

IBM Data Science Capstone Project – The Battle of Neighborhoods

Opening an Italian restaurant in Brooklyn, New York
(Finding optimal neighborhood in Brooklyn for new restaurant)

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Business problem

- ***What are the best neighborhoods for potential opening a new Italian restaurant?***
- Using data science techniques find answer on this question
- Objective for analysis: Brooklyn neighborhoods

Data requirements

- List of all neighborhoods in Brooklyn
- Venue data, related to Italian restaurants located in Brooklyn
- Geospatial data – latitude and longitude of each neighborhood

Sources

- Department of City Planning, “2014 New York City Neighborhood Names”, https://geo.nyu.edu/catalog/nyu_2451_34572
- Foursquare API, venue data

Methodology

- Downloading data set from https://geo.nyu.edu/catalog/nyu_2451_34572
- Filtering neighborhoods of Brooklyn
- Retrieving venue data from Foursquare API, and filtering only italian restaurants
- Grouping data by neighborhood and finding mean of frequency of occurrence
- Performing k-mean clustering with 3 clusters
- Visualising cluster on map



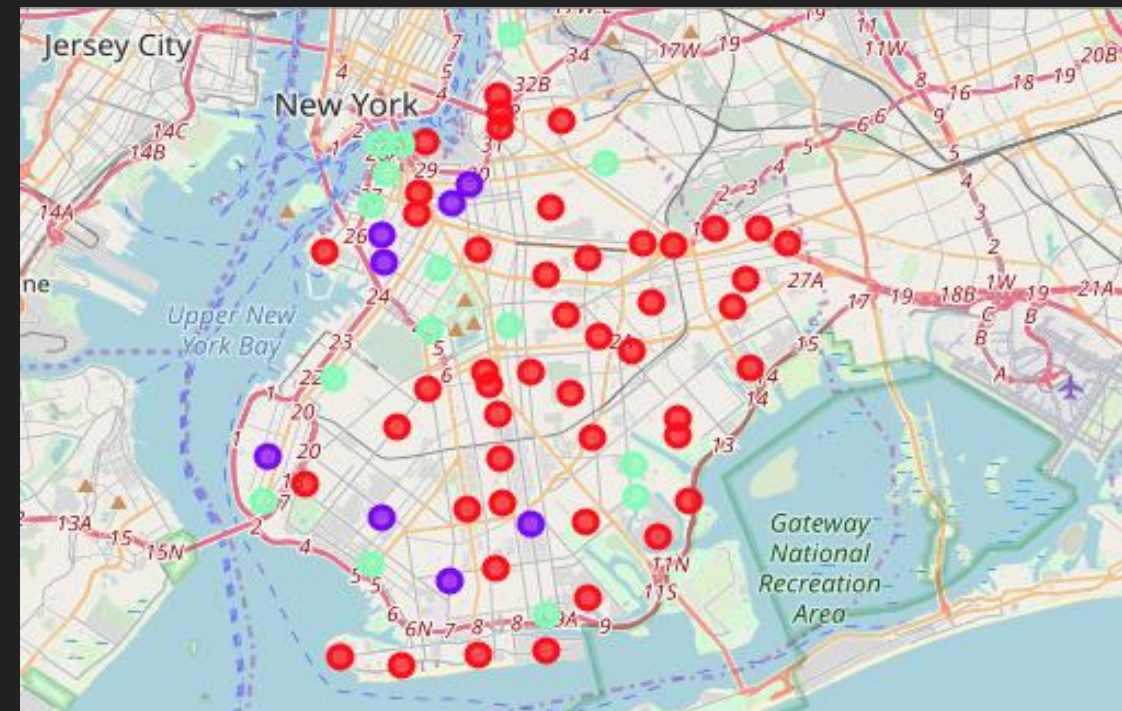
Results

The result from the k-means clustering based on frequency of occurrence for Italian restaurant shows following:

- **Cluster 0:** neighborhoods with no or low number of Italian restaurants.
- **Cluster 1:** neighborhoods with moderate number of Italian restaurants.
- **Cluster 2:** neighborhoods with high concentration of Italian restaurants.

The results are visualized on map with different color :

- **Cluster 0:** Red color
- **Cluster 1:** Violet color
- **Cluster 2:** Green color



Discussion

- Most of Italian restaurants are concentrated in Cluster 2
- In Cluster 1 there is moderate dispersion of Italian restaurants

Challenging for opening a new italian restaurant due to strong competition

- Cluster 0 contains low concentration of Italian restaurants

Perfect for opening new restaurant. Further analiys must be taken

Conclusion

- Answer to question: *The neighborhoods in Cluster 0 are the most preferred locations for new Italian restaurant.*

Thank you!