

Opening a new restaurant in Toronto area?

an exploratory study of Toronto restaurants



two datasets

- Restaurant dataset from Kaggle.com
- Data retrieved from *Foursquare API*.

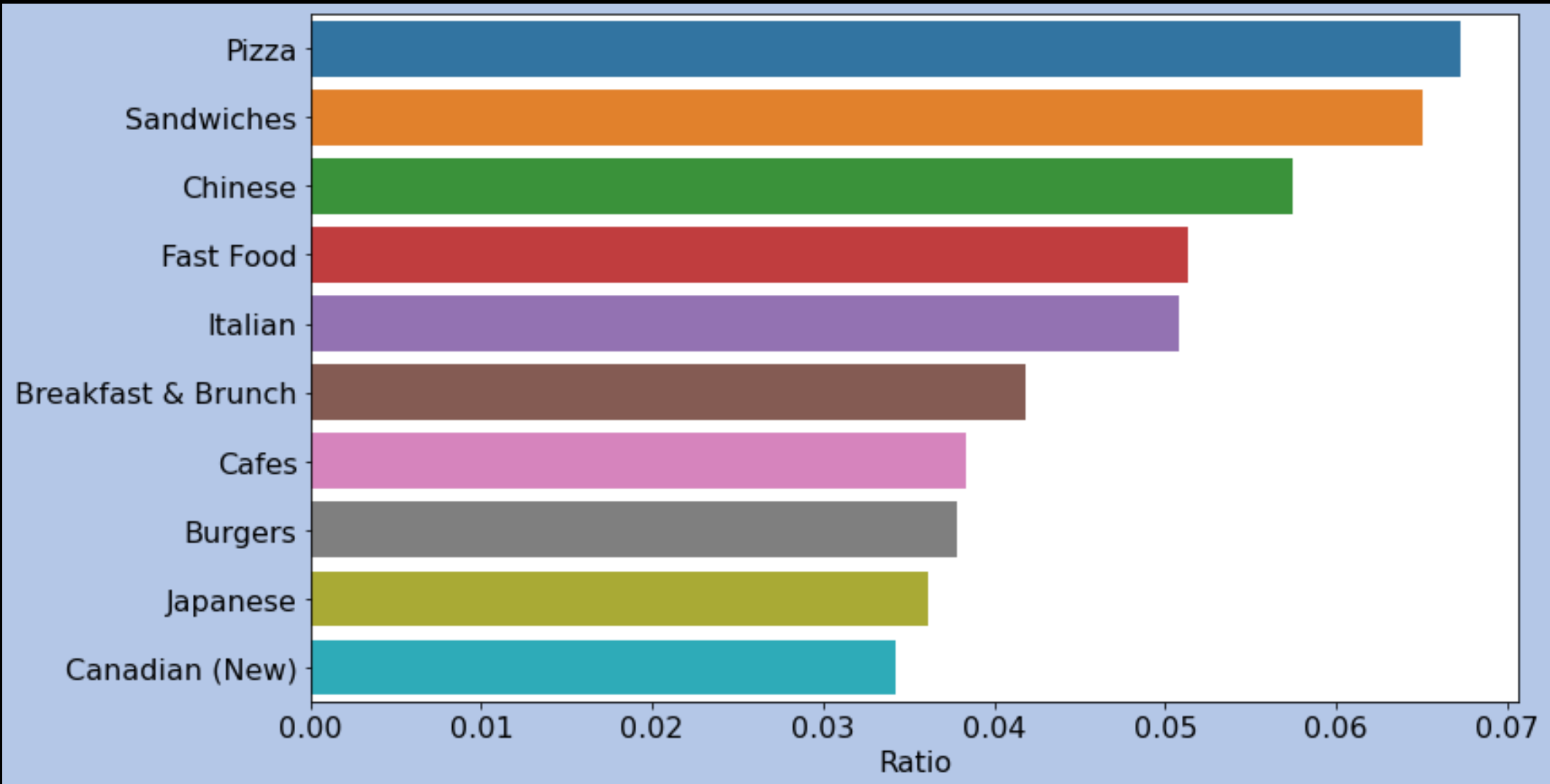
methodology

- **Explore** all the restaurants from the Kaggle dataset
- **Explore** all the Chinese restaurants from Kaggle dataset
- Use **Foursquare API** to obtain restaurants within 500-meter radius of Chinese restaurants

Kaggle dataset

	Category	Restaurant Address	Restaurant Name	Restaurant Phone	Restaurant Price Range	Restaurant Website	Restaurant Yelp URL	Restaurant Latitude	Restaurant Longitude
0	Afghan	14 Prince Arthur Avenue\nToronto, ON M5R 1A9	The Host	(416) 962-4678	\$11-30	welcometohost.com	https://www.yelp.ca/adredir?ad_business_id=OFA...	43.669935	-79.395858
1	Afghan	259 Wellington St W\nToronto, ON M5V	Aanch Modernist Indian Cuisine	(647) 558-1508	\$11-30	aanch.ca	https://www.yelp.ca/adredir?ad_business_id=SZu...	43.644708	-79.390670
2	Afghan	736 Bay Street\nToronto, ON M5G 2J8	Silk Road Kabob House	NaN	Under \$10	NaN	https://www.yelp.ca/biz/silk-road-kabob-house-...	43.659816	-79.385591
3	Afghan	691 Yonge Street\nToronto, ON M4Y 2B2	Naan & Kabob	(416) 972-6623	\$11-30	naanandkabob.ca	https://www.yelp.ca/biz/naan-and-kabob-toronto-5	43.669058	-79.386100
4	Afghan	66 Overlea Boulevard\nUnit 62\nToronto, ON M4H...	Afghan Cuisine	(416) 422-5858	\$11-30	afghancuisinerestaurant.com	https://www.yelp.ca/biz/afghan-cuisine-toronto	43.708070	-79.341508
5	Afghan	119 Spadina Avenue\nUnit 101\nToronto, ON M5V 2L1	Pamier Kabob	(647) 352-2623	\$11-30	pamier-kabob.com	https://www.yelp.ca/biz/pamier-kabob-toronto	43.647210	-79.395473
6	Afghan	4205 Keele St\nToronto, ON M3J 2N8	Bamiyan Kabob	(416) 650-0111	\$11-30	bamiyankabob.com	https://www.yelp.ca/biz/bamiyan-kabob-toronto	43.773829	-79.492068
7	Afghan	2307 Markham Road\nToronto, ON M1B 2W3	Kandahar Kabab	(416) 609-8666	\$11-30	kandaharkabab.com	https://www.yelp.ca/biz/kandahar-kabab-toronto	43.812544	-79.242368
8	Afghan	707 Dundas Street W\nToronto, ON M5T 2W6	Mazar's Kitchen	(647) 868-4290	NaN	NaN	https://www.yelp.ca/biz/mazars-kitchen-toronto	43.651766	-79.404965
9	Afghan	2298A Islington Avenue\nToronto, ON M9W 3X2	Afghan Kebob Cuisine	(416) 546-4238	Under \$10	afghankebobcuisine.com	https://www.yelp.ca/biz/afghan-kebob-cuisine-t...	43.716049	-79.555686

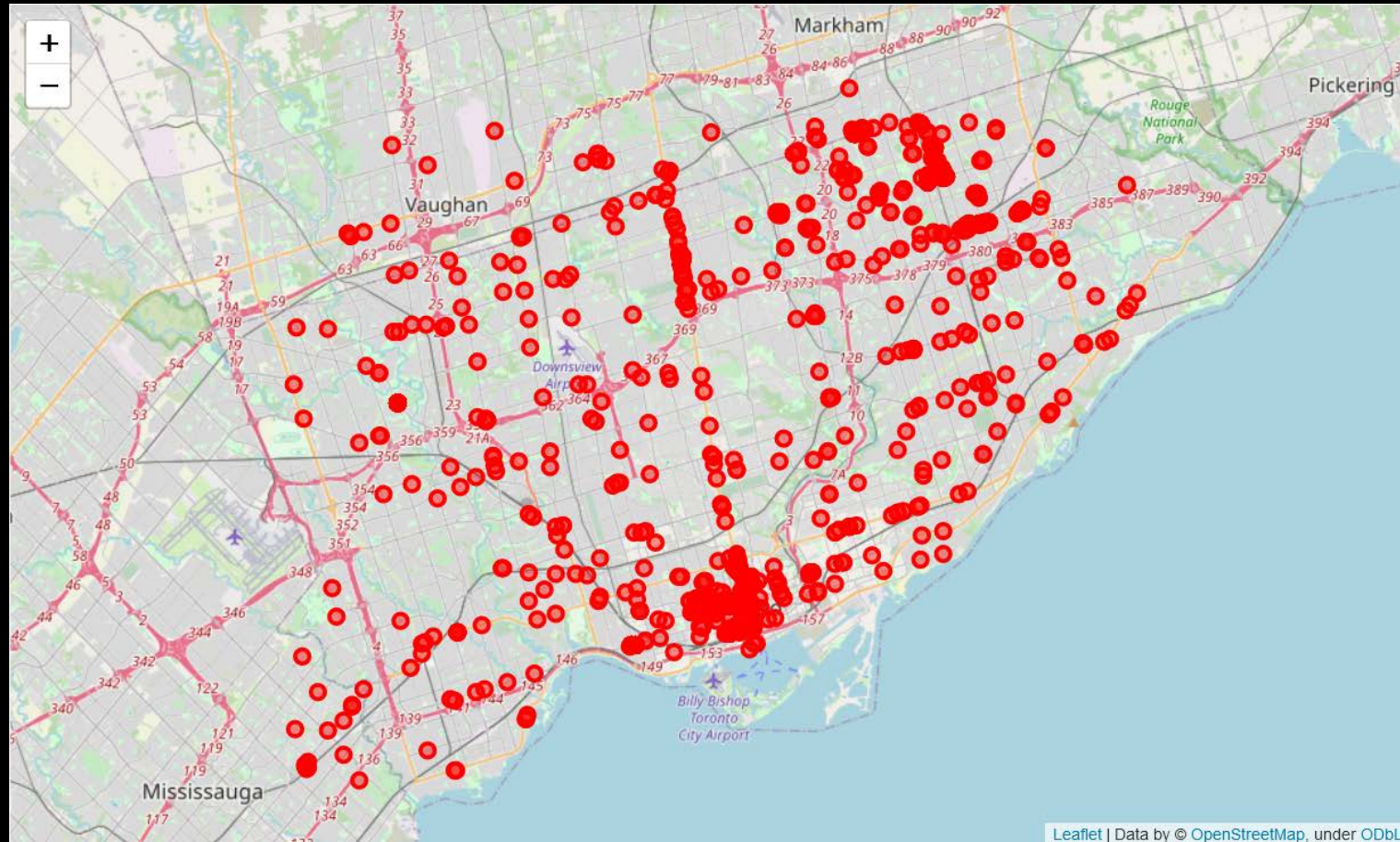
Most Common restaurant categories in Toronto area



getting all Chinese restaurants

	Category	Restaurant Address	Restaurant Name	Restaurant Phone	Restaurant Price Range	Restaurant Website	Restaurant Yelp URL	Restaurant Latitude	Restaurant Longitude
0	Chinese	309 Spadina Avenue Toronto, ON M5T 2E6	Swatow Restaurant	(416) 977-0601	\$11-30	NaN	https://www.yelp.ca/biz/swatow-restaurant-toronto	43.653836	-79.398109
1	Chinese	66 Edward Street Toronto, ON M5G 1C9	GB Hand-pulled Noodles	NaN	\$11-30	NaN	https://www.yelp.ca/biz/gb-hand-pulled-noodles...	43.656641	-79.383747
2	Chinese	214 King Street W Toronto, ON M5H 3S6	Lee Chen Asian Bistro	(416) 519-8688	\$11-30	leechenbistro.com	https://www.yelp.ca/biz/lee-chen-asian-bistro-...	43.647369	-79.386763
3	Chinese	328 Spadina Avenue Toronto, ON M5T 2E7	Dumpling House Restaurant	(416) 596-8898	Under \$10	NaN	https://www.yelp.ca/biz/dumpling-house-restaur...	43.653790	-79.398698
4	Chinese	503 College Street Toronto, ON M6G 1A5	DaiLo	(647) 341-8882	\$31-60	dailoto.com	https://www.yelp.ca/biz/dailo-toronto	43.655808	-79.409905
5	Chinese	2181 Bloor Street W Toronto, ON M6S 1N2	Delights of China	(416) 762-2888	Under \$10	NaN	https://www.yelp.ca/biz/delights-of-china-toronto	43.651263	-79.474637
6	Chinese	DoubleTree by Hilton	Lai Wah Heen	(416) 977-9899	\$31-60	laiwahheen.com	https://www.yelp.ca/biz/lai-wah-heen-toronto	43.654671	-79.386172
7	Chinese	472 Dundas Street W Toronto, ON M5T 1G8	Hong Kong Bistro Cafe	(416) 598-9188	Under \$10	NaN	https://www.yelp.ca/biz/hong-kong-bistro-cafe-...	43.653312	-79.396844
8	Chinese	263 Spadina Avenue Toronto, ON M5T 2E3	Homemade Ramen	(647) 352-6068	Under \$10	NaN	https://www.yelp.ca/biz/homemade-ramen-toronto	43.652390	-79.397391
9	Chinese	123 Queen Street W Toronto, ON M5H 3M9	Noodle King	(416) 861-9398	Under \$10	NaN	https://www.yelp.ca/biz/noodle-king-toronto	43.651181	-79.384465

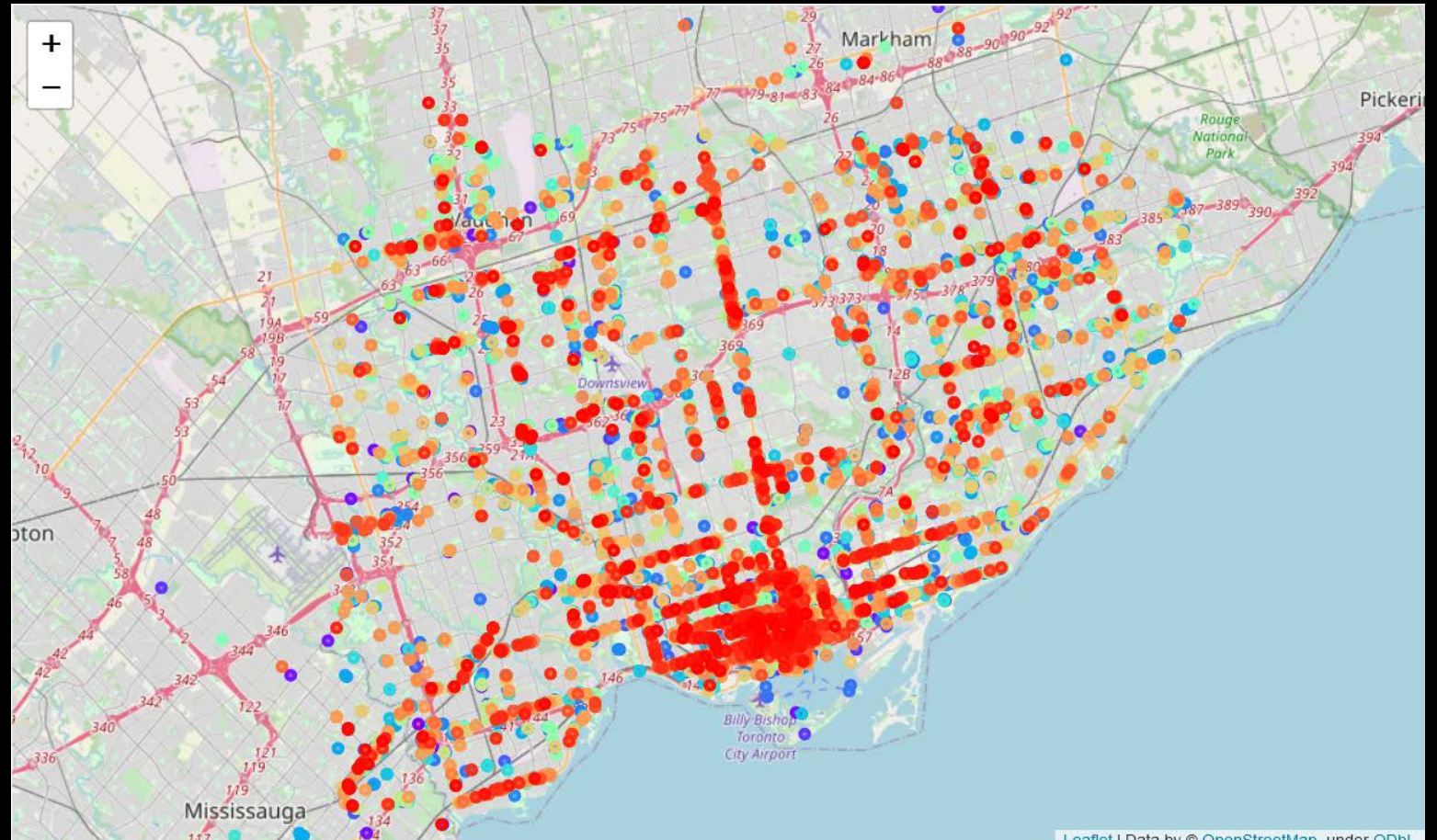
Chinese restaurants in Toronto



all restaurants in Toronto area

	Category	Ratio
0	Pizza	0.067316
1	Sandwiches	0.065040
2	Chinese	0.057455
3	Fast Food	0.051324
4	Italian	0.050755
...
121	Burmese	0.000126
122	Slovakian	0.000126
123	Pop-Up Restaurants	0.000063
124	Hong Kong Style Cafe	0.000063
125	Mauritius	0.000063

126 rows × 2 columns



getting the restaurants within 500-meter radius of Chinese restaurants using Foursquare API

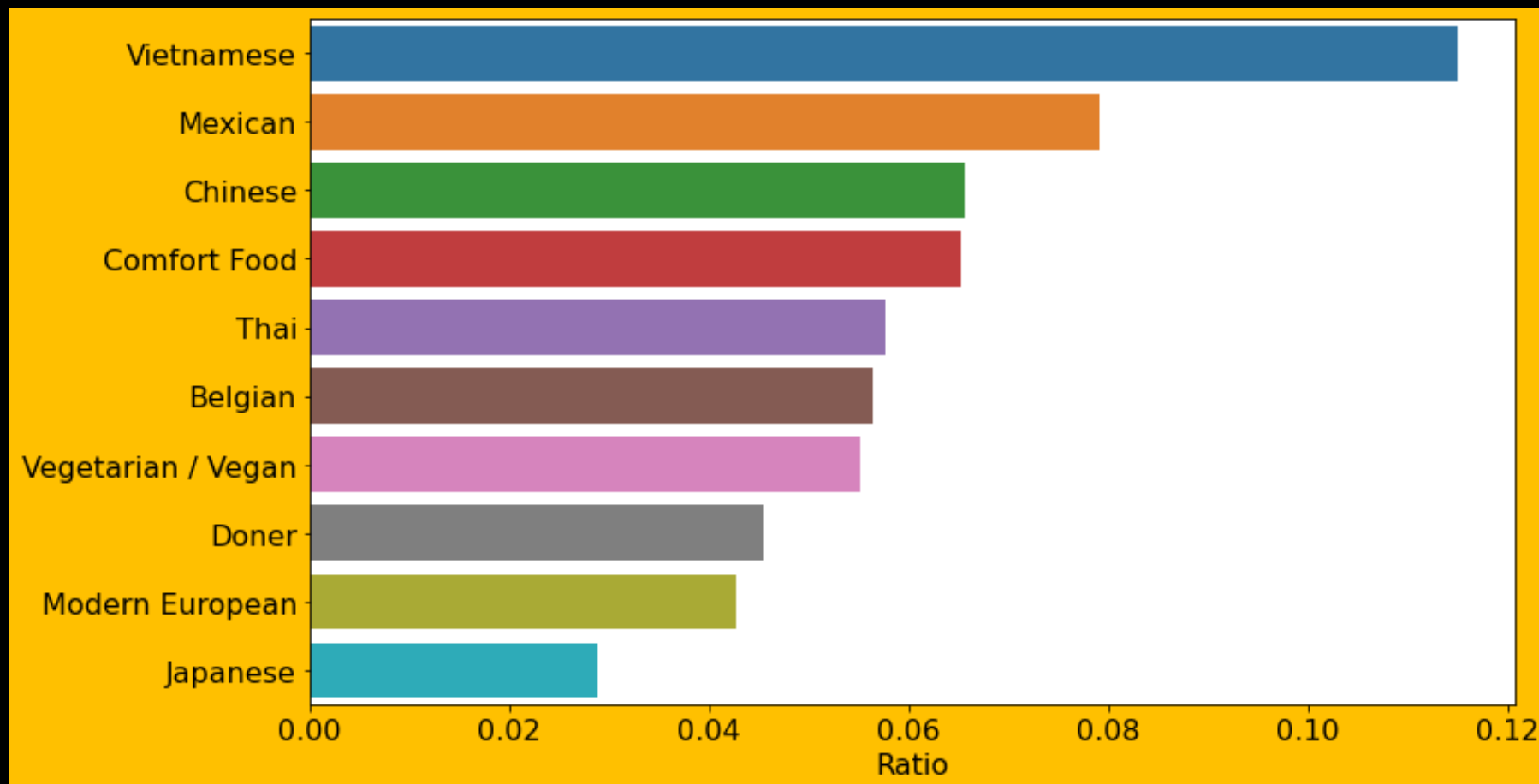
	Chinese Restaurant	CR Latitude	CR Longitude	Nearby Restaurant	Venue Latitude	Venue Longitude	Venue Category
0	Swatow Restaurant	43.653836	-79.398109	Banh Mi Nguyen Huong	43.653628	-79.398376	Vietnamese Restaurant
1	Swatow Restaurant	43.653836	-79.398109	Seven Lives - Tacos y Mariscos	43.654418	-79.400545	Mexican Restaurant
2	Swatow Restaurant	43.653836	-79.398109	Xam Yu	43.655108	-79.398882	Chinese Restaurant
3	Swatow Restaurant	43.653836	-79.398109	Thai Noodle	43.655030	-79.399456	Thai Restaurant
4	Swatow Restaurant	43.653836	-79.398109	FILM CAFE	43.655109	-79.402342	Comfort Food Restaurant
5	Swatow Restaurant	43.653836	-79.398109	Thai Country Kitchen	43.656159	-79.399423	Thai Restaurant
6	Swatow Restaurant	43.653836	-79.398109	Wafels and More	43.654651	-79.401977	Belgian Restaurant
7	Swatow Restaurant	43.653836	-79.398109	Hibiscus	43.655454	-79.402439	Vegetarian / Vegan Restaurant
8	Swatow Restaurant	43.653836	-79.398109	Urban Herbivore	43.656193	-79.402673	Vegetarian / Vegan Restaurant
9	Swatow Restaurant	43.653836	-79.398109	Vegetarian Haven	43.656016	-79.392758	Vegetarian / Vegan Restaurant
10	Swatow Restaurant	43.653836	-79.398109	El Trompo	43.655832	-79.402561	Mexican Restaurant
11	Swatow Restaurant	43.653836	-79.398109	Buddha's Vegetarian	43.651904	-79.403312	Vegetarian / Vegan Restaurant
12	Swatow Restaurant	43.653836	-79.398109	Otto's Berlin Döner	43.656387	-79.402788	Doner Restaurant

restaurants

near Chinese restaurants

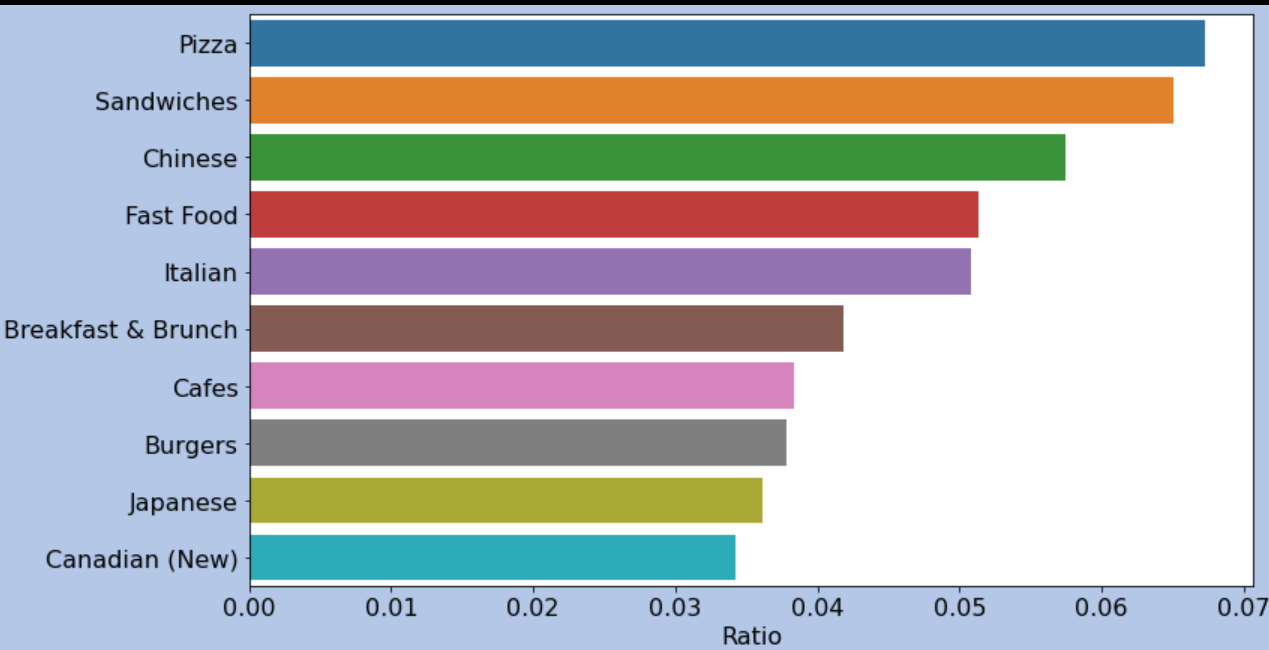
	Category	Ratio-cn
0	Vietnamese	0.124383
1	Mexican	0.076505
2	Chinese	0.065030
3	Thai	0.064042
4	Comfort Food	0.058983
...
71	Burmese	0.000123
72	Kebab	0.000123
73	Hakka	0.000123
74	Szechuan	0.000123
75	Swiss	0.000123

76 rows × 2 columns

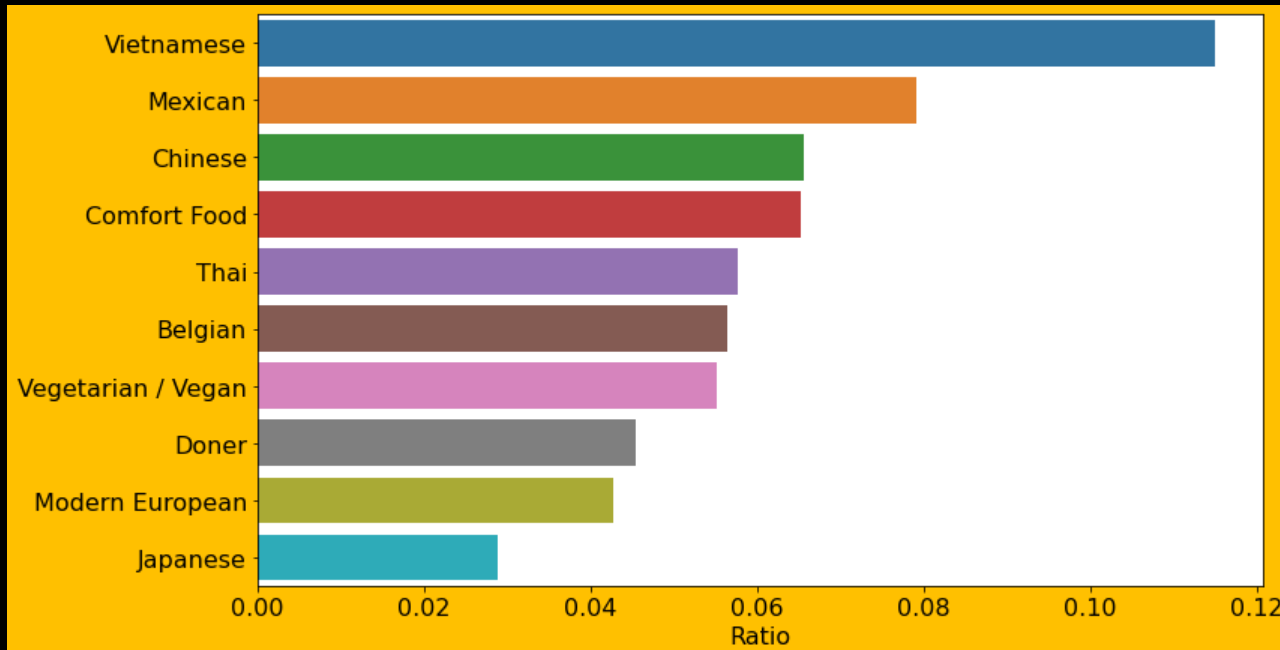


comparisons and exploration

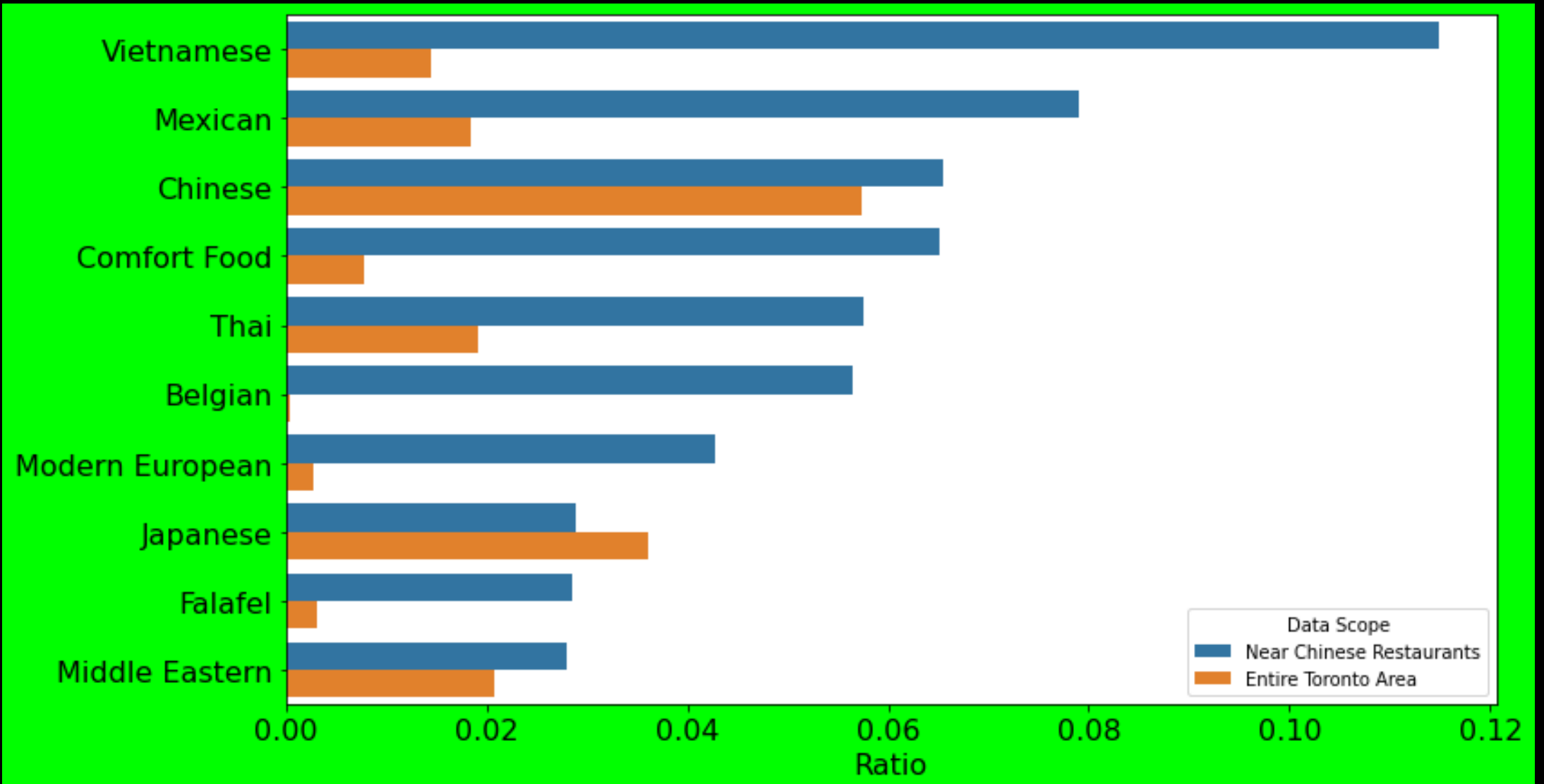
Toronto Area



in proximity of Chinese restaurants



exploratory study



Conclusions

1. The restaurant types near Chinese restaurants are different from the statistics for the entire Toronto area.
2. The top three choices of opening a restaurant in the proximity of Chinese restaurants are: Vietnamese, Mexican, and Chinese.