



IBM- COURSERA CAPSTONE PROJECT

The Battle of Neighbourhoods

ABSTRACT

This project aims to illustrate the application of machine learning and the Foursquare API services to help determine which would be the best Borough and Neighborhood in New York City (NYC) to open an Italian restaurant. The project will highlight a fictional scenario for demonstrating the benefits and intent of this project.

By: **Tevin Richard**

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1. Introduction

Entrepreneurs are constantly attempting to start businesses for the purpose of deriving an income stream and establishing a successful business empire. One of the largest challenges entrepreneurs face when starting a new business is finding the optimal location for starting up.

Location is key when starting a business since an ideally situated business will receive high customer traffic which could potentially translate into profitability. Furthermore, it is important to start a business in a location where the product or service you intend to offer is not readily available. This implies strategically starting up in an area that is not rife with competitiveness, thereby allowing you to meet the needs and/or wants of that population. By strategically opening a business in an area that has low levels of competition, it can be assumed that you will not have to keep up with competitive prices of already established enterprises which would drastically increase your businesses' probability of success.

CNBC recently named New York City (NYC) as the "top city to open a small Business in America". NYC is regarded as one of the world's largest centers for finance therefore making it an ideal location to consider when opening a business. Furthermore NYC is also considered as one of the most diverse cities in the United States (Financial, 2019), thereby allowing your business to potentially reach a wide population with varying interests, habits and likes or dislikes. This increases your businesses' probability of success as it can be assumed that your businesses' products or services would appeal to a small/large faction of the diverse population.

The next problem is to determine which Borough and neighborhood in NYC would be the most ideal location to purchase/lease a property for the purpose of starting a business.

1.1 Scenario

For the purpose of this project, we will explore the fictional scenario of an Italian entrepreneur, Raymond who had recently migrated to New York with the ambition of starting up a successful Italian restaurant. Raymond has limited finances and must therefore carefully consider all risks when making business decisions.

1.2 Business Problem

Raymond is aware that there are numerous competitor Italian restaurants that are already established in New York City and therefore requires assistance in determining which areas/neighborhoods are least densely populated with competitor restaurants. Raymond having limited resources for his start-up business must carefully choose a location that has low levels of competitiveness, which could ultimately increase his businesses' chance of success.

The objective of this project is to answer the following problem questions:

1. Which borough in NYC would be the best borough to open an Italian restaurant? (Based on least competition)
2. Which location has the highest number of Italian restaurants?
3. Which Neighborhood would be the best Neighborhood to open an Italian restaurant? (Based on least competition)

4. Who would be the top 5 most competitive Italian restaurants in NYC that Raymond would have to compete with? (Based on customer ratings)
5. Which Italian restaurant would represent the lowest level of competition?
6. What would be the best locations (street names) to open an Italian restaurant?

1.3 Target Audience

This project was design to assist the target audience (entrepreneurs like Johan) in deciding upon which geographical location within a specified city (NYC in this project) would be ideal for starting up a new business.

2. Data Section:

This section describes the data that will be used for this project.

2.1 New York City data

This data set will be used to obtain information for the list of all Boroughs and Neighborhoods in NYC, together with their respective latitudes and longitudes. This dataset will be used as a starting point for which the latitudes and longitudes for each Borough and Neighborhood will be used within Foursquare to extract information for Italian Restaurants.

Source: This data can be obtained at the following [link](#).

2.2 Italian Restaurants Data

The data for all NYC Italian restaurants, including their stats (likes, ratings and tips) will be extracted using the Foursquare API.

The first request will involve retrieving the latitudes, longitudes, unique venue id and venue names for each Italian restaurant for each Borough and it's respective neighborhoods. The second request will be to retrieve stats(likes, ratings and tips) for each Italian restaurant found.

Source: [Foursquare API](#)

References

Financial, F. (2019, March 11). *5 Reasons to Open a Business in New York*. Retrieved from Fora Financial: <https://www.forafinancial.com/blog/small-business/open-business-in-new-york/#:~:text=CNBC%20recently%20named%20New%20York,industries%20like%20IT%20and%20entertainment.>