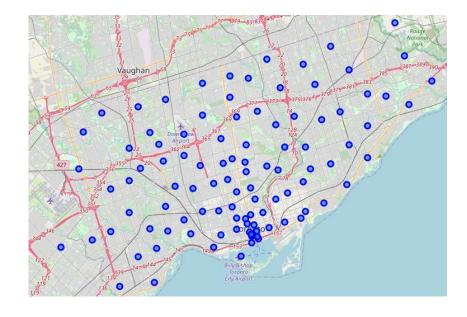# Toronto Venue Clusters

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Identifying Commercial Trends

▶ Understanding where people go and where existing stores are can help with furthering commercial operations and expansions.

▶ By taking a glimpse into existing venue data and applying Machine Learning practices, we can extract insight from public venue data.

▶ With further analysis, more data points can be provided to make better decisions
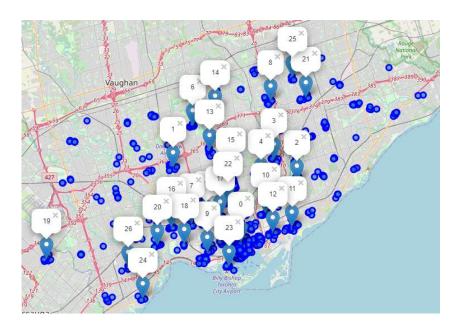
Data Sources and Data Wrangling

▶ General location information to gather meaningful naming such as borough and neighborhood was scraped from Wikipedia.

▶ General location sourced longitude and latitude was sourced from Coursera documentation

▶ Venue spatial information and venue categorization was queried using Foursquare's public API.

▶ All records with no values or duplicates were removed to not pollute the data set.

▶ One hot encoding was utilized to count and evaluate venue categorizations.

General Clustered Results

Spatial Clusters

Cluster Top Venues
(Provided in Appendix)

Clus_Db	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
0	Coffee Shop	Café	Hotel	Restaurant	Japanese Restaurant
1	Clothing Store	Furniture / Home Store	Accessories Store	Coffee Shop	Miscellaneous Shop
2	Pizza Place	Gym / Fitness Center	Flea Market	Bank	Intersection
3	Gym	Restaurant	Beer Store	Coffee Shop	Art Gallery
4	Coffee Shop	Sporting Goods Shop	Burger Joint	Bank	Restaurant
5	Grocery Store	Café	Park	Baby Store	Coffee Shop
6	Bank	Coffee Shop	Pet Store	Restaurant	Middle Eastern Restaurant
7	Bakery	Pharmacy	Coffee Shop	Furniture / Home Store	Bar
8	Clothing Store	Coffee Shop	Fast Food Restaurant	Restaurant	Japanese Restaurant
9	Bar	Café	Coffee Shop	Restaurant	Vegetarian / Vegan Restaurant
10	Greek Restaurant	Coffee Shop	Italian Restaurant	Restaurant	Furniture / Home Store
11	Fast Food Restaurant	Pizza Place	Park	Restaurant	Light Rail Station
12	Coffee Shop	Brewery	Bakery	Gastropub	American Restaurant
13	Italian Restaurant	Coffee Shop	Sandwich Place	Spa	Comfort Food Restaurant
14	Ramen Restaurant	Shopping Mall	Sandwich Place	Café	Coffee Shop
15	Pizza Place	Coffee Shop	Sandwich Place	Café	Dessert Shop
16	Mexican Restaurant	Café	Thai Restaurant	Restaurant	Flea Market
17	Sandwich Place	Café	Coffee Shop	History Museum	BBQ Joint
18	Breakfast Spot	Gift Shop	Coffee Shop	Eastern European Restaurant	Movie Theater
19	Coffee Shop	Hotel	Burrito Place	Gas Station	Fried Chicken Joint
20	Café	Coffee Shop	Sushi Restaurant	Pizza Place	Italian Restaurant
21	Pharmacy	Pizza Place	Fast Food Restaurant	Gas Station	Noodle House
22	Coffee Shop	Sushi Restaurant	Bank	Pizza Place	Bagel Shop
23	Airport Service	Airport Lounge	Boutique	Harbor / Marina	Bar
24	Pizza Place	Coffee Shop	Mexican Restaurant	Liquor Store	Fried Chicken Joint
25	Pizza Place	Coffee Shop	Fast Food Restaurant	Supermarket	Electronics Store
26	Hardware Store	Thrift / Vintage Store	Fast Food Restaurant	Burger Joint	Supplement Shop

Conclusion and Future Analysis

▶ It is clear that restaurants, pizza places, and coffee shops thrive in Toronto. Desire to open any of these shows general success. Perhaps identifying clusters that do not contain these as top 5 venues would generate more revenue due to lack of spatial competition.

▶ Nightlife, art and entertainment is generally missing. An untapped market that could potentially need evolution to thrive.

▶ Bars, retail stores, parks, and bakeries generally do well. Seems to be a market that could be disrupted.

▶ Additional analysis with customer data, travel data, revenue, and ratings could drastically increase the value of this report.

Thank you

Appendix A

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Appendix B