Optimizing Urban Safety in Fredericton

Advanced Data Science Capstone Project – Week 5

Utilizing data-driven insights to improve urban planning and safety strategies.

Objectives

1. Identify neighbourhoods in Fredericton with the most and least reported crimes.

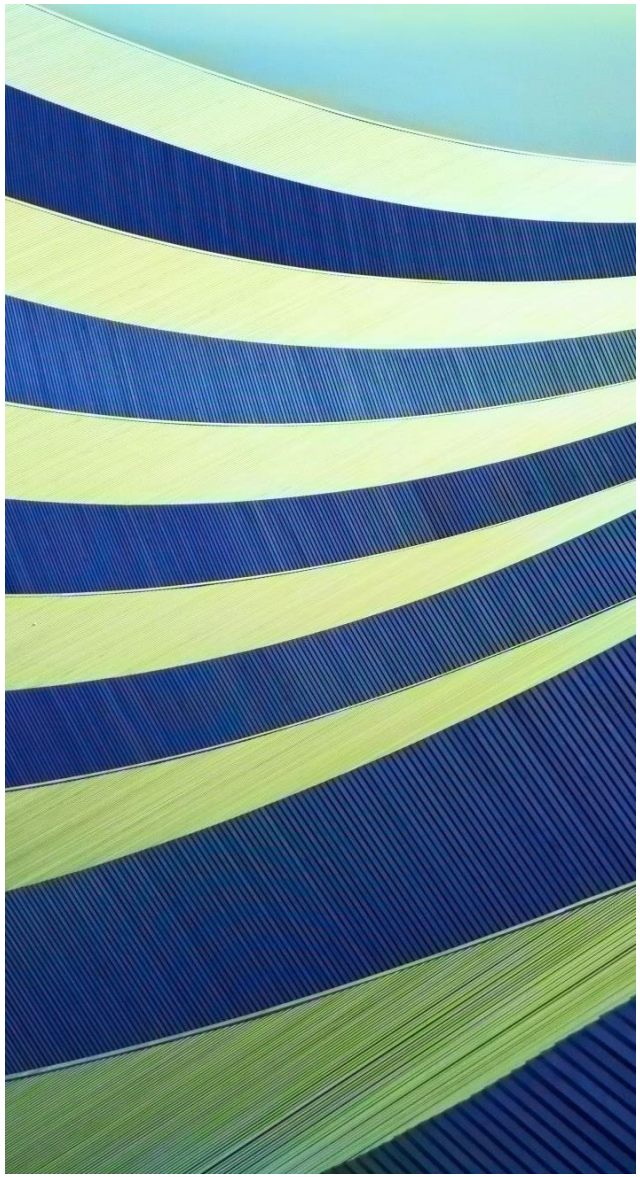
2. Analyze patterns of crime types across various regions.

3. Pinpoint geographic hotspots and safe zones using advanced geospatial tools.

4. Leverage location-based data for actionable insights.

Data Sources

1. Fredericton City Open Data (Crime Statistics 2017).
2. Demographic and geographic data from public repositories.
3. Interactive data from Foursquare API.
4. Supplementary details from Fredericton City Wikipedia page.



Research Approach

1. Data cleaning and preprocessing to ensure reliability.

2. Exploratory Data Analysis (EDA) to uncover key trends.

3. Clustering analysis using K-means for grouping neighbourhoods.

4. Visualization of spatial and statistical insights.

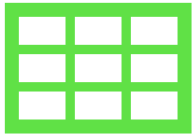
5. Development of interactive dashboards and predictive models.

Key Findings

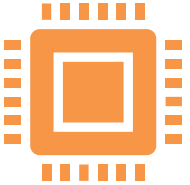
- Neighbourhoods with the highest crime rates were analyzed and visualized.
- Certain regions exhibited unique patterns of crime distribution by type.
- Safe zones were identified, providing opportunities for policy reinforcement.

Closing Remarks

• The study demonstrates how data science can aid urban safety planning.



• Visualizations and clustering provide actionable insights for decision-makers.



• Future work: integrating real-time data for dynamic monitoring.