The Battle of The Neighborhoods

An analysis of the neighborhood of Midtown, Atlanta.

MAY 11

Authored by: J. Edmund Sidney Bain

Introduction

Whippit Coffee Shop, a hypothetical coffee shop, is in the process of establishing a new franchise location within the Midtown neighborhood of the city of Atlanta, Georgia. Midtown is a busy commercial area and is also a vibrant arts hub. The High Museum of Art shows world-renowned works in a striking modern building, while Margaret Mitchell House offers tours of the former home of the "Gone With the Wind" author. The owners have requested an analysis of the existing crime rates in Midtown and the general profile of the existing competitors. Our target is to present an accurate representation of criminal activities within the Midtown neighborhood, and perform a comparative analysis of likely competitor coffee shops.

Data Sources

- The crime data comes from "https://data.world/bryantahb/crime-in-atlanta-2009-2017". This is a dataset comprised of all crimes and their geographical locations within the city of Atlanta in the U.S. state of Georgia from 2009 to 2017.

- The competitor comparative information is provided via a Foursquare venue exploration.

Methodology

The analysis of Midtown crime rates:

Upon importing the source dataset "https://data.world/bryantahb/crime-in-atlanta-2009-2017" (Fig-1.0), we found that the data frame provided far more information than required. We then completed a data cleaning exercise to produce a more refined data frame (Fig-1.1) by dropping unneeded columns and confining the included rows to only those relevant to the year of 2017.

Columns dropped from original source data frame:
- Unnamed: 0
- Number
- Location
- Beat
- npu

	Unnamed: 0	crime	number	date	location	beat	neighborhood	npu	lat	long
60057	60057	LARCENY-FROM VEHICLE	170310137	01/31/2017	19 SPRING LN NW	105	West Lake	J	33.75560	-84.43856
60058	60058	LARCENY-NON VEHICLE	170310233	01/31/2017	2452 MOROSGO WAY NE	211	Lindbergh/Morosgo	B	33.82295	-84.36559
60059	60059	AUTO THEFT	170310259	01/31/2017	39 BOOKER ST NW	105	Washington Park	K	33.75588	-84.42019
60060	60060	LARCENY-FROM VEHICLE	170310558	01/31/2017	554 LAWTON ST SW	401	West End	T	33.73999	-84.42315
60061	60061	AUTO THEFT	170310627	01/31/2017	1829 CAMPBELLTON RD SW	408	Venetian Hills	S	33.71954	-84.44871
60062	60062	AUTO THEFT	170310687	01/31/2017	3157 MCMURRAY DR SW	409	Southwest	R	33.70496	-84.49107
60063	60063	ROBBERY-COMMERCIAL	170310719	01/31/2017	3639 PEACHTREE RD NE	210	Ridgedale Park	B	33.85373	-84.35777
60064	60064	LARCENY-FROM VEHICLE	170310743	01/31/2017	54 PEACHTREE ST SW	511	Downtown	M	33.75286	-84.39120
60065	60065	BURGLARY-RESIDENCE	170310842	01/31/2017	154 CANDLELIGHT LN SW	407	Baker Hills	H	33.75858	-84.52006
60066	60066	BURGLARY-NONRES	170310888	01/31/2017	420 MCDONOUGH BLVD SE	305	Chosewood Park	Y	33.71436	-84.37410

Figure – 1.0 showing the original imported source dataset.

	crime	neighborhood	lat	long
60057	LARCENY-FROM VEHICLE	West Lake	33.75560	-84.43856
60058	LARCENY-NON VEHICLE	Lindbergh/Morosgo	33.82295	-84.36559
60059	AUTO THEFT	Washington Park	33.75588	-84.42019
60060	LARCENY-FROM VEHICLE	West End	33.73999	-84.42315
60061	AUTO THEFT	Venetian Hills	33.71954	-84.44871
60062	AUTO THEFT	Southwest	33.70496	-84.49107
60063	ROBBERY-COMMERCIAL	Ridgedale Park	33.85373	-84.35777
60064	LARCENY-FROM VEHICLE	Downtown	33.75286	-84.39120
60065	BURGLARY-RESIDENCE	Baker Hills	33.75858	-84.52006
60066	BURGLARY-NONRES	Chosewood Park	33.71436	-84.37410
60067	BURGLARY-RESIDENCE	East Atlanta	33.73988	-84.34020
60068	AUTO THEFT	Southwest	33.69730	-84.49142

Figure – 1.1 showing the cleaned data frame.

We then completed an analysis of the crime in the neighborhood of Midtown using data visualization techniques. To complete this, we pivoted the data frame and sorted the new data frame according to highest crime rates (Fig – 1.2). We also plotted a bar graph to clearly present the crime data per neighborhood (Fig – 1.3).

	neighborhood	latAGG ASSAULT	latAUTO THEFT	latBURGLARY-NONRES	latBURGLARY-RESIDENCE	latHOMICIDE	latLARCENY-FROM VEHICLE	latLARCENY-NON VEHICLE	latRAPE	latROBBERY-COMMERCIAL	..
63	Downtown	17	13	4	4	3	126	74	3	1	..
117	Midtown	3	20	7	9	0	77	45	0	2	..
107	Lindbergh/Morosgo	0	8	1	10	0	24	54	1	0	..
129	Old Fourth Ward	1	6	3	11	0	39	29	0	0	..
125	North Buckhead	1	8	5	3	0	34	38	1	0	..

Figure – 1.2 Showing the sorted data frame showing neighborhoods with the highest crime rates.
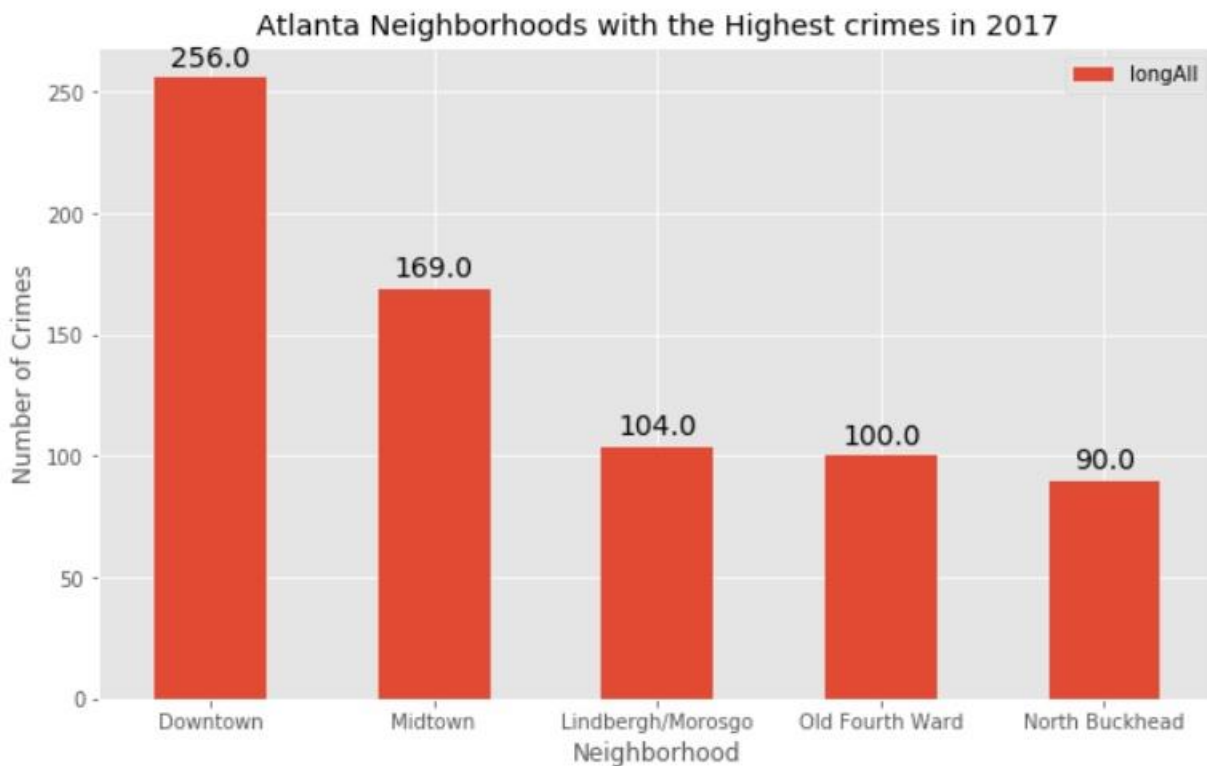

Figure – 1.3 Showing a bar graph neighborhoods with the highest crime rates.

After we completed our analysis of the crime rates, we then move onto a comparative analysis of competition coffee shops. We completed this by first importing a dataset of venues from Foursquare and creating a data frame from the dataset (Fig – 1.4). We then refined the dataset to produce a data frame that included only coffee shops within a 1000 meter radius of the Midtown neighborhood(Fig – 1.5). After finding all of the coffeeshops within the Midtown neighborhood, we then imported the

ratings of the venues to gain an understanding of possible customer satisfaction and loyalties. We also plotted the locations of the venues and the crime densities within the Midtown neighborhood (Fig – 1.6).

	name	categories	lat	lng	id
0	Exhale	Spa	33.783294	-84.383368	4c50aec5375c0f476b27b392
1	Loews Atlanta Hotel	Hotel	33.783366	-84.383188	4b45e566f964a520e41126e3
2	Joy Cafe	Southern / Soul Food Restaurant	33.784921	-84.382922	57b22225498e70813a35d62a
3	Lure	Seafood Restaurant	33.784972	-84.384408	4e52a5296365d1ea68cdc001
4	Cafe Agora	Mediterranean Restaurant	33.780932	-84.384460	4ff5df23e4b02b97149a3a65
5	Empire State South	Southern / Soul Food Restaurant	33.781374	-84.383662	4c151005b7b9c9289e44ac37
6	Savi Provisions	Gourmet Shop	33.781010	-84.384278	56030a71498edf3aa79d8a36
7	Einstein's	New American Restaurant	33.784143	-84.382086	43485d80f964a52095281fe3
8	Café Intermezzo	Café	33.783136	-84.383470	5150da09e4b0405d179930f9
9	Tabla	Indian Restaurant	33.784531	-84.385067	52a9281311d23c836a98b9b6
10	Street Food Thursdays (& Mondays)	Food Truck	33.784558	-84.382534	4d9dcc5091302c0f5ed1f6f7
11	Oceanaire Seafood Room	Seafood Restaurant	33.784627	-84.383234	4a0c4debf964a5201c751fe3
12	Sweet Hut Bakery & Cafe	Bakery	33.780315	-84.384100	5470989c498e14e5b760dfd2
13	The Flying Biscuit Cafe	Breakfast Spot	33.781880	-84.380340	4a4bd8fbf964a520ccac1fe3
14	Saltwood Charcuterie & Bar	Hotel Bar	33.783062	-84.383250	4c806109d92ea093c8b23772
15	Joe's on Juniper	American Restaurant	33.783203	-84.382105	40e5f700f964a520100a1fe3
16	RA Sushi Bar Restaurant	Sushi Restaurant	33.783410	-84.384434	4a37e56ef964a5208a9e1fe3
17	Willy's Mexicana Grill #8	Burrito Place	33.783976	-84.378824	40e5f700f964a5200f0a1fe3
18	Steamhouse Lounge	Seafood Restaurant	33.783410	-84.387644	40e0b100f964a5207d071fe3
19	Stellar Bodies - Midtown	Gym	33.784725	-84.386098	551a7ec4498eae2b5b4251ed

Figure – 1.4 Showing the venue data frame.

	name	categories	lat	lng	id
23	Dancing Goats Coffee Bar	Coffee Shop	33.780810	-84.386653	588e77fc5e7896466a8dc683
24	Caribou Coffee	Coffee Shop	33.782122	-84.380645	4a030291f964a52079711fe3
49	Starbucks Reserve	Coffee Shop	33.778309	-84.384070	572b3747cd105068db04c740

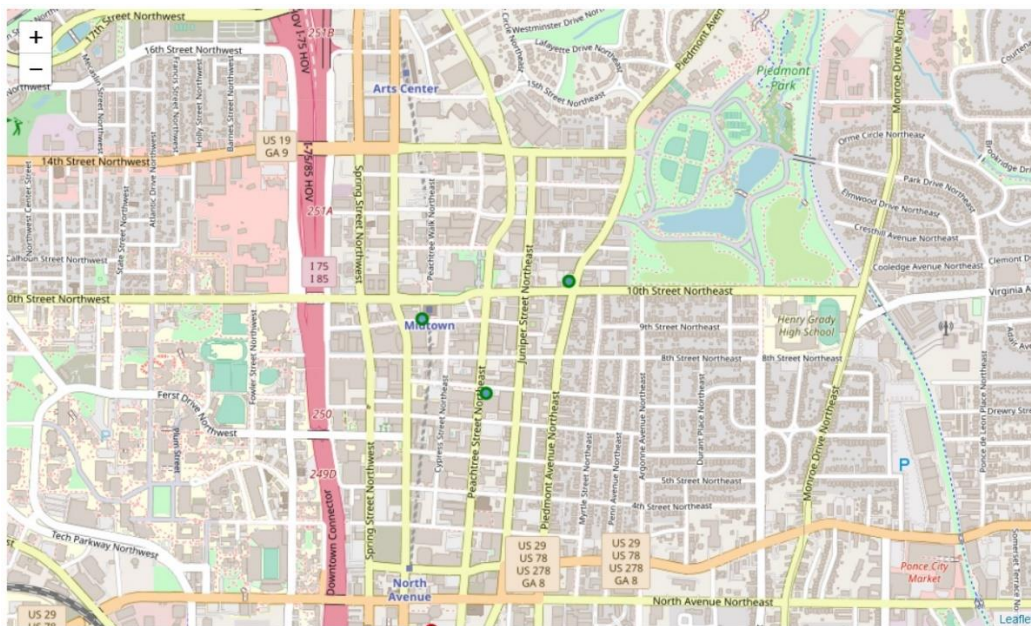Figure – 1.5 Showing the data frame containing only coffee shops.

Figure – 1.6 Showing competitor coffee shop locations.

Results & Discussion

Crime Rates:
An analysis of the dataset "df_source" imported from "https://data.world/bryantahb/crime-in-atlanta-2009-2017" has shown that within 2017, the Midtown neighborhood was second in crime rates with larceny from vehicles being the largest portion of crimes. This may suggest a need for a location with a secured parking lot, possibly with security, to lessen the likelihood of this affecting customer. If customers feel that they or their property is safe, they will likely stay longer.

Competition analysis:
Our Foursquare analysis has identified 3 competitor coffee shops within the Midtown neighborhood. Please see figure – 1.5. All the competitor coffee shops have a rating of about 8.0 and above with "Dancing Goats Coffee Bar" having the highest rating with an 8.7. This can possibly signal that these venues produce high customer satisfaction and thus customer loyalty may be high to those brands. This should be considered when choosing the exact location of the new coffee shop. We have mapped the existing coffee shop locations for reference.

Conclusion

We have performed a general analysis of the neighborhood of Midtown in Atlanta, GA and have presented our findings and some of the potential risks that should be considered when choosing a location to establish the franchise. Once the owners have reviewed this analysis and pinpointed an exact location in Midtown, we can further dive into crime concentrations, this is highly recommended. We have included a map plot of criminal activities within the Midtown neighborhood to aid in this process.