Capstone Project

Find an Ice Cream Parlor Location in Chicago, IL

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Introduction

A new client is looking for an ideal location to open an ice cream parlor in Chicago, IL (USA). She hired us to use location data to identify key metrics that will aid in location selection. We used Foursquare location data to identify venues that indicate the existence of a large potential customer base in the neighborhoods of Chicago. We also used it to identify existing competitor businesses in those locations with a large number of potential customers. An ideal location will have a large number of potential customers and relatively low competition.

Methodology

In this project we sought to identify an ideal location in Chicago to open an ice cream parlor. We found a list of all of neighborhoods on Wikipedia and used Google maps to obtain the latitude and longitude for each.

We then identified the locations of schools, parks, beaches and other venues that serve as probable indicators of nearby customers. Together these should be a strong indication that large numbers of customers are regularly in the vicinity. We also gathered data on the location of competitor businesses to determine likely competition for the new business.

We chose k-means clustering to analyze the customer and competitor data sets. These data points were then compared directly.

Data

We found a comprehensive list of Chicago neighborhoods on Wikipedia. Chicago is a very large city and upon consulting the client, a smaller area was chosen based on proximity to her home. It consists of the

following community areas: the Near North Side, West Town, Lincoln Park, Lakeview, Logan Square, Avondale, North Center and Uptown. The folium map of the selected neighborhoods is below.
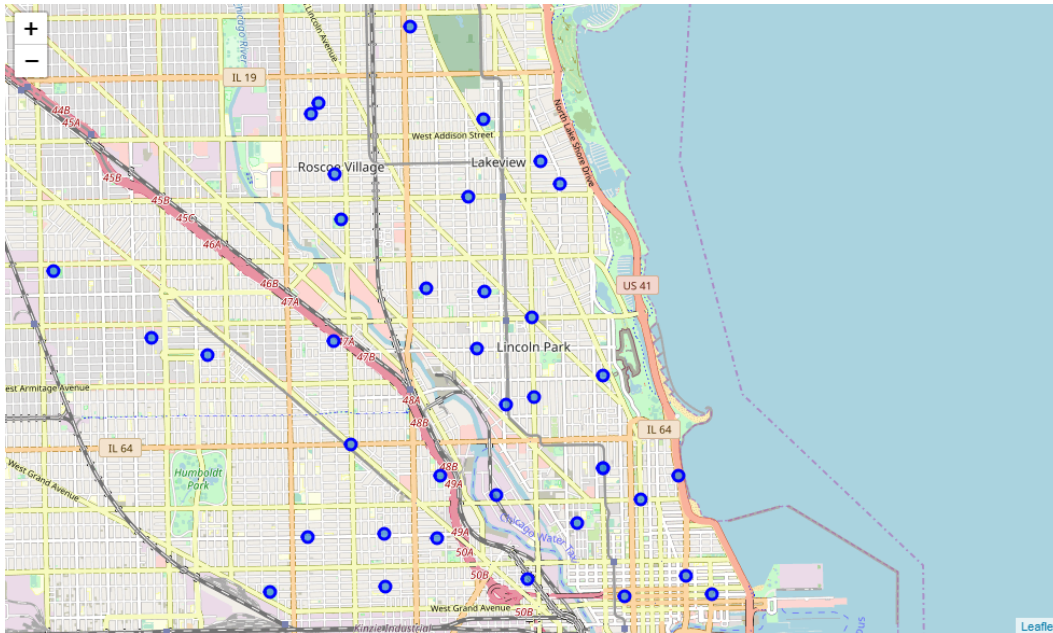
The next focus was identifying venues that might indicate a large customer base. Schools may be helpful to identify areas where families live while other factors such as parks and beaches will draw customers from surrounding areas. Additional businesses like movie theatres and bowling alleys may also help indicate potential customers. We used Foursquare to identify the location of these types of venues and the resulting folium map is below.
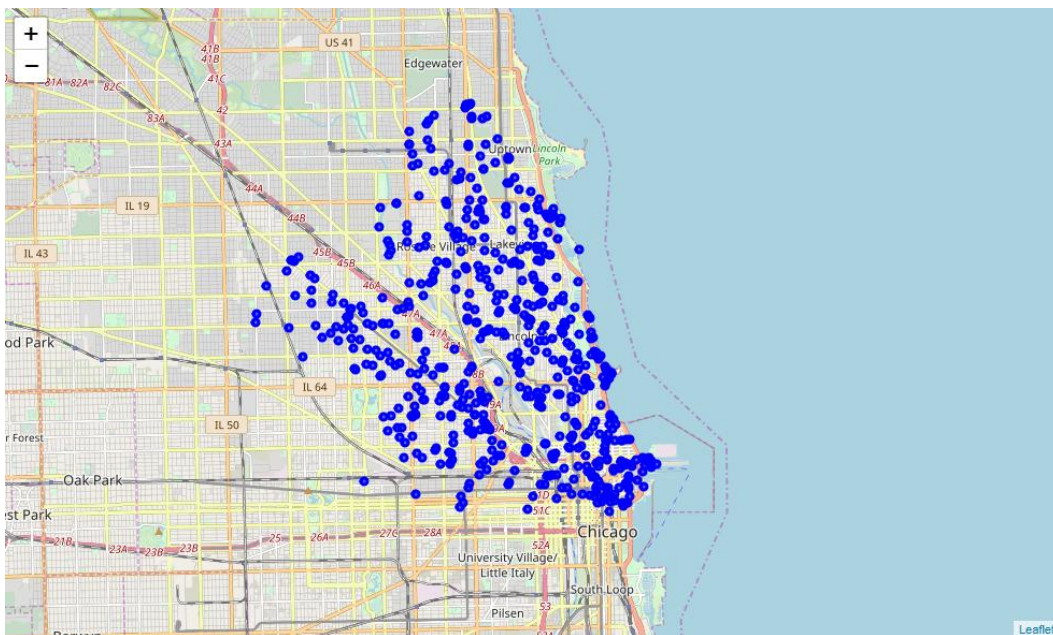
Finally, after identifying areas with large potential customer bases we found competitor businesses including other ice cream parlors. A certain density of competitors may indicate a poor location choice depending on the size of the potential customer base.
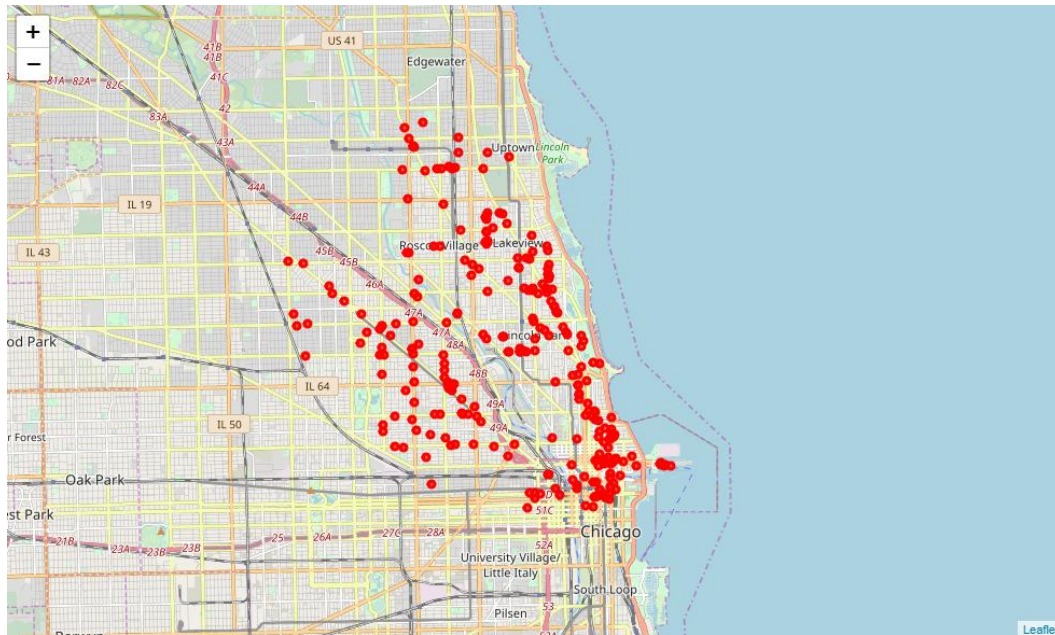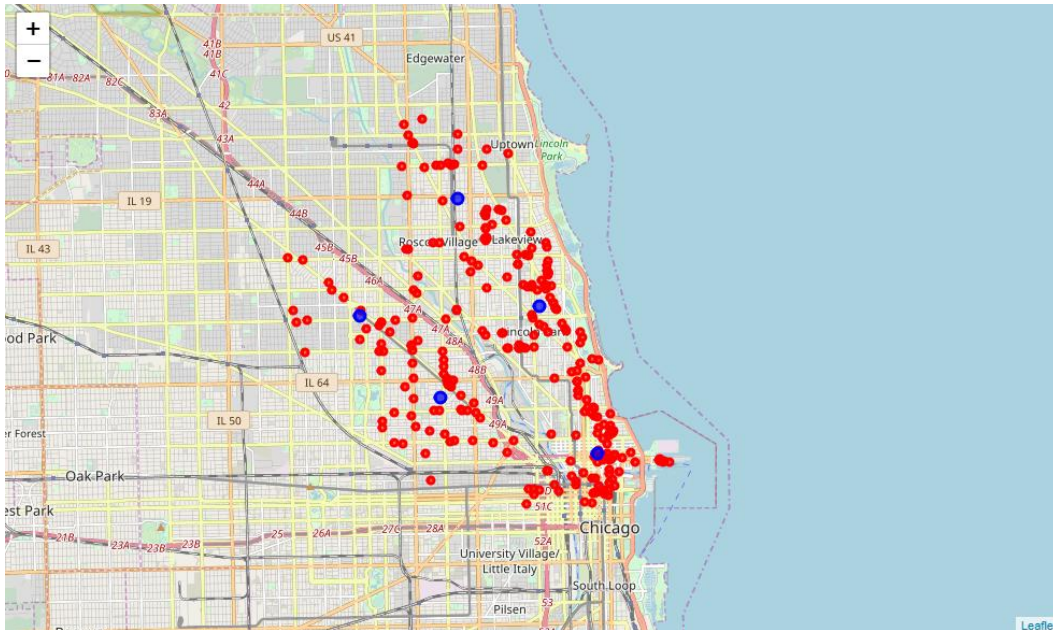

Analysis

We used k-means clustering to identify locations with large numbers of potential customers. The following map shows centroids of our analysis on top of the locations representing potential customers.
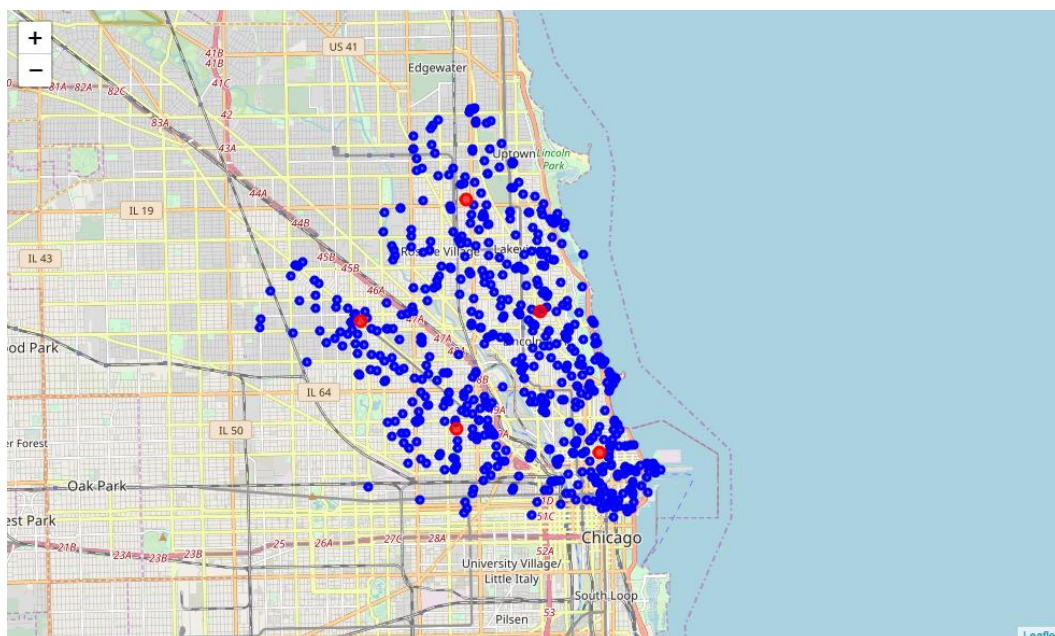
We performed the same analysis to generate a map of competition centroids and the underlying data points.

Finally, the customer and competitor centroids were plotted on the same map.
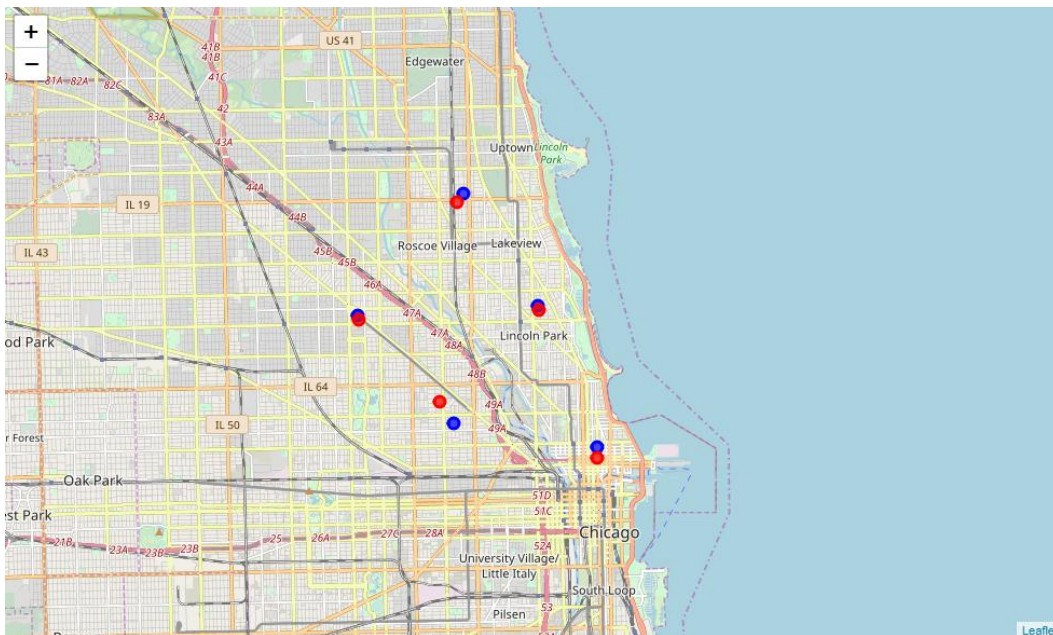
Results and Discussion

These results are not entirely surprising. The north side of Chicago where we focused our search is indeed a highly developed area of the city and competition among business owners in most categories is fierce. While this is not an ideal result, it has the benefit of letting the potential business owner know the truth. Yes, there are large pools of potential customers but competition is most likely unavoidable.

Here are the major intersections closest to the customer data centroids:

- Division and Damen in Wicker Park
- Fullerton Ave, Lincoln Ave and Halstead St in Lincoln Park
- Ashland Ave and Irving Park Rd in Lakeview
- Chicago Ave and State St in River North
- Logan Blvd, Milwaukee Ave and Kedzie Blvd in Logan Square

The Division and Damen location has the most significant separation from a competition centroid but not so substantial as to make this the clear best location of the five.

Conclusion

The hard truth is the area we focused on has a large number of competitor businesses already. The area does manage to support all of them but a new ice cream parlor will face stiff competition and need to set itself apart from the rest to succeed. Creating a unique business is potentially critical to success.

Additional considerations such as visibility, availability, rent, etc are beyond the scope of this project but should be considered carefully before final location selection takes place. These are likely to be critical to success as well.

In closing, it is worth acknowledging that the data underlying this conclusion is not perfect and can be massaged to produce more favorable outcomes but that really does a disservice to the client.

References

1. Wikipedia Chicago Community Areas
    (https://en.wikipedia.org/wiki/Community_areas_in_Chicago)
2. Wikipedia Chicago Neighborhoods
    (https://en.wikipedia.org/wiki/List_of_neighborhoods_in_Chicago)
3. Google Maps Geocoding API
    (https://developers.google.com/maps/documentation/geocoding/intro)
4. Foursquare API (https://developer.foursquare.com/)