# Analyzing the best location for new restaurant

IBM Data Science Capstone Project

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# Introduction

- For the restaurant industry, the primary external factor that is required to survive is Foot Traffic.
- Foot traffic may come from local residents, tourists and a busy work center/industrial area.
- A well organized restaurateur should know the particular cuisine style, price range and the desired consumer base. A target consumer in this case can be defined as underserved of that particular cuisine in that particular area, with a lack of other options that serve this restaurant's style, price and theme.

# Business Explanation

- The restaurant should cater to a young crowd, mainly 20-30 age group. Their menu includes quick dining option, fast moving food which is cheap and regularly updating their menu with new dishes.

- The restaurant will also serve a late night menu to cater to the nightlife of the neighborhood as a pick n go service for people going back home from visiting art shows, concerts, bars and other social events.

# Business Problem

- The main issue for setting up this restaurant is the location. The owners want the restaurant to stand out from other options in the area.
- Owners would prefer steady walk ins for their quick eating/pick n go restaurant and also a busy nightlife around the area

# Data

- We will be using Foursquare API to fetch venue information and analyze different neighborhoods
- To fulfill the requirements of the business problem, we will be specifically analyzing two types of information:
  - Data on neighborhoods
    - Category of each venue in Brooklyn neighborhood
    - Popular days and hours for venues that serve our target customers
    - Popularity score for each target venue
  - Data on competitors
    - Frequency of late night restaurants
    - Price range
    - Cuisine type

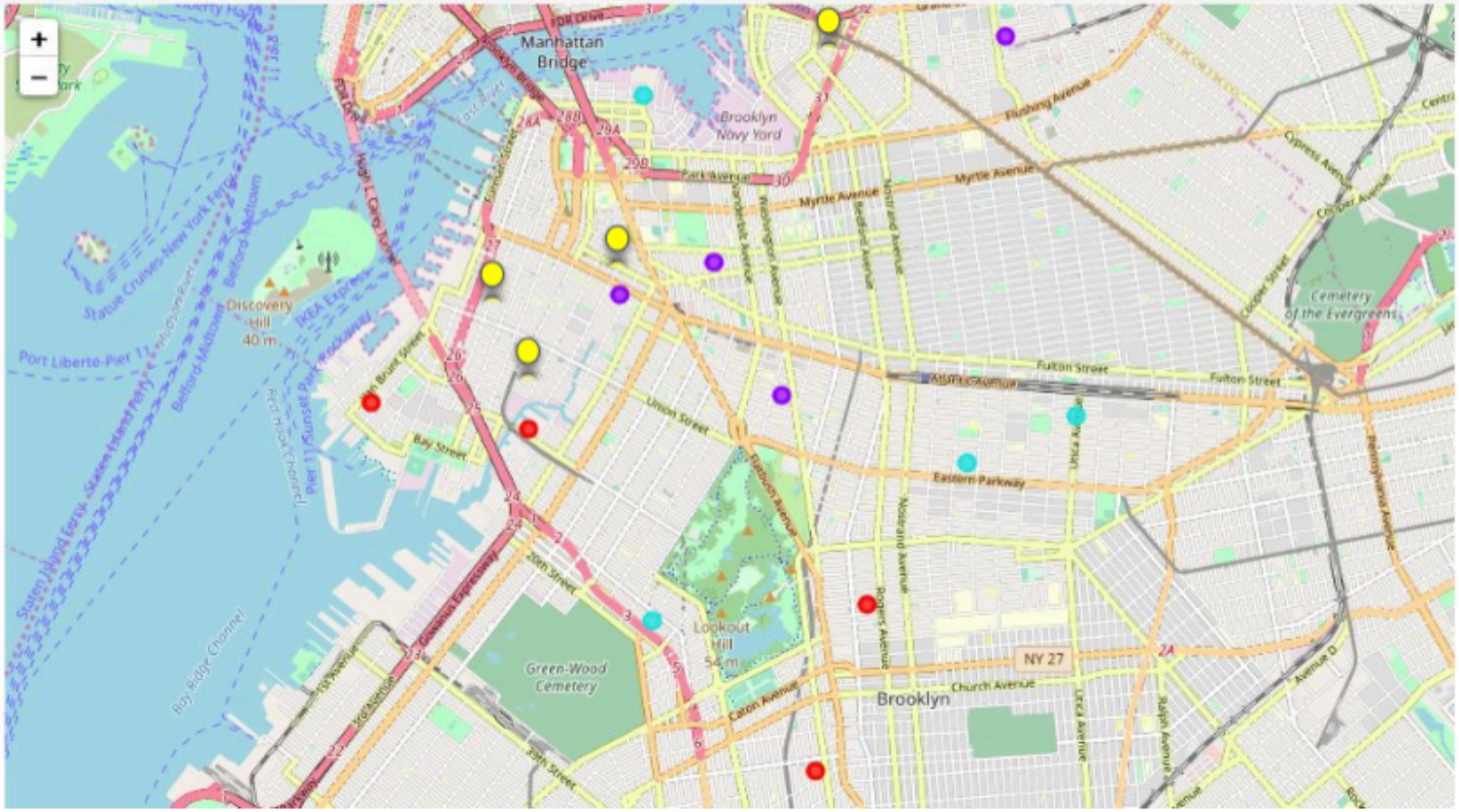
# Methodology

- After retrieving  the required data, we will use clustering to analyze neighborhoods based on the following information
  - Popular time for venues in the area
  - Popularity score for venues that compliment our restaurant
  - Frequency of restaurants that have similar price range, popular hours and cuisines

- The end goal will be to find a cluster of neighborhood that will be a good fit to set up our restaurant
  - The ideal neighborhood should have busy nightlife venues and a lot of traffic
  - A low number of competing restaurants

# Results

Out[614]:



# Results

- The cluster shown in light blue are the most ideal spots for the new restaurant
- This is based on the high density of nightlife venues and less competitor restaurants
- The ideal neighborhoods would be
  - Carroll Gardens
  - Cobble Hill
  - Downtown
  - Greenpoint

# Discussion

- Basing the decision on the number of likes and tips would not be accurate since it will not take into account the amount of time the place has been open.
- Also, the explore endpoint in the Foursquare API returns search results based on users preferences and it does not give perfectly fair data for the model.

# References

- Notes and labs on clustering and analysis were used from the course
- Foursquare API documentation