**PROJECT TITLE**

Crime in Toronto by Neighborhood

**TEAM MEMBERS**

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**PROJECT DESCRIPTION/OUTLINE**

* Analyzing crime data in Toronto to find out possible relationship between different demographics by neighborhood
* Analyzing multiple years data to discover trends and possibly predict future trends

**RESEARCH QUESTIONS**

1. What are the most common / least common crimes in Toronto?
2. Which neighborhoods experience the highest and lowest crime rates in Toronto?
   1. How close were police stations to where the crime occurred?
3. In what kinds of properties do the following crimes occur? (house, commercial, apartment, etc)
   1. Break-and-enter
   2. Homicide
   3. Robbery
4. What time of the year the frequency of crime is highest?
   1. Correlation of crime with time of the day
   2. Correlation of crime with different seasons/weather
5. Is crime decreasing/increasing over the years?
   1. Correlation of crime with current economy
6. What is the education, income and employment levels of the people living in neighborhoods where most crime is reported? Is there a correlation?

**DATASETS**

1. Toronto Police Open Data: <https://data.torontopolice.on.ca/pages/open-data>
   1. Reported Crime data
2. OpenWeatherMap API: <https://openweathermap.org/>
3. Statistics Canada: <https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/prof/details/page.cfm?Lang=E&Geo1=CMACA&Code1=535&Geo2=PR&Code2=35&Data=Count&SearchText=Caledon%20East&SearchType=Begins&SearchPR=01&B1=All>
4. Open Toronto Data: <https://open.toronto.ca/>
5. Open Canada: <https://open.canada.ca/data/>
6. Ward Model: <https://www.toronto.ca/city-government/data-research-maps/neighbourhoods-communities/ward-profiles/47-ward-model/>
7. Neighborhood profiles: <https://open.toronto.ca/dataset/neighbourhood-profiles/>

**ROUGH BREAKDOWN OF TASKS (graphs may change as we go through the data in detail)**

1. What are the most common / least common crimes in Toronto?
   1. Merge datasets of different crime types for Toronto Crime data
   2. Create dataframe for 2014-2019
   3. Create bar chart for total and each year
2. Which neighborhoods experience the highest and lowest crime rates in Toronto? How close were police stations to where the crime occurred?
   1. use dataset created in question one to generate heat map based on number of

crimes by neighborhoods

* 1. find the geocoordinate of the police stations and add as markers on heatmap

1. In what kinds of properties do the following crimes occur? (house, commercial, apartment, etc) (For Break- and-enter, Homicide and Robbery)
   1. Use dataset created in question one
   2. Create pie chart for each type of crime above
2. What time of the year the frequency of crime is highest? -Correlation of crime with time of the day- Correlation of crime with different seasons/weather
   1. Find weather data for 2014-2016 and merge with Toronto Crime data
   2. Create scatter plot with regression lines for correlation with time of day and weather
3. Is crime decreasing/increasing over the years?- Correlation of crime with current economy
   1. Use dataframe created in question one and count the total number of crimes for each year and create line graph
   2. Find GDP data for 2014-2019 and combine with total crime data. Create scatter plot and regression line
4. What is the education, income and employment levels of the people living in neighborhoods where most crime is reported? Is there a correlation?
   1. Clean Neighborhood data and merge into crime data
   2. Create scatter plot of correlation between neighborhood profile and crime rate