

Capstone Project – The Battle of Neighborhoods

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Introduction

Georgia Institute of Technology is a public institution that was founded in 1885. It has a total student enrollment of over 32,000. The campus is spread over about 400 acres in the heart of Atlanta. This provides an ideal setting of loyal customers in search of diverse and trending food options in and around the locality.

Despite availability of numerous options, students are often bored of existing options and are in constant lookout for new, affordable and healthy eating options around campus. The constantly evolving tastes and diversity of student population facilitates a great opportunity for restaurants to open in this area.

This project will focus on:

1. Mapping existing dining locations in and around GT campus
2. Classifying them based on cuisine, distance, popularity
3. Identifying opportunities for new restaurants and/or cafes.

The target audience is **active entrepreneurs in the catering and food industry** looking for opportunities to serve a young and diverse student population.

Data

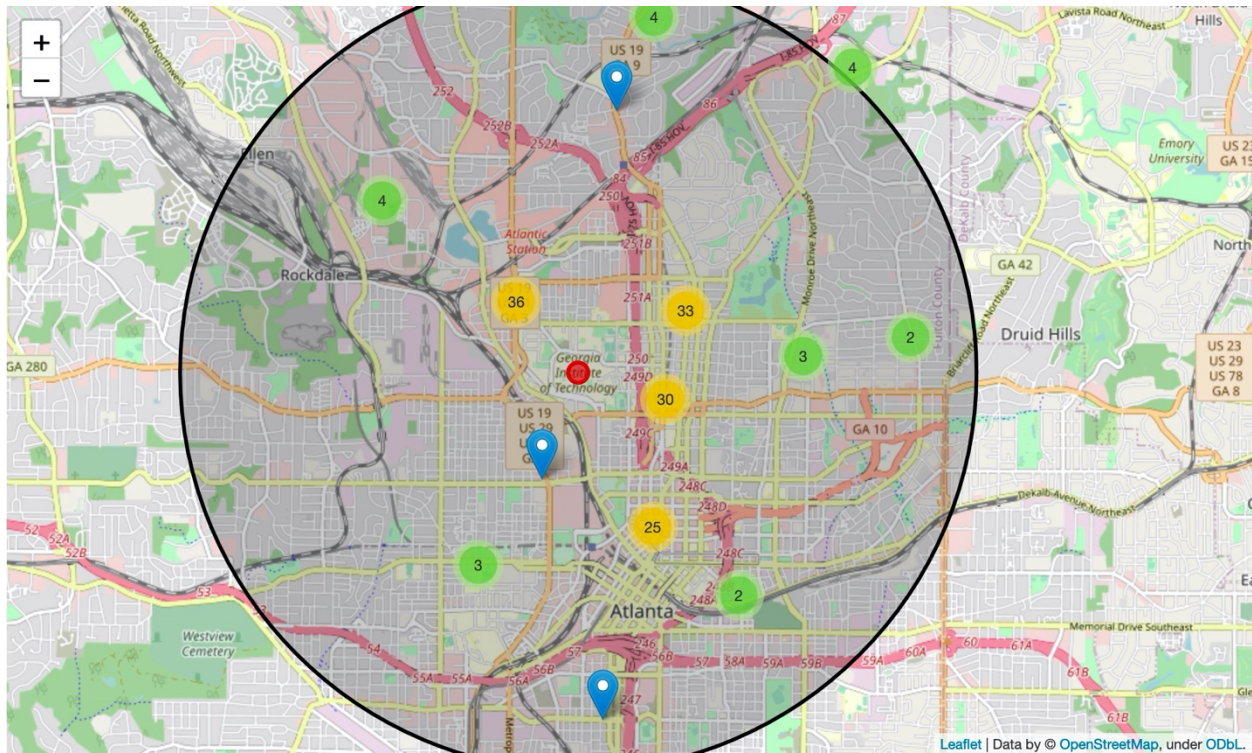
The data for this study will be primarily obtained from **Foursquare API**. The location of **restaurants, cafes** as well as dining options listed under the **popular spots** will be studied. Appropriate consideration for **user ratings, distance to campus** and classifications based on **cuisine, pricing** and **store timings** will prove effective in identifying gaps in the existing availability.

Methodology

The primary methodology utilized in this project was to rely upon geospatial data obtained from the Foursquare API. To identify dining options currently available to students, there were multiple considerations

1. Choice of appropriate keywords to search was crucial. Hence, three independent searches for venues were made using the Foursquare API:
 - a. Restaurants
 - b. Cafés
 - c. Popular Spots
2. Usage of geoJSON data to generate maps using Folium
 - a. Clustered markers gave a sense of aggregate presence of various eateries in various locations in and around GT campus

- b. Demarking the various zip code areas using polygon data as an overlay gave appropriate understanding of the locations.



3. An initial dataset of over 150 businesses and their locations were obtained.
4. Many allied businesses, out of our domain of interest also showed up in the search: such as Restaurant equipment vendors, restaurant services offices. These had to be identified and removed at the data cleansing step.
5. Improper tagging of categories and inhomogeneous methods of nomenclature in various fields were corrected.
6. A new column of cuisine was created based on categories descriptions and helped to easily classify and identify existing locations.

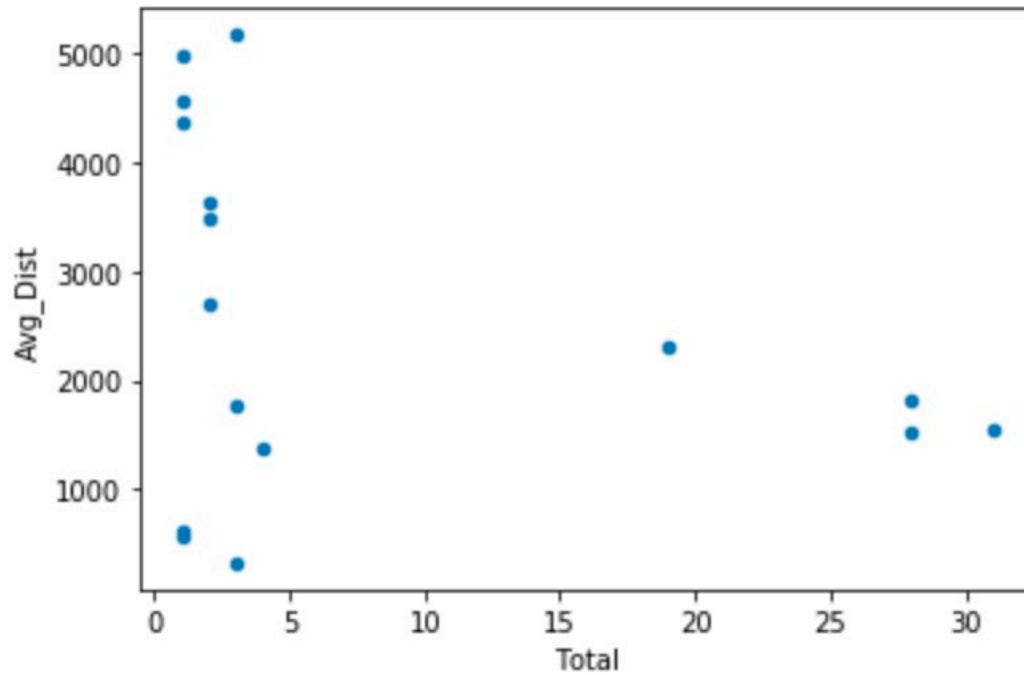
	name	categories	cuisine	address	lat	lng	distance	postalCode		id
0	Cafe Xpress	American Restaurant	American	675 W Peachtree St NE	33.773480	-84.387198	1114	30308	4c7f94b2a7958cfa5203912b	
1	Vibe Restaurant	American Restaurant	American	400 W Peachtree St NW	33.764703	-84.388364	1590	30308	53938464498ee0e5e0bd8fc5	
2	Simon's Restaurant	American Restaurant	American	793 Juniper St NE	33.776149	-84.382603	1502	30308	59b3066b791871507c821064	
3	Truth Restaurant & Lounge	American Restaurant	American	1100 Crescent Ave NE	33.785033	-84.384441	1666	30309	5a8f33e5aa6c9501447d973e	
4	Collage Restaurant	American Restaurant	American	165 Courtland St NE	33.759306	-84.383891	2319	30303	5786458f498e8ddd7a666d21	

Results

1. A majority of the restaurants are found on the east side of GT campus
2. The majority of restaurants to the south of campus are in the downtown area.
3. Dining options to the west and north are relatively lower in comparison.
4. Midtown location, to the east of campus is a hotspot for eateries.

	lat	lng	Avg_Dist	Total
postalCode				
30332	33.775043	-84.399277	324.000000	3
30301	33.771016	-84.398124	562.000000	1
30066	33.775111	-84.405378	613.000000	1
30313	33.765892	-84.394457	1382.000000	4
30318	33.785068	-84.409562	1527.464286	28
30308	33.772658	-84.383830	1541.709677	31
30363	33.791586	-84.399646	1770.000000	3
30309	33.785303	-84.386091	1825.750000	28
30303	33.758130	-84.386607	2317.789474	19
30314	33.754291	-84.411748	2706.500000	2
30312	33.750883	-84.377045	3496.000000	2
30306	33.785468	-84.361591	3632.000000	2
30315	33.736729	-84.395640	4385.000000	1
30071	33.816470	-84.389963	4575.000000	1
30305	33.818412	-84.381156	4993.000000	1
30324	33.810764	-84.361743	5177.666667	3

5. The restaurants in the zip codes 30332, 30301 and 30066 are closest to campus.
6. The few numbers of them also are indicative of limited real estate availability for such establishments owing to the presence of academic, administrative and residential buildings of the university themselves in these areas.



7. Zip codes 30303, 30308, 30309 and 30318 are popular spots for dining establishments.
8. In addition to proximity to campus, these are also major hubs for other businesses.
9. The most popular cuisine in each of these four zip codes is American. Closely followed by Italian places.

	postalCode	American	Asian	Chinese	Cuban	Ethiopian	Fast Food	Indian	Italian	Japanese	Korean	Mediterranean	Mexican	Spanish	Vietnamese
0	30303	9	0	1	0	0	0	0	0	1	1	2	1	0	0
1	30308	5	1	0	1	1	0	0	3	0	0	1	1	1	0
2	30309	8	0	0	0	0	0	2	2	1	0	2	1	0	1
3	30318	5	1	0	0	0	1	0	2	1	0	0	2	2	1

10. Among a sizeable number of Asiatic cuisine restaurants, only two Indian restaurants are currently there near GT, both in the 30309 zip location at an average distance of 1584m from campus.

Discussion

The enrollment of international students in both Graduate and Undergraduate programs has been constantly high and improving. The major countries contributing to this population of students are Asiatic – primarily China and India.

This directly translates to an increasing demand for dining options catering to these students. The results of the above study indicate a sizeable proportion of businesses catering to these tastes. However, there still exists major avenues to expand businesses.

Indian restaurants, currently a couple of them, operating in close proximity to one another, represent a highly underserved segment of the dining businesses near GT campus. There is a great opportunity to open up Indian restaurants in the highly popular districts in the 30303, 30308 as well as 30318 zip code areas.

Conclusion

This brief study highlights that there will be a good business opportunity for an Indian restaurant to open in one of the three neighborhoods around GT: 30303, 30308 and 30318. These represent an optimum distance from the campus (averaging 0.5-1 mile) where there are also other popular hotspots that attract a sizeable foot traffic.