VISUALIZE YOUR CITY

A Data Science Project

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VISUALIZATION OF CRIMES IN NEW YORK AND TORONTO

- **Considering the type of neighbourhood people presently living in, they would prefer to move to a similar neighbourhood or move to another neighbourhood with better living conditions.**

- **It is always better to be prepared before making a big move, by researching more about the city you would like to move.**

- **This report represents statistical and visual representation of crimes in New York and Toronto using matplotlib and Folium API.**

DATA ACQUISITION AND PRE-PROCESSING

New York city crime data acquisition:

- *NYPD Complaint Data Historic*: Data which is available at Kaggle. This dataset has all the crimes reported in the years 2013 to 2015 and has 24 features and 1048575 samples. The dataset is checked for any missing data fields of interest and missing rows are dropped.

- *New York city Borough boundaries, New York city Police Precinct boundaries*: geojson format files which are available at NYC open data

- *Neighbourhood location data:* To get the location data of New York city precincts from Foursquare this file is used . The results for all the 5 borough data frames are cleaned by removing repeated, unwanted rows and merged to NY precincts data frame.

DATA ACQUISITION AND PRE-PROCESSING

Toronto city crime data acquisition:

- *Major Crime Indicators(MCI) 2014 to 2019:* **A**vailable at Toronto Public Safety Data Portal.
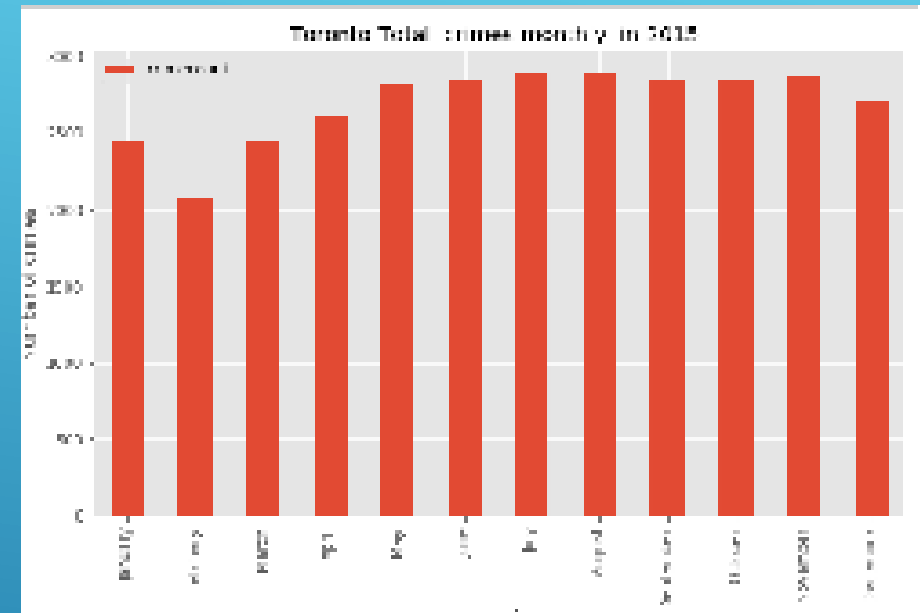
The data is checked for missing rows for the fields and missing rows are deleted. Unwanted column fields are deleted.

- *Toronto city divisions boundaries:* geojson file available at Toronto Public Safety Data Portal.
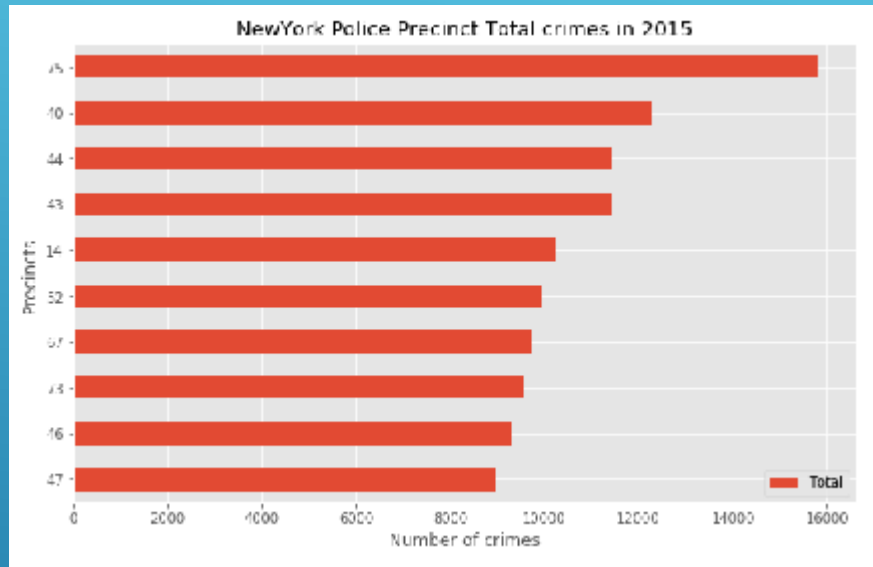
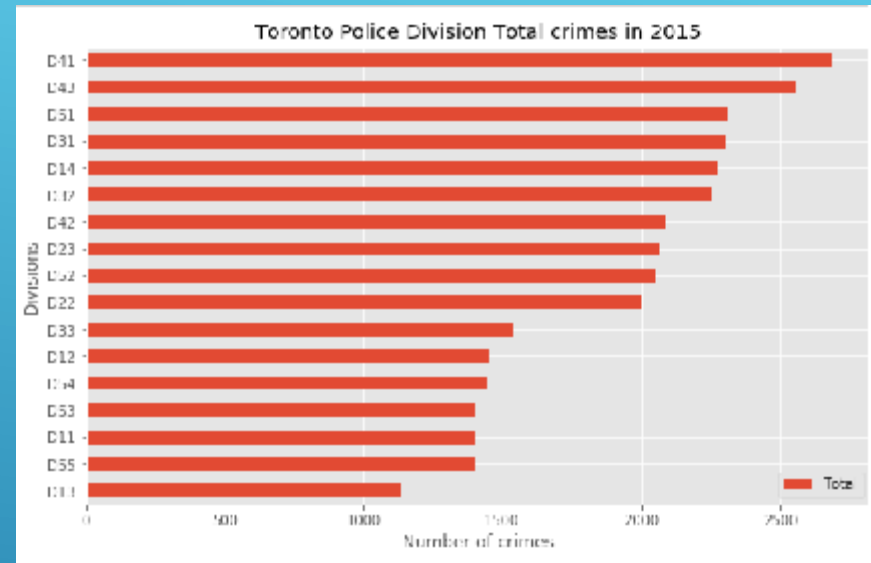# New York Monthly crimes
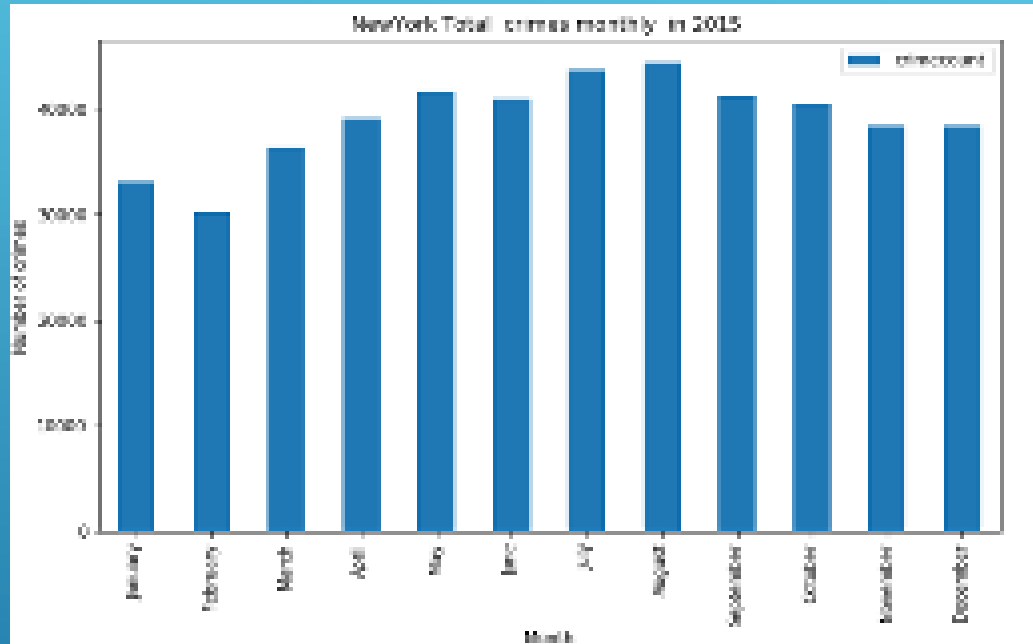
Toronto Monthly crimes

Highest crimes have occurred in August and July months in both the cities

New York crimes in Police precincts

Toronto crimes in police divisions

NewYork Police Precinct Total crimes in 2015

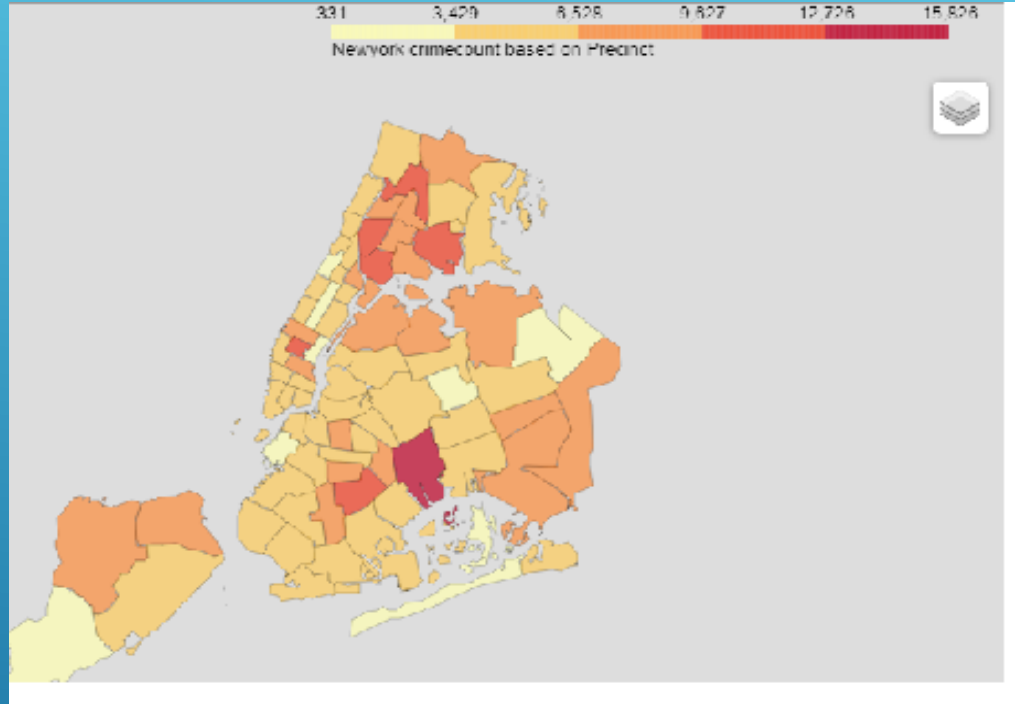Toronto Police Division Total crimes in 2015

New York precinct 75
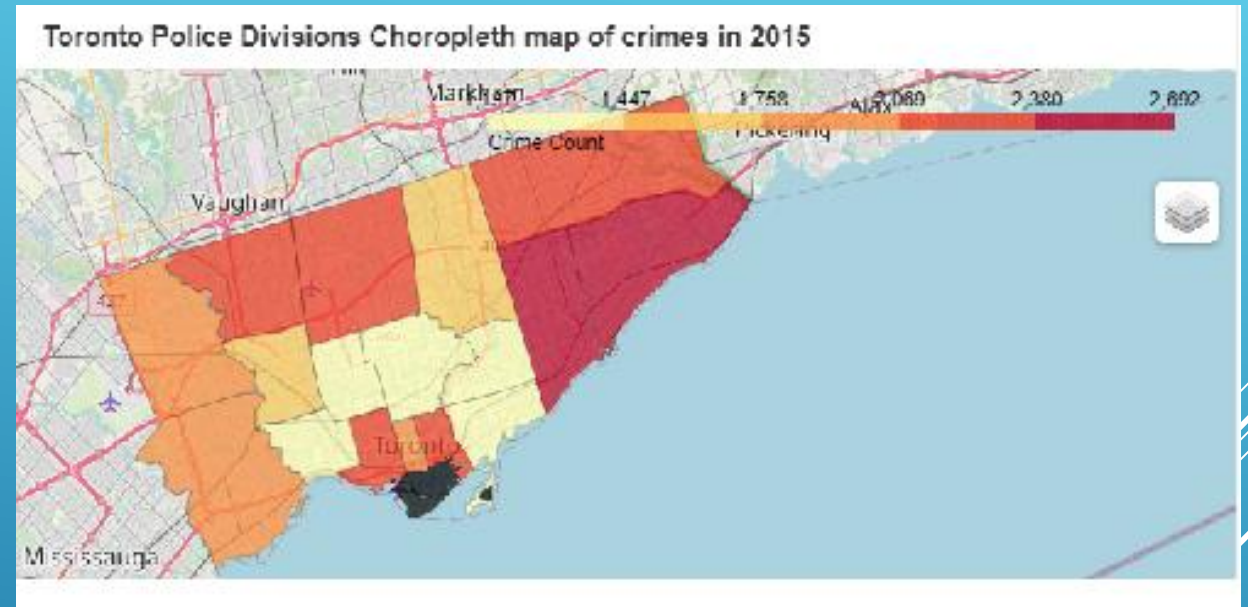Toronto division 41 has the highest number of crimes in in the year 2015

NEW YORK POLICE DIVISIONS LOCATIONS

This location data is extracted using Foursquare API
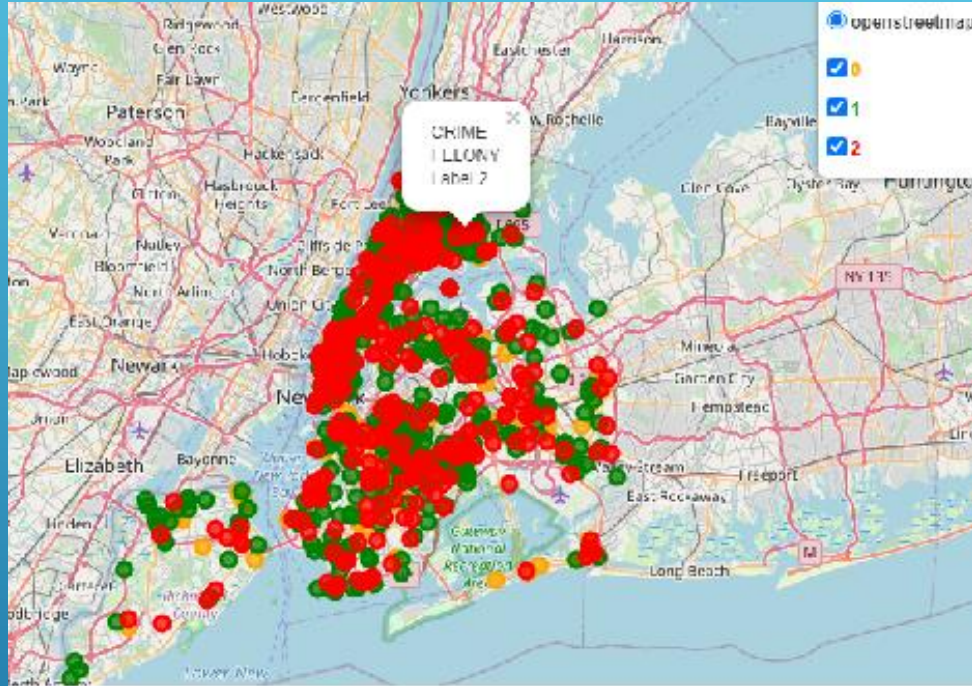
New York crimes in police precincts

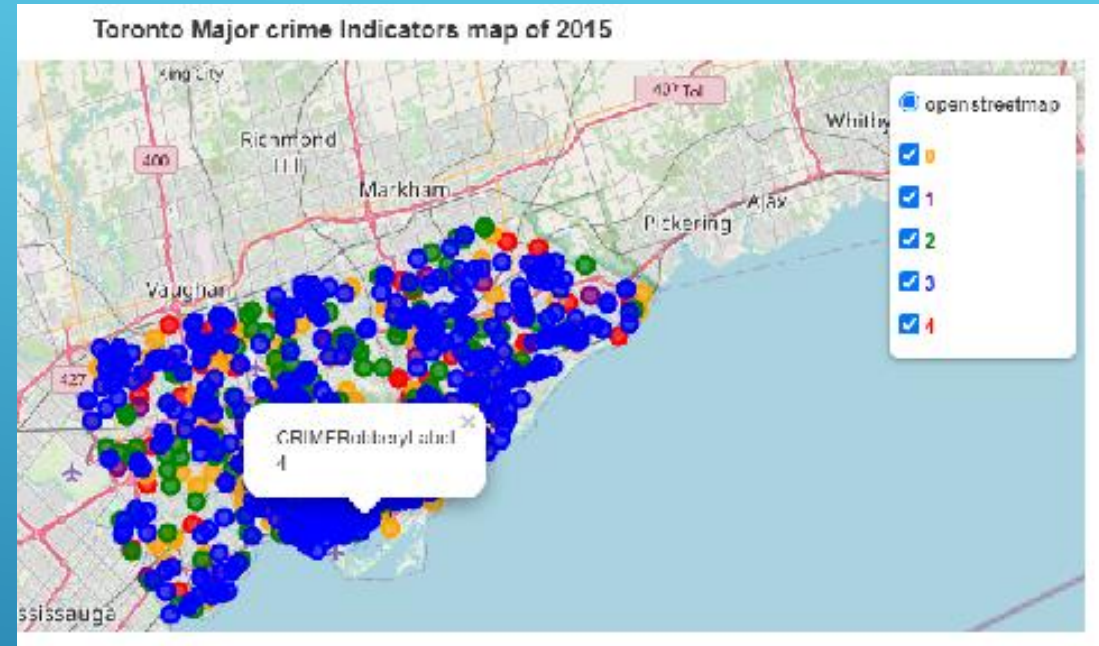## Toronto crimes in police divisions

Choropleth maps are shaded according to the 6 bins provided with dark red as maximum number of crimes. Unavailable data is shaded black by default

Interactive map New York crimes

Interactive map Toronto crimes

1000 randomly selected crime data is colour coded as Red(high intensity),Green and Orange(low intensity)

CONCLUSION

The analysis can be extended by finding the crime rate and ranking the place on a scale of 1 (low crime rate) to 10 (high crime rate).

CRIME RATE – A crime rate describes the number of crimes reported to law enforcement agencies per 100,000 total populations. A crime rate is calculated by dividing the number of reported crimes by the total population; the result is multiplied by 100,000.

By using neighbourhood crime data and population of New York(if available) and Toronto cities crime rate can be calculated and visualized using choropleth maps