

Case Study of Selecting a neighborhood in Manhattan, New York to Open a new Japanese Restaurant

Introduction

The business problem is in which neighborhood of Manhattan, New York should I choose to open a new Japanese restaurant. This case study will be particularly interesting to me and anyone who is looking for suggestions on the reasonable location to open a new Japanese restaurant. There are already a lot of Japanese restaurant opened throughout Manhattan. If I randomly select a neighborhood to start the business, I might fail to make any profits due to the facts that there might be not enough Japanese food lovers to support the restaurant or the residents of the neighborhood could not afford the price of comparatively expensive sushi/sashimi. However, the restaurant should not be located at neighborhood with many Japanese restaurants either since the competitions there are already drastic enough. Even there are enough customers and people could afford the price, they might have their favorite Japanese place already and are not interesting in other similar restaurants.

Data

The downloaded geospatial data, 2014 New York City Neighborhood Names, is published by New York (City). Department of City Planning. After the .json file is loaded and read, borough, neighborhood, latitude, and longitude data is retrieved and stored into a pandas dataframe. The latitude and longitude of each neighborhood will later be looped to search for qualified venues.

The coordinate of Manhattan, New York, which is the point of interest in this study, is acquired by Nominatim function from geopy library. With the coordinate, we are able to draw a map that shows all neighborhoods at Manhattan and their clusters after the classification. Then, with the support of Foursquare API, each venue within 500 meters of the center of each neighborhood, along with its latitude, longitude, id, name, and category, is queried and stored in a pandas dataframe. Finally, to get the rating of each venue, the id is used to query information of specific venue then retrieve the rating. The rating is inserted as a column to the previous dataframe.

Method

To find a solution of the above problem, I first found similar neighborhoods in Manhattan and grouped them into clusters with the venue category data acquired through Foursquare API and KNN machine learning package. Then, I filtered the dataframe with keyword “Japan” and “Sushi” to represent the possible words that could be contained in the venue category. After that, I found the cluster with the most Japanese restaurants by grouping the dataframe and used it to filter the venues. For each venue in the selected neighborhood, I requested Foursquare API again for the ratings of each Japanese restaurant and get an average rating. I also grouped the dataframe to get a count of venues for each neighborhood. Finally, I ranked the neighborhoods by the count of Japanese restaurants (higher score for less restaurants) and the mean rating (higher score for lower rating). With the sum of these two scores, I sorted the dataframe in descending order and found the most reasonable neighborhood to open my Japanese restaurant.

Result

The resulting most reasonable neighborhood to open a new Japanese restaurant is Manhattan Valley. There are only 2 Japanese restaurants opened within 500 meters of the center of this neighborhood. Also, the average rating of these two restaurants is 7.8, which is the lowest among all Manhattan Neighborhoods. There is only 1 neighborhood, Gramercy, having 1 Japanese restaurant and several other neighborhoods having 2 Japanese restaurants as well but higher average ratings.

Discussion

In this case study, only the average rating and existing restaurant of the same category are considered. There are more parameters that could be taken into clustering, such as median or mean income, median or mean rental price, and distribution of ethnicities. These factors could greatly affect the clustering and the scores of each neighborhood on being an optimal location to open a Japanese restaurant. Also, statistically speaking, the mean rating could potentially mislead the result. For example, if there are only two venues, one with 9.0 rating and another with 6.0 rating, the mean rating will be 7.5, which is pretty low in this case study. However, the 9.0 rating restaurant will be attractive to most of the people in this area and has great customer stickiness. As a result, opening a new, same category restaurant in this specific area will be risky. Generally, this case study is an experiment to explore and evaluate business opportunities. To make a comprehensive business decision, more detailed background information and accurate assessments will be required.

Conclusion

Manhattan Valley occupies a natural depression running east-west across Manhattan, declining rapidly from high rocky bluffs at the western border of modern Central Park, and following west the valley created by what was once a minor stream draining from roughly the area of the Harlem Meer into the Hudson River. In 2005, brokers estimated that properties in the area were approximately 30% less expensive than comparable properties in the adjacent south. The neighborhood's proximity to the much-valued Central Park as well as to three separate subway lines make it attractive to young commuters, and as of 2006 prices were rising dramatically as New Yorkers were "tipped off" by their brokers. According to the 2000 United States Census (in which Manhattan Valley's census tracts are 187, 189, 191, 193, and 195), 48,983 people live in the community. Of the population, 44% are of Hispanic origin, 32% are African Americans, and 24% are Asians, whites, and other races. As introduced above, Manhattan Valley is not a great location for a fancy Japanese restaurant due to the demographic structures: Asians only take one fourth of the population and younger people are major residents. However, from another perspective, it is still a reasonable place because the rent will be relatively low comparing to the most popular area around Central Park. Also, the restaurant could take strategy of offering a broader and more economical menu to attract young people and people from different races. As long as the cost is well controlled, it is still possible to provide delicious food with affordable price and therefore make considerable profit.