

FINDING THE BEST LOCATION FOR AN APARTMENT BUILDING

By Nick Kells

BUSINESS PROBLEM

- Apartments20, a Real Estate Development company, has decided on Toronto for its next apartment building, but needs to decide which neighborhood.
- The company is geared towards millennials and is looking for a location that will be attractive to them.
- The company has determined that millennials like to be within a close vicinity of a variety of restaurants, gyms, and nightlife options.

SOLUTION

- K means clustering will be used to cluster the neighborhoods of Toronto together based on similar features
- Then, the clusters will be examined to determine which cluster has attributes that most align with the preferences of millennials

DATA

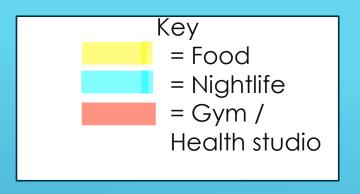
- I will scrape the geographical coordinates of Toronto Neighborhoods from Wikipedia.
- ► I will then use FourSquare's API to gather the venue information for each neighborhood



K MEANS CLUSTERING RESULTS

- After running the K-means clustering analysis, the vast majority of the neighborhoods of Toronto were clustered into three groups
 - Cluster 0, Cluster 3, Cluster 5
- The goal is to find a cluster which best aligns with the preferences of millennials.
 - Variety of Restaurants
 - Close Vicinity to gyms
 - Nightlife

CLUSTER 0



Cluster 0 had a lot of standard American food. It was lacking nightlife and access to health studios.

| | Cluster Labels | Postal Code | 1st Most Common Venue | 2nd Most Common Venue | 3rd Most Common Venue | 4th Most Common Venue | 5th Most Common Venue | 6th Most Common Venue | 7th Most Common Venue | 8th Most Common Venue | 9th Most Common Venue | 10th Most Common Venue |
|---|-------------------|----------------|--------------------------|--------------------------|--------------------------|--------------------------|------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------------|
| 2 | 0 | M1E | Pizza Place | Fast Food Restaurant | Bank | Coffee Shop | Burger Joint | Greek Restaurant | Liquor Store | Sandwich Place | Supermarket | Juice Bar |
| 3 | 0 | M1G | Park | Coffee Shop | Mobile Phone Shop | Indian Restaurant | Fast Food Restaurant | Pharmacy | Chinese Restaurant | Ethiopian Restaurant | Dumpling Restaurant | Eastern European Restaurant |
| 5 | 0 | M1J | Ice Cream Shop | Convenience Store | Coffee Shop | Sandwich Place | Fast Food Restaurant | Pizza Place | Bowling Alley | Restaurant | Grocery Store | Train Station |
| 7 | 0 | M1L | Intersection | Coffee Shop | Bus Line | Convenience Store | Bakery | Park | Mexican Restaurant | Fast Food Restaurant | Sandwich Place | Beer Store |
| 8 | 0 | M1M | Pizza Place | Ice Cream Shop | Beach | Sports Bar | Cajun / Creole Restaurant | Burger Joint | Park | Hardware Store | Electronics Store | Elementary School |
| | | | | | | | | | | | | |



CLUSTER 5

Cluster 5 consisted of many food options, especially Asianthemed, limited nightlife, and no gyms or health studios.

| | Cluster Labels | Postal Code | 1st Most Common Venue | 2nd Most Common Venue | 3rd Most Common Venue | 4th Most Common Venue | 5th Most Common Venue | 6th Most Common Venue | 7th Most Common Venue | 8th Most Common Venue | 9th Most Common Venue | 10th Most Common Venue |
|----|-------------------|----------------|--------------------------|------------------------------|--------------------------|--------------------------|--------------------------|---------------------------|--------------------------|----------------------------------|--------------------------|---------------------------|
| 0 | 5 | M1B | Fast Food Restaurant | Trail | Coffee Shop | Bank | Restaurant | Chinese Restaurant | Bakery | Paper / Office Supplies Store | Caribbean Restaurant | Greek Restaurant |
| 4 | 5 | M1H | Coffee Shop | Bakery | Gas Station | Bank | Indian Restaurant | Athletics & Sports | Chinese Restaurant | Thai Restaurant | Fried Chicken Joint | Grocery Store |
| 6 | 5 | M1K | Chinese Restaurant | Coffee Shop | Fast Food Restaurant | Discount Store | Grocery Store | Bank | Asian Restaurant | Light Rail Station | Sandwich Place | Pharmacy |
| 10 | 5 | M1P | Restaurant | Coffee Shop | Pharmacy | Electronics Store | Chinese Restaurant | Furniture / Home Store | Fast Food Restaurant | Bakery | Asian Restaurant | Indian Restaurant |
| 11 | 5 | M1R | Pizza Place | Middle Eastern Restaurant | Intersection | Grocery Store | Burger Joint | Furniture / Home Store | Restaurant | Bar | Coffee Shop | Korean Restaurant |

CLUSTER 3

Cluster 3 contained a wide variety of food venues, a number of nightlife options, and a fair amount of gyms.



| 12. | Cluster Labels | Postal Code | 1st Most Common Venue | 2nd Most Common Venue | 3rd Most Common Venue | 4th Most Common Venue | 5th Most Common Venue | 6th Most Common Venue | 7th Most Common Venue | 8th Most Common Venue | 9th Most Common Venue | 10th Most Common Venue |
|-----|-------------------|----------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|---------------------------|--------------------------|---------------------------|
| 9 | 3 | M1N | Park | Restaurant | Café | Skating Rink | Thai Restaurant | General Entertainment | Diner | Dessert Shop | Gym | Photography Studio |
| 29 | 3 | M3K | Turkish Restaurant | Coffee Shop | Other Repair Shop | Sandwich Place | Chinese Restaurant | Liquor Store | Electronics Store | Italian Restaurant | Park | Gym |
| 36 | 3 | M4E | Pub | Coffee Shop | Beach | Pizza Place | Japanese Restaurant | Breakfast Spot | Caribbean Restaurant | Bar | Tea Room | Bakery |
| 39 | 3 | M4J | Coffee Shop | Café | Greek Restaurant | Pizza Place | Convenience Store | Park | Bar | Beer Bar | Fast Food Restaurant | Ethiopian Restaurant |
| 40 | 3 | M4K | Greek Restaurant | Coffee Shop | Café | Pub | Italian Restaurant | Pizza Place | Fast Food Restaurant | Furniture / Home Store | Ramen Restaurant | Bookstore |
| 41 | 3 | M4L | Indian Restaurant | Coffee Shop | Beach | Grocery Store | Café | Brewery | Park | Burrito Place | Bakery | Harbor / Marina |
| 42 | 3 | M4M | Coffee Shop | Bar | Café | Diner | Vietnamese Restaurant | Bakery | Brewery | American Restaurant | Italian Restaurant | French Restaurant |
| 43 | 3 | M4N | Park | Bookstore | Trail | Gym / Fitness Center | Coffee Shop | College Gym | Café | College Quad | Fast Food Restaurant | Farmers Market |
| 44 | 3 | M4P | Coffee Shop | Italian Restaurant | Dessert Shop | Café | Gym | Pizza Place | Pharmacy | Sushi Restaurant | Supermarket | Restaurant |
| 45 | 3 | M4R | Coffee Shop | Italian Restaurant | Skating Rink | Diner | Mexican Restaurant | Café | Park | Sushi Restaurant | Bakery | Jazz Club |

CONCLUSION

- Based on the results of the clustering algorithm, Apartments 20 should consider choosing a neighborhood in cluster 3 to build their new apartment building because the venues of this cluster most closely align with the preferences of their customer base.
- Before making a final decision, Apartments 20 should consider additional factors, including price of real estate and amount of competition.

Thank You