Coursera Capstone Project

IBM Applied Data Science

Opening New Urgent Care Centers in Boston,MA

By: Mrinal Shukla
November 2019

Business Problem

- Due to rise of cost in ER Care, the demand for Urgent Care Centers is increasing.

- Urgent Care Centers cost less and have less waiting times.

- Location of the Urgent Care Center is key for its success.

- Objective is to find the best locations in the city of Boston for new Urgent Care Centers.

Business Question

- What locations, in the city of Boston would we recommend Urgent Care Companies to open new Urgent Care Centers?

Data

Required Data

- List of neighborhoods in Boston
- Geographical Co-ordinates of the Neighborhoods
- List of venues similar to or equal to Urgent Care Centers

Data Sources

- Wikipedia page for neighborhoods of Boston.
  https://en.wikipedia.org/wiki/Neighborhoods_in_Boston
- Geocoder Python Package for Latitudes and Longitudes.
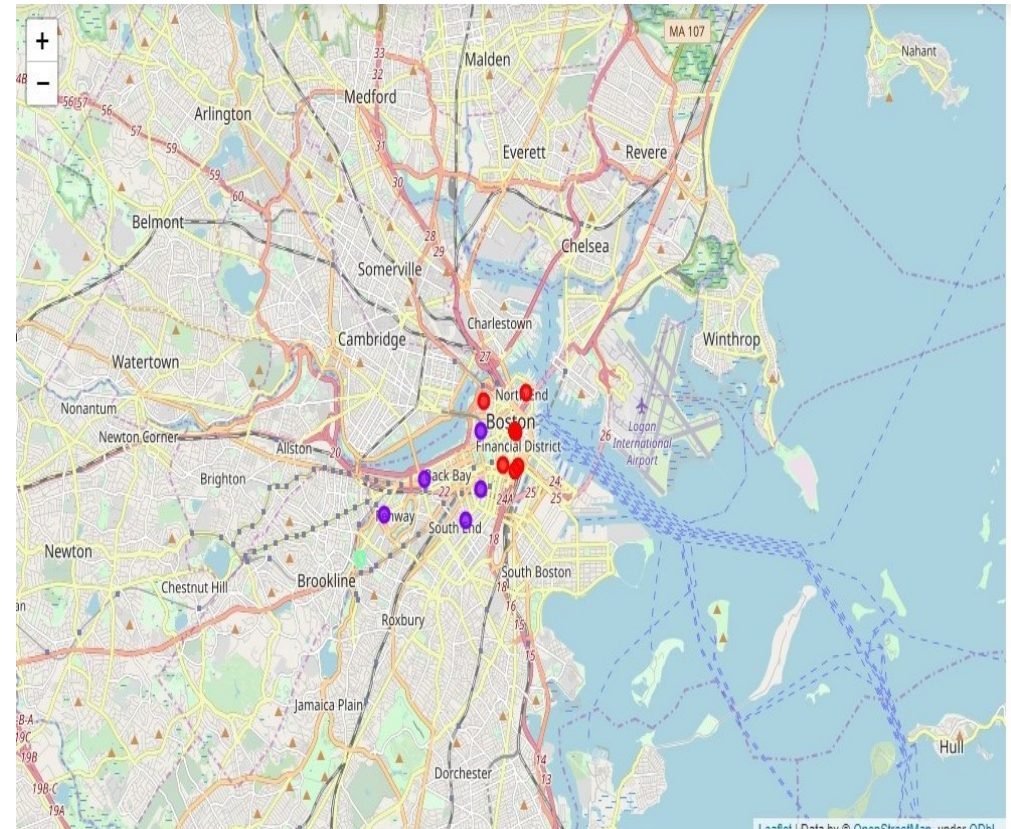- Foursquare API for venue data.

Methodology

- Web Scraping to get list of Neighborhoods of Boston.

- Using Geocoder to get Latitudes and Longitudes of neighborhoods.

- Using Foursquare API calls to get venue data.

- Grouping data by neighborhoods and venue frequency.

- Filtering out data for only Urgent Care Centers.

- Clustering Data using K-Means.

- Visualizing the clusters using folium.

- Examining clusters to draw conclusions and recommendation.

Results

Data is categorized into 3 clusters:

➤ Cluster 0: Neighborhoods with the most numbers of Urgent Care Centers (in red).

➤ Cluster 1: Neighborhoods with a few Urgent Care Centers (in purple).

➤ Cluster 2: Neighborhoods with least number of Urgent Care Centers (in mint green).

Discussion

➤ Most of the Urgent Care Centers are in the North End or Central part of Boston.

➤ Cluster 0 has the most number of Urgent Care Centers and cluster 1 has moderate.

➤ Cluster 2 has the least number of Urgent Care Centers.

➤ The neighborhoods in the North and Central Part of the city have the most Urgent Care Centers, hence people in those areas already are their patrons.

Recommendation

> It is recommended that the new Urgent Care Centers be opened in neighborhoods in cluster 1 and 2 as they very few or no center.

> Opening new centers in neighborhoods in cluster 0 is not advised as they already have quite a few centers.

> If new centers are opened in cluster 1 they may not be successful as people are already patrons of the existing centers and would not want to change.

Conclusion

- Answer to the Business Quesion: The neighborhoods in clusters 1 and 2 would be best for opening new Urgent Care Centers.

- The analysis in this project would help Urgent Care Companies find the best locations to open new Urgent Care Centers and avoid areas which would not be profitable.

Thank You