

# Capstone Project

## Battle of Neighborhoods

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### Problem Description

#### Analysis of “Neighborhood” on “Crime” in the city of Toronto.

Compare Neighborhoods in the city of Toronto with the help of Crime statistics to find the best place which has lower or higher crime rates and to understand the effect of other venues on crime rate using Foursquare API.

### Introduction and business problem selection

Toronto is the provincial capital of Ontario and has become the most populated city in Canada with a population of more than 3 million as per 2019<sup>1</sup>. By far Toronto is the fourth largest city in North America and has the lowest homicide rate which fluctuated between 2.1 to 3.1 per 100,000 people over 2010's decade. Although the crime rates are pretty less compared to other major North American cities, there are large criminal organizations which are operating in the Toronto region since at least the mid-19th century. Crime in Toronto has mostly been the domain of international crime syndicates.<sup>2</sup>

The crime data in Toronto has been published by the “Toronto Police Service” in a “**Public Safety Data Portal**”<sup>3</sup>. And all the crimes in Toronto from 2014 – 2019 has been published in the portal here.<sup>4</sup> The venue details can be obtained from the “**Foursquare API**”<sup>5</sup>. First the crime data is overlapped on the Toronto map using **Folium Library** to see the occurrences of the crimes and using Foursquare API data the number of venues are mapped. And later both the maps are compared for correlation.

This project tries to analyze the patterns of crime, like what are categories of crimes, their occurrence based on time of the day, day of the week, or month of the year and get more insights into the data. This also explores a correlation between the presence of venues to number of crimes. This analysis tries to solve the common notion which exists that the presence of number of venues in the neighborhood makes the area busy and due to presence of lot of traffic and people around the venues, the crimes may be less.

The results of this analysis can help the residents and the visitors of Toronto about the crime locations near the venues and take appropriate precautions.

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<sup>1</sup> <https://en.wikipedia.org/wiki/Toronto>

<sup>2</sup> [https://en.wikipedia.org/wiki/Crime\\_in\\_Toronto](https://en.wikipedia.org/wiki/Crime_in_Toronto)

<sup>3</sup> <http://data.torontopolice.on.ca/>

<sup>4</sup> <http://data.torontopolice.on.ca/datasets/mci-2014-to-2019/data>

<sup>5</sup> <https://foursquare.com/user>