# Applied Data Science Capstone

**Peer-graded Assignment: Capstone Project - The Battle of Neighborhoods**

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Now that you have been equipped with the skills and the tools to use location data to explore a geographical location, over the course of two weeks, you will have the opportunity to be as creative as you want and come up with an idea to leverage the Foursquare location data to explore or compare neighborhoods or cities of your choice or to come up with a problem that you can use the Foursquare location data to solve.

## 1) Introduction/Business Problem

Clearly define a problem or an idea of your choice, where you would need to leverage the Foursquare location data to solve or execute. Remember that data science problems always target an audience and are meant to help a group of stakeholders solve a problem, so make sure that you explicitly describe your audience and why they would care about your problem.

*The idea of this study is to help individuals planning to open a new restaurant in Toronto. Factors which may help with planning include choosing the right location by providing data about the income and population of each neighborhood as well as the competitors already located in the same regions.*

## 2) Downloading and Prepping Data

Describe the data that you will be using to solve the problem or execute your idea. Remember that you will need to use the Foursquare location data to solve the problem or execute your idea. You can absolutely use other datasets in combination with the Foursquare location data. So make sure that you provide adequate explanation and discussion, with examples, of the data that you will be using, even if it is only Foursquare location data.

*To provide the stakeholders the necessary information, Toronto's 2016 Census that contains Population, Average income per Neighborhood with Toronto's Neighborhoods shapefile and Foursquare API to collect competitors on the same neighborhoods can be collected.*

*Toronto's Census data is publicly available at this website: https://www.toronto.ca/city-government/data-research-maps/open-data/open-data-catalogue/#8c732154-5012-9afe-d0cd-ba3ffc813d5a*

*Toronto Neighborhoods' shapefile is publicly available at this website: https://www.toronto.ca/city-government/data-research-maps/open-data/open-data-catalogue/#a45bd45a-ede8-730e-1abc-93105b2c439f*

## 3) Methodology

Methodology section which represents the main component of the report where you discuss and describe any exploratory data analysis that you did, any inferential statistical testing that you performed, and what machine learnings were used and why.

*For this report, a few different maps would help a new investor decide the best neighborhood to open a restaurant in Toronto based on it's income, population and available competitors. The 2016 Census information combined with choropleth maps visually display the wealthier and more populational neighborhoods and Foursquare data to display the current restaurants in each region.*

## 4) Results

Results section where you discuss the results.

*Comparing the maps, it is noted that the majority of the restaurants grouped on main streets and on the south of the city, and the wealthiest neighborhoods are up north. The areas with a denser population don't reflect the number of restaurants.*

## 5) Discussion

Discussion section where you discuss any observations you noted and any recommendations you can make based on the results.

*Observations noted are initially looking to find clusters of restaurants in certain regions and the final result didn't meet that expectation.*

## 6) Conclusion

Conclusion section where you conclude the report.

*This report may be helpful for someone planning on opening a restaurant in Toronto, by comparing the current offers and neighborhoods profiles. Not all variables are covered such as access to public transportation or even the restaurants profiles. There are many factors to still be looked at.*