Crime Explorer

User Manual

Total, youth charged for Total, all violations in Canada

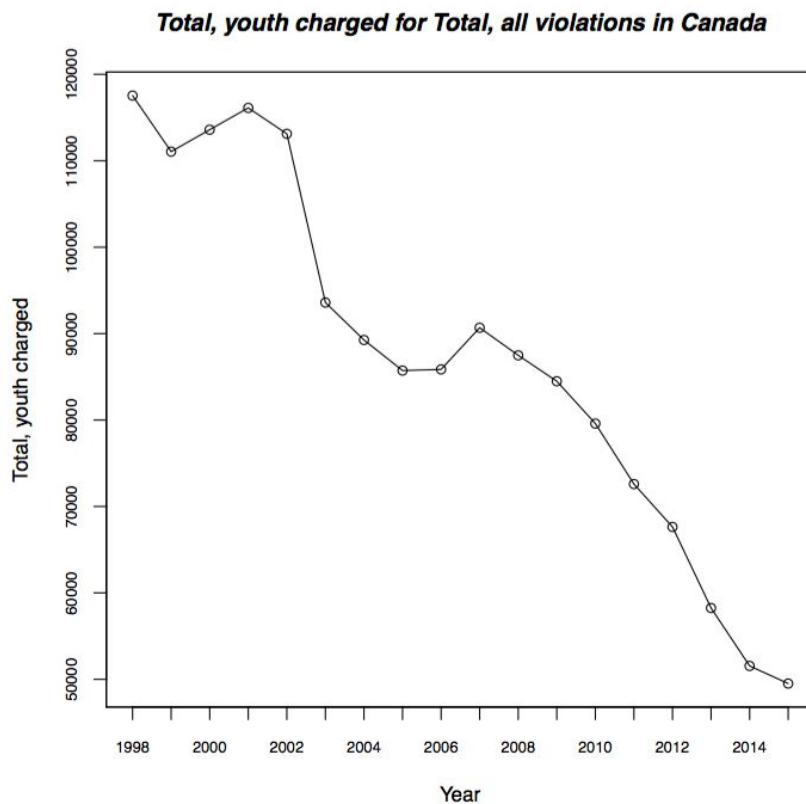## Team Ottawa

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INTRODUCTION

Crime Explorer is a flexible, adaptive program used to navigate and generate visual data from Statistics Canada's downloadable CSV file. After allowing the user to search for and select the location(s) and particular crime, it then plots the data on an appropriate graph type.

OPERATING THE PROGRAM / TABLE OF CONTENTS

Stage A: Mode Selection

Run the script with the following command:

perl crimeExplorer.pl datafile.csv

The program parses the CSV file into memory. The loading period is around 45 seconds on the iMacs in the lab, and a few minutes on an older laptop.

After the loading period, choose one of the two main modes.

```
Parsing file. Please wait...
_____
>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
2398149 records parsed
What do you want to do?
(1) Find all statistics about a particular violation in one or more locations.
(2) Track a statistic for any violation in a single location over multiple years.
(3) Exit.
Enter Choice:
```

Mode 1

Mode 1 displays data for a single violation at a single point in time, across one or multiple cities, with the results being plotted to a line graph.

Stage B1: Location Search

Locations are added to the program one by one, through a search function.

The search is not case-sensitive, and will match partial results as well.

If searching for a city returns no results, the program will display that no match has been found.

```
Search for a location: Guelph

LOCATION MATCH: Guelph, Ontario
Add Location? (Yes/No/Q: go to search): Yes

Look for another location? (Yes/No): Yes

Search for a location: Hamilt

LOCATION MATCH: Hamilton, Ontario
Add Location? (Yes/No/Q: go to search): Yes

Look for another location? (Yes/No): No
```

If a query is entered that returns a large number of results, such as "c", you can end the current search at any time by entering "Q".

```
Search for a location: c

LOCATION MATCH: Canada
Add Location? (Yes/No/Q: go to search): No
LOCATION MATCH: Prince Edward Island
Add Location? (Yes/No/Q: go to search): No
LOCATION MATCH: Nova Scotia
Add Location? (Yes/No/Q: go to search): No
LOCATION MATCH: Halifax, Nova Scotia
Add Location? (Yes/No/Q: go to search): No
LOCATION MATCH: New Brunswick
Add Location? (Yes/No/Q: go to search): Q
```

Stage C1: Crime Search

```
Are you looking for data on (1) all violations or (2) a specific violation? ▁
```

You can have the program return results on the total number of all crimes in the locations you have selected, or search for a particular violation.

If (1) All Violations is selected, you are brought directly to Stage D1: Year Selection.

Otherwise, choosing a particular violation with Crime Search works in a similar way to Location Search.

Type in a keyword related to a crime, and the program will give matches.

Select a violation by typing its corresponding number.

```
Search for a violation: vehic

(1) CRIME MATCH: Break and enter to steal a firearm from a motor vehicle
(2) CRIME MATCH: Total theft of motor vehicle
(3) CRIME MATCH: Total theft over $5,000 (non-motor vehicle)
(4) CRIME MATCH: Theft over $5,000 from a motor vehicle
(5) CRIME MATCH: Total theft under $5,000 (non-motor vehicle)
(6) CRIME MATCH: Theft $5,000 or under from a motor vehicle
(7) CRIME MATCH: Altering, removing or destroying Vehicle Identification Number (VIN)
(8) CRIME MATCH: Impaired operation of motor vehicle, vessel or aircraft
(9) CRIME MATCH: Impaired operation (drugs) vehicle, vessel, aircraft
(10) CRIME MATCH: Dangerous operation of motor vehicle, vessel or aircraft
(11) CRIME MATCH: Dangerous operation of motor vehicle evading police
(12) CRIME MATCH: Dangerous operation of motor vehicle while street racing

Look for a different violation? (Yes/No): No

Select a violation number: 11▁
```

Stage D1: Year Selection

```
1998-2015 only. Which year are you looking for?: 2014▁
```

A short stage. Type in a year to retrieve data for.

Stage E1: Output Options

```
Statistics for violation: Dangerous operation of motor vehicle evading police

----------------------Location [1]: Guelph, Ontario----------------------
Actual incidents                                                          | 1.00
Rate per 100,000 population                                               | 0.77
Percentage change in rate                                                 | -50.45
Total cleared                                                             | 1.00
Cleared by charge                                                         | 1.00
Cleared otherwise                                                         | 0.00
Total, persons charged                                                    | 1.00
Rate, total persons charged per 100,000 population aged 12 years and over | 0.89
Total, adult charged                                                      | 1.00
Rate, adult charged per 100,000 population aged 18 years and over         | 0.97
Total, youth charged                                                      | 0.00
Rate, youth charged per 100,000 population aged 12 to 17 years            | 0.00
Total, youth not charged                                                  | 0.00
Rate, youth not charged per 100,000 population aged 12 to 17 years        | 0.00

---------------------Location [2]: Hamilton, Ontario---------------------
Actual incidents                                                          | 27.00
Rate per 100,000 population                                               | 3.63
Percentage change in rate                                                 | 77.95
Total cleared                                                             | 19.00
Cleared by charge                                                         | 19.00
Cleared otherwise                                                         | 0.00
Total, persons charged                                                    | 18.00
Rate, total persons charged per 100,000 population aged 12 years and over | 2.78
Total, adult charged                                                      | 17.00
Rate, adult charged per 100,000 population aged 18 years and over         | 2.86
Total, youth charged                                                      | 1.00
Rate, youth charged per 100,000 population aged 12 to 17 years            | 1.91
Total, youth not charged                                                  | 0.00
Rate, youth not charged per 100,000 population aged 12 to 17 years        | 0.00

What do you want to do with this output?
(1) Create a plot for given data
(2) Nothing
Enter choice: _
```

Output for the chosen cities, year, and violation is displayed in text format within the terminal. At this point, you can choose to have the data exported to a bar plot in PDF format, or to return to the main menu.

Mode 2 allows you to track a particular crime in one location across multiple years, and the results will be plotted to a line graph.

Stage B2: Location Search

Location Search in Mode 2 works similarly to Mode 1 - the only difference being that once a single location is selected, the program moves on to the next stage.

Stage C2: Crime Search

Crime Search in Mode 2 works identically to Mode 1.

Stage D2: Year Selection

Once a location and crime is selected, the program asks for the range of years to be plotted. Any subset of years between 1998 and 2015 is allowed.

The minimum range is 2 years (ie. 1998-1999).


```
Which years are you looking for?
Select the starting year (1998-2014): 1999
Select the ending year (1999-2015): 2004
```

Stage E2: Output Stage

At this point, you can choose the statistic to be plotted. We find that *(2) Rate per 100,000 population* and *(3) - Percentage change in rate* are especially fitting options, but all 14 are included for you to choose from.

Similar to the Output Stage from Mode 1, the data is displayed in the terminal, and you have the choice to create a line plot or return to the main menu.

```
Statistics for violation: Assault, level 1

----------------------Location [1]: Montreal, Quebec----------------------
(1999) Actual incidents                                          | 14253.00
(2000) Actual incidents                                          | 17121.00
(2001) Actual incidents                                          | 15769.00
(2002) Actual incidents                                          | 15417.00
(2003) Actual incidents                                          | 15145.00
(2004) Actual incidents                                          | 14813.00

What do you want to do with this output?
(1) Create a plot for given data
(2) Nothing
Enter choice: _
```

PROGRAM REQUIREMENTS

Software

1. Perl interpreter
2. Terminal emulator
3. R
   a. ggplot2
   b. Statistics::R
4. PDF Reader

Hardware

1. 2GB+ of RAM
2. (Optional) A fast storage device such as an SSD