carnegie Hill | Sushi Restaurant | Japanese Restaurant | Vegetarian / Vegan Restaurant | Indian Chinese Restaurant | Asian Restaurant | Seafood Restaurant | Hawaiian Restaurant | Bakery | Chinese Restaurant | Cocktail Bar |
| 33 | Midtown South | Sushi Restaurant | Japanese Restaurant | Asian Restaurant | Restaurant | Bakery | Ramen Restaurant | Vegetarian / Vegan Restaurant | Sake Bar | Sandwich Place | Seafood Restaurant |
| 34 | Sutton Place | Sushi Restaurant | Asian Restaurant | Japanese Restaurant | Steakhouse | Seafood Restaurant | Deli / Bodega | Indian Chinese Restaurant | Bakery | Chinese Restaurant | Cocktail Bar |
| 38 | Flatiron | Sushi Restaurant | Japanese Restaurant | Vegetarian / Vegan Restaurant | Asian Restaurant | Smoothie Shop | Seafood Restaurant | Bakery | Chinese Restaurant | Cocktail Bar | Deli / Bodega |

RESULTS

- Cluster 2

```
manhattan_merged.loc[manhattan_merged['Cluster Labels'] == 2, manhattan_merged.columns[[1] + list(range(5, manhattan_merged.shape[1]))]]
```

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| | 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 | Upper West Side | Sushi Restaurant | Japanese Restaurant | Asian Restaurant | Grocery Store | Bakery | Chinese Restaurant | Cocktail Bar | Deli / Bodega | Fish Market | Hawaiian Restaurant |

RESULT

- Cluster 3

```
manhattan_merged.loc[manhattan_merged['Cluster Labels'] == 3, manhattan_merged.columns[[1] + list(range(5, manhattan_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 |
|----|---------------------|-----------------------|-----------------------|-----------------------|-------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|------------------------|
| 25 | Manhattan Valley | Sushi Restaurant | Japanese Restaurant | Hawaiian Restaurant | Vegetarian / Vegan Restaurant | Bakery | Chinese Restaurant | Cocktail Bar | Deli / Bodega | Fish Market | Grocery Store |
| 26 | Morningside Heights | Sushi Restaurant | Japanese Restaurant | Hawaiian Restaurant | Vegetarian / Vegan Restaurant | Bakery | Chinese Restaurant | Cocktail Bar | Deli / Bodega | Fish Market | Grocery Store |

RESULTS

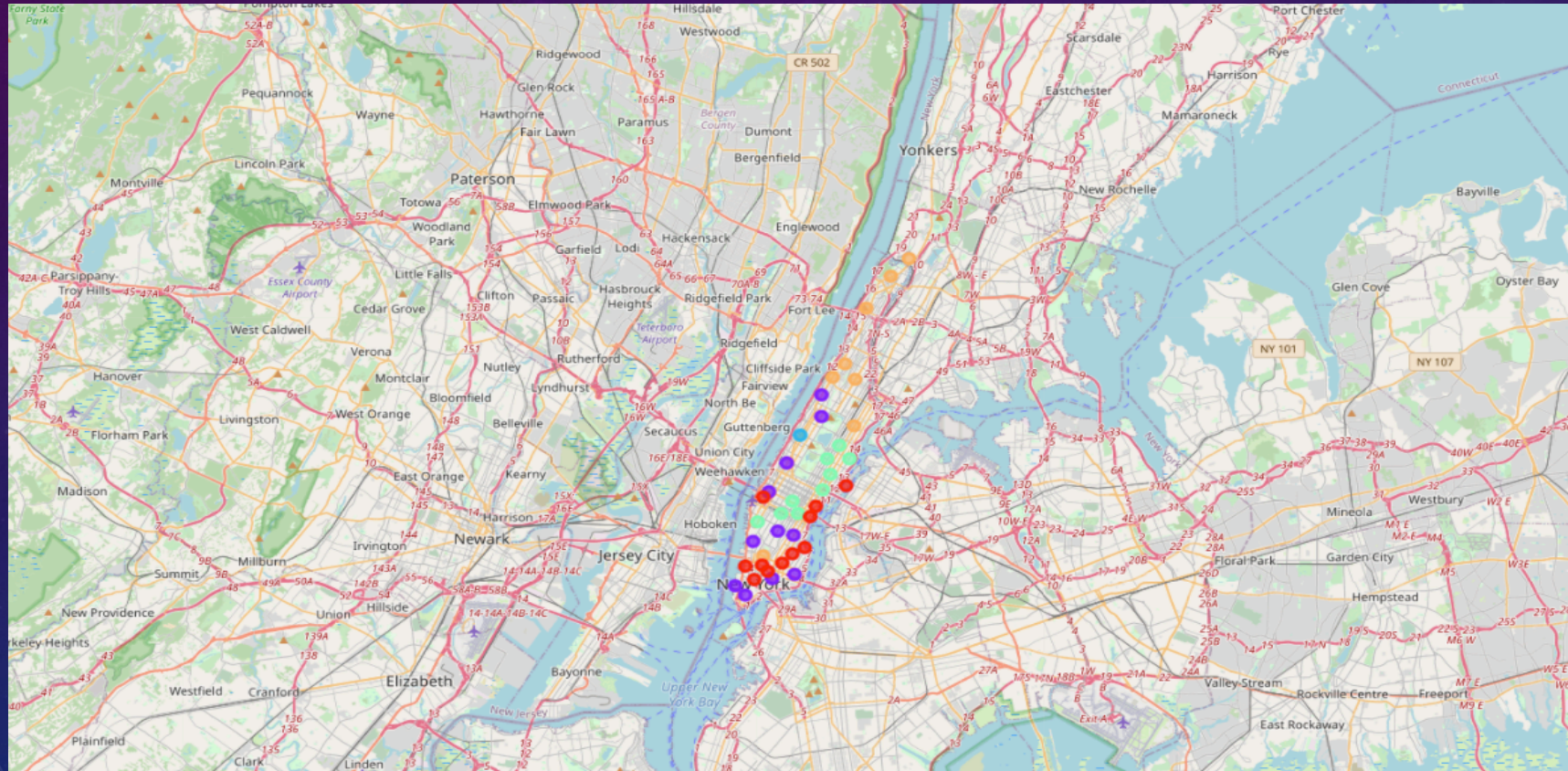
- Cluster 4

manhattan_merged.loc[manhattan_merged['Cluster Labels'] == 4, manhattan_merged.columns[[1] + list(range(5, manhattan_merged.shape[1]))]]

28]:

| | 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 | Manhattanville | Sushi Restaurant | Japanese Restaurant | Vegetarian / Vegan Restaurant | Bakery | Chinese Restaurant | Cocktail Bar | Deli / Bodega | Fish Market | Grocery Store | Hawaiian Restaurant |
| 12 | Upper West Side | Sushi Restaurant | Japanese Restaurant | Asian Restaurant | Grocery Store | Bakery | Chinese Restaurant | Cocktail Bar | Deli / Bodega | Fish Market | Hawaiian Restaurant |
| 20 | Lower East Side | Sushi Restaurant | Japanese Restaurant | Vegetarian / Vegan Restaurant | Bakery | Chinese Restaurant | Cocktail Bar | Deli / Bodega | Fish Market | Grocery Store | Hawaiian Restaurant |
| 29 | Financial District | Sushi Restaurant | Japanese Restaurant | Vegetarian / Vegan Restaurant | Bakery | Chinese Restaurant | Cocktail Bar | Deli / Bodega | Fish Market | Grocery Store | Hawaiian Restaurant |

RESULTS



RESULTS

- Based on data frame analysis above Cluster 2 (Upper West Side) and Cluster 3 (Morningside Heights) areas are the best places to open a new sushi bar business.

DISCUSSION

- This analysis is performed on limited data. This may be right or may be wrong. But if good amount of data is available there is scope to come up with better results.
- There is high competition in Midtown and Soho so it is very risky to open business in these areas.
- Central Harlem has also potential where closes to Morningside Heights area.
- It can be done more detailed analysis by adding other factors such as transportation, demographics of inhabitants.

CONCLUSION

- Although all of the goals of this project were met there is definitely room for further improvement and development as noted below. However, the goals of the project were met and, with some more work, could easily be developed into a fully pledged application that could support the opening a business idea in an unknown location. As per the neighborhood or restaurant type mentioned like Sushi restaurants analysis can be checked. A venue with lowest risk and competition can be identified.