

Restaurant location selection

With Foursquare

H.J Min

Coursera

2021. 2. 7.

1. Introduction

1.1 Background

Which location is the right place to open a restaurant? I would like to conduct data analysis on how many same restaurants exist in the restaurant, how well the commercial district is developed, and which stores are successful in the surrounding area.

1.2 Problem

A neighbor is preparing to open a Korean restaurant. I'm thinking of two candidate sites, and I'm going to explore this place, the rival restaurant, and the surrounding area to find a place where I can succeed.

2. Data acquisition and cleaning

2.1 Data sources

Using the foursquare API as regional data, we intend to collect data on competitive restaurants, commercial districts, locations and preferences. We would like to examine the current status of the two candidate sites in Korea and the popular stores.

2.2 Data cleaning

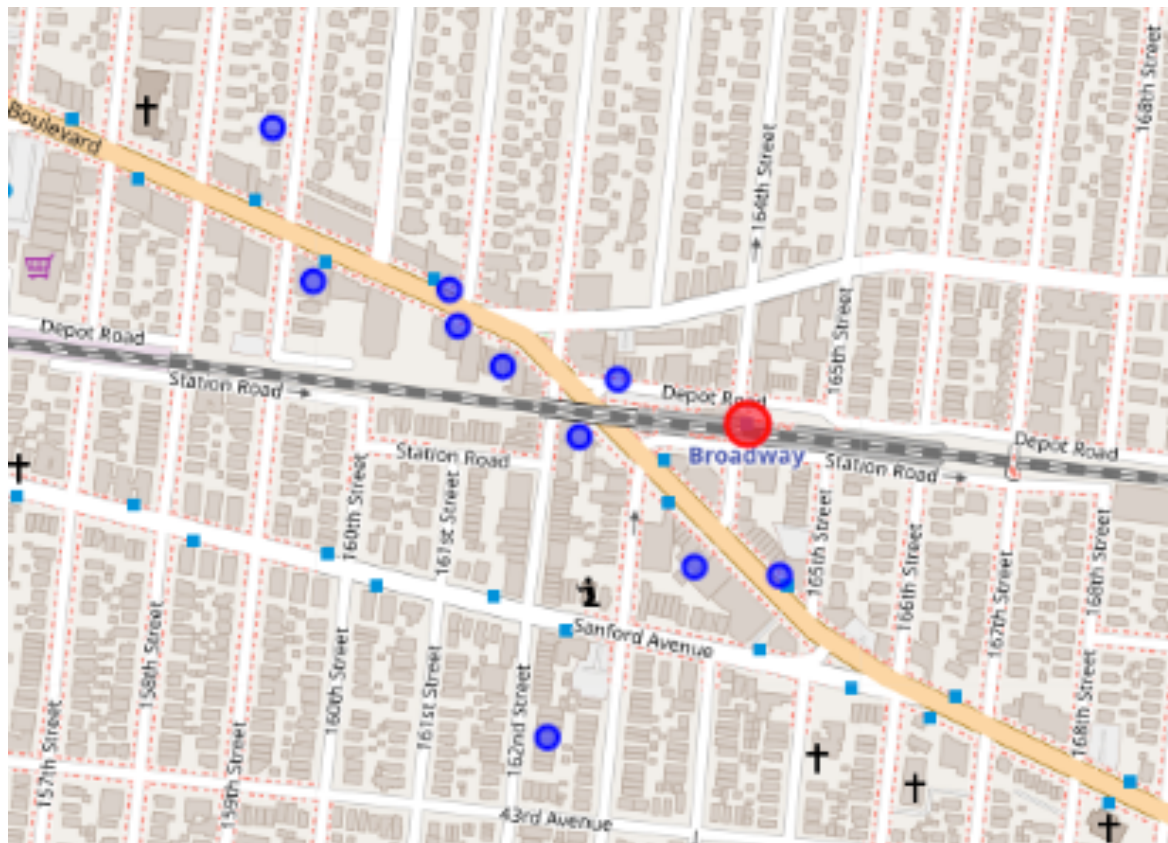
Only data on Korean restaurants are extracted from the foursquare API, and only the current status of Korean restaurants in the two candidate sites is calculated and compared. In addition, it will extract information on the entire commercial district in the area where the two candidate sites belong from the entire New York City data, and examine the grouping status through a simple k-means Clustering for the neighboring commercial districts.

3. Exploratory Data Analysis

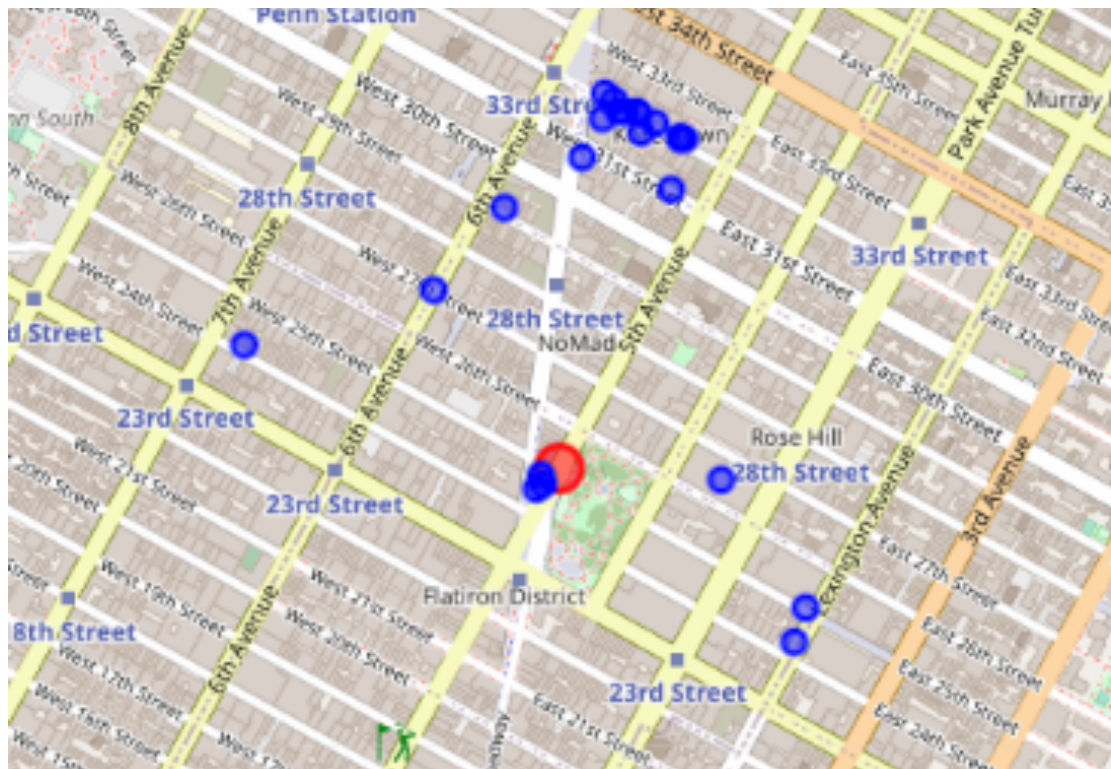
3.1 Korean restaurants Data

It can be seen that there are 9 restaurants around broadway station and 11 restaurants on 5th ave.

```
dataframe_filtered01.name
0          Korean Community Services
1      Mani Mani Korean Japanese Cuisine
2  162-04 Northern Blvd Korean Restaurant
3          The Korean Performing Arts
4          Ondal Korean Restaurant
5  160-26 Northern Blvd Korean Restaurant
6          New Korean Town Plaza
7                      Nolbu Sushi
8      Tong Sam Gyup Goo Yi Restaurant
9                      ShinJung Galbi
Name: name, dtype: object
```



- 4 fire belly Korean BBQ
- 3 Korean American Association of Greater New York
- 4 Kunjip Korean Food Truck
- 5 Korean Ramen and Kimbaap Truck
- 6 OSAMIL Korean Gastropub
- 7 Korean Language Center
- 8 Korean Culture Center
- 9 Korean Learning Center
- 10 Korean Bazaar
- 11 Mexican/Korean Restaurant
- 12 Hongchun Korean BBQ
- 13 Fantastik Pop Korean Cart
- 14 32nd. Korean Way
- 15 Woorijip
- 16 Food Gallery 32
- 17 Korea Way
- 18 Kobeque
-



3.2 Newyork Data

	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	Coffee Shop	Hotel	Park	Memorial Site	Gym	Clothing Store	Burger Joint	Gourmet Shop	BBQ Joint	Plaza
1	Carnegie Hill	Coffee Shop	Café	Yoga Studio	Wine Shop	Bookstore	Pizza Place	Gym	Cosmetics Shop	Japanese Restaurant	Cocktail Bar
2	Central Harlem	African Restaurant	Seafood Restaurant	Art Gallery	Bar	French Restaurant	Chinese Restaurant	Cosmetics Shop	Gym / Fitness Center	American Restaurant	Park
3	Chelsea	Coffee Shop	Bakery	American Restaurant	French Restaurant	Art Gallery	Ice Cream Shop	Wine Shop	Seafood Restaurant	Cupcake Shop	Bookstore
4	Chinatown	Chinese Restaurant	Bakery	Cocktail Bar	Hotpot Restaurant	Salon / Barbershop	Spa	American Restaurant	Optical Shop	Dessert Shop	Ice Cream Shop
5	Civic Center	Coffee Shop	Spa	Gym / Fitness Center	Hotel	Cocktail Bar	Yoga Studio	French Restaurant	Park	Wine Shop	Sushi Restaurant
6	Clinton	Italian Restaurant	Coffee Shop	Gym / Fitness Center	Theater	Gym	Wine Shop	American Restaurant	Cocktail Bar	Hotel	Sandwich Place
7	East Harlem	Mexican Restaurant	Deli / Bodega	Thai Restaurant	Bakery	Sandwich Place	Latin American Restaurant	Dance Studio	Taco Place	Gas Station	Beer Bar
8	East Village	Bar	Pizza Place	Wine Bar	Salon / Barbershop	Korean Restaurant	Mexican Restaurant	Vietnamese Restaurant	Coffee Shop	Juice Bar	Japanese Restaurant
9	Financial District	Coffee Shop	Bar	Pizza Place	Cocktail Bar	Gym	Gym / Fitness Center	Mexican Restaurant	Park	Italian Restaurant	Salad Place

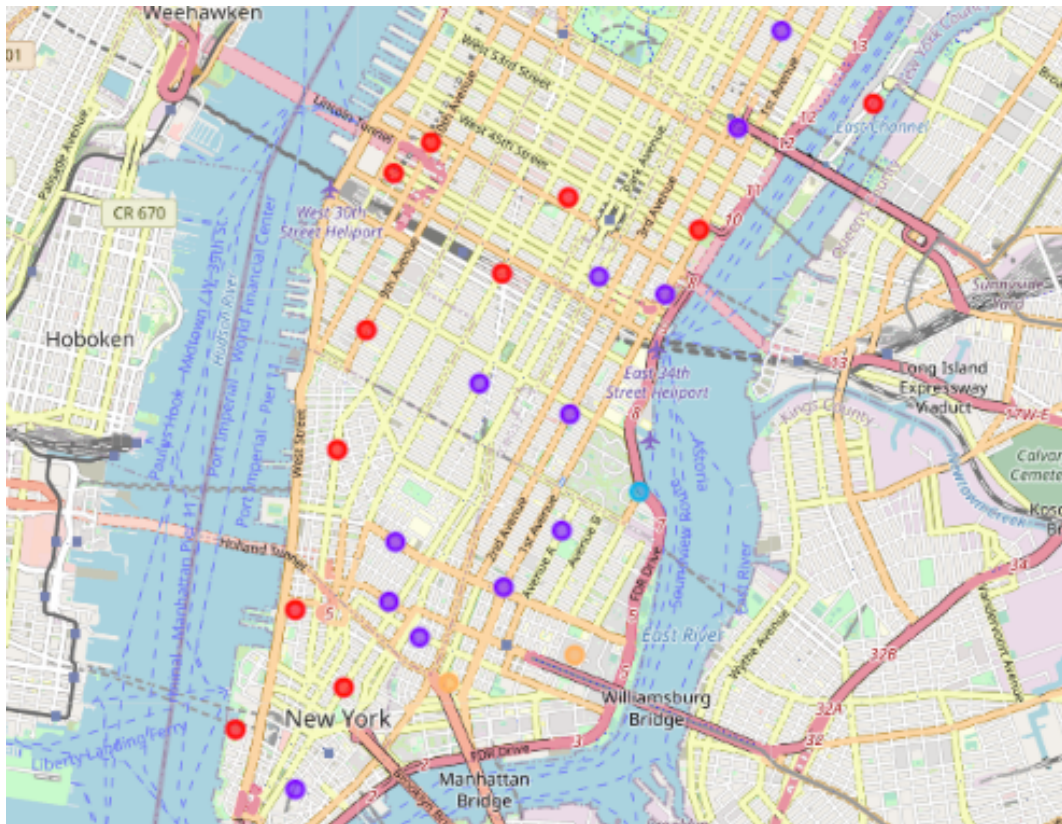
1) Manhattan

	Cluster Labels	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	1	Arverne	Surf Spot	Sandwich Place	Metro Station	Pizza Place	Board Shop	Thai Restaurant	Donut Shop	BBQ Joint	Coffee Shop	Café
1	1	Astoria	Bar	Middle Eastern Restaurant	Seafood Restaurant	Hookah Bar	Mediterranean Restaurant	Indian Restaurant	Food Truck	Pizza Place	Deli / Bodega	Café
2	1	Astoria Heights	Italian Restaurant	Hostel	Bakery	Plaza	Pizza Place	Deli / Bodega	Chinese Restaurant	Bus Station	Burger Joint	Food
3	1	Auburndale	Italian Restaurant	Comic Shop	Toy / Game Store	Gymnastics Gym	Mattress Store	Miscellaneous Shop	Mobile Phone Shop	Fast Food Restaurant	Noodle House	Discount Store
4	1	Bay Terrace	Clothing Store	Women's Store	Kids Store	Donut Shop	Mobile Phone Shop	Shoe Store	Cosmetics Shop	American Restaurant	Weight Loss Center	Furniture / Home Store
5	1	Bayside	Bar	Pizza Place	Greek Restaurant	Sushi Restaurant	Indian Restaurant	Spa	American Restaurant	Donut Shop	Burger Joint	Steakhouse
6	1	Bayswater	Construction & Landscaping	Playground	Fast Food Restaurant	Electronics Store	Empanada Restaurant	Event Space	Falafel Restaurant	Farm	Farmers Market	Filipino Restaurant
7	1	Beechhurst	Chinese Restaurant	Optical Shop	Park	Convenience Store	Supermarket	Shopping Mall	Donut Shop	Salad Place	Italian Restaurant	Spa
8	1	Bellaire	Breakfast Spot	Supermarket	Coffee Shop	Greek Restaurant	Halal Restaurant	Moving Target	Italian Restaurant	Bus Station	Intersection	Chinese Restaurant
9	1	Belle Harbor	Beach	Deli / Bodega	Pub	Bakery	Boutique	Mexican Restaurant	Pharmacy	Spa	Bagel Shop	Italian Restaurant

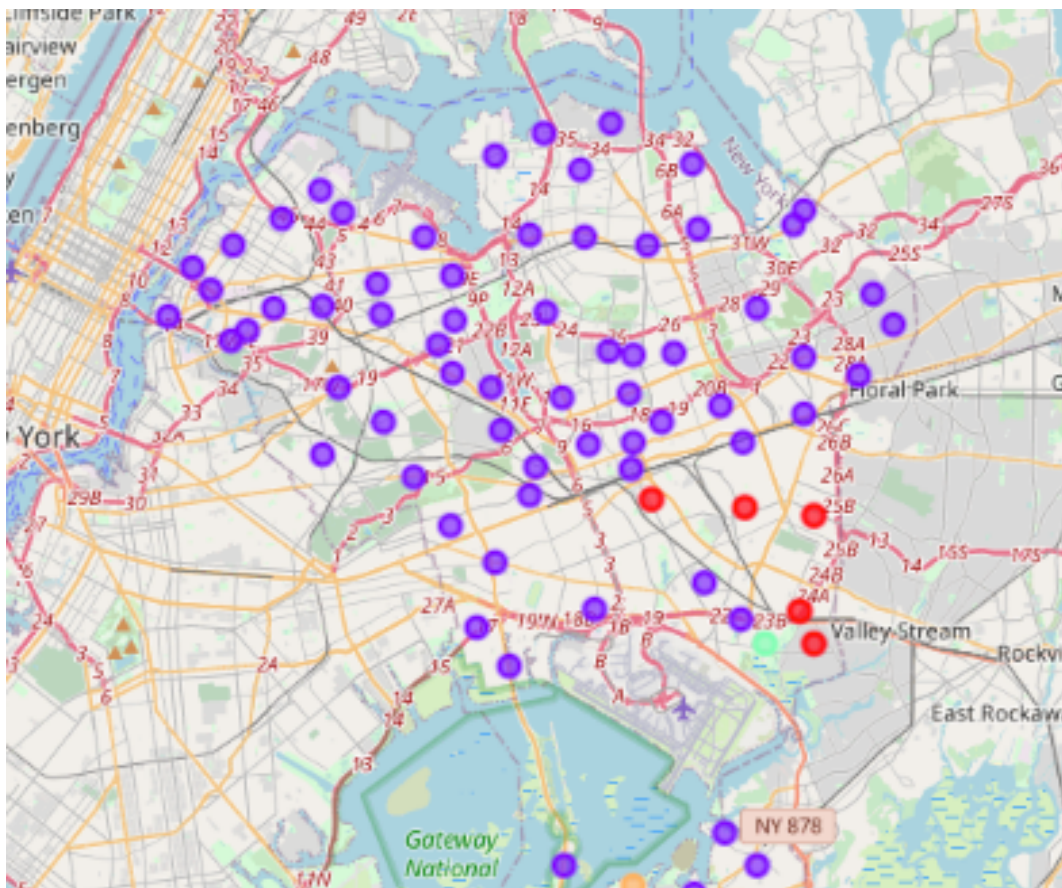
2) Queens

4. Predictive Modeling

1) Manhattan - k-means Clustering



2) Queens -k-means Clustering



5. Conclusion

I would recommend the broadway station area more. Because the number of Korean restaurants is less than 5th Ave, the competition rate is expected to be lower, and the existence of 9 restaurants suggests that there is a demand for Korean restaurants. In terms of rent, broad way is cheaper than 5th Ave, which is the downtown area, and there are many residential areas around the broad way station compared to 5th Ave, which has many buildings. There is also an Asian grocery store nearby, so it is expected that you will also want to supply ingredients. Besides Korean restaurants, we also reviewed nearby stores. The area around Manhattan, where 5th ave is located, is an area where many companies are located, and there are more convenience stores such as coffee shops, spas, and fitness centers than restaurants in the types of shopping districts that we visit frequently. On the other hand, around the broad way station, the proportion of restaurants is higher, and various restaurants such as pizza, Greece, India, and sushi belong to frequently visited stores, so it is expected that there will be a lot of users visiting the restaurant.

I would recommend more around Broadway Station.