

# Majore Crime Indicators

## City of Toronto

This project aims to analyze and visualize crime catagories in Toronto from 2016-2022. Correlations between crime and various metrics like time and seasons, premises and locations were looked

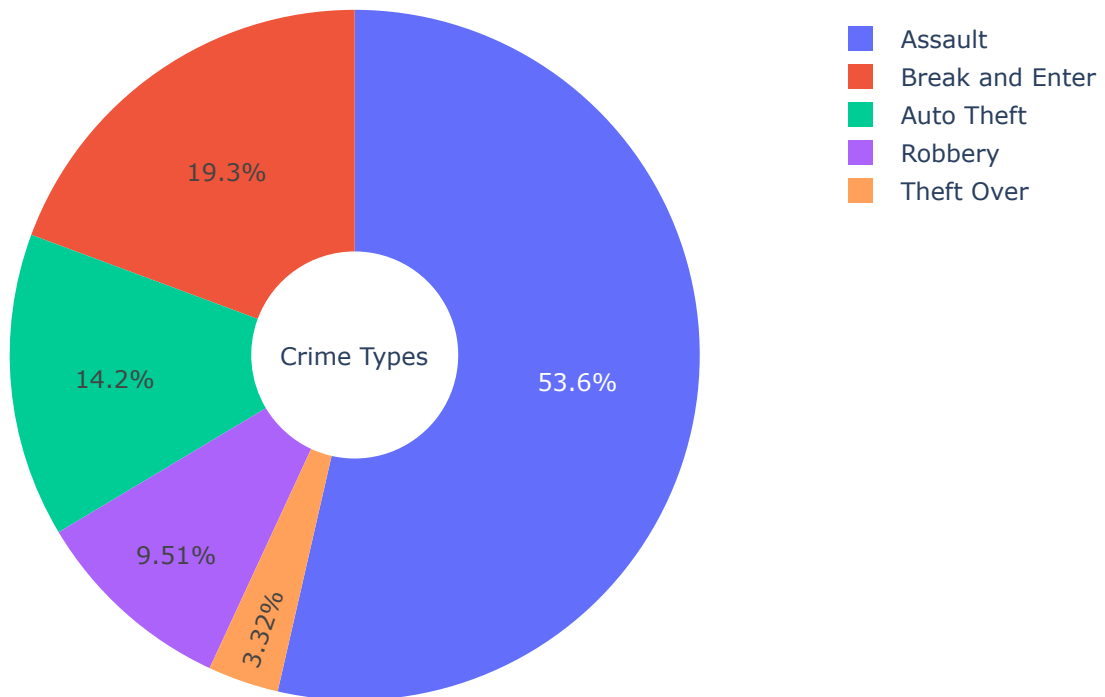


The pie chart above shows the distribution of crime categories in Toronto per 10,000 incidents.

Assault is the most common type of crime with 3,667 incidents per 10,000, followed by Theft Over with 888 incidents per 10,000.

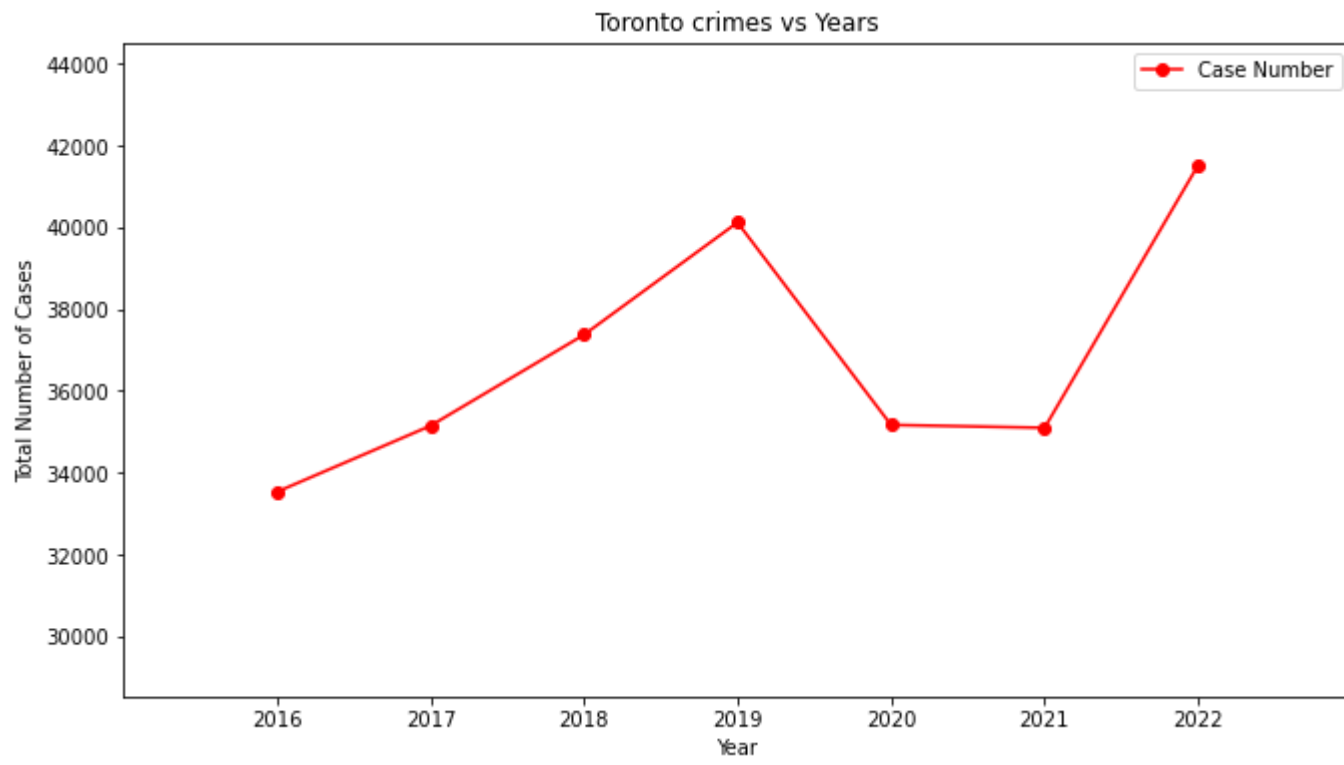
The other categories are much less common, with Break and Enter having the lowest count at only 137 incidents per 10,000.

## Crime Counts in Toronto per 10,000 Incidents

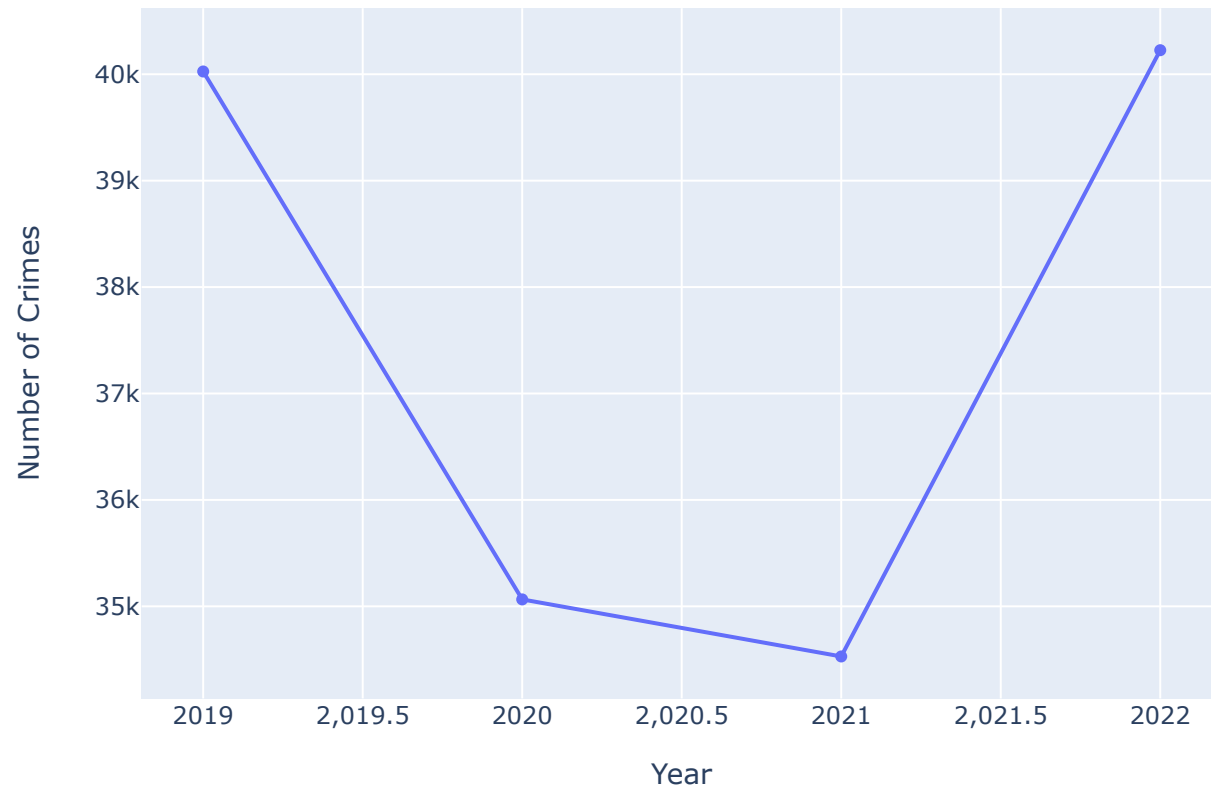


```
2019.0    40026
2020.0    35065
2021.0    34529
2022.0    40226
Name: OCC_YEAR, dtype: int64
```

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In 2016, there are 33529 criminal crimes occurred in Toronto.
In 2017, there are 35145 criminal crimes occurred in Toronto.
In 2018, there are 37371 criminal crimes occurred in Toronto.
In 2019, there are 40118 criminal crimes occurred in Toronto.
In 2020, there are 35168 criminal crimes occurred in Toronto.
In 2021, there are 35097 criminal crimes occurred in Toronto.
In 2022, there are 41521 criminal crimes occurred in Toronto.
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Total Number of Crimes in Toronto (2019-2022)



The line chart demonstrates the number of incidents for each crime category during each month intervals.

The analysis aims to provide insights into trends, patterns, and variations in crime incidents during this period.

The findings will be useful for informing public safety strategies, resource allocation, and policy formulation.

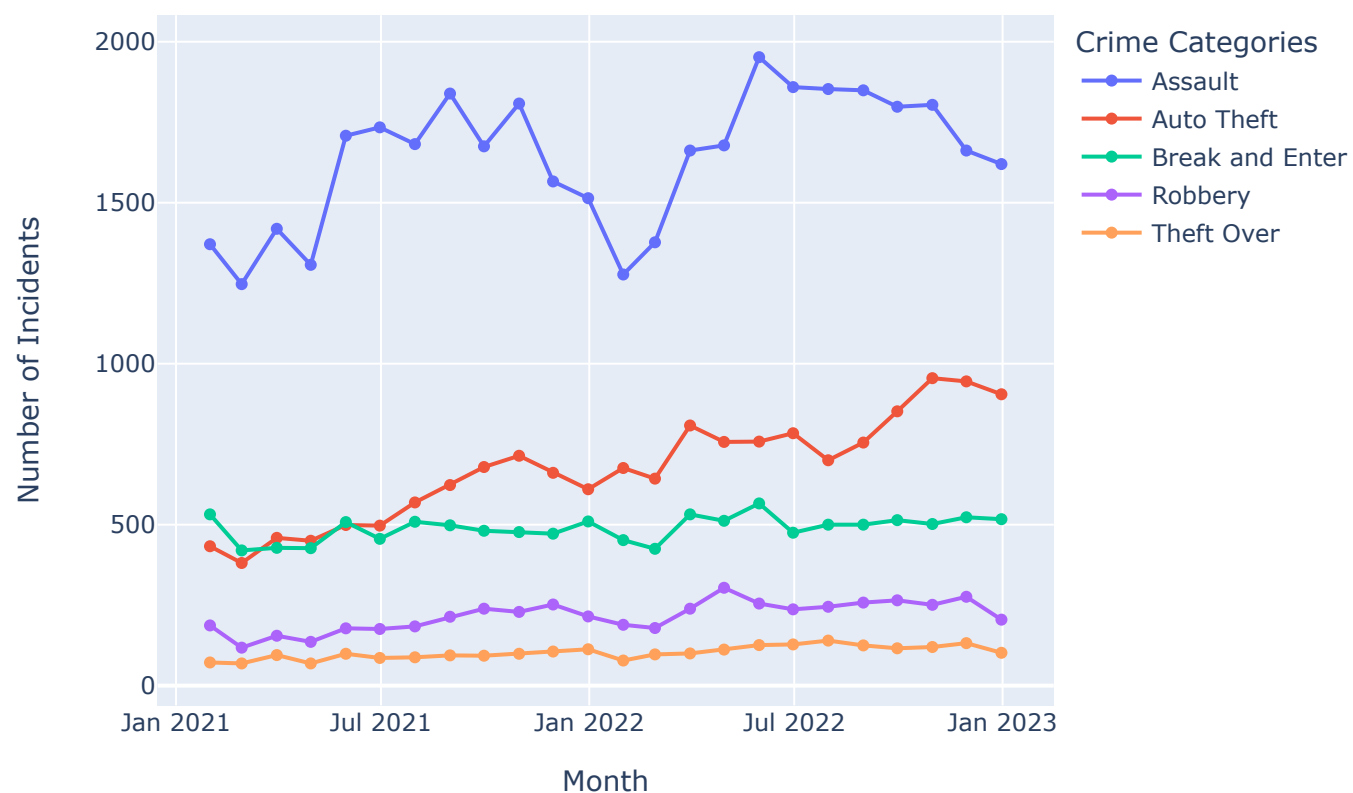
## Key Findings

This indicates that Assault consistently had the highest number of incidents throughout the two-year period.

Auto Theft also showed an increasing trend,

while Break and Enter, Robbery, and Theft Over remained relatively stable.

Crime Trends by Category (2021-2022)



The line chart demonstrates the number of incidents for each crime category every 2-hour intervals throughout the day.

## Key findings:

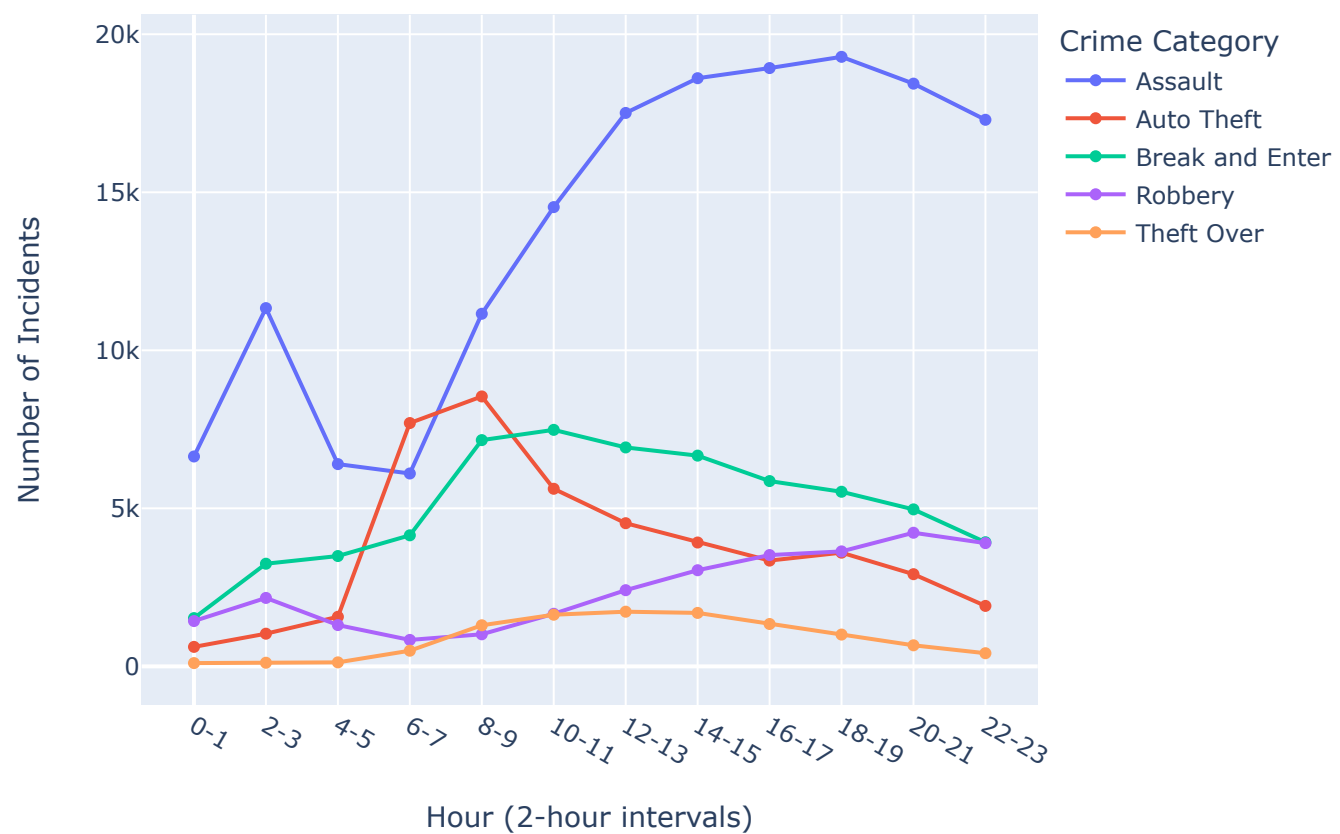
This reveals that assault incidents peak between 20:00 and 21:00, with a noticeable dip during early morning hours.

Break and Enter crimes show a different trend, with the highest number of incidents occurring between 12:00 and 13:00 and the lowest during the early morning hours.

Auto Theft and Robbery incidents remain relatively steady throughout the day but slightly increase in the late evening hours.

Theft Over incidents have a less defined pattern but are more concentrated in the afternoon and evening hours.

Crime Counts by Category and 2-Hour Intervals



# Crime Rates in Toronto by Neighborhood (2021-2022)

The data provides insight into the distribution of various crime categories across different neighborhoods in the city.

## Key Findings:

The visualization reveals several patterns and trends in crime rates across Toronto

Certain neighborhoods experience higher overall crime rates compared to others.

The distribution of crime categories is not uniform across the city, with some neighborhoods reporting higher rates of specific types of crime.

Some neighborhoods have a more diverse range of reported crimes, while others exhibit more concentrated patterns.

Crime Rates in Toronto by Neighborhood (2021-2022)



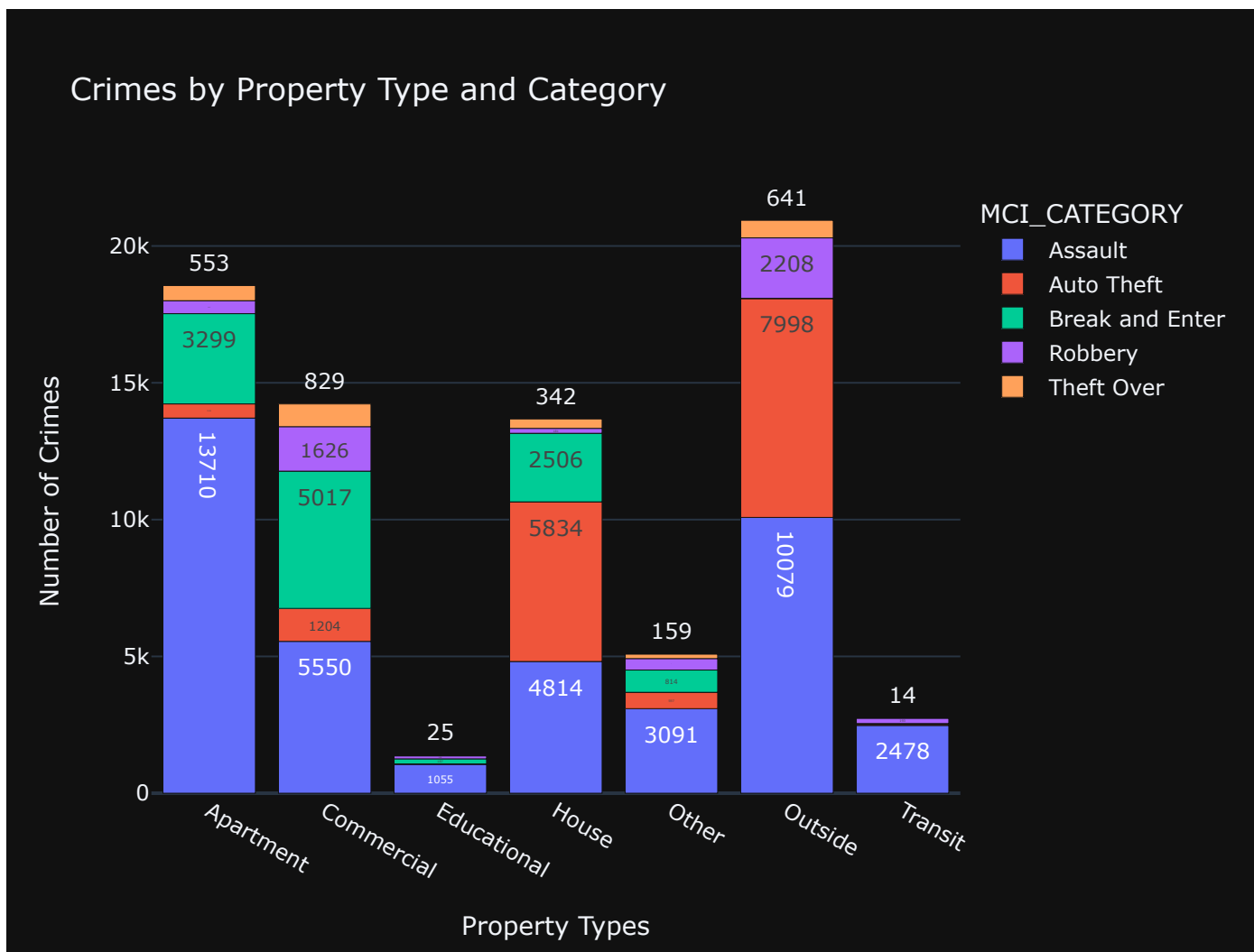
This interactive bar chart displays the number of crime incidents by property type and crime category.

Each bar represents a distinct property type—such as

houses, commercial properties, and apartments—while the colors within the bars indicate different crime categories.

By observing the height and color distribution within the bars, you can easily identify and compare the prevalence of various crime types across different property settings.

This visualization provides valuable insights into crime patterns and helps in understanding the relationship between criminal activities and property types in the area.



An interactive sunburst plot was created to display the number of incidents for each crime category in Toronto neighborhoods, separated by year.

The plot is colored based on the number of incidents, with brighter colors representing higher crime counts. The visualization allows for easy identification of crime patterns and trends across neighborhoods and years.

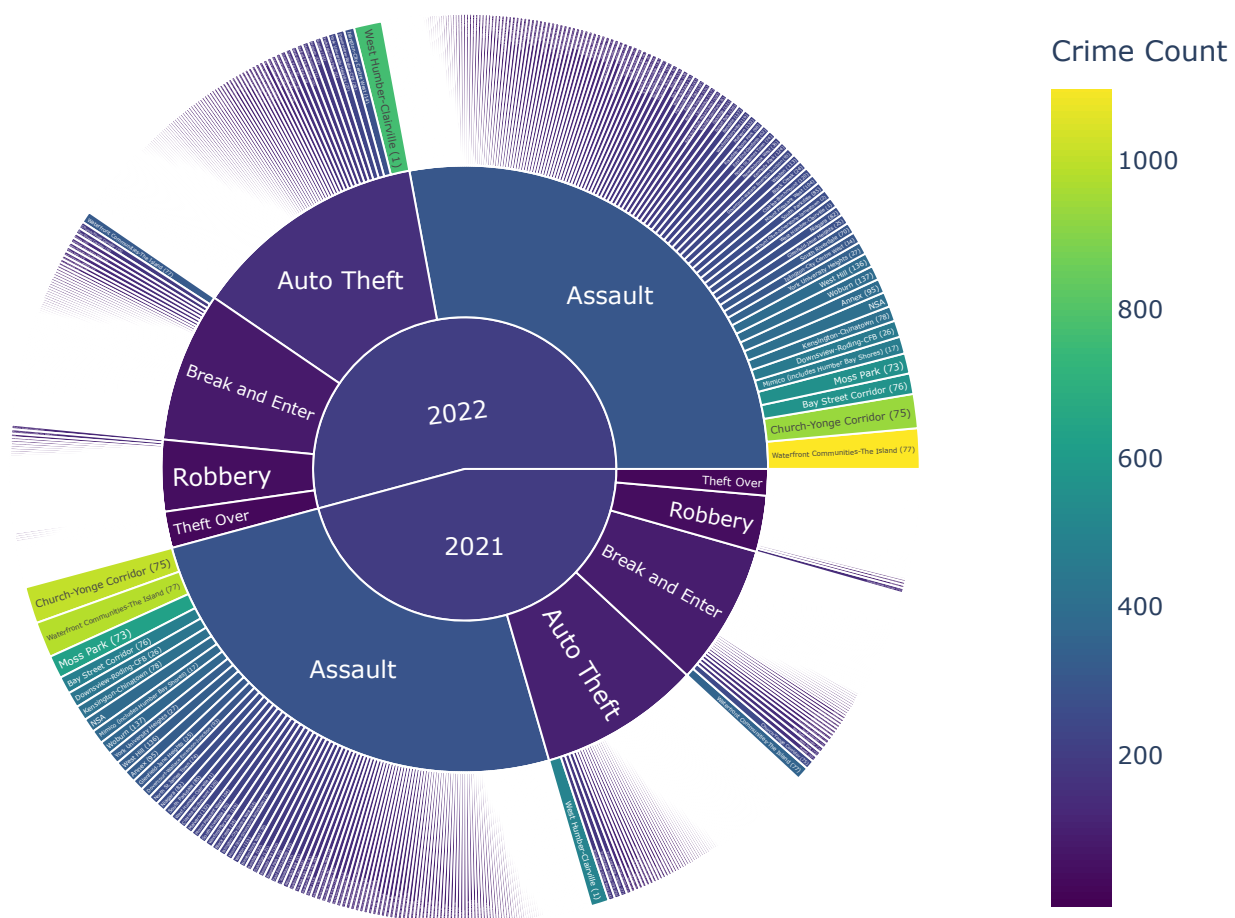
### Findings:

This reveals that some crime categories have higher incident rates than others in Toronto neighborhoods.

Certain neighborhoods exhibit consistently high or low crime rates across the years, while others show more variability.

The distribution of crime incidents varies between years, indicating potential shifts in crime patterns or the effectiveness of law enforcement efforts.

Crime Incidents in Toronto Neighborhoods by Category (2021-2022)

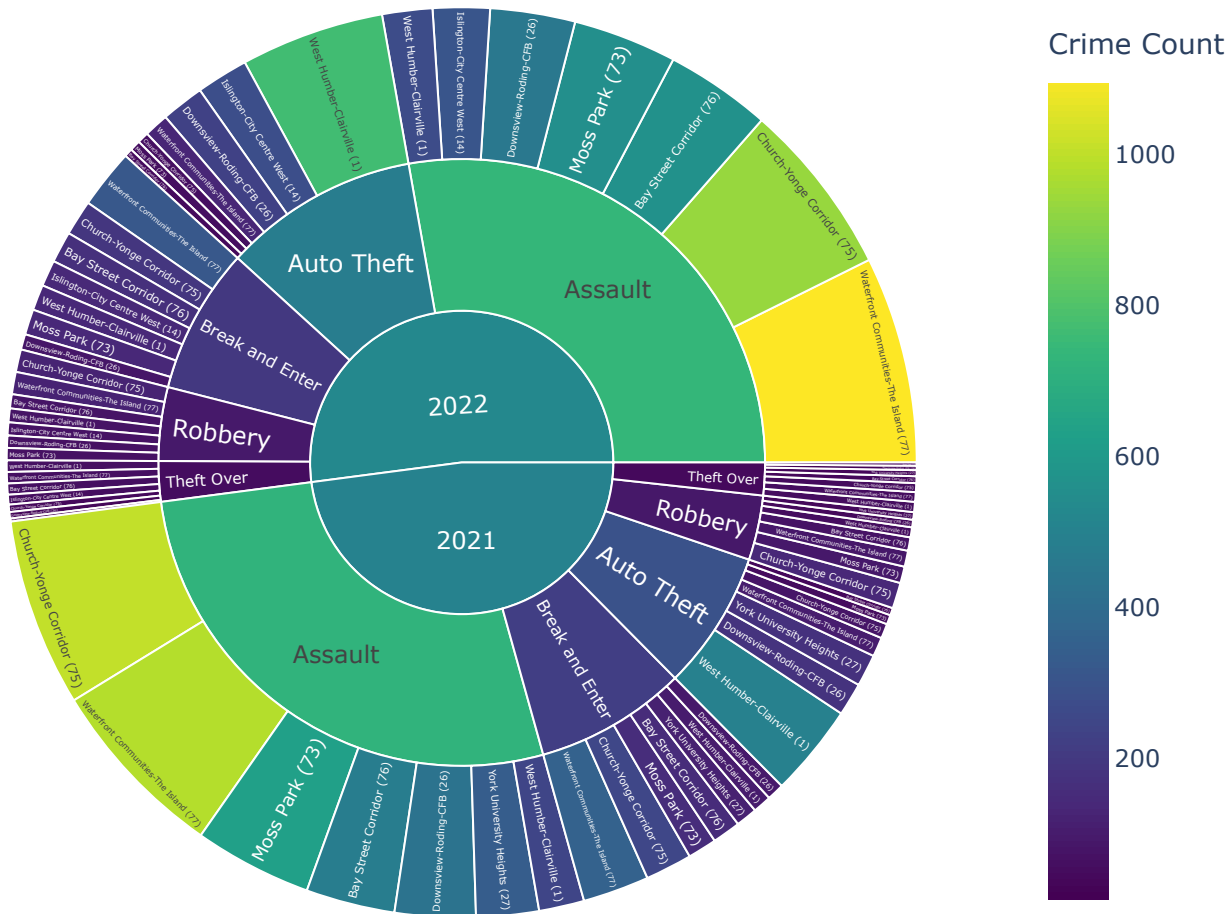




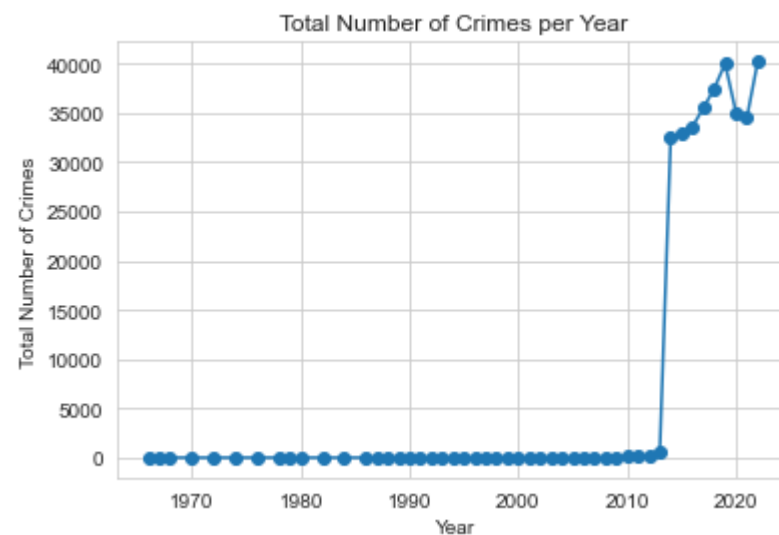
The sunburst plot that shows the top 7 most dangerous neighborhoods for every year (2021-2022) with all categories of crime.

The plot will display the crime count for each category in the top 7 dangerous neighborhoods.

Top 7 Dangerous Neighborhoods by Crime Incidents in Toronto by Category (2021-2022)



Correlation coefficient: 0.64



## Crime Trends Over the Years

This analysis examines the relationship between the year and the total number of crimes using the major crime indicators dataset. The aim is to understand whether crime has been increasing or decreasing over the years. The key findings of this analysis are as follows:

**Correlation Coefficient:** A positive correlation coefficient indicates an increase in crime over the years, while a negative correlation coefficient suggests a decrease in crime.

An upward trend in the plot suggests an increase in crime over the years, while a downward trend indicates a decrease in crime.

The visualization above displays the total number of crimes per year, providing insights into the overall trend of crime rates over time.

## Conclusion

In conclusion, this project aimed to analyze and visualize crime data in Toronto from 2016 to 2022. We explored various aspects of crime, such as correlations with time, location, and premises type, and identified key trends and patterns.

Our findings showed that Assault consistently had the highest number of incidents throughout the two-year period, and Auto Theft showed an increasing trend.

Additionally, we created a pie chart to show the crime counts in Toronto per 10,000 incidents and a line chart to display the total number of crimes per year.

Based on our analysis, we recommend that law enforcement agencies prioritize resources and strategies to address the high incidence of Assault and Auto Theft in Toronto. Furthermore, our analysis highlights the importance of considering the time and location of crime incidents to develop effective crime prevention measures.