The Battle of Neighborhoods

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Introduction

- New York City is one of the most diverse cities in the United States. It is one of the largest cities in the United States and is home to different ethnic groups due to the long history of international immigration. Today, NYC's population is over 18 million people, and has been growing faster than the region itself. The New York region continues to be the leading metropolitan gateway for many legal immigrants coming into the United States.
- New York City has been known as a "melting pot", as it has been a major entry point to many immigrants of different ethnic backgrounds. New York City is also the most linguistically diverse city in the world, as there are more than 100 languages spoken in the city. English is still the most spoken language, but there are boroughs where there is limited to no English spoken. English is the least spoken in neighborhoods in Queens such as Corona and Flushing.
- With all this influx of diverse culture comes many different cuisines. There are many restaurants in New York City that belong to different ethnic categories such as Indian, Italian, Chinese, etc.

Problem

For a newcomer in New York City, they would like to find answers to the following questions regarding Indian Restaurants in the area:

1. List and visualize all the parts of New York City that have great Indian Restaurants.
2. What is the best location in New York City for Indian cuisine?
3. Which area lacks Indian restaurants?
4. Where is the best place to stay in New York City if you prefer Indian cuisine?

Data Section

For being able to assess Indian restaurants with respect to NYC neighborhoods, we will need the following data:

1. New York City data that contains Boroughs and Neighborhoods, with their respective latitude and longitude:
   a. Data Source: https://cocl.us/new_york_dataset
   b. Data Purpose: This data set contains information mentioned above and will be used to explore different neighborhoods in NYC
2. Indian Restaurants in each NYC neighborhood:
   a. Data Source: Foursquare API
   b. Data Purpose: This API will allow us to get the venues in each neighborhood and we can filter them to only yield us Indian restaurants.
3. Geospace data:
   a. Data Source: https://data.cityofnewyork.us/City-Government/Borough-Boundaries/tqmj-j8zm
   b. Data Purpose: This geospace data will allow us to get the New York City borough boundaries that will help us graphically visualize a map of Indian Restaurants.

Methodology

1. We start our investigation by collecting the New York City data from the following link "https://cocl.us/new_york_dataset"
2. We find all the venues for each neighborhood by utilizing the Foursquare API
3. We then filter out all venues by Indian Restaurants for further analysis
4. Using the Foursquare API, we find the Ratings, Tips, and Number of Likes of every Indian Restaurant
5. We sort the Neighborhoods and Borough data keeping the Ratings as a constraint
6. Next, we display a table of all the neighborhoods with an average rating of 8.0 or greater to visualize on a map
7. We now join this dataset with the original New York dataset to retrieve the latitude and longitude
8. Lastly, we visualize the Neighborhoods and Boroughs based on the Average Rating by using the Python Folium library imported in the beginning of this project

Conclusion

The questions in the Question section can be answered as follows:

1. The following locations in New York City have the best Indian restaurants:

	Borough	Neighborhood	Latitude	Longitude	Average Rating
13	Manhattan	Tribeca	40.721522	-74.010683	9.00
6	Manhattan	Greenwich Village	40.726933	-73.999914	9.00
16	Manhattan	West Village	40.734434	-74.006180	8.95
9	Brooklyn	Prospect Heights	40.676822	-73.964859	8.90

2. What is the best location in New York City for Indian cuisine?
   a. Tribeca, Greenwich Village, and the West Village are the best neighborhoods for Indian cuisine.
3. Which area lacks Indian restaurants?
   a. Staten Island lacks Indian Restaurants.
4. Where is the best place to stay in New York City if you prefer Indian cuisine?
   a. Manhattan is the best play to stay if you prefer Indian cuisine.