Capstone Project – Battle of The Neighborhoods Report

Introduction

a. Background

Chicago, one of the largest and most populous cities in the United States, is not only renowned for the classics like deep dish pizzas and Chicago dogs but also lauded for its diverse food scenes. Chicago was recently voted as Best Restaurant City in America by Bon Appetite Magazine, surpassing New York and Los Angeles. The city of Chicago also represents the image of a highly diverse community. In particular, the Hispanics population amounts to almost 30% of the entire population, majority of which have Mexican background, and is regarded as the fastest growing ethnics segment in the area.

b. Problem

Our client, Miguel, wants to open a Mexican restaurant in Chicago that serves authentic Mexican dishes but with a sophisticated twist. However, he is unable to decide which neighborhood in Chicago should be the new home to his restaurant. He prefers a location that is close to the heart of Chicago without much existing competition in order to attract the white-collar workers in the city for lunch and after-work social hours. The objective of this project is to help him analyze the different neighborhoods in Chicago and determine the optimal locations for his restaurant.

Data

In order to help Miguel solve his problem, the following information needs to be gathered: a list of all the neighborhoods in Chicago, the location coordinates for each neighborhood, and the venue information for all those neighborhoods with the emphasis on Mexican restaurants.

The list of neighborhoods in Chicago can be found on Wikipedia. (https://en.wikipedia.org/wiki/List_of_neighborhoods_in_Chicago) We will scrape the web page and extract the necessary information using Python and BeautifulSoup. The Geocoder package in Python will then be used to help us obtain the location data of the neighborhoods. Lastly, we will use Foursquare API to acquire the venue information for each neighborhood.

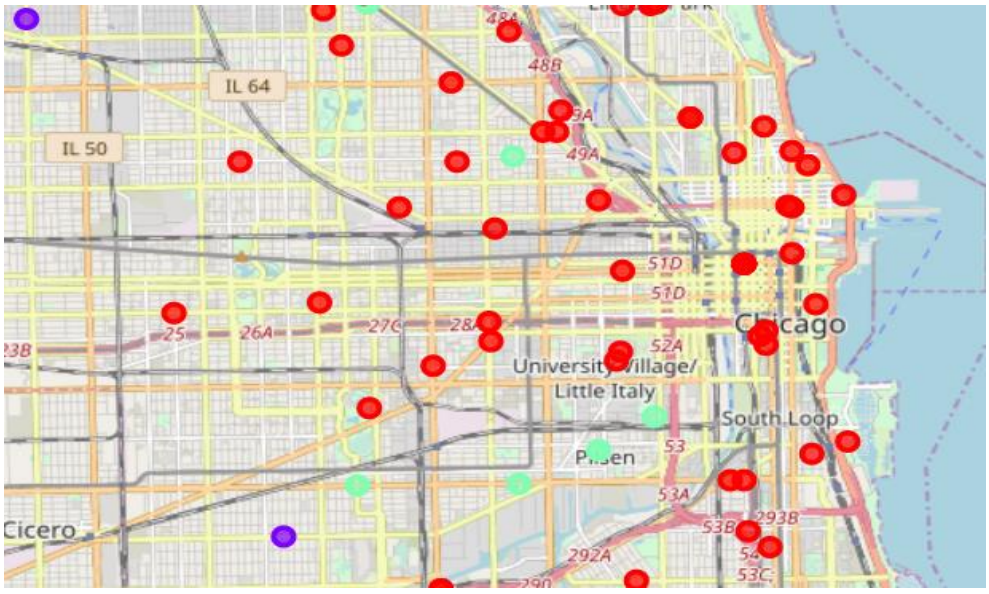
Methodology

For the purpose of obtaining a list of neighborhoods located in Chicago, we scraped the table data from Wikipedia (https://en.wikipedia.org/wiki/List_of_neighborhoods_in_Chicago). With the help of Python and BeautifulSoup, the table from Wikipedia was able to be imported and converted into data frame on Jupyter Notebook. In addition, we used the Geocoder package in Python to acquire the location coordinates of each neighborhood. Subsequently, the acquired data was used in Foursquare API to get the top 100 venues within a radius of 500 metres. The results were used for K-means clustering, which was performed to return 3 clusters of number of Mexican restaurants in various Chicago neighborhoods.

Results

The result from K-means clustering illustrates the 3 Mexican restaurant clusters located around the city of Chicago.

- Cluster 1: Neighborhoods with low numbers of Mexican Restaurants (Red)
- Cluster 2: Neighborhoods with moderate numbers of Mexican Restaurants (Purple)
- Cluster 3: Neighborhoods with high numbers of Mexican Restaurants (Green)



Discussion

As we can see from the cluster map, it represents many opportunities opening a Mexican restaurant closer to the heart of Chicago. The Cluster 1 are mostly, if not all, located closer to the downtown area while Cluster 2 and Cluster 3 are mainly in the outskirt areas of the city. Therefore, Miguel has many options that will fit his needs and desires. Most corporate offices are located in The Loop. Opening a high-end restaurant there will surely attract the working professionals for lunch specials as well as happy hours after work. However, one of the challenges of having a restaurant in downtown will be the high operating costs associated with the location such as renting cost as well as competition from other non-Mexican restaurants.

Conclusion

In order to further determine the most optimal location for the restaurant, we will need to gather additional information about the demographics and the surrounding areas of the Loop. Different research methods such as conducting surveys and in-person walkthroughs will be recommended to determine how receptive the potential customers will be to a downtown Mexican restaurant and whether it represents a profitable opportunity. Additionally, Miguel needs to decide how much he is willing to spend on operating expenses like rent and such and whether he is willing to sacrifice the location for cheaper costs. Regardless, the analysis we have done serves as a great starting point and should help narrow down the research that needs to be conducted in the future.