



CAPSTONE PROJECT: BATTLE OF THE NEIGHBORHOODS

Opening a Chinese Restaurant in Boston





Introduction

Boston is one of the oldest municipalities in the United States, founded on the Shawmut Peninsula in 1630 by Puritan settlers from England. Along with its long history, food is a quintessential component of Boston. Cuisine in Boston is similar to the rest of New England cuisine, in that it has a large emphasis on seafood and dairy products. Its best-known dishes are New England clam chowder, fish and chips (usually with cod or scrod), baked beans, lobsters, steamed clams, and fried clams.

The objective of this project is to locate and recommend which neighborhood of Boston will be best choice to start a Chinese restaurant and explain the rationale of the recommendations.



Data Acquisition

This demonstration will make use of the following data sources:

- **Boston Neighborhoods Data**

Data will be retrieved from Boston open dataset from <https://data.boston.gov> website.

The Neighborhood boundaries data is a combination of zoning neighborhood boundaries, zip code boundaries and 2010 Census tract boundaries. These boundaries are used in the broad sense for visualization purposes for zoning and planning studies.



Data Acquisition

- **Boston location data retrieved using Google maps API**

Data coordinates of Neighborhood Venues will be retrieved using google API. I also make use of subway stations coordinate as a more important center of for all towns included in venue recommendations.

- **Boston Top Venue Recommendations from FourSquare API (www.foursquare.com)**

I will be using the FourSquare API to explore neighborhoods in Boston. The Foursquare explore function will be used to get the most common venue categories in each neighborhood, and then use this feature to group the neighborhoods into clusters. The following information are retrieved on the first query:

- ❑ Venue ID
- ❑ Venue Name = Coordinates : Latitude and Longitude
- ❑ Category Name



Methodology

1. Download and Explore Dataset

- Download the Boston Neighborhood data from <https://data.boston.gov>

	OBJECTID	Name	Acres	Neighborhood_ID	SqMiles	ShapeSTArea	ShapeSTLength
0	27	Roslindale	1605.568237	15	2.51	6.993827e+07	53563.912597
1	28	Jamaica Plain	2519.245394	11	3.94	1.097379e+08	56349.937161
2	29	Mission Hill	350.853564	13	0.55	1.528312e+07	17918.724113
3	30	Longwood	188.611947	28	0.29	8.215904e+06	11908.757148
4	31	Bay Village	26.539839	33	0.04	1.156071e+06	4650.635493
5	32	Leather District	15.639908	27	0.02	6.812717e+05	3237.140537



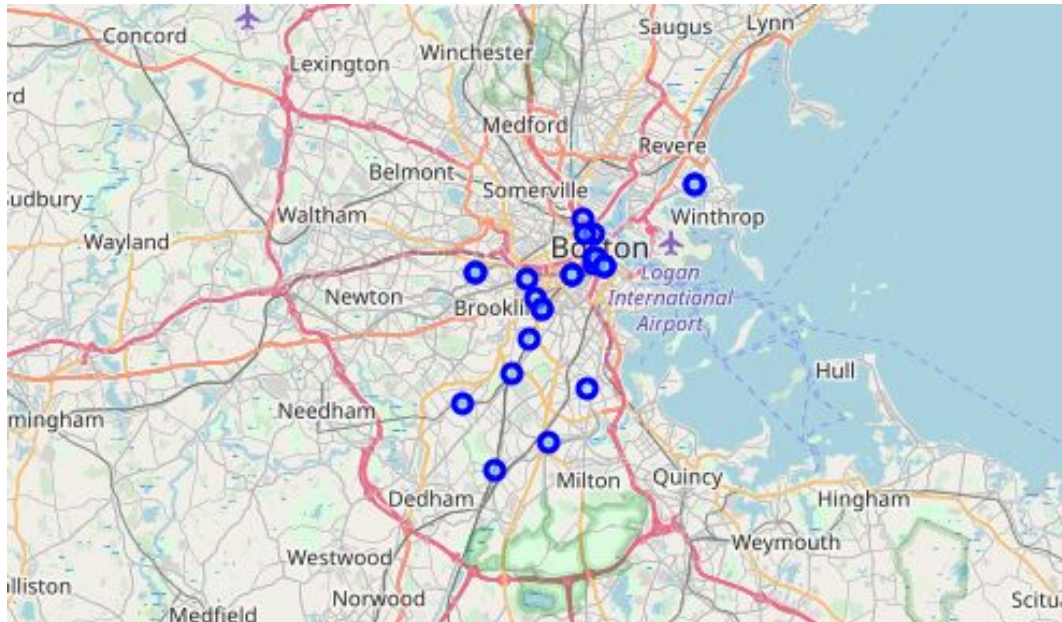
Methodology

1. Download and Explore Dataset

- Use Google API to retrieve coordinates of Boston neighborhoods.

	OBJECTID	Name	Acres	Neighborhood_ID	SqMiles	ShapeSTArea	ShapeSTLength	Latitude	Longitude
0	27	Roslindale	1605.568237	15	2.51	6.993827e+07	53563.912597	42.300690	-71.113972
1	28	Jamaica Plain	2519.245394	11	3.94	1.097379e+08	56349.937161	42.317265	-71.104160
2	29	Mission Hill	350.853564	13	0.55	1.528312e+07	17918.724113	42.331341	-71.095499
3	30	Longwood	188.611947	28	0.29	8.215904e+06	11908.757148	42.336046	-71.099727
4	31	Bay Village	26.539839	33	0.04	1.156071e+06	4650.635493	42.347350	-71.075727
5	32	Leather District	15.639908	27	0.02	6.812717e+05	3237.140537	42.351922	-71.055070

Methodology



Boston basemap



Methodology

2. Segmenting and Clustering Towns in Boston

- Retrieving FourSquare Places of interest

	Neighborhood	BoroughLatitude	BoroughLongitude	VenueName	VenueLatitude	VenueLongitude	VenueCategory
0	Roslindale	42.30069	-71.113972	Brassica Kitchen & Cafe	42.300266	-71.113160	New American Restaurant
1	Roslindale	42.30069	-71.113972	Mike's Donuts	42.300735	-71.114029	Donut Shop
2	Roslindale	42.30069	-71.113972	The Dogwood	42.300279	-71.113281	American Restaurant
3	Roslindale	42.30069	-71.113972	Forest Hills Diner	42.300730	-71.112889	Breakfast Spot
4	Roslindale	42.30069	-71.113972	Simpli Bar & Bites	42.297241	-71.116600	Bar



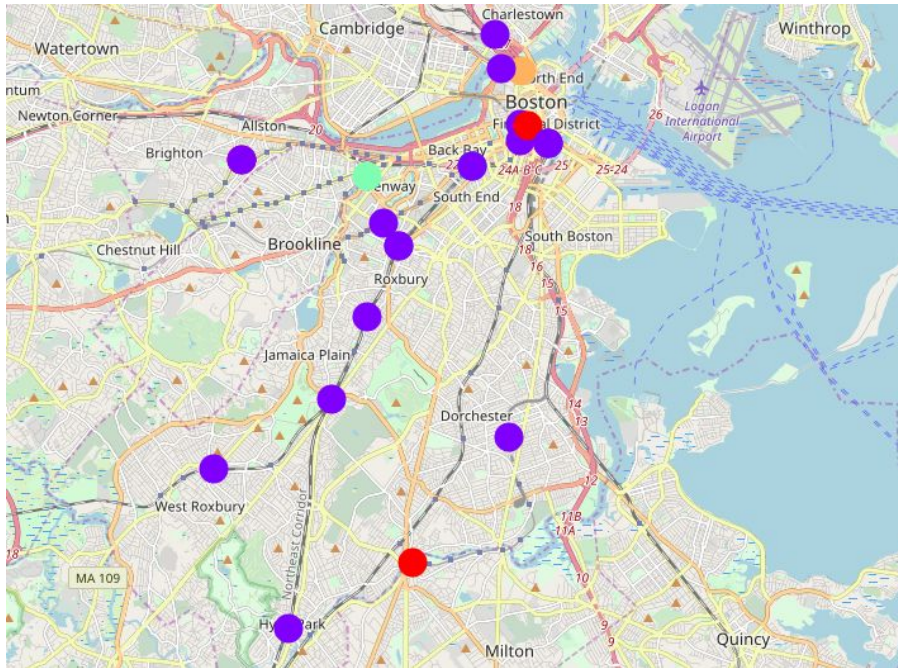
Methodology

2. Segmenting and Clustering Towns in Boston

- Retrieving FourSquare Places of interest
- Check venue count per neighborhood
- Analyze Each Boston Neighborhood nearby recommended venues
- Analyze Boston Neighborhood most visited venues

	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	Allston	Bar	Gym / Fitness Center	Chinese Restaurant	Gastropub	Dog Run	Liquor Store	Coffee Shop	Food	Plaza	Athletics & Sports
1	Back Bay	American Restaurant	Gym	Hotel	Seafood Restaurant	Gym / Fitness Center	Department Store	Accessories Store	Juice Bar	Plaza	Playground

Methodology



Clustered neighborhoods



Methodology

2. Segmenting and Clustering Towns in Boston

- Exam clusters

	OBJECTID	Acres	Neighborhood_ID	SqMiles	ShapeSTArea	ShapeSTLength	Latitude	Longitude	Cluster Labels	1st Most Common Venue
Name										
Downtown	42	397.472846	7	0.62	1.731385e+07	34612.804441	42.355453	-71.060453	0	Coffee Shop
Brighton	44	1840.408596	25	2.88	8.016788e+07	48787.519652	42.348688	-71.138024	0	Bar
Mattapan	47	1352.098354	12	2.11	5.889717e+07	42005.773707	42.267784	-71.091829	0	Bakery



Discussion

In this project, analysis of neighborhood recommendations based on Food venue category has been presented. Based on the analysis above, Chinese restaurants appear in Cluster 0, 1 and 3. In Chinatown, Chinese restaurant is the most common venue, which is pretty reasonable, and in Dorchester, South Boston Waterfront, South Boston and Allston, Chinese restaurant is the third most common venue. Therefore, apart from **Chinatown**, which is an obvious option for opening a Chinese restaurant, neighborhoods like **Dorchester**, **South Boston Waterfront**, **South Boston** and **Allston** could also be reasonable options.