EDA Report on Vancouver Crime Analysis

Introduction

This report presents a comprehensive analysis of crime trends in Vancouver from 2003 to 2023, exploring various aspects such as crime rates over the years, crime types, neighborhood impact, and time-based patterns.

Yearly Crime Trends

Overall Trend: The data indicates a general decrease in crime rates over the years, with notable fluctuations.

Placeholder for Visual: Line chart showing yearly crime trends.

Significant Events Impacting Crime Rates: Events like the 2010 Winter Olympics, the 2008 Economic Recession, drug trade challenges, and social changes are highlighted as potential influencers of crime rates.

Crime Rate and Population Growth

Correlation Analysis: The correlation between crime rates and population growth is weak, suggesting that the decrease in crime rates is not solely due to population changes.

Placeholder for Visual: Scatter plot showing the relationship between population growth and crime rates.

Seasonal and Monthly Crime Patterns

Seasonality in Crime Rates: A pattern of higher crime rates in warmer months, particularly in August, and lower rates in February, possibly influenced by the number of days in the month.

Placeholder for Visual: Bar chart showing monthly crime rates over the years.

Day of the Week Analysis

Safe vs. Dangerous Days: Analysis of crime rates by day of the week to identify safer and more dangerous days.

Placeholder for Visual: Bar chart comparing average daily crimes.

Neighborhood Analysis

Crime Hotspots: The Central Business District is identified as having the highest number of reported crimes.

Placeholder for Visual: Heatmap or bar chart showing crime rates by neighborhood.

Crime Type Analysis

Most Common Crimes: Theft and vehicle collision are among the most common crimes, with significant declines noted in 2020.

Placeholder for Visual: Pie chart or bar chart showing the proportion of different crime types.

Impact of Project 529 on Bicycle Thefts

Reduction in Bicycle Thefts: A significant decrease in bicycle thefts, especially after the initiation of Project 529 in 2015.

Placeholder for Visual: Line chart showing the trend in bicycle thefts before and after the initiation of Project 529.

Time Category Analysis

Crime Occurrences by Time of Day: Analysis of when crimes are most likely to occur, with a focus on different time categories.

Placeholder for Visual: Bar chart showing crime frequencies by time of day.

Conclusion

This report summarizes the key findings from the exploratory data analysis, providing insights into various aspects of crime trends in Vancouver. The analysis underscores the impact of societal events, technological advancements, and community initiatives like Project 529 on the city's crime landscape.

Certainly! For a one-page Power BI dashboard focusing on your EDA findings, you can create an interactive and informative layout. Here's a proposed outline with suggested charts and slicers:

**Power BI Dashboard Outline for Vancouver Crime Analysis**

Dashboard Header

* **Title**: "Vancouver Crime Trends Analysis"
* **Subtitle**: A comprehensive overview of crime patterns from 2003 to 2023.

Slicers (Interactive Filters)

* **Year Selector**: To filter data across all visuals by selected years.
* **Neighborhood Selector**: To view data for specific neighborhoods.
* **Crime Type Selector**: To filter data based on specific crime types.

Visuals and Charts

1. **Yearly Crime Trends Chart**
   * **Type**: Line chart.
   * **Description**: Showcases the trend in the total number of crimes over the years.
   * **Insight**: Highlights the overall decrease and notable fluctuations in crime rates.
2. **Crime Types Comparison**
   * **Type**: Stacked bar chart.
   * **Description**: Displays different types of crimes per year, showing the proportion of each crime type.
   * **Insight**: Reveals trends in specific crime types, such as the increase in bicycle thefts.
3. **Crime Rate Heatmap**
   * **Type**: Heatmap or choropleth map.
   * **Description**: Visual representation of crime density in different neighborhoods.
   * **Insight**: Identifies crime hotspots and safer areas.
4. **Month-wise Crime Distribution**
   * **Type**: Column chart.
   * **Description**: Shows average crime occurrences per month, highlighting seasonality.
   * **Insight**: Indicates months with higher or lower crime rates.
5. **Crimes per Capita Over Time**
   * **Type**: Line chart.
   * **Description**: Portrays the trend in crimes per capita over the years.
   * **Insight**: Provides a perspective on crime rates relative to population size.
6. **Impact of Significant Events**
   * **Type**: Annotated timeline.
   * **Description**: Marks key events like the 2010 Winter Olympics, economic recession, etc., on the timeline.
   * **Insight**: Correlates major events with changes in crime trends.
7. **Crime Rate by Day of the Week**
   * **Type**: Bar chart.
   * **Description**: Average number of crimes by day of the week.
   * **Insight**: Shows which days of the week are more prone to crimes.

Footer

* **Data Source Credit**: Acknowledge the source of your data.
* **Last Updated Date**: Indicate when the data was last updated.

There were over **2 million police-reported Criminal Code incidents** (excluding traffic) in 2021, about **25,500 more incidents than in 2020**. At **5,375 incidents per 100,000 population**, the police-reported crime rate—which measures the volume of crime—increased **1%** in 2021, following a **9% decrease in 2020**. In 2021, the violent crime rate increased **5%**, while the property crime rate decreased **1%**. Following a large decrease in 2020, the property crime rate was the lowest it has been dating back to 1965