

Recommending the ideal  
category and location for a  
potentially successful eatery

# Venture Capital firm looking to invest in an eatery

- Eateries, with a 60 percent fail rate in the first year, are a challenging business.
- High upfront start up cost as well as significant competition from the nearby establishments.
- Venture Capital firm interested in investing in an eatery.
- Plan to use location and venue categories of popular restaurants to provide my assessment for the firm.



# Data acquisition

- Postal code, borough and Toronto neighborhood data scraped from [https://en.wikipedia.org/w/index.php?title=List\\_of\\_postal\\_codes\\_of\\_Canada:M&direction=prev&oldid=926287641](https://en.wikipedia.org/w/index.php?title=List_of_postal_codes_of_Canada:M&direction=prev&oldid=926287641).
- Foursquare API used to gather restaurant related data from various neighborhoods of Toronto.
- Geopy used to collect provide location specific(longitude, latitude) data.

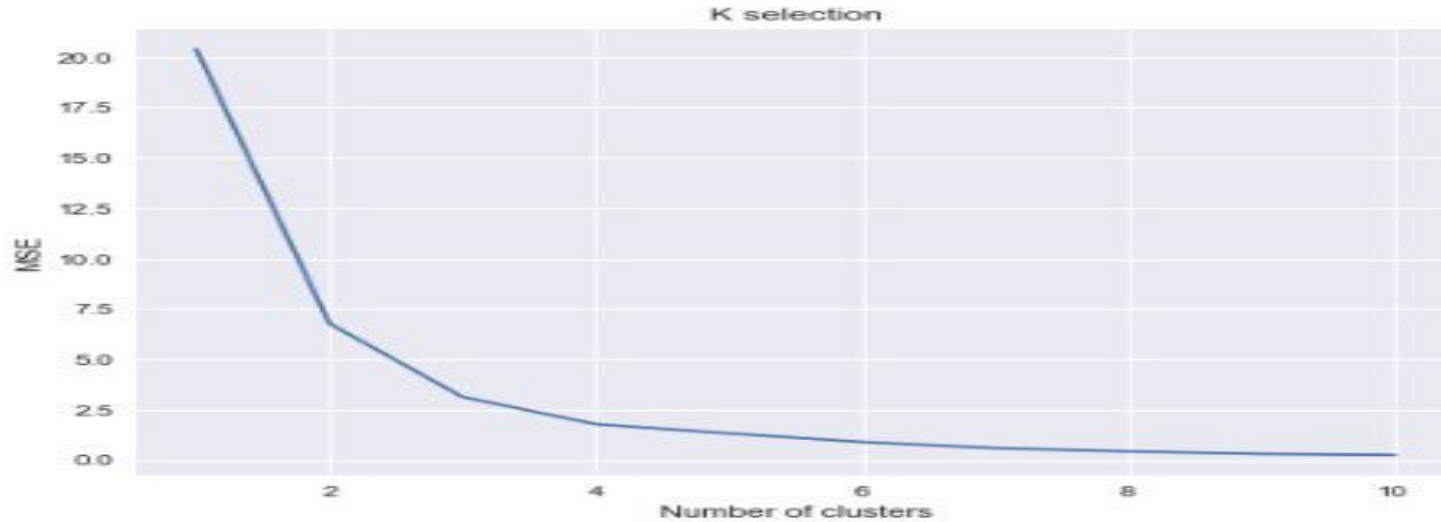


# Data manipulation and cleaning

- Information obtained from foursquare API and geopy is sorted by ratings with unrated entries being removed from the list.
- New counts column added to the dataframe to showcase the number of ratings for each venue category.
- Standardized the counts/number of ratings, multiplying it with the corresponding ratings to produce a weighted rating.
- The final dataset contains 20 rows and 14 features.

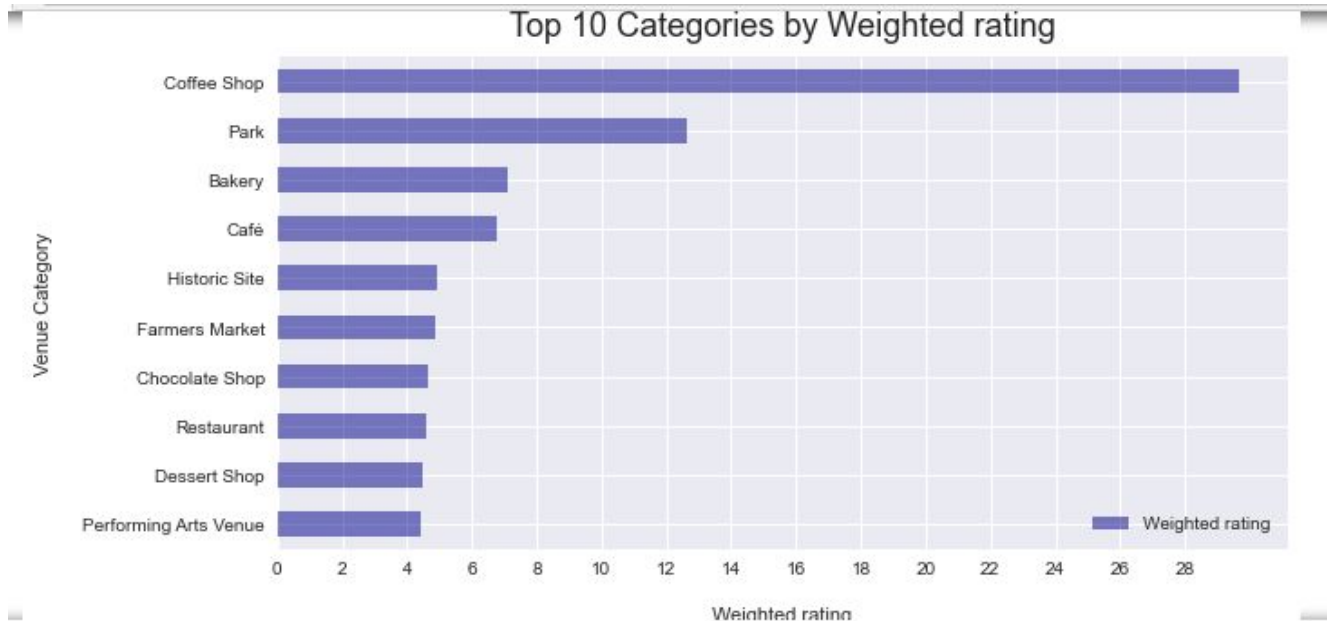


# Elbow method used to find the optimum K value



# Results and Discussion

- Coffee shops, bakeries and cafes are the three most popular categories of eateries.



# K-means Clustering:

- Cluster 1:

Shows cluster of venue categories from overall data having the lowest weighted rating. Of this cohort, those belonging to the Harbourfront neighborhood have the highest weighted rating.



# Cluster 1

Out[238]:

	Standardized Counts	Venue Category	Rating	Cluster Labels	Latitude	Longitude	Weighted rating	Neighborhood	Neighborhood Latitude	Neighborhood Longitude		Venue ID	Venu
7	0.857195	Bakery	8.26667	0	-79.3606	43.6543	7.08614	Harbourfront	43.65426	-79.360636	54ea41ad498e9a11e9e13308		Rosel Desser
9	0.857195	Bakery	8.26667	0	-79.3606	43.6543	7.08614	Harbourfront	43.65426	-79.360636	4ad4c05df964a5204ef620e3		Th Swe Escap Patisser
8	0.857195	Bakery	8.26667	0	-79.3606	43.6543	7.08614	Harbourfront	43.65426	-79.360636	4b156a02f964a5207fac23e3		Bric Stre Bakei
24	0.857195	Café	7.9	0	-79.3606	43.6543	6.77184	Harbourfront	43.65426	-79.360636	583e2cde9435a913b34de355		Wild Deliciou Cat
23	0.857195	Café	7.9	0	-79.3606	43.6543	6.77184	Harbourfront	43.65426	-79.360636	4d84d98181fdb1f7d4a704c0		Caff Furb



## Cluster 2

Contains the cohort of venue categories that have the highest weighted rating of eateries compared to all other clusters. Here too, except for one, all are located in Harbourfront.



	Standardized Counts	Venue Category	Rating	Cluster Labels	Latitude	Longitude	Weighted rating	Neighborhood	Neighborhood Latitude	Neighborhood Longitude		Venue ID	Venue Name
11	3.62659	Coffee Shop	8.18571	1	-79.3542	43.6645	29.6863	Victoria Village	43.725882	-79.315572	4bbe904a85fbb713420d7167		Ti Horton
12	3.62659	Coffee Shop	8.18571	1	-79.3542	43.6645	29.6863	Harbourfront	43.654260	-79.360636	53b8466a498e83df908c3f21		Tande Coffee
13	3.62659	Coffee Shop	8.18571	1	-79.3542	43.6645	29.6863	Harbourfront	43.654260	-79.360636	51853a73498e4d97a8b20831		Roost Coffee
14	3.62659	Coffee Shop	8.18571	1	-79.3542	43.6645	29.6863	Harbourfront	43.654260	-79.360636	57cd9d20498e6ab8342980e2		An
15	3.62659	Coffee Shop	8.18571	1	-79.3542	43.6645	29.6863	Harbourfront	43.654260	-79.360636	58c7fbf7424f9373e6427e99		Starbucl
16	3.62659	Coffee Shop	8.18571	1	-79.3542	43.6645	29.6863	Harbourfront	43.654260	-79.360636	5619551a498e9e35fce2256b		Sumat Espresso
17	3.62659	Coffee Shop	8.18571	1	-79.3542	43.6645	29.6863	Harbourfront	43.654260	-79.360636	581258b738fa5bbefe4c0857		Da Hors Espresso Bar

## Cluster 3:

- Contains parks, which have the second highest weighted rating amongst all venue categories.
- Considering their popularity, they can serve as a potentially good location for setting up a food stand.



	Standardized Counts	Venue Category	Rating	Cluster Labels	Latitude	Longitude	Weighted rating	Neighborhood	Neighborhood Latitude	Neighborhood Longitude		Venue ID	Venue Name
18	1.54954	Park	8.15	2	-79.3529	43.679	12.6288	Parkwoods	43.753259	-79.329656	4e8d9dcdd5fbbb6b3003c7b		Brookbank Park
19	1.54954	Park	8.15	2	-79.3529	43.679	12.6288	Harbourfront	43.654260	-79.360636	51ccc048498ec7792efc955e		Corktown Community Park
20	1.54954	Park	8.15	2	-79.3529	43.679	12.6288	Harbourfront	43.654260	-79.360636	4ddfbaca185035f3a44e8df6		Underpass Park
21	1.54954	Park	8.15	2	-79.3529	43.679	12.6288	Harbourfront	43.654260	-79.360636	4c16a548955976b0cadea4f6		Parliament Square Park



# Conclusion

- Harbourfront neighborhood of Toronto contains the most popular restaurants
- Coffee shops, bakeries and cafes are three of the highest rated eatery categories.
- Parks, due to their popularity can serve as good locations for food stands.
- Additional research can provide more insights.
- Ideas include:
- Learning management strategies and popular items of highly rated eateries.
- Inclusion of more ratings for venue categories as well as for eateries belonging to larger number of neighborhoods.

