The Battle of Neighborhoods

Selecting the best neighborhood to open a sushi restaurant in New York City

Introduction/Business Problem

- New York is very diverse city with several types of food (American, European, Asian etc.)

- Japanese sushi restaurants have become very popular

- Business Problem: open a sushi restaurant in best possible location

Data

- First step is to find the number and location of sushi restaurants in Manhattan

- Using Google Map API to find their geographic coordinates based on their postal code addresses

- Currently there are 1091 sushi restaurants in Manhattan

```
: newyork_venues_sushi.shape
: (1091, 7)
```

Data

- The next step was to use Google Map API to find geographic coordinates of the five locations shortlisted for our sushi bar:

	Borough	Neighborhood	Latitude	Longitude	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
0	Manhattan	Marble Hill	40.876551	-73.910660	2	Sushi Restaurant	Vegetarian / Vegan Restaurant	Noodle House	Bakery	Chinese Restaurant
1	Manhattan	Chinatown	40.715618	-73.994279	0	Sushi Restaurant	Japanese Restaurant	Vegetarian / Vegan Restaurant	Noodle House	Bakery
2	Manhattan	Washington Heights	40.851903	-73.936900	2	Sushi Restaurant	Vegetarian / Vegan Restaurant	Noodle House	Bakery	Chinese Restaurant
3	Manhattan	Inwood	40.867684	-73.921210	2	Sushi Restaurant	Vegetarian / Vegan Restaurant	Noodle House	Bakery	Chinese Restaurant
4	Manhattan	Hamilton Heights	40.823604	-73.949688	2	Sushi Restaurant	Vegetarian / Vegan Restaurant	Noodle House	Bakery	Chinese Restaurant

Methodology

- convert addresses into equivalent latitude and longitude values

- Use Foursquare API to explore neighborhoods in Manhattan

- Use explore function to get sushi restaurants categories in each neighborhood

Methodology

	Neighborhood	Asian Restaurant	Bakery	Chinese Restaurant	Cocktail Bar	Deli / Bodega	Grocery Store	Hawaiian Restaurant	Japanese Restaurant	Noodle House	Poke Place
0	Marble Hill	0	0	0	0	0	0	0	0	0	0
1	Chinatown	0	0	0	0	0	0	0	0	0	0
2	Chinatown	0	0	0	0	0	0	0	1	0	0
3	Chinatown	0	0	0	0	0	0	0	0	0	0
4	Chinatown	0	0	0	0	0	0	0	0	0	0

Methodology

- Group neighborhoods into clusters through the K-means clustering algorithm

	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 Mo Comm Venu
0	Battery Park City	Sushi Restaurant	Japanese Restaurant	Noodle House	Theme Restaurant	Vegetarian / Vegan Restaurant	Bakery	Chinese Restaurant	Cocktail Bar	Deli / Bodega
1	Carnegie Hill	Sushi Restaurant	Japanese Restaurant	Asian Restaurant	Chinese Restaurant	Noodle House	Bakery	Cocktail Bar	Deli / Bodega	Grocery Store
2	Central Harlem	Sushi Restaurant	Vegetarian / Vegan Restaurant	Noodle House	Bakery	Chinese Restaurant	Cocktail Bar	Deli / Bodega	Grocery Store	Hawaiian Restaura
3	Chelsea	Sushi Restaurant	Japanese Restaurant	Asian Restaurant	Vegetarian / Vegan Restaurant	Smoothie Shop	Seafood Restaurant	Sandwich Place	Sake Bar	Restaura
4	Chinatown	Sushi Restaurant	Japanese Restaurant	Vegetarian / Vegan Restaurant	Noodle House	Bakery	Chinese Restaurant	Cocktail Bar	Deli / Bodega	Grocery Store

Results

- Using k-means to cluster the data area with the least number of sushi bars

- The clusters show that cluster 3 (upper west side) and cluster 4 (Morningside Heights) are the best places to open a new sushi restaurant

Discussion

- The area with very high competition is Midtown and Soho

- Best places to open a new sushi restaurant are Upper West Side and Morningside Heights

- The analysis could be done more detailed through addition of factors such as transportation or demographics

Conclusion

- The goals of the project were met and favorable areas to open a sushi restaurant in Manhattan could be identified

- Analysis could be more deep and accurate through adding further factors