COMPARING RESTAURANT AND VENUE DENSITY WITHIN TWO MIDWESTERN CITIES

Introduction

- The problem to be addressed is to compare two cities (Cleveland, Ohio and Columbus, Ohio) to see which is more preferable for opening a restaurant.
- Analyzing the types of restaurants within an area can help drive the business model on which type of restaurant to create. An area with more restaurants of one type may present too much competition whereas an area with few choices might be primed to be the sole provider within that area.
- Not only will the restaurant location be considered, but other venues around the restaurant will also be utilized for comparison. Having other venues around the restaurant will indicate a higher probability of foot traffic and more potential business.

Data

- Data where you describe the data that will be used to solve the problem and the source of the data
- The data will be drawn from the FourSquare API and focus on two factors:

    1. Restaurants only
    2. All other venues

- The data will be broken down into Quantitative and Qualitative factors.

    Quantitative data: Distance between venues

    Qualitative data: Types of venues/restaurants

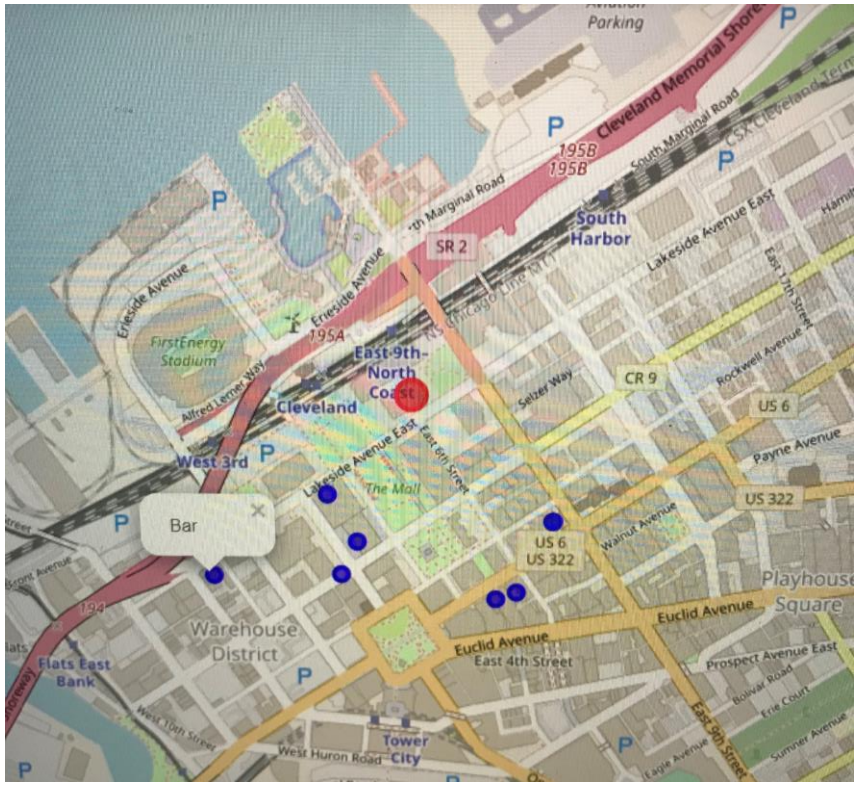
Methodology

1. The state of Ohio will be broken down by Area code.
2. After organizing the chart to have descending population, it was found that the two largest cities in Ohio (by population) are Cleveland and Columbus.
3. Each city was found using the geocoder where the latitude and longitude numbers were utilized.
4. Requests were then made through the Foursquare server to look for restaurants and venues within each city center.
5. The results of the analysis were cleaned and process in the dataframe.
6. Each request was visualized using the folios chart with the red dot indicating the city center and the blue dots indicating the four square venue/restaurant results.
7. Lastly, an analysis of the two cities was done using the mean of the distance between venues and restaurants as well as a qualitative analysis to see the diversity of restaurants/venues within the city.

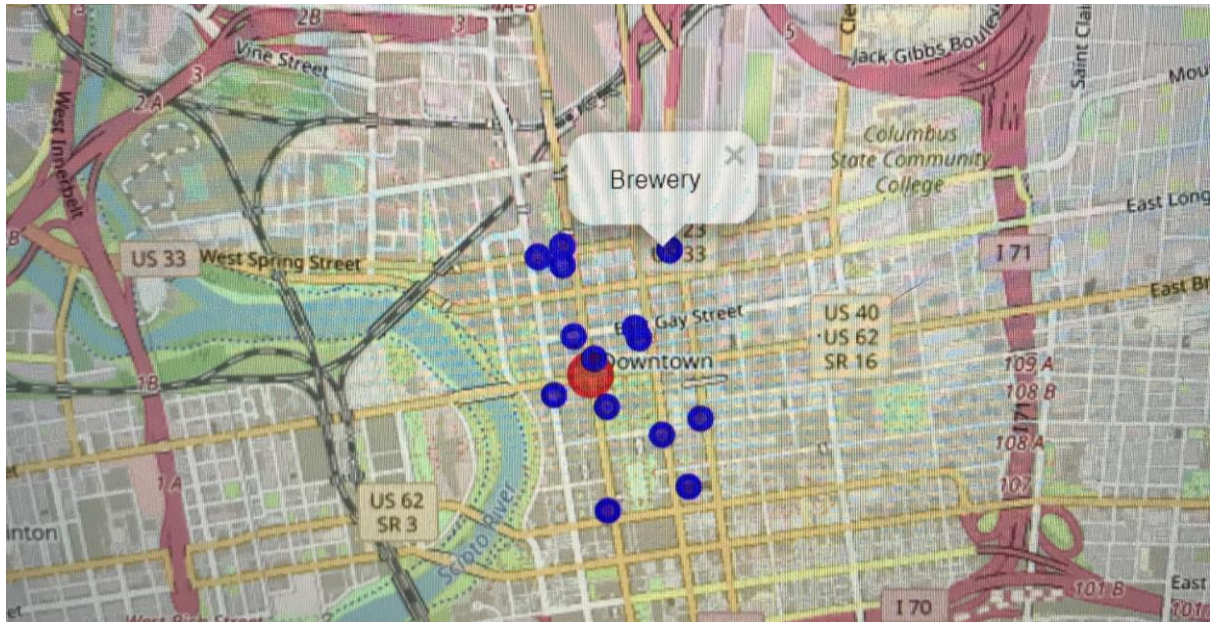
Results – Ohio Population

	City	Population	County
58	Columbus	892672	Franklin
56	Columbus	892672	Delaware
57	Columbus	892672	Fairfield
51	Cleveland	383793	Cuyahoga
47	Cincinnati	302605	Hamilton
…	…	…	…
173	Northwood	5265	Wood
206	Saint Clairsville	5184	Belmont
44	Chardon	5148	Geauga
235	Toronto	5091	Jefferson
158	Munroe Falls	5012	Summit

Results - Restaurants

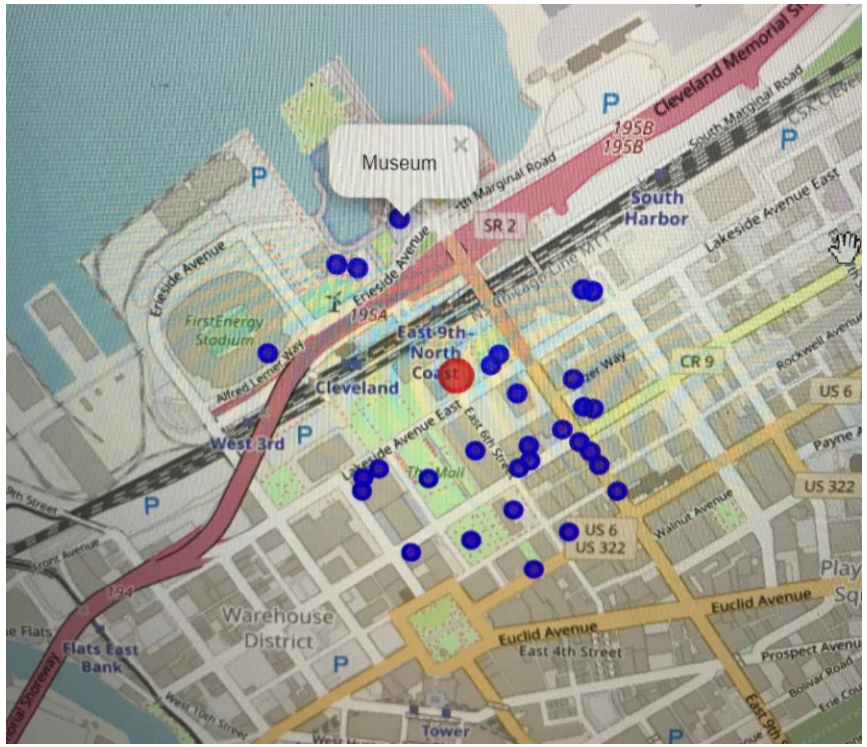


Cleveland mean distance between Restaurants – 480 meters

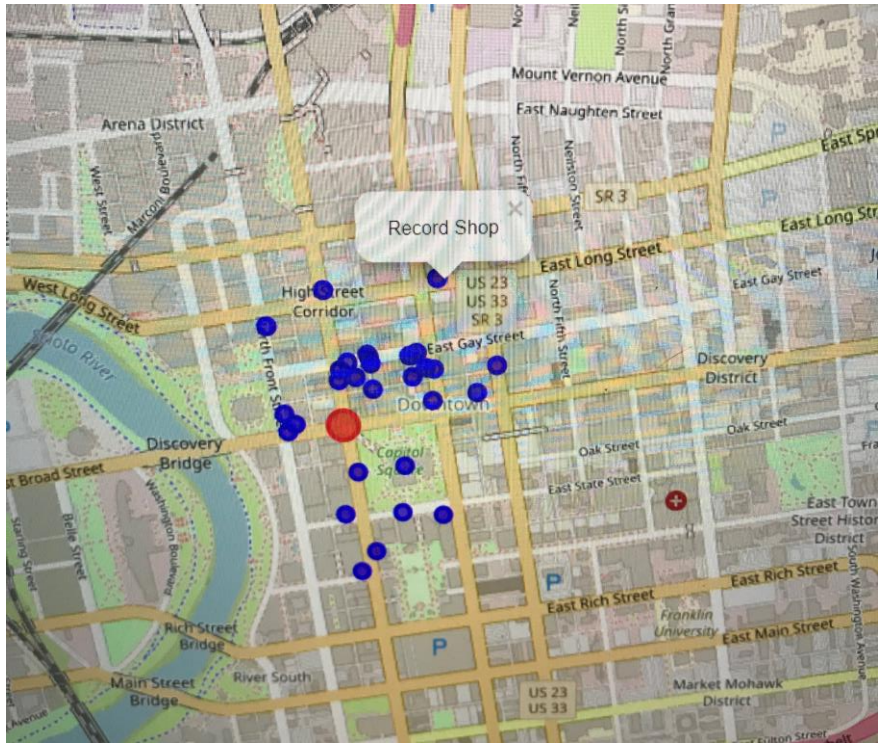


Columbus mean distance between Restaurants – 329 meters

Results - Venues



Cleveland mean distance between venues – 314 meters



Columbus mean distance between venues – 225 meters

Results – Types of Restaurants

CLEVELAND

Type	Amount
American	2
Food (General)	2
Bar	1
Italian	1
Deli	1
New American	1

COLUMBUS

Type	Amount
Food (General)	2
Brewery	2
Food Court	1
Chinese	1
New American	1
Juice Bar	1
Italian	1
Breakfast	1
American	1
Vegetarian/Vegan	1
Sandwich	1

Discussion

- Columbus offers more foot traffic with a higher concentration of both venues and restaurants
- Columbus has restaurants/venues across the city center whereas Cleveland has it fixated south of city center
- Cleveland offers half of the variety of food options as Columbus

Conclusion

- While both cities are the largest within the state of Ohio, they both offer different benefits to an incoming restaurant.
- If Cleveland is chosen, a restaurant can be chosen with higher probability that it will be the only one of its kind within the city, thus offering a large benefit of potentially little to no competition.
- Columbus has more diverse food options which can bring in a variety of different costumers, but too many of one restaurant option may present a hurdle of competition.
- Columbus offers much more foot traffic which may offset the need for competition.
- Overall, the density of venues and restaurants offers a greater propensity for business and thus Columbus, Ohio is the prime choice.

Link to Github Data

- https://github.com/HengJoseph/Coursera_Captstone/blob/main/Coursera_Capstone_Wk_4.md