Applied Data Science Capstone Project:

Project: Italian restaurant competition reduction

Problem: An Italian restaurant wants to create a new restaurant to expand its operations in Manhattan, but some neighborhoods are already dense with Italian restaurants.

Background: In order to minimize competition, the new restaurant will need to be set up in a location where Italian restaurants are not a common venue.

Interested parties of type of problem: Restaurant chains that want to expand

Data description: Using the Manhattan, New York City Foursquare neighborhood data we will look most common venues for neighborhoods to see which do and do not have Italian restaurants as common venues.

How will it be used to solve problem: In order to minimize competition the restaurant will be opened in a neighborhood where an Italian restaurant is not a common venue. The neighborhoods will be sorted by most common venues and by filtering out the results of those that have Italian restaurants as common venues we will be left the neighborhoods that are good candidates for opening the restaurant without competition.

Neighborhood data was grouped by neighborhood and the mean of the frequency of the occurrence of each venue category was calculated

Using the frequency that an Italian restaurant occurs within a neighborhood we can now sort by the Italian restaurant frequency and see which neighborhoods have a low frequency of Italian restaurants

The neighborhoods with a low frequency are the ones where there will be the least competition to open a new Italian restaurant in the area and thus are the candidates we want to look at

Results (See Next page)

Results: Of the several neighborhoods, 7 share a mean frequency of 0 for the number of Italian restaurant venues:

|  | **Neighborhood** | **Italian Restaurant** |
| --- | --- | --- |
| **19** | Lower East Side | 0.0 |
| **30** | Stuyvesant Town | 0.0 |
| **2** | Central Harlem | 0.0 |
| **28** | Roosevelt Island | 0.0 |
| **25** | Morningside Heights | 0.0 |
| **7** | East Harlem | 0.0 |
| **22** | Marble Hill | 0.0 |

Discussion:

The restaurant chain has now narrowed down the potential locations to choose for the new restaurant to the top 7 candidates.

Further exploration of which of the 7 is the best choice is beyond the scope of this project as would involve land and lease pricing, foot traffic and other logistical determinations

In conclusion, in order to minimize competition, the new restaurant store location should be in one of the following neighborhoods: Lower East Side, Stuyvesant Town, Central Harlem, Roosevelt Island, Morningside Heights, East Harlem, or Marble Hill