CSDA1000SUM18
Introduction to Big Data Analytics
Final Presentation

A Study on the Relationship Between Temperature and Crime in Toronto

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Overview

- This presentation examines the relationship between crime rates and average daily temperature in the City of Toronto.

Contests

1. Background information
2. The suggested model
3. Key findings including charts

Background Information

- *As the weather warms up in the spring and into the summer in Canada, it appears that crime in Canadian cities also increases.*

- *Is there evidence to support a relationship between increasing temperatures and crime rates?*

- *Answering this question may provide valuable insights to more effectively schedule police officers, resulting in savings for taxpayers and safer communities.*

Background Information

- *This paper attempts to answer the question "do crime rates rise with the increase in temperature in Canadian cities" – studying the data relationship between crime rates and the temperature. The city of Toronto is studied using four years of the city's daily mean temperature and crime rate from 2014 – 2017.*

The Suggested Model

- Use a regression algorithm as the modeling technique.
- Data from two sources:
  - Daily crime rates
  - Daily average temperatures
- This data covers a period from 2014 to 2017
- The data is specifically for the city of Toronto

The Suggested Model

- Use graphs to visualize the relationship between temperature and crime:
  - Scatter plot with data points for daily crime rate vs. daily average temperature
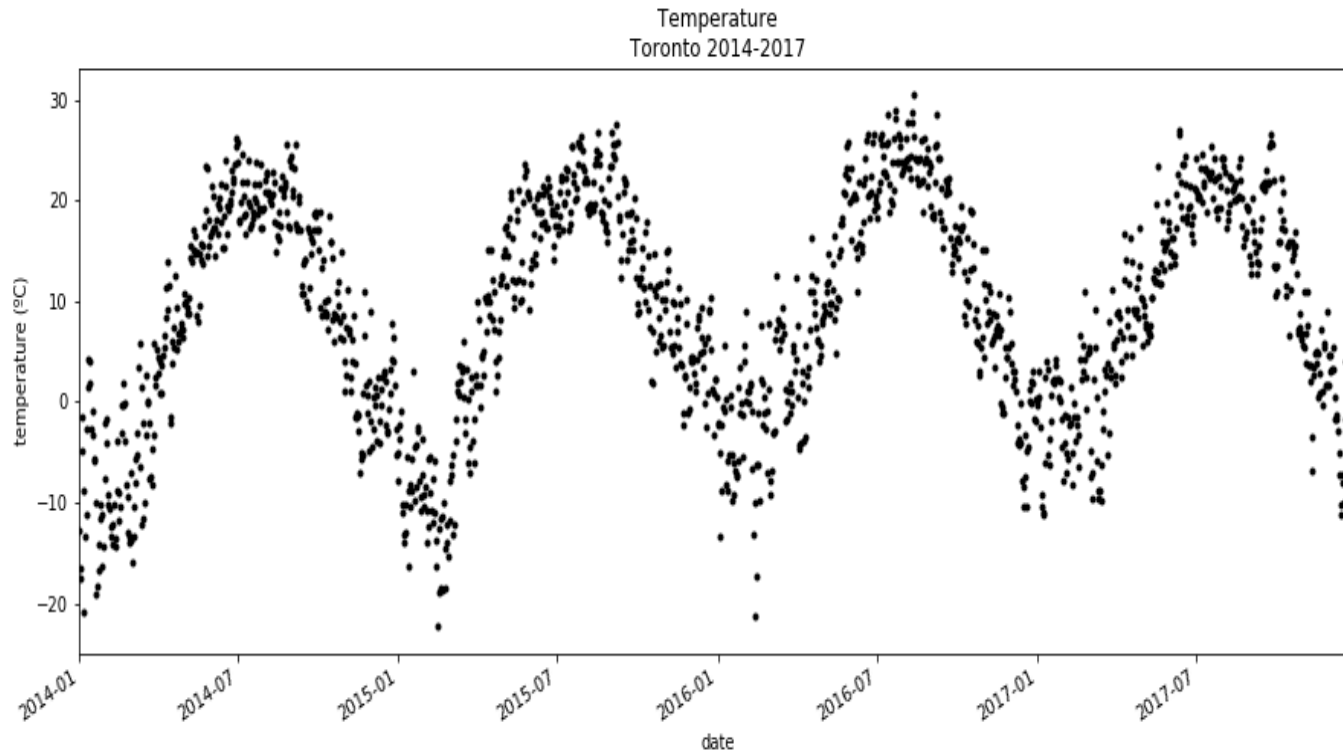 - Line graph for monthly average crime rate vs. monthly average temperature

The Suggested Model

- Descriptive Statistics used in model
  - Measures of central tendency: mean, median, mode for temperature and crime rate
  - Measures of spread including variance and interquartile range (IQR) for temperature and crime rate
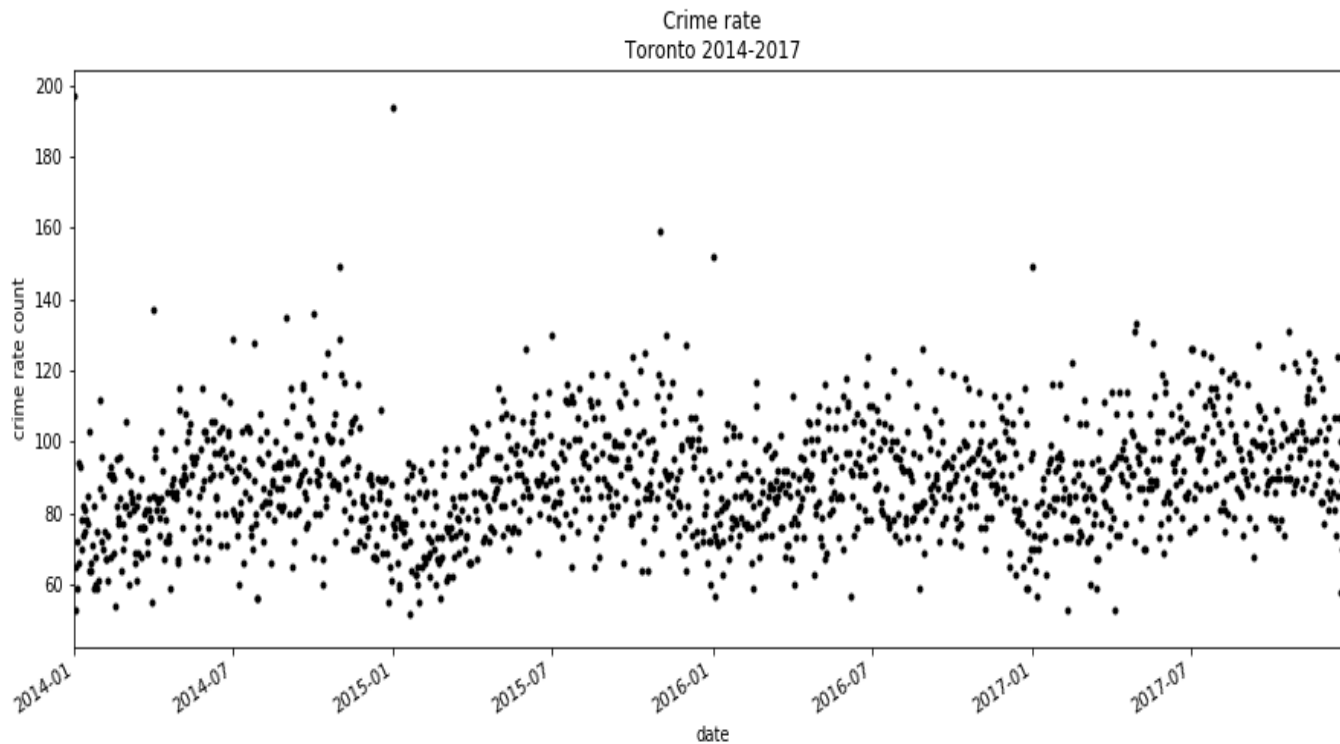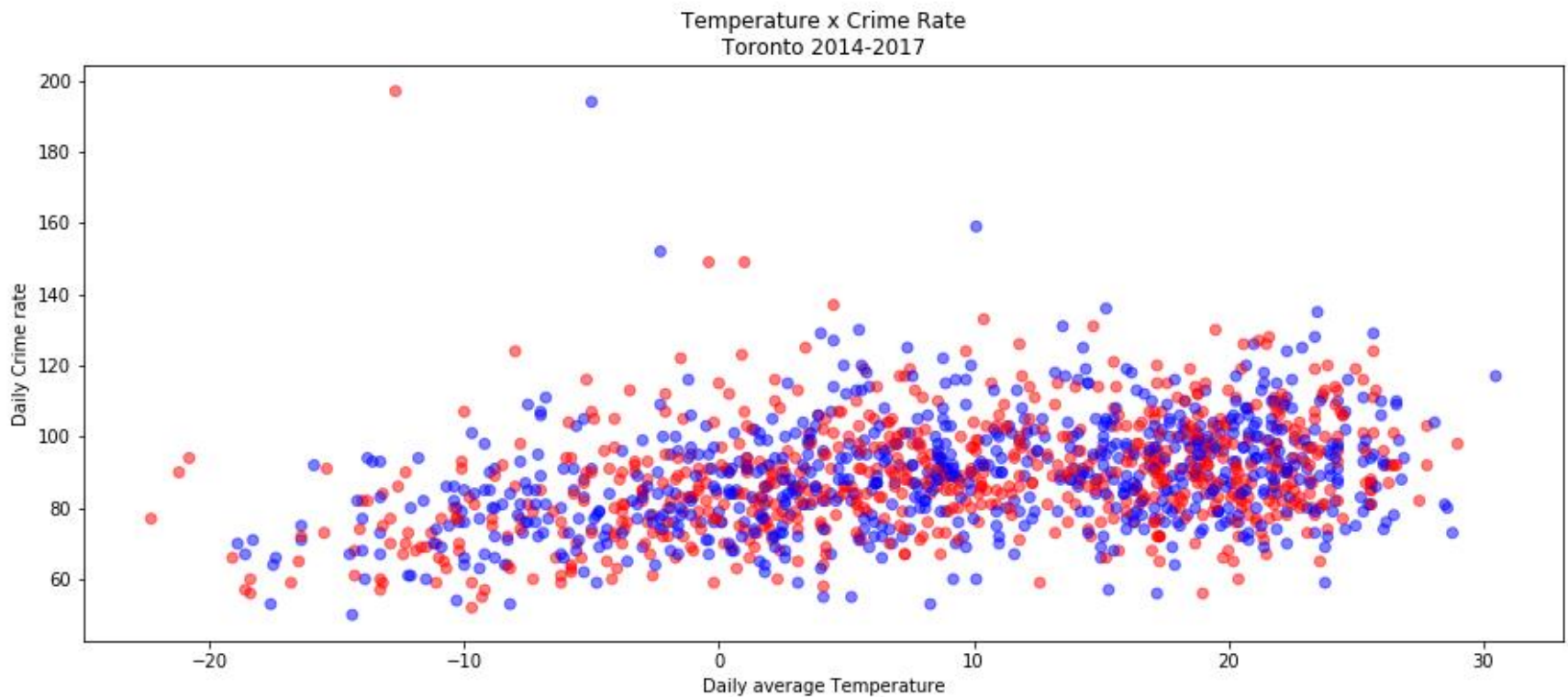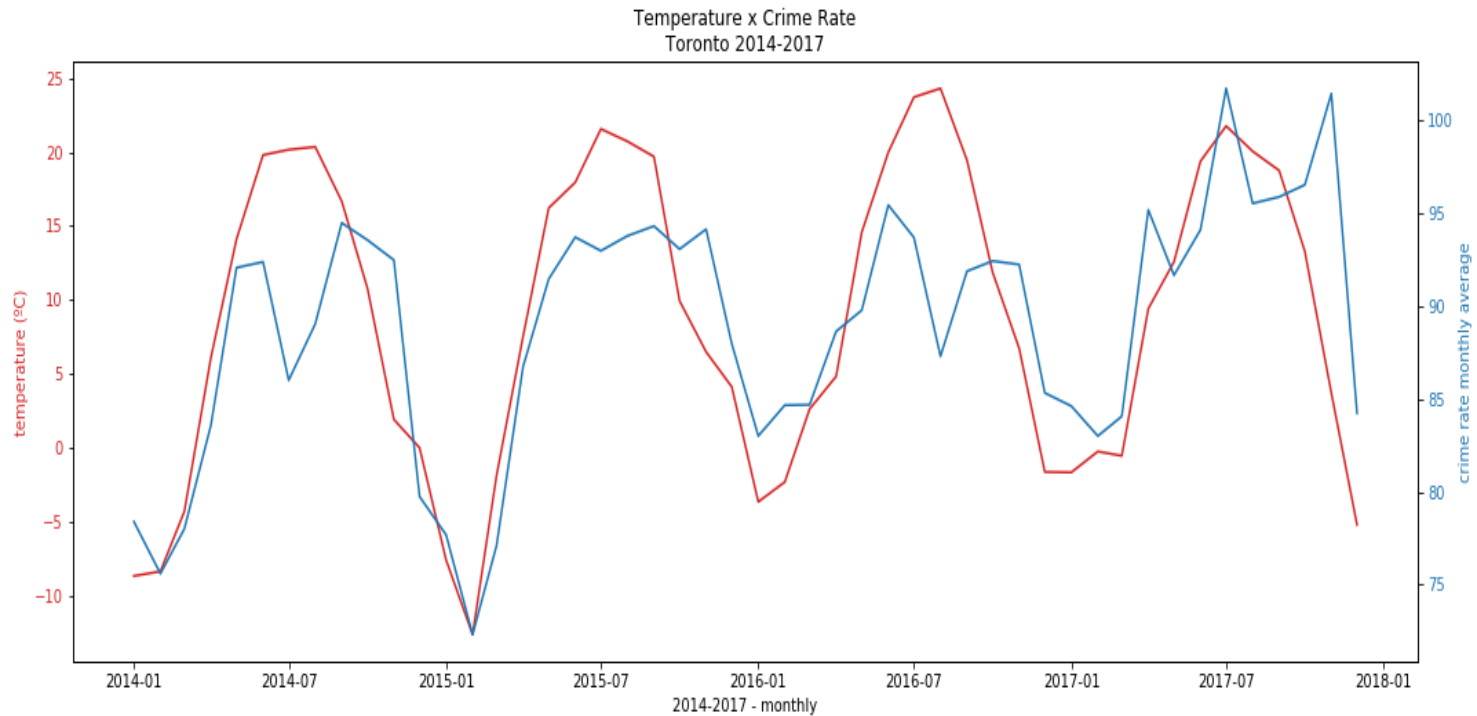
Key Findings

- Simulation 1 - Daily

Temperature
Toronto 2014-2017

Key Findings

- Simulation 1 - Daily

Crime rate
Toronto 2014-2017

Key Findings

- Simulation 1 - Daily

Temperature x Crime Rate
Toronto 2014-2017

Key Findings

- Simulation 2 - Monthly

Temperature x Crime Rate
Toronto 2014-2017

Key Findings

- Simulation 2 - Monthly

Temperature x Crime Rate
Toronto 2014-2017