I. Introduction:

This report is prepared for the capstone project as a requirement to complete the coursera data science professional certificate. The capstone project is the 9th course in the series developed by IBM and presented by coursera. This report is the first one of the two reports on the capstone project. In this document the introduction/problem description section is provided. The objective of this project is to leverage the data science skills and the FourSquare location data to explore the possible solutions for a problem in hand.

The main objective in this project is to explore the Toronto neighborhoods, find the population of these neighborhoods and the surrounding venues, and use the clustering method to understand how the number of venues and population correlate and use this relationship to propose a method for optimized placement of new venues to improve its success chance. The hypothesis is that the more populated areas with less restaurants are a better target place for opening a new restaurant.

The idea comes from the simple supply-demand analysis that is performed in any business plan development process. Although the population density in Toronto is not stationary but dynamic and changes during different hours of the day, the population density is a sure number that determines the minimum number of possible visitors or shoppers in the neighborhood.

Therefore, this study would show that if the supply-demand for shoppers and buyers population in Toronto neighborhoods is balanced or not. It could be followed by another project to investigate what could be the possible reasons if the supply-demand is underbalanced or over-balanced.

The target audience for this report are:

- The investors who are looking to find the best possible investing options in opening new venues including restaurants in Toronto.
- The data scientists who are going to follow this methodology for other cities in the world.

- Restaurant chain owners who are looking to make a balance in supply-demand in their city of choice.
- The data science students who are looking for ideas to work on for their future project. Recommendations for future works would be provided at the last part of this report.