

Investigate the neighborhood in Manhattan to open a restaurant

Introduction

Manhattan is the most multicultural and cosmopolitan city in the north America. It has diverse cultures, embrace lots of immigrants and welcome many tourists. I would like to explore Manhattan in the area of restaurants and give the suggestions on where to open a restaurant and choices of their tastes in each city. Investors looking forward to opening a new restaurant in Manhattan would find this project to be useful in finding the good neighborhood and what type of restaurant will agree to the taste of the populations.

Data

The New York data is downloaded from `"https://geo.nyu.edu/catalog/nyu_2451_34572"`. I will organize the borough, neighborhood and location information into dataframe. Then I will explore the neighborhood information and summarize the most popular restaurants in the neighborhood using Foursquare API. After cleaning and analyzing dataframe, I will suggest opening a new restaurant on neighborhoods with few choices of good restaurant. Based on the tastes of Manhattan, several popular tastes of cuisine would be suggested.

Methodology

1 To investigate which neighborhood is suitable to open restaurant, I first summarize the total number of restaurants and venues in each neighborhood. The relationship is linear with each other until the setpoint (100 venues in my search).

My assumption is the more venues, the more residents or visitors. So I choose those the neighborhoods with lots of venues. In these neighborhoods, I analyze the histogram of the numbers of restaurants. The distribution is normal, and I believe there is a good chance to open a restaurant in neighborhood with fewer restaurants.

2 To investigate the tests of Manhattan, I first summarize top 10 restaurant types in each neighborhood. This dataframe represent the average taste of every neighborhood. Then I add the restaurant types in those 42 different neighborhoods to summarize the average taste in Manhattan. The top five choices of restaurants are found to represent over one third of restaurants venues types in Manhattan.

Results

1 We could choose to open new restaurants in Lincoln Square, Midtown or Soho. These areas are popular but has less restaurants compared with other popular neighborhoods.

2 The most popular restaurant types is Italian, American, French, Mexican, Seafood. The sum of their ratio is over one third.

Discussion

1 The area of each neighborhood is unknown. The area size information should help analyze the density of restaurant in each neighborhood.

2 When I read the list of restaurant types, I find there is more things to do further. For example, should Japanese Restaurants include Sushi Restaurants or not? What is the meaning of Asian Restaurants? More works should be done to group restaurant types and it is very complex.

Conclusion

After analyzing the venues in each neighborhood in Manhattan, I recommend to open new restaurants in Lincoln Square, Midtown or Soho. These areas are popular but has less good restaurants compared with other popular neighborhood. The most popular restaurant types in Manhattan: Italian, American, French, Mexican or Seafood.