Find The Best Location for Thai Restaurant in Miami

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1. Introduction

1.1 Background

Restaurant business is a big challenge for investors especially in a big city which having high competitive. The main factor to success in restaurant business is its location. A good location might turn a average restaurant into high profit one.

1.2 Problem

Miami is the big tourist city which full of people and tourist from over the world. There are many many restaurants and cafes in Miami. Even though Thai food is one of the most famous, to open a Thai restaurant is not that easy. One of the most important question is which location is the best?

1.3 Interest

Investors who want to start their business in Thai restaurant would be very interested in this analysis. The report might also used as a support document for business loan.

2. Data acquisition and cleaning

2.1 Data source

There are 2 sources of data used in this analysis:

- List of neighborhood in Miami from www.wikipedia.org. The data shows a table of neighborhoods in miami, their demonym, population, density of population, sub-neighborhoods and its coordinates.
- Restaurant data (food section) of each neighborhood from www.foursquare.com. The data contains explored venue of each area and category of each venue.

2.2 Data cleaning and feature selection

For table of neighborhoods, first of all we need to drop column that are not concern in this analysis like demonym and sub-neighborhoods and then we need to drop rows that have no data of coordinates, population and density. Some data is not ready to be used for example in

column of population contain string data(mix of number and word), this kind data must be reassigned. Type of data in each columns shall be assigned. Coordinate of each neighborhood are mixed up, the data must be separate in latitude and longitude.

The Neighborhood name and their location in latitude and longitude is used to acquire data of food venue from Foursqure. The data is convert to the most common venue of each neighborhood before used in analysis.

3. Exploratory data analysis

3.1 Top 5 population

Population of the neighborhood is important factor to consider. The more people in the area the more demand of food. In Figure 1 and Table 1 shows top 5 of population of neighborhood.

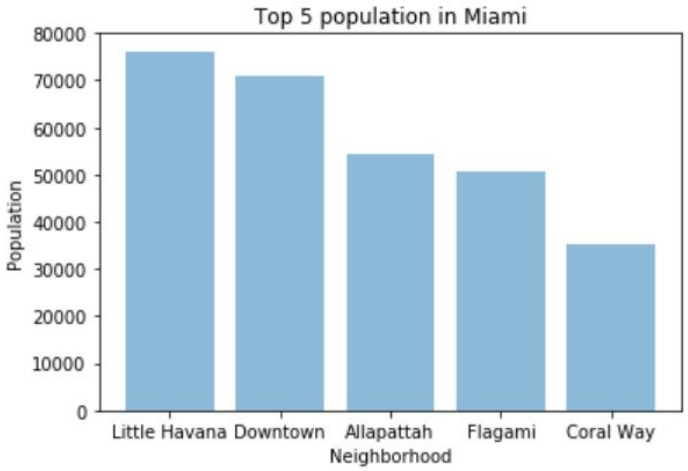


Figure 1

	Neighborhood	Population2010	Population/Km^2	Coordinates
14	Little Havana	76163	8423	25.773-80.215
7	Downtown	71000	10613	25.774-80.193
0	Allapattah	54289	4401	25.815-80.224
9	Flagami	50834	5665	25.762-80.316
5	Coral Way	35062	4496	25.750-80.283

Table 1

Little Havana, *Downtown* and *Allapattah* are most population respectively which might be good locations to consider.

3.2 Top 5 density

High density(people/area) is also very important factor. High density increases an opportunity to have more customer. In Figure 2 and Table 2 shows top 5 of density of neighborhood.

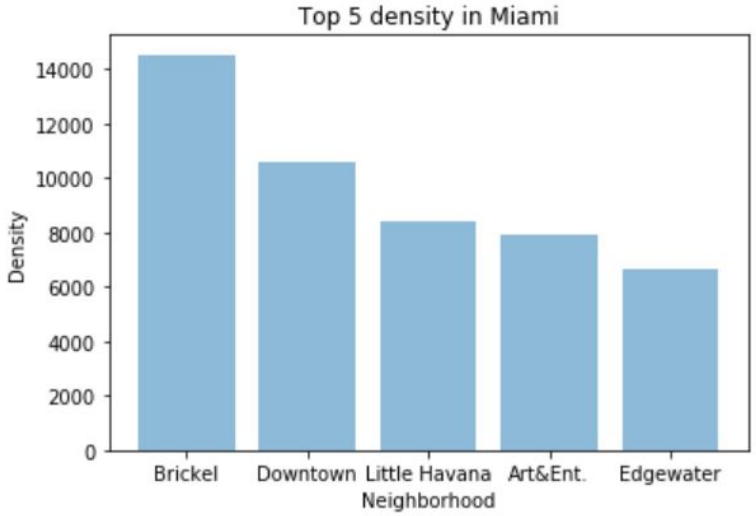


Figure 2

	Neighborhood	Population2010	Population/Km^2	Latitude	Longitude
2	Brickell	31759	14541	25.758	-80.193
7	Downtown	71000	10613	25.774	-80.193
13	Little Havana	76163	8423	25.773	-80.215
1	Arts & Entertainment District	11033	7948	25.799	-80.190
8	Edgewater	15005	6675	25.802	-80.190

Table 2

Brickell, *Downtown* and *Little Havana* are the most density neighborhoods. *Little Havana* and *Downtown* are also high population neighborhoods so that they are interesting.

3.3 Density and geography

To find location of the interesting neighborhoods on the map we plot one circle for each neighborhood. The size of the circle represents its density as shown in Figure 3.

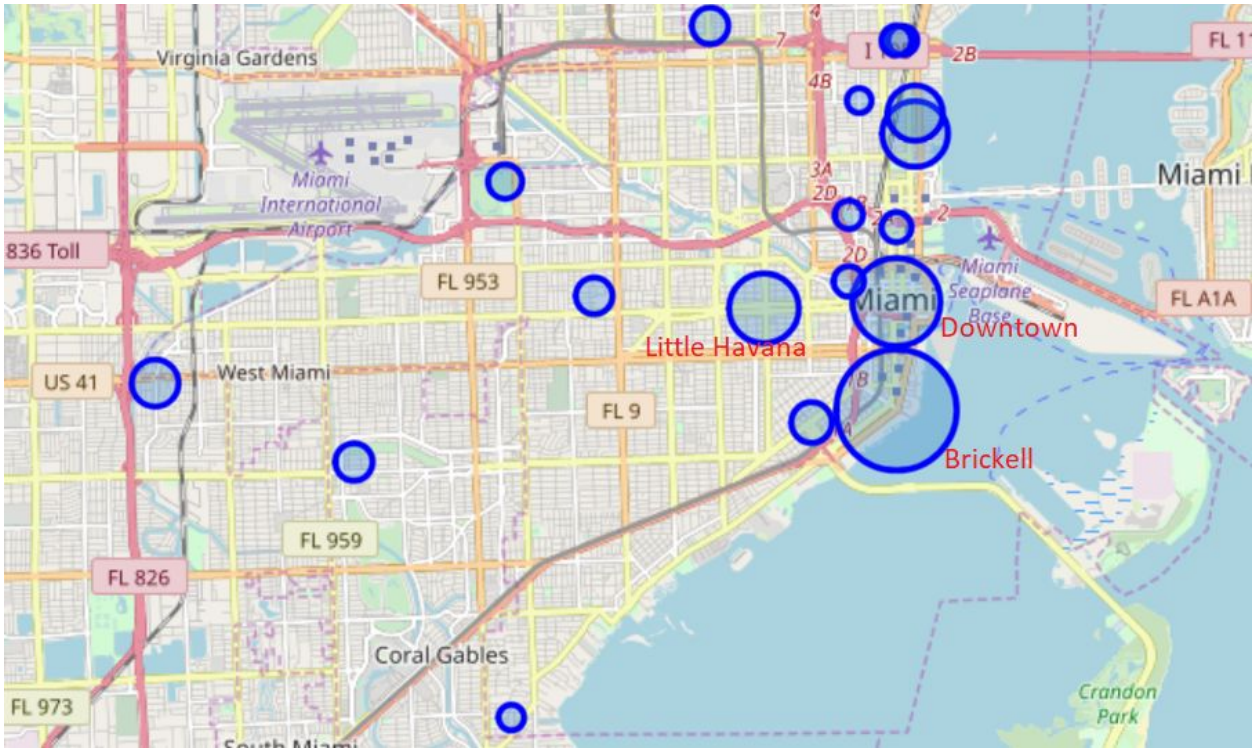
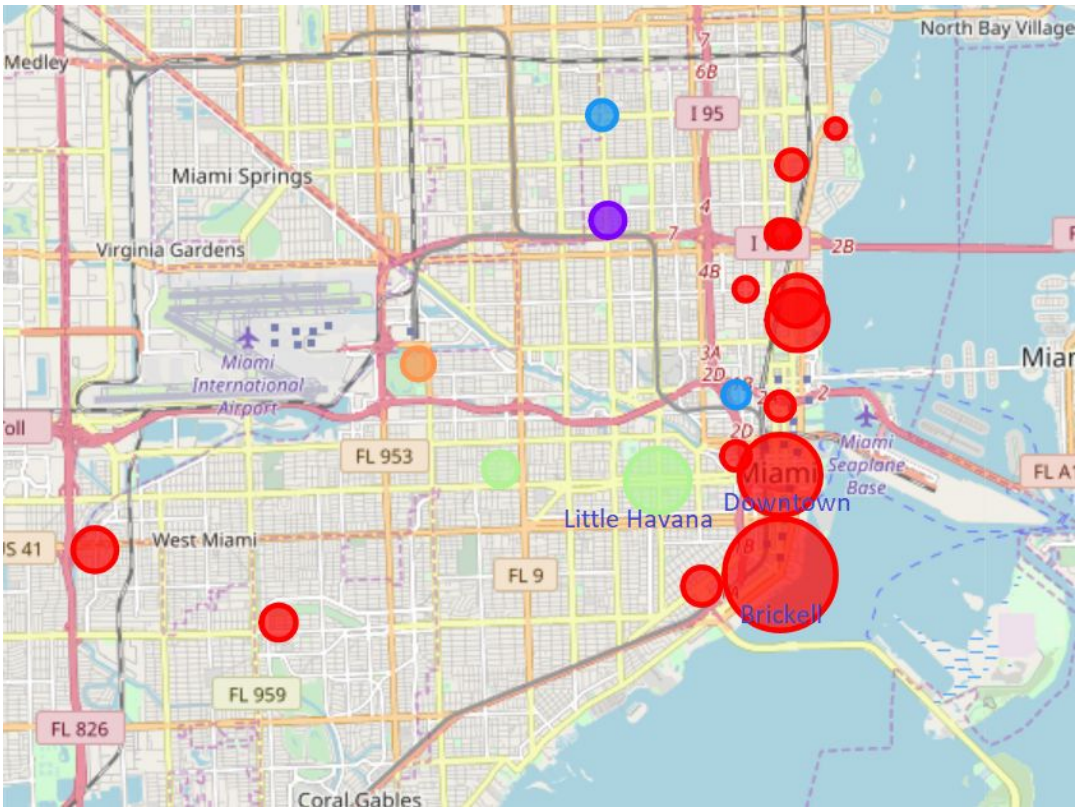


Figure 3

We found information that there is high density area along the beach as many big circles are located there. And top 3 density neighborhoods *Brickell*, *Downtown* and *Little Havana* are quite close together.

4. Predictive model

We use data from Foursqure which converted to common food venue of each neighborhood as input for cluster analysis. When applied number of cluster, k = 6 and plot the size of the circle vary by its density, we found information that Brickell and Downtown are in cluster 0 (red) but Little Havana is in cluster 4 (green) as in Figure 4.



And when study in both clusters found that cluster 0 is international food which consists of variety type restaurant like Italian, Japanese, American but in cluster 4 most of the restaurant type are Latin, Spanish, Mexican.

5. Conclusion

The best location for opening a Thai restaurant in Miami is in *Brickell* or *Downtown* which both neighborhoods have high density and they both are in cluster 0 - ‘International Food’ cluster which Thai restaurant could be a good option for those mixed culture people. In the other hand *Little Havana* which has the highest population and the third of highest density but it is in cluster 4 - ‘Latino Food’ it might not be a good idea to open a Thai restaurant there.
