

Coursera Capstone

IBM Applied Data Science Capstone

Opening an Ethnical African Restaurant in New York

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Introduction

The demographics of New York City show that it is a large and ethnically diverse metropolis. It is the largest city in the United States with a long history of international immigration. New York City is home to nearly 8.5 million people as at 2019, accounting for over 40% of the population of New York State and a slightly lower percentage of the New York metropolitan area, home to approximately 23.6 million. Over the last decade, New York City had been described as the cultural, financial, and media capital of the world, significantly influencing commerce, entertainment, research, technology, education, politics, tourism, art, fashion, and sports. The New York region continues to be by far the leading metropolitan gateway for legal immigrants admitted into the United States.

This final project explores the best locations for African restaurants throughout the city of New York. Potentially the owner of the new African restaurant can have great prospect of making profit on a consistent basis. However, as with any business, opening a new restaurant requires serious considerations and is more complicated than it seems from the first glance. In particular, the location of the restaurant is one of the most important factors that will affect whether it will be a success or a failure. Therefore, our project will attempt to answer the questions - Where should an investor open an African Restaurant and where should he go if he wants great African dish.

Business Problem

The goal of this Capstone project is to explore, analyze and select the best locations in the city of New York to open a new African restaurant. Using Data Science methodology and tools, this project aims to provide solutions to answer the business question: Where in the city of New York, should the investor open an African Restaurant?

Target Audience of this project and some demographic facts

This project is particularly useful to developers and investors looking to open or invest in an African restaurant in New York City. Meanwhile, New York is a great place to open a restaurant with an ethnical cuisine. As New York is the most diverse city in the world with about 800 languages native speakers. With its diverse culture, comes diversity in the food

recipes. There are many restaurants in New York City, each belonging to different categories like Chinese, Indian, French, African etc.

Data

To solve the problem, we will need the following data:

New York City data containing the neighborhoods and boroughs. Latitude and longitude coordinates of those neighborhoods. This is required to plot the map and get the venue data. Venue data, particularly data related to restaurants. We are going to use this data to perform further analysis of the neighborhoods.

Data Source and methods to extract them

New York City data containing the neighborhoods and boroughs will be obtained from the open data source: https://cocl.us/new_york_dataset. After it, we will get the geographical coordinates of the neighborhoods (latitude and longitude) using Python Geocoder package.

Finally, we will use Foursquare API to get the venue data for the neighborhoods defined at the previous step. Foursquare has one of the largest databases of 105+ million places and over 125,000 developers use this application. Foursquare API provides many categories of the venue data; we are particularly interested in the restaurant data to solve the business problem defined above.

This project will require using of many data science skills, from web scrapping (open source dataset), working with API (Foursquare), data cleaning, data wrangling, to map visualization (Folium).

Methodology

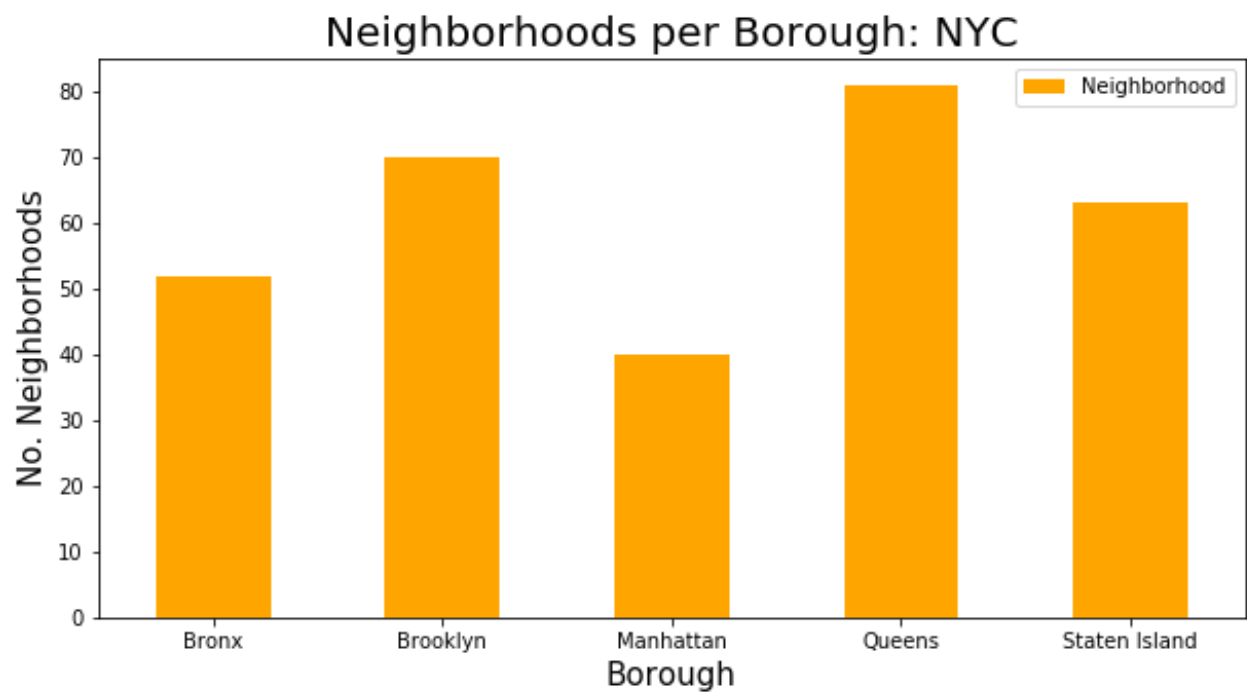
- Data will be collected from https://cocl.us/new_york_dataset and cleaned and processed into a dataframe.
- FourSquare be used to locate all venues and then filtered by Japanese restaurants. Ratings, tips, and likes by users will be counted and added to the dataframe.
- Data will be sorted based on rankings.
- Finally, the data be will be visually assessed using graphing from Python libraries.

Problem Statement

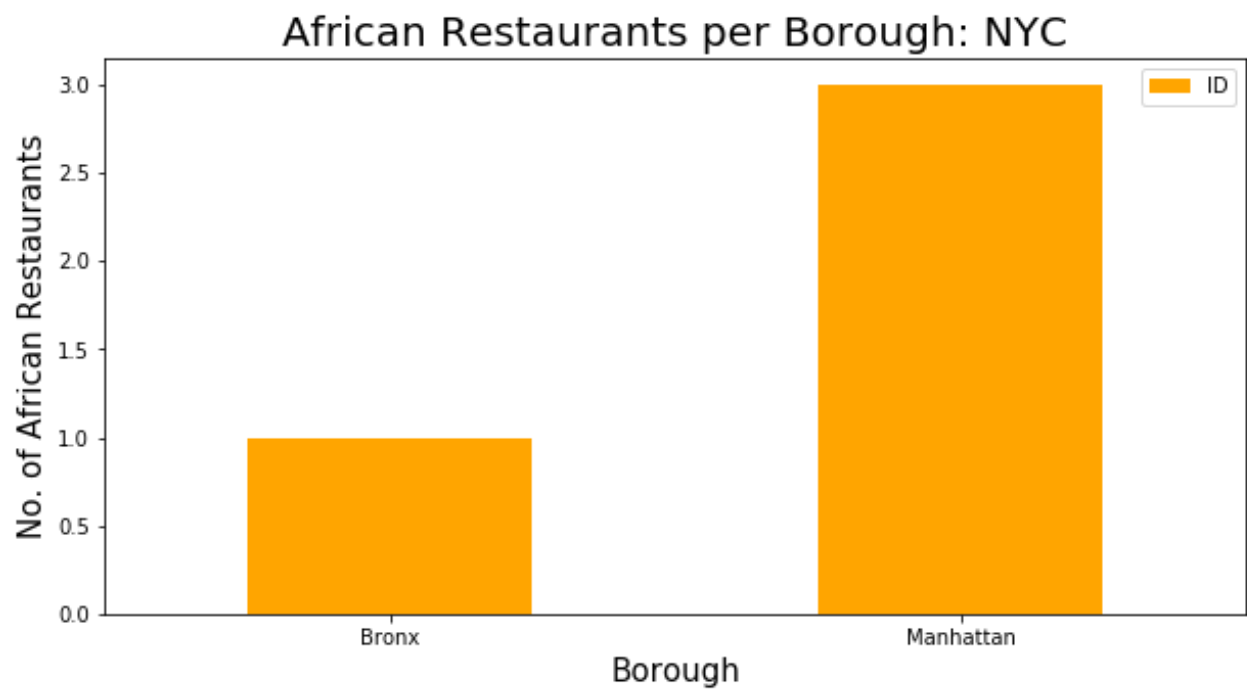
- What is / are the best location(s) for African cuisine in New York City?
- In what Neighborhood and/or borough should the investor open an African restaurant to have the best chance of being successful?
- Where would I go in New York City to have the best African food?

Results

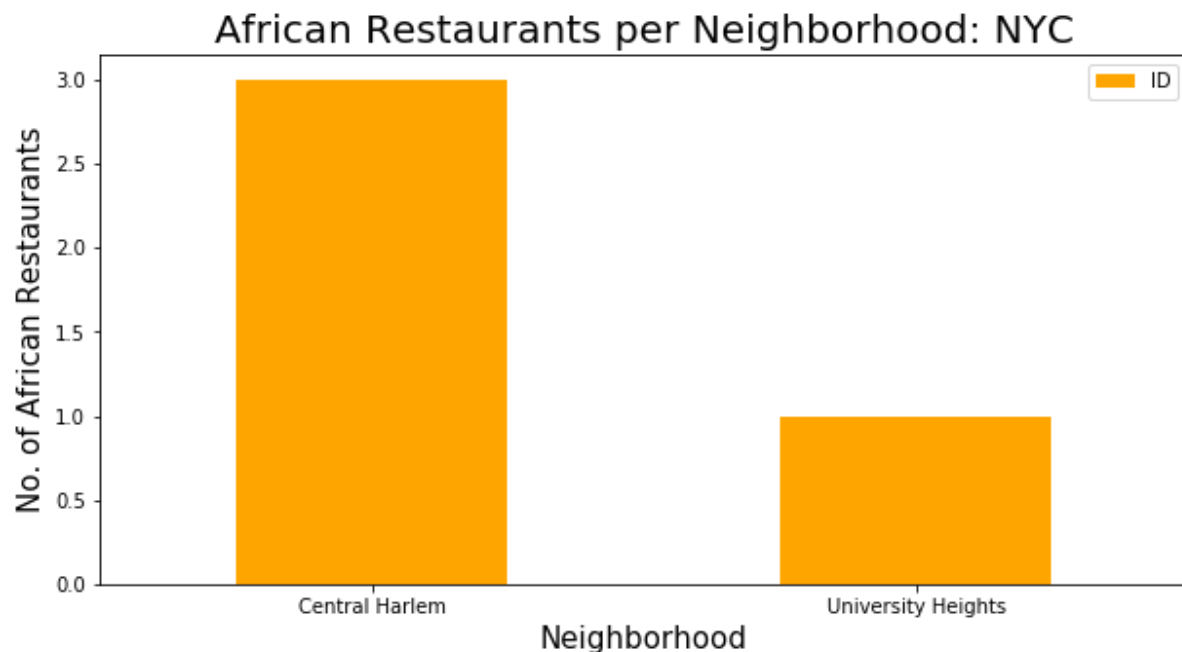
1. We could see that Queens has the highest number of Neighborhoods.



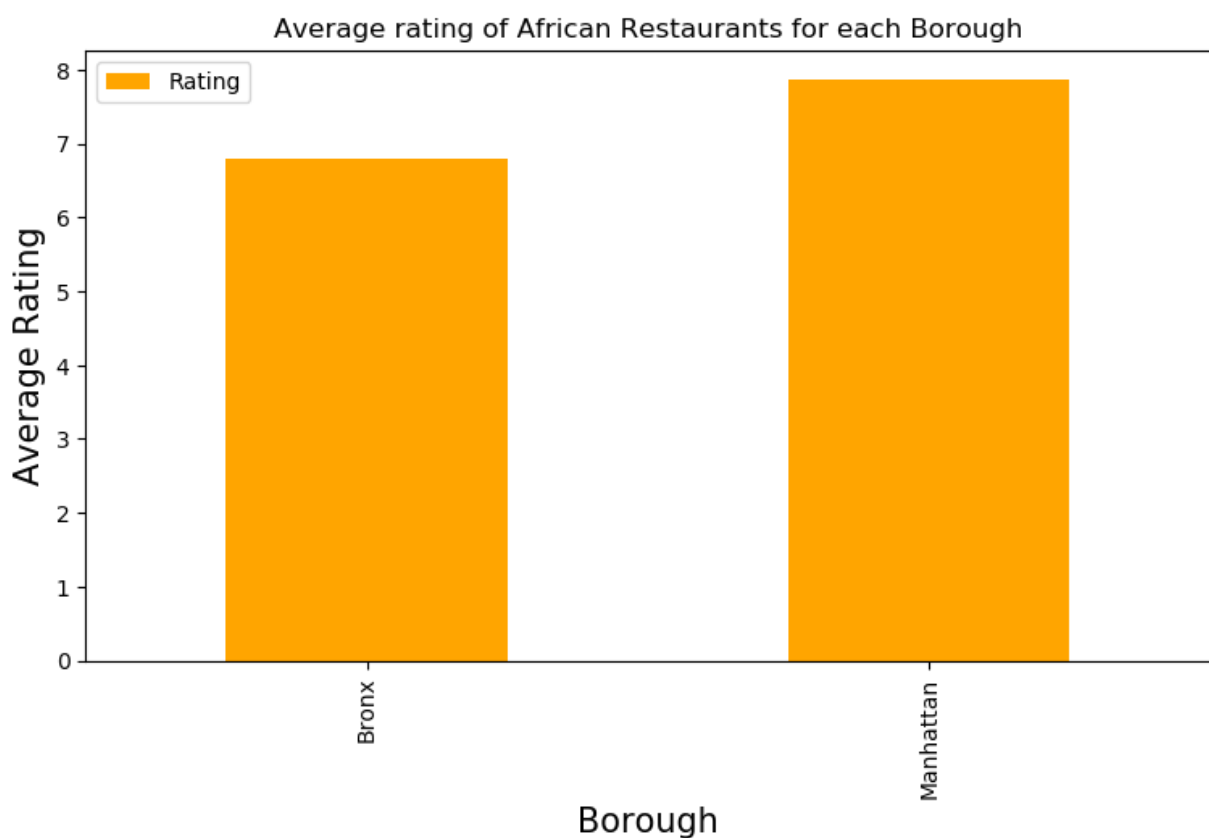
2. Manhattan has the highest numbers of African restaurants across New York City. Obviously, African Americans are more there.



3. Central Harlem in Manhattan has more concentrations of African Restaurants with a total of 3 African restaurants



4. Manhattan has the highest average rating for African Restaurants. Bronx goes right behind the Manhattan with the average rating of its African restaurants only a little lower than Manhattan. Two neighborhoods with the highest average rating for African Restaurants are Central Harlem in Manhattan and University Heights in Bronx.



	Borough	Neighborhood	Latitude	Longitude	Average Rating
0	Manhattan	Central Harlem	40.815976	-73.943211	7.866667
1	Bronx	University Heights	40.855727	-73.910416	6.800000

Top neighborhoods with the best African Restaurants average ratings.

Discussion

Our result shows that Manhattan and Bronx have the best concentration of African restaurants and on average, the best rated as well. Bronx has the least number of African restaurants compare to Manhattan. On analysing further, we saw that Central Harlem of Manhattan and University Heights of Bronx neighborhoods are where these African restaurants are located with Central Harlem having the highest. In terms of likes and ratings, Ponty Bistro Harlem restaurant has the highest and for the most tips, Africa Kine Restaurant comes out top. Based on the above information, I would state that Manhattan and Bronx are the best locations for African cuisine in NYC. In order to be successful in siting a restaurant, I would recommend opening an African restaurant in Bronx since it has the least number of restaurants compare to Manhattan for the sake of less competition. The result shows that Bronx has only one restaurant i.e Accra restaurant in University Heights neighborhood hence competition worries will be very low.

Limitations and suggestions for future researches

The analysis carried out in the project is depended on the accuracy of Four Square data being that we used a free Sandbox Tier Account of Foursquare API with limitations as to the number of API calls and results returned. In order to get better results, future research work and analysis that is more comprehensive could consider using a paid account to bypass these limitations as well as incorporating data from other external databases.

Conclusions

Based on our analysis, this project was able to determine the suitable location to site an African restaurant i.e Bronx borough being that it has least concentration of African restaurants compared to Manhattan. For that reason competition would be very low and better chances of success. Finally, in terms of likes, from the analysis presented I would go to Ponty Bistro Harlem because much people seems to prefer it.