Capstone Project: Deciding the Next Location of a Chain Restaurant

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Business Problem

- A growing Italian restaurant chain is looking to open a new location. The founder is deciding whether to locate the restaurant in Toronto or New York. Once she decides which city, she needs to select the best neighborhood to open the restaurant in.
- To make these decisions, the founder needs access to some key information about Italian restaurants in the cities of New York and Toronto. This includes the amount of Italian restaurants in each city relative to their size, the individual neighborhoods with the most/least Italian restaurants, and the rankings of said restaurants.

Data Required

- Data containing New York boroughs, neighborhoods, longitudes and latitudes from IBM Developer Skills Network
- Data containing Toronto boroughs, neighborhoods, and postal codes from Wikipedia
- Geographic data from Nominatim to show New York and Toronto neighborhoods on a map through Folium
- Data about venues in New York and Toronto (location, venue category, rating, etc.) from the Foursquare API

Methodology

Data Scraping for each city

- I scraped the neighborhood/borough/postal code data, cleaned it, and made a dataframe

Exploration and Visualization for each city

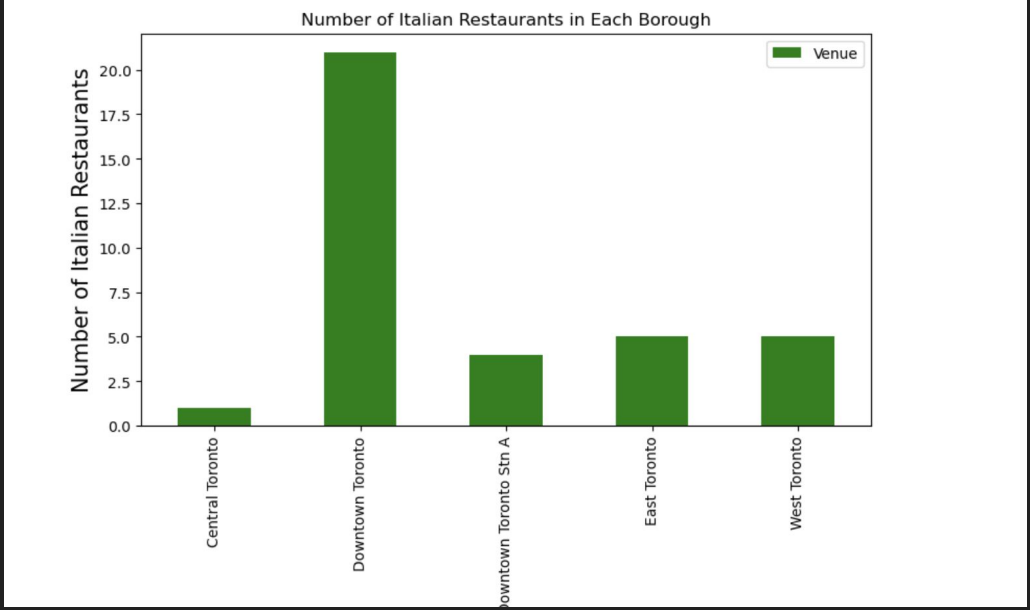
- I obtained the number of Italian restaurants per square mile using Foursquare, then visualized the number of Italian restaurants in each borough and neighborhood using bar charts and a Folium map

Recommendation for new location

- I used the results from my data exploration to recommend where the restaurant chain owner should locate the new restaurant

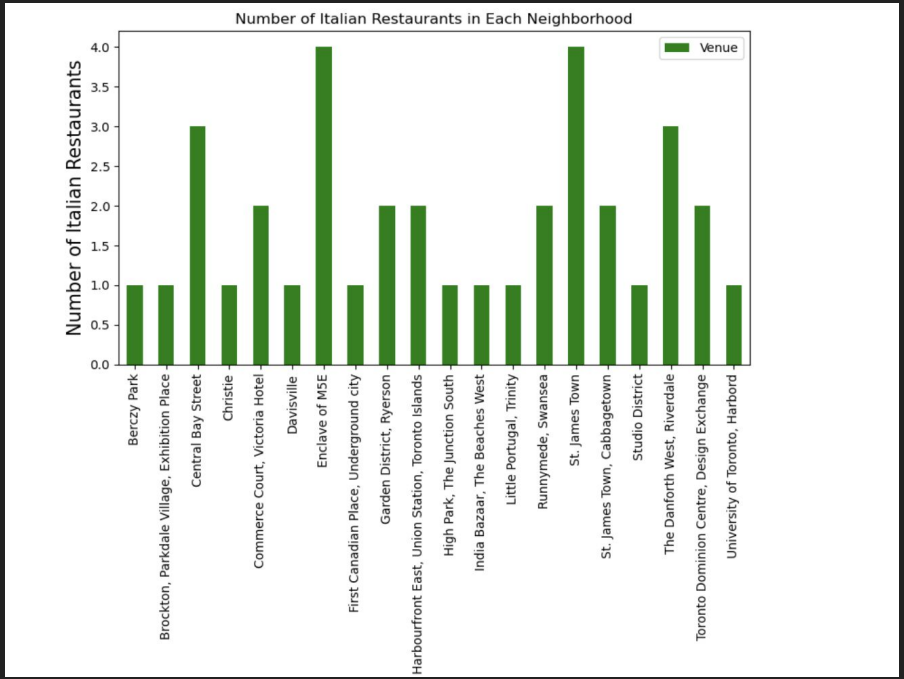
Results

- I found the number of Italian restaurants per borough for Toronto:



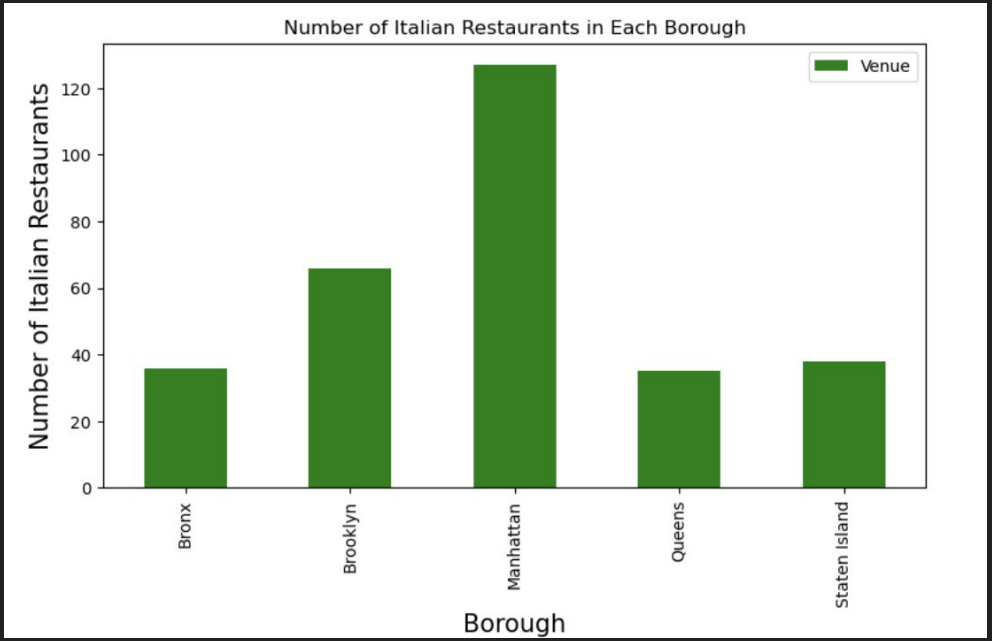
Results Cont.

- I found the number of Italian restaurants per neighborhood for Toronto:



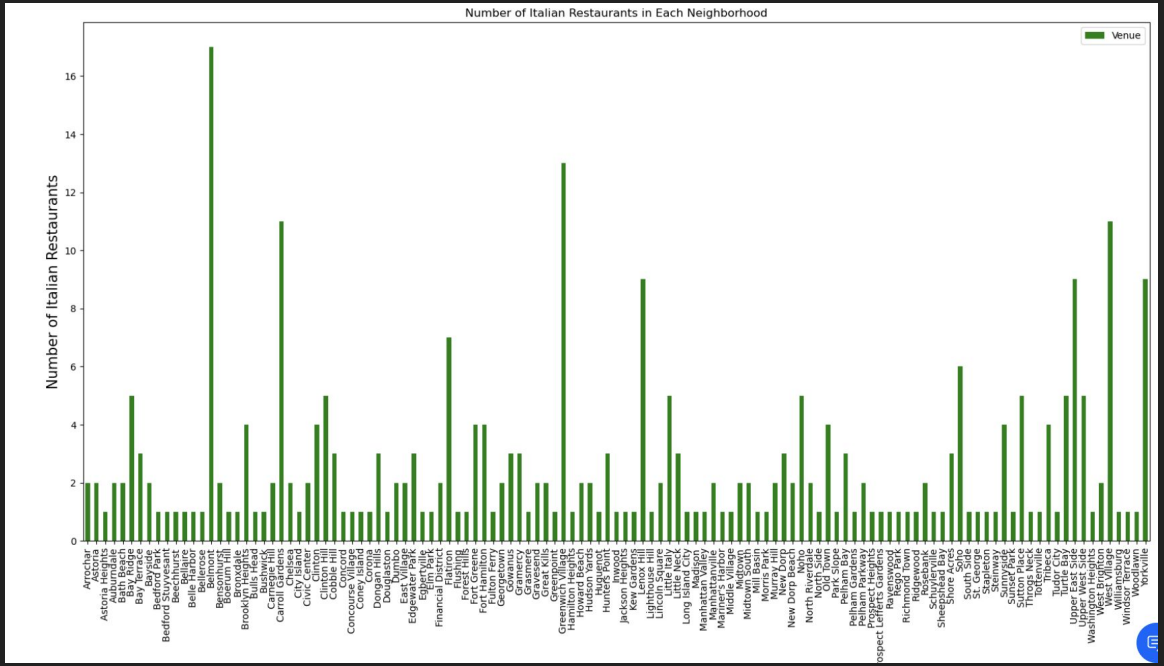
Results Cont.

- I found the number of Italian restaurants per borough for New York:



Results Cont.

- I found the number of Italian restaurants per neighborhood for New York:



Results Cont.

- I found the number of Italian restaurants in Toronto to be ~0.15 Italian restaurants per sq. mile with an average rating of ~7.5
- I found the number of Italian restaurants in New York to be ~0.1 Italian restaurants per sq. mile with an average rating of ~7.8

Discussion

Question #1: Which city should the restaurant be located in?

While Toronto has ~0.15 Italian restaurants per sq. mile and an average rating of ~7.5, New York has ~0.1 Italian restaurants per sq. mile and an average rating of ~7.8. So even though New York has many more Italian restaurants than Toronto, indicating more competition for the Italian restaurant chain owner, the higher average rating suggests that these restaurants are doing well and that there is a demand for Italian food. Based on these stats alone, it seems that the owner should consider locating the restaurant in New York. However, it would also be helpful for the owner to know other information such as the average price to rent a restaurant space in each city, what it might cost to hire workers in each city, whether new restaurants tend to survive in each city, and even how COVID has affected restaurant popularity/success in each city.

Discussion Cont.

Question #2: Which neighborhood should the restaurant be located in?

Should the owner locate the new restaurant in New York, she has some options for specific locations. She could potentially put the restaurant in one of the boroughs that has the least Italian restaurants (Queens, the Bronx, or Staten Island), but in a neighborhood such as Astoria or North Riverdale that has a higher than average number of Italian restaurants for those boroughs. This would allow her to face less overall competition from other restaurants in the borough, but still be in a neighborhood where Italian food is in demand. Alternatively, she could locate the restaurant in Manhattan or Brooklyn (these are the boroughs with the most Italian restaurants) in a neighborhood that has a lower than average number of Italian restaurants, such as Chelsea or Park Slope. This way, she'd face less competition within the neighborhood, but be in a borough where Italian restaurants tend to survive and thrive.

Conclusion

For this project, I:

- identified a business problem and the data used to solve it
- scraped and cleaned the data
- visualized and analyzed the data
- performed data exploration using the Foursquare API
- made recommendations to a business owner based on my findings

These recommendations should help my client choose which city -- and which neighborhood within that city -- would be the most economically viable location in which to place the new restaurant in her Italian restaurant chain.