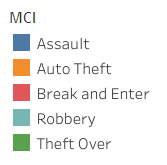
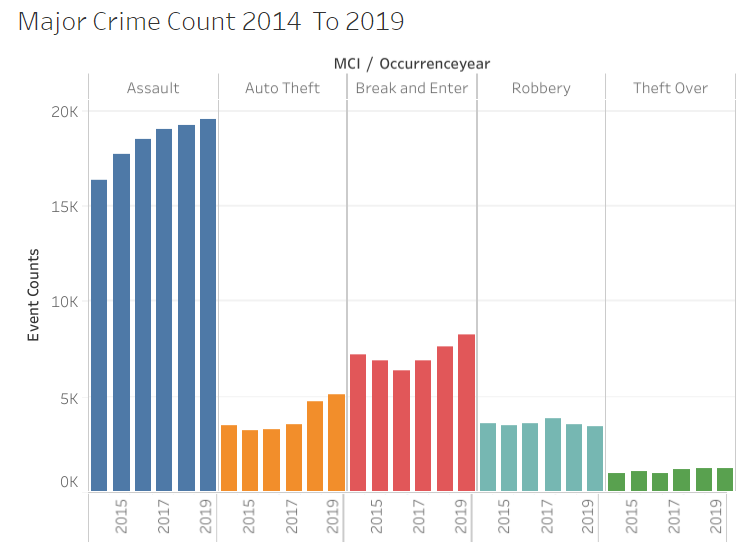
Canada has always been known as one of the safest countries in the world, yet when I began my university study in Toronto in 2017, I have heard more crime news since then. By the end of 2020, I moved a new apartment which was located near the Toronto policy headquarter, and ever since then, I heard more and more police sirens. At that point, I started wondering if Toronto was safe to live and if the neighborhood I lived in was secure enough. Thus, I started working on this project and trying to learn more about the crime in Toronto by analyzing the data provided by the Toronto police from 2014 to 2019.

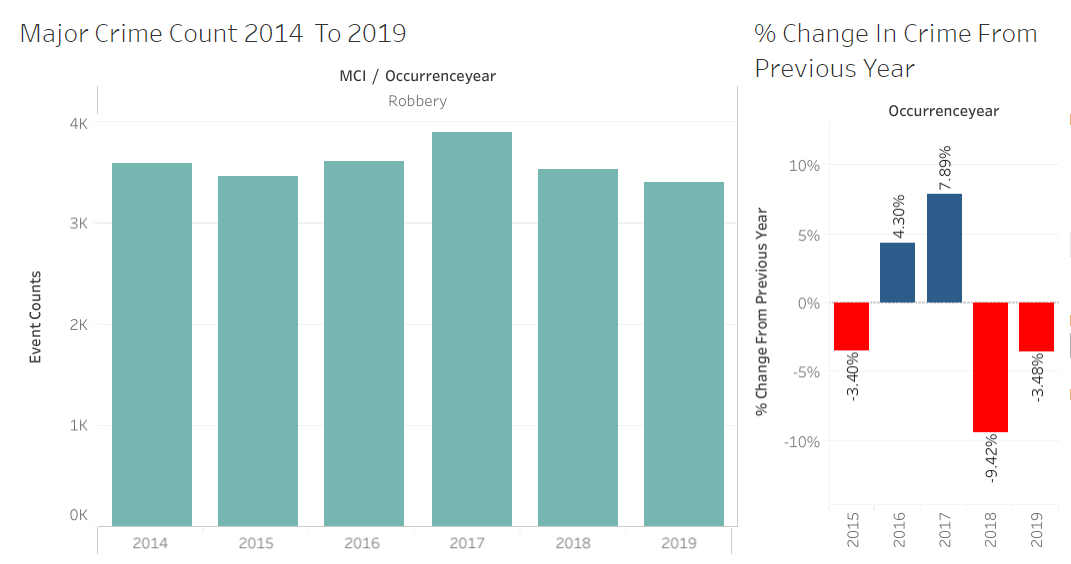
The report is divided into three sections. The first section is designed for police divisions in Toronto to understand their performance over time from 2014 to 2019, while the second part is made for civilians to understand their neighborhood of interest. The third part is created for both groups to explore and discover interesting aspect of police divisions and neighborhood.

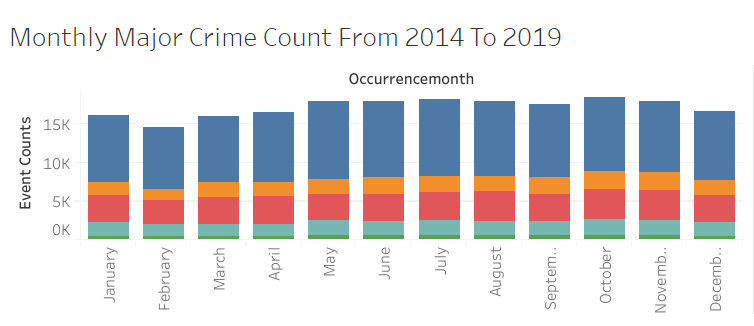
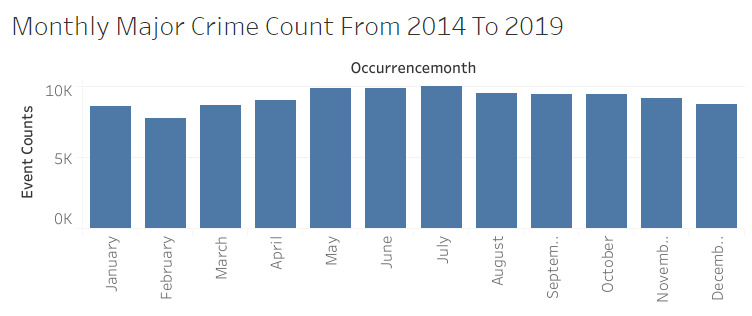
For this report, Toronto refers to the city of Toronto. The Major Crime Index (MCI) includes five types of crimes: assault, auto theft, break and enter, robbery as well as theft over. These five MCI will be represented by five colors in plots.

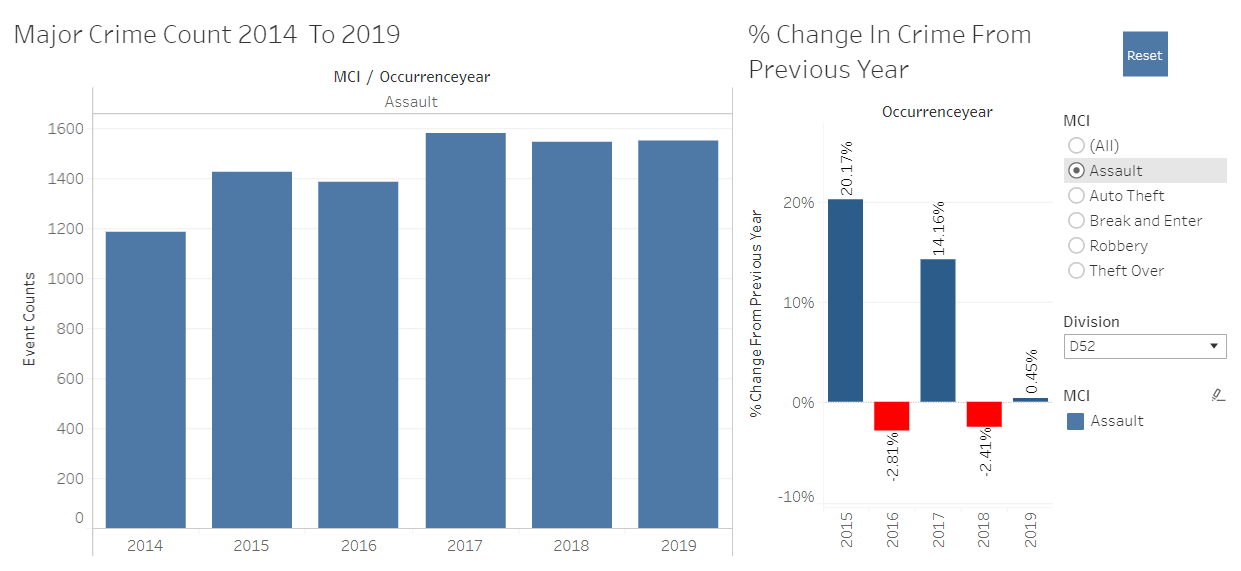
Part I

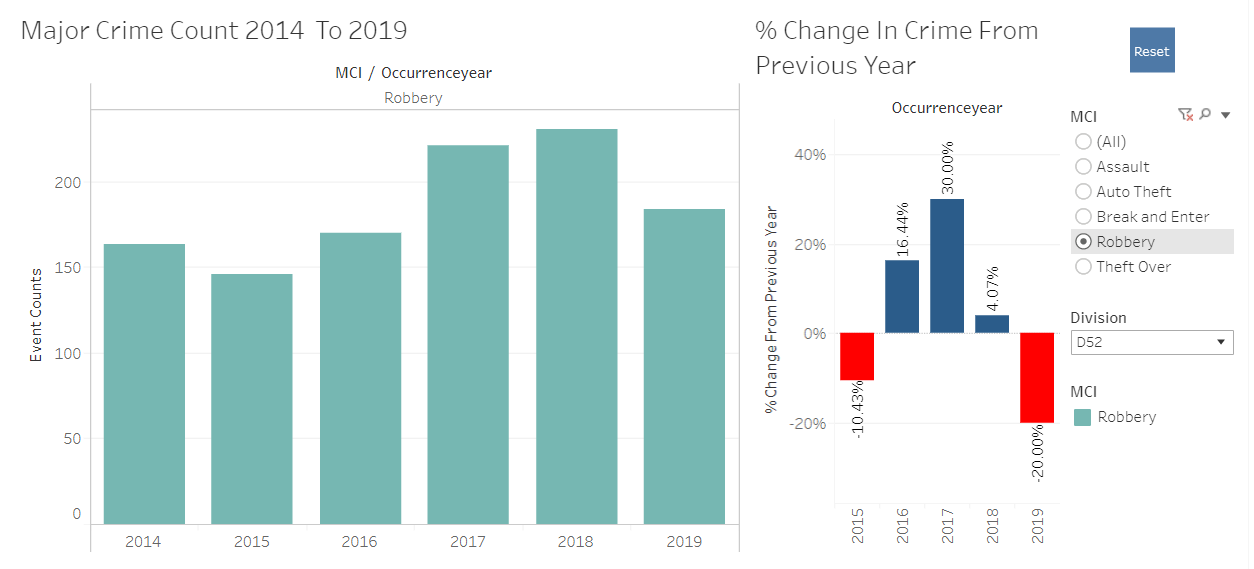
There are 16 police divisions excluding the police headquarter in Toronto. Overall, the number of crime events in each MCI has shown an increasing trend from 2014 to 2019, especially for assault, auto theft, and B&E (break and enter).

In order to understand how the rate of crime changes over time, it may be easier to look at the *% Change In Crime From Previous Year* for each MCI. For instance, in the above case, it is difficult to see the change in amount of crime events involving robbery or theft over from 2014 to 2019, in fact, it is difficult to perceive if they changed at all since the diagram is so small. If we switch the plot to the desired one, we can easily describe the change in crime rate from 2014 to 2019 in robbery and theft over. For instance, year 2015, 2018 and 2019 have shown decreasing trends from previous years in all police divisions.



Apart from that, we can find more insights from different months. According to *Monthly Major Crime Count from 2014 To 2019*, the months from December to March have less crime events than other months. This may be explained by the fact that people may commit less crime when weather is too cold so that people prefer staying inside. While this remain true for all MCI, the highest crime month differs for MCI. There are more assault in the summer but other crimes peak in fall. As it is unclear why those crimes happen in this particular season, it is explainable for more assaults happen in summer. Different from other types of crimes, assault may happen on a whim. Study has found that people get angry or grumpy in warm weather as stress hormones rise. As a result, small accidents may lead to assaults in summer. 

We could also take a closer look at the police division of choices. For instance, my university is next to the 52nd police division, so I will take a deeper look at that. Across all MCI, crime has been most severe in 2015 and 2017. Crime increased more than 15% from previous years and this is especially true for assault and B&E. The number of auto theft cases increased significantly from 2016 to 2018 and robbery increased around 30% in 2017 in this division. Although these numbers appear terrifying at the moment, the 52nd division has made some progress. Despite the fact that the crime number each year is still increasing, the percentage of growth has declined, and the number of robbery decreased 20% in 2019. 



Across all MCI, summer and fall appears to the two seasons with more crime risks. As temperature goes down, the number of crime decreases. Below I will summarise the top three months under each MCI that have the most crimes.

|  |  |
| --- | --- |
| **MCI** | **Monthly Crime Count Top 3** |
| Assault | July, August, March |
| Auto theft | July, August, September |
| Break and enter | August, September, October |
| Robbery | August, October, July |
| Theft over | October, November, May |

Part II

The second part of this report is designed to help Toronto citizens to better understand about their neighborhoods. Toronto is a big city and has 140 neighborhoods. This report will help them to answer some questions, such as: is the neighborhood they live in safe? What type of crime is the most abundant in this neighborhood? What day of week and time are crime events most likely to happen?