

Looking for the Best Location for an Italian Restaurant

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Assume our client wants us to help him to decide where is the best location to operate an Italian restaurant in Boston, MA

Candidate locations - There are three locations available for our client to rent in Boston

Analyze the geographic distribution of Boston businesses and venues of the three locations

Audience – Business owners who wants to find the best location to run their business

Introduction



Criteria of the best location

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- 1) There are no more than two Italian Restaurants within 800 meters.
- 2) There is at least one big park within 800 meters.
- 3) There is at least one big mall within 800 meters.

Goal - Figure out the best location chosen from the three candidate locations

Data and Sources (1)

Candidate locations

- 48 Deckard St, Boston, MA 02121
- 52 Mt Vernon St, Boston, MA 02108
- 270 W Fifth St, Boston, MA 02127

Boston zip codes - https://bostonopendata-boston.opendata.arcgis.com/datasets/53ea466a189b4f43b3dfb7b38fa7f3b6_1

Massachusetts zip codes and latitudes/longitudes - <https://public.opendatasoft.com/explore/dataset/us-zip-code-latitude-and-longitude/table/?q=MA>

Data and Sources (2)

Shopping mall data - <https://www.bostoncentral.com/shopping.php>, and google search results.

Venues of each zip code – Obtained by requesting from Foursquare

Venues of each candidate location – Obtained by requesting from Foursquare

Python libraries used to solve problem

pandas, numpy - data processing and analysis

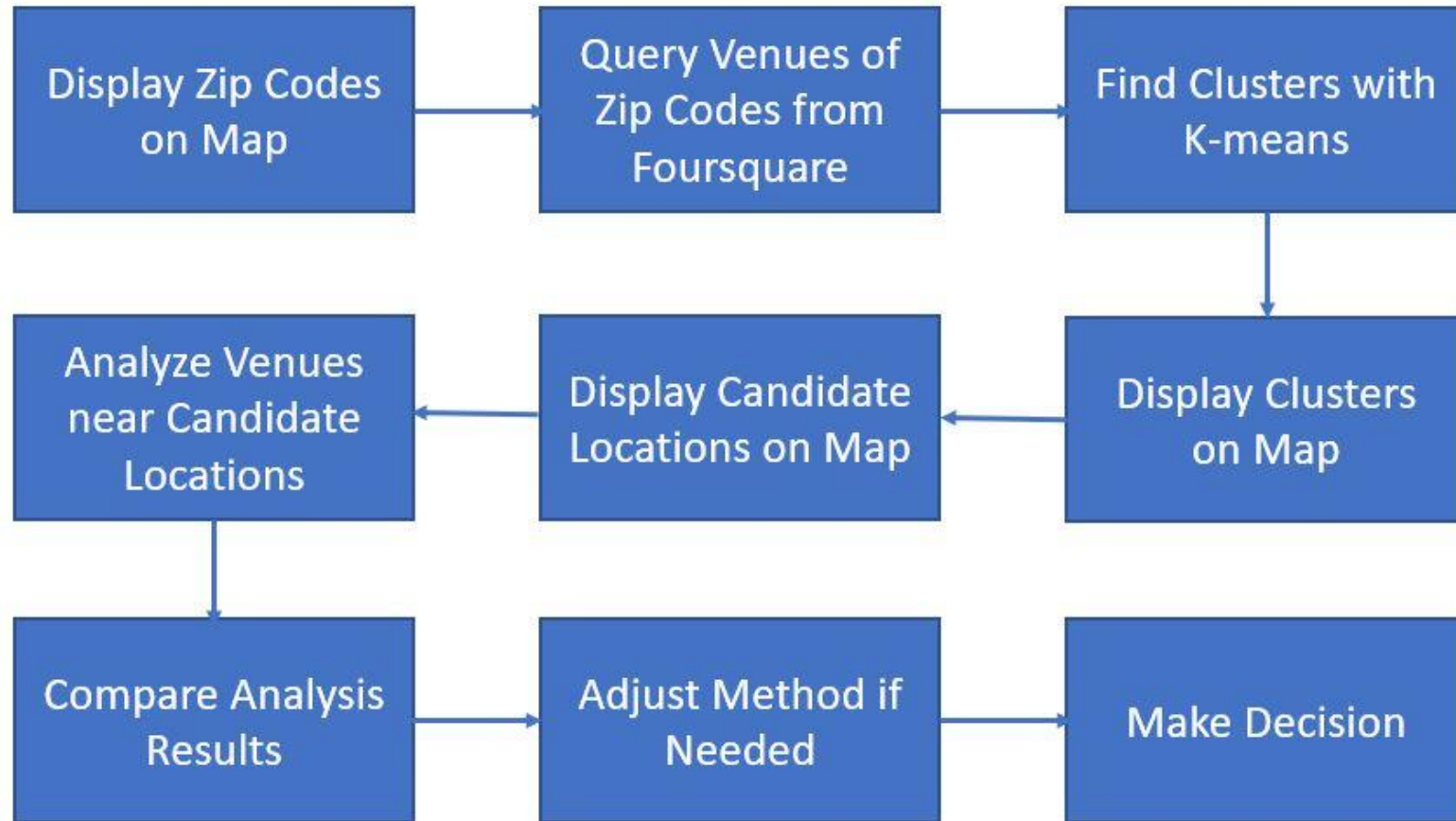
requests – send url as request to server side

geopy.geocoders – geocoding physical address

Sklearn.cluster – k-means algorithm

folium – Web map creation

Methodology



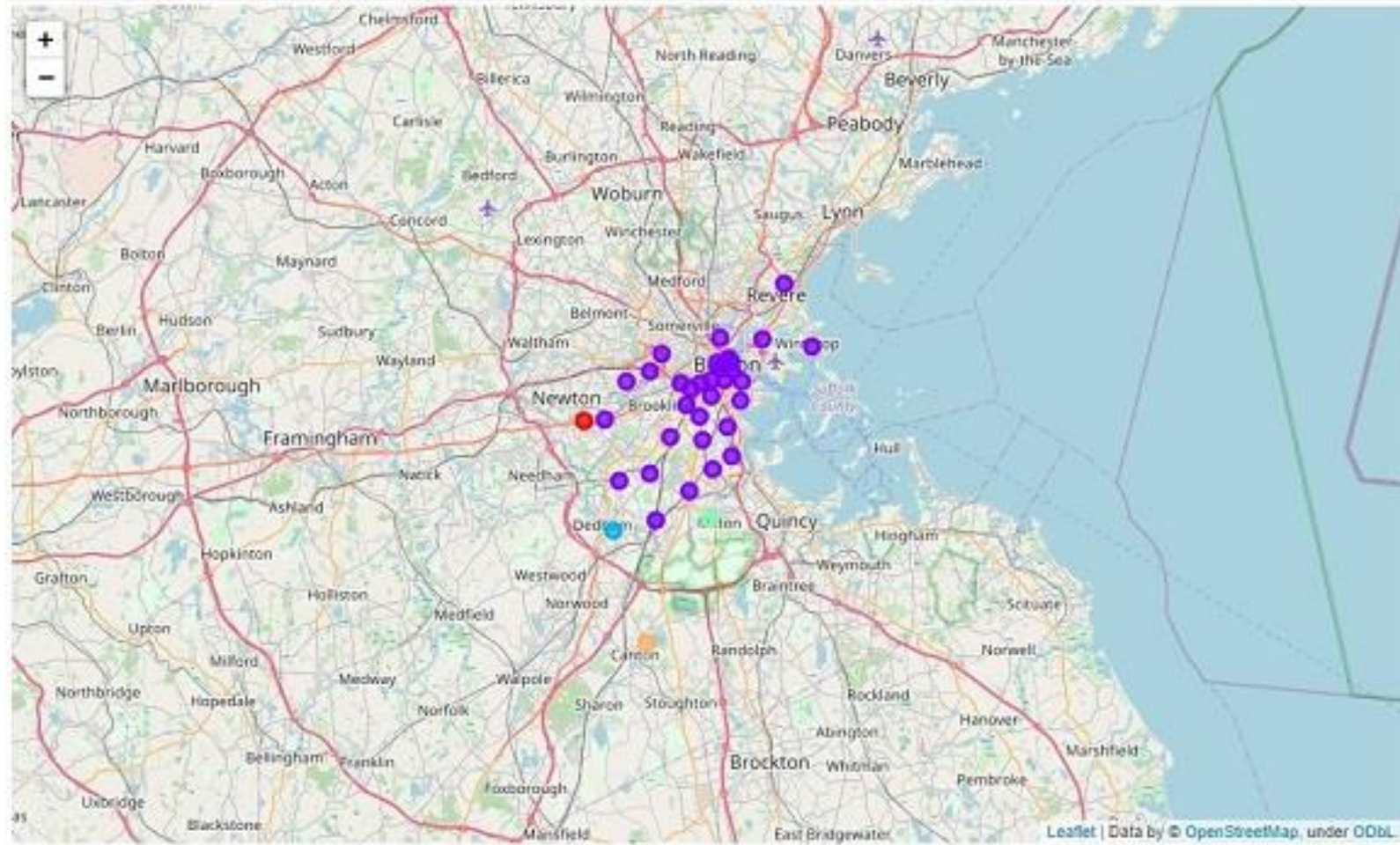
K-means algorithm

Explore businesses in Boston with K-means algorithm. K = 5

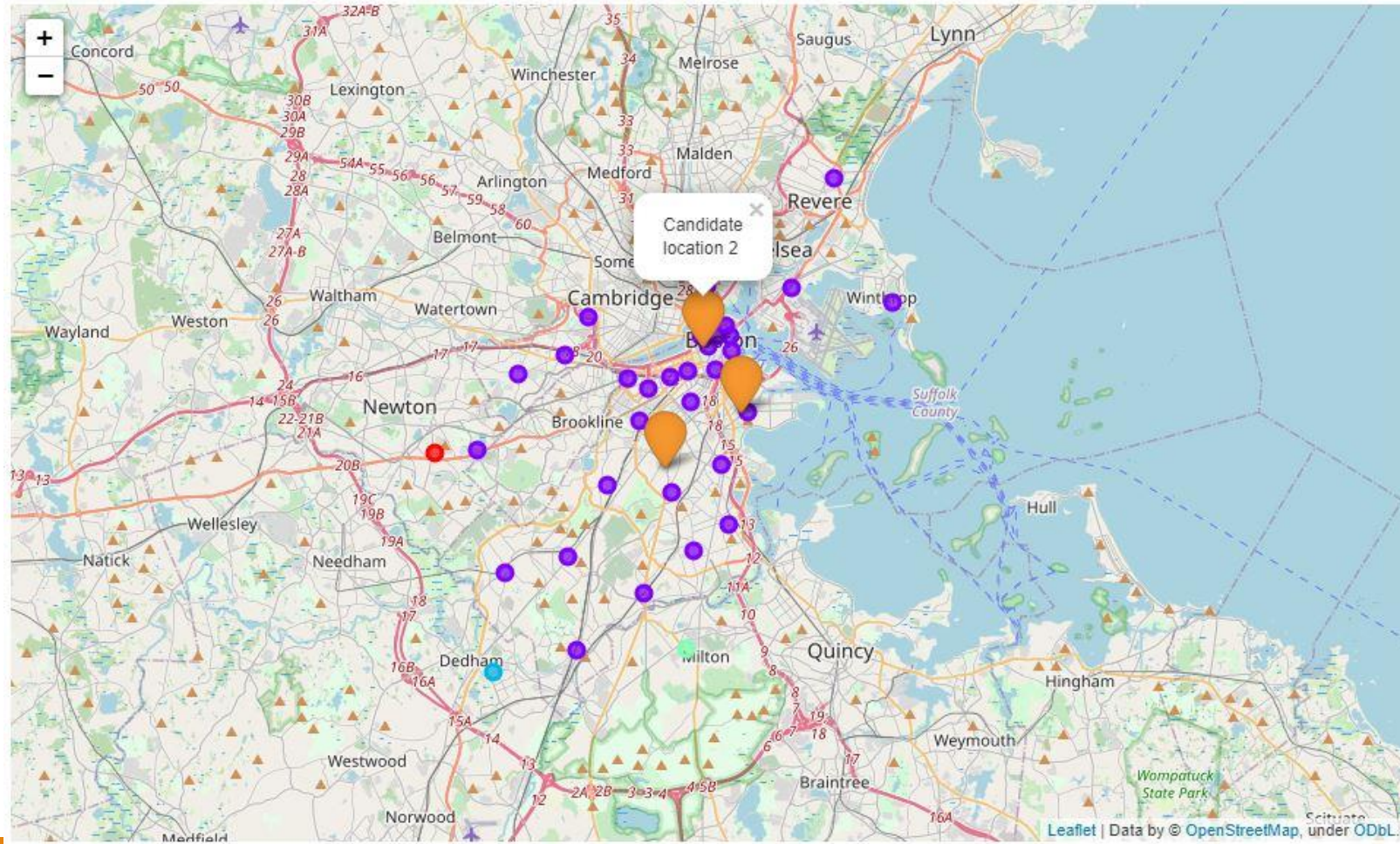
Cluster Labels	Zipcode	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue	
0	4	2021	Athletics & Sports	Paintball Field	Farm	Yoga Studio	Falafel Restaurant	Food Truck	Food Service	Food Court	Food & Drink Shop	Food
1	2	2026	Diner	Track	Farmers Market	Gym	High School	Yoga Studio	Falafel Restaurant	Food Service	Food Court	Food & Drink Shop
2	1	2108	Coffee Shop	Pizza Place	Italian Restaurant	Sandwich Place	Restaurant	Plaza	New American Restaurant	Steakhouse	American Restaurant	Historic Site
3	1	2109	Italian Restaurant	Seafood Restaurant	Bakery	Park	Historic Site	Pizza Place	Café	Tourist Information Center	Grocery Store	Hotel
4	1	2110	Boat or Ferry	Seafood Restaurant	Park	Historic Site	Hotel	Harbor / Marina	Coffee Shop	Asian Restaurant	Italian Restaurant	Aquarium

Label of each zip code with top 10 most common venues

Cluster map of zip codes



Candidate locations on cluster map

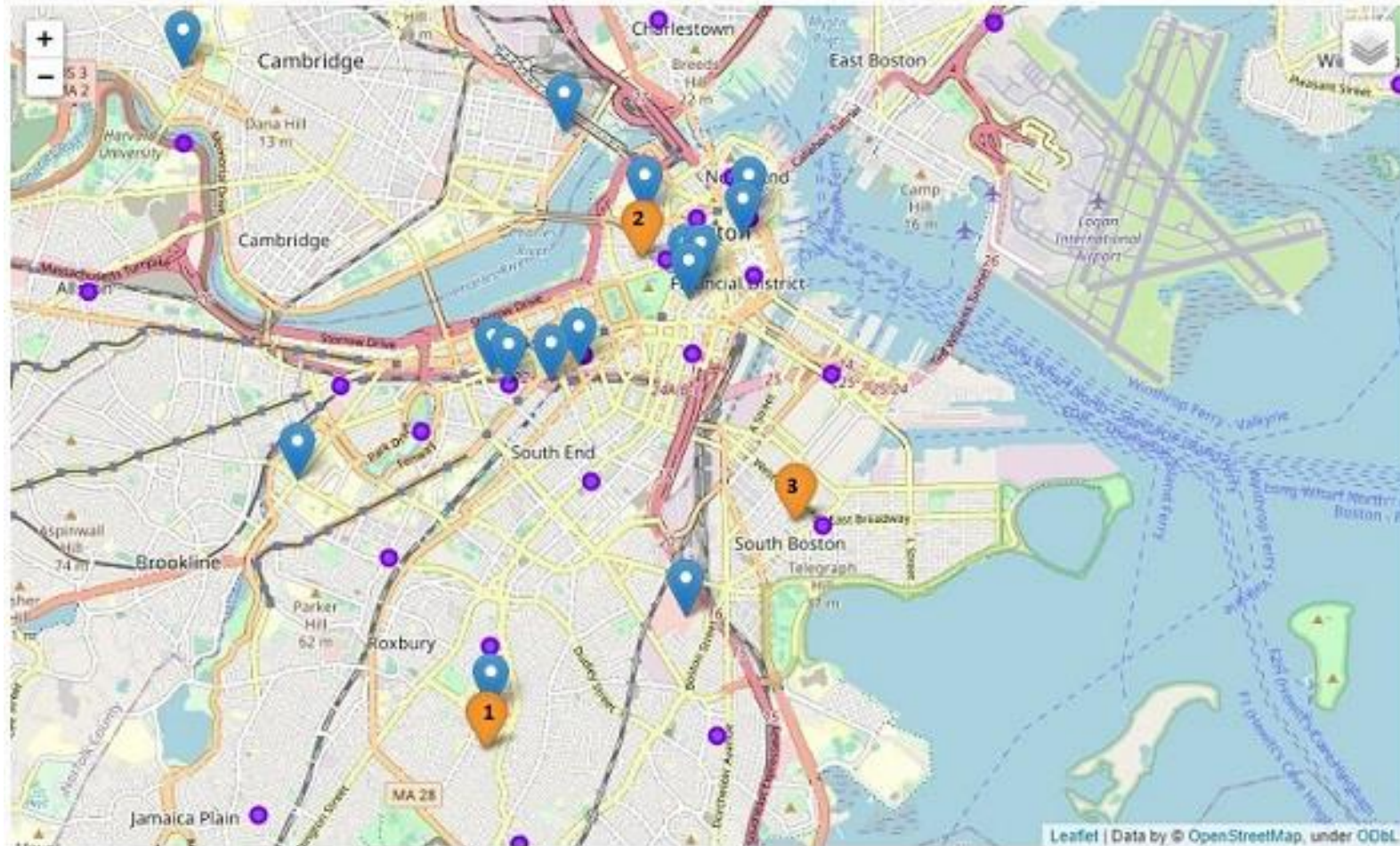


Analysis results

Candidate Location	Analysis Output
1	There is no Italian Restaurant within 800 meters There is no park within 800 meters 1 shopping mall(s) found within 800 meters
2	5 Italian Restaurant(s) found within 800 meters 3 park(s) found within 800 meters There is no shopping mall within 800 meters
3	2 Italian Restaurant(s) found within 800 meters 1 park(s) found within 800 meters There is no shopping mall within 800 meters5.

Location 1 and 3 are better than location 2. Need further analysis.

Add shopping malls on map



Conclusion

The Candidate location 1 is considered as the best location

