Finding the Optimal Location for a New Museum in Brooklyn, NY

IBM Data Science Capstone Project
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Business Problem

- As most museums are non-profits, the popularity of a museum is largely dictated by the number of members a museum can obtain.

  - Therefore, the location of the museum is of utmost importance to its success

- In this study, we will look at the optimal locations for the opening of New York's newest museum.

- We aim to answer the business question: If a property developer is looking to build a new museum in Brooklyn, NY, where is the optimal location to open the museum?

Data

- Data Required:
  - A list of the neighborhoods in Brooklyn, NY

  - The coordinates (latitude and longitude) of the neighborhoods found

  - Surrounding venue data that can contribute to a further understanding of whether the neighborhood could foster the development of a new museum

- Sources of Data

  - https://en.wikipedia.org/wiki/Category:Neighborhoods_in_Brooklyn

  - Geocoder Package for latitude and longitude coordinates

  - Foursquare API

Methodology

- Extract neighborhood data with the BeautifulSoup and the pandas python packages, resulting in a list of neighborhood names

- Get the geographical coordinates of each neighborhood with the Geocoder Package

- Visualize the location of the neighborhoods using the Folium package

- Use the FourSquare API package to get a better understanding of the surrounding neighborhoods, extracting the top 100 venues that were within a 2000 mile radius

- Extract data like the venue name, venue category, and venue latitude and longitude

- Filter the key word "Museum" as the venue category for the neighborhoods

- Cluster on the data by k-means clustering based on the frequency of the keyword "Museum"

Results

The results from the k-means clustering helped us visualize the following

patterns in the relative concentrations of museums within the three

clusters:

- Cluster 0 had virtually no museums

- Cluster 1 had a high concentration of museums.

- Cluster 2 had a moderate concentration of museums.

On the map, cluster 0 is marked by the red markers, cluster 1 is marked

by the purple markers, and cluster 2 is marked by the green markers.
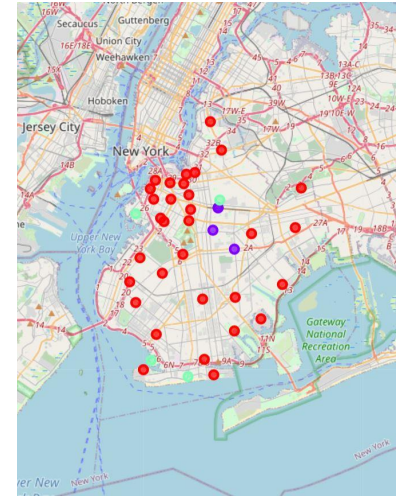
Discussion

- Most of the museums are concentrated in the central neighborhoods with the highest

  number in cluster 1

- There are virtually no museums in the north-western neighborhoods, making these

  neighborhoods prime for the development of a new museum

- This is beneficial as the new museum will be facing very little competition with other

  museums

Conclusion

- The best place for opening a new museum would be in the north-western cities of
  Brooklyn where there is little to no competition with other museums, allowing the new
  museum to capitalize upon all the surrounding industries.