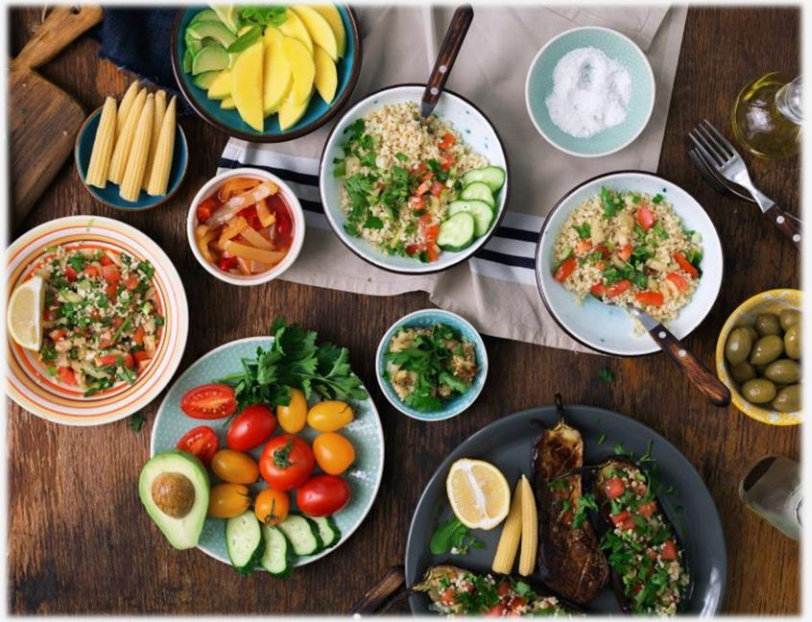
IBM Data Science Capstone

Final Project: Toronto Neighborhood Analysis

Goal: pinpointing the right neighborhood to open a restaurant

- Restaurants are a very volatile business and are likelier to fail than most other types of small businesses.
- If someone is looking to open a successful restaurant, they must carefully about the market for their particular product.
- Vegetarian and vegan restaurants have an even more limited audience, and therefore even riskier to open.
- Looking at data for the city from the city of Toronto, the goal of this project is to identify ideal locations to open a new vegetarian restaurant.



Data is the key

- Utilizing the tool BeautifulSoup we were able to scrape information for Toronto's many neighborhoods
- Combining that data with local restaurant information from FourSqaure's API, the data was evaluated to determine the supply and demand of vegetarian restaurants in Toronto.
- K-means clustering was utilized to identify categories of neighborhoods which could make strong candidates as a potential restaurant location.

	Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
0	Malvern / Rouge	43.806686	-79.194353	Wendy's	43.807448	-79.199056	Fast Food Restaurant
1	Malvern / Rouge	43.806686	-79.194353	T Hamilton & Son Roofing Inc	43.807985	-79.198194	Construction & Landscaping
2	Rouge Hill / Port Union / Highland Creek	43.784535	-79.160497	Royal Canadian Legion	43.782533	-79.163085	Bar
3	Rouge Hill / Port Union / Highland Creek	43.784535	-79.160497	Scarborough Historical Society	43.788755	-79.162438	History Museum
4	Guildwood / Morningside / West Hill	43.763573	-79.188711	G & G Electronics	43.765309	-79.191537	Electronics Store

Findings

- We can see that the types of neighborhoods that have strong demand for vegetarian food (in green and teal on the map) are all generally close to the downtown and waterfront areas.
- We can see that there are several neighborhoods near to the groups that do not currently have any vegetarian restaurants.
- My recommendation would be to target one of these neighborhoods like Queen's Park or the Garden District which are near enough to downtown to capitalize on foot traffic and have neighboring boroughs with a proven demand for vegetarian products.

Conclusion

- While opening a restaurant is certainly not a picnic, we can leverage data to make sure we are making informed decisions before moving forward.
- In this case we were able to identify areas where there will be demand for our product but that we know are not currently saturated markets.
- The use of k-means clustering offered a unique insight that couldn't have been accomplished through a traditional revue of the data.