Course-End Project: Crime Analysis

Overview

In this project, you will employ Tableau in crafting interactive dashboards to analyze crime data, facilitating law enforcement in comprehending crime patterns and trends. This endeavor will sharpen skills in data visualization, storytelling, and analytics, enabling effective communication of complex information. Moreover, it offers an opportunity to master crime data analysis techniques such as time series analysis and geographical mapping. This project not only addresses the immediate need for insightful crime analysis tools but also advances proficiency in data analytics within the realm of law enforcement.

Instructions

- Review the learning materials in the Tableau course
- Carefully read the situation, tasks, actions, and result sections to grasp the assignment fully
- Complete and submit your assignment via the Learning Management System (LMS)
- Follow the provided guidelines closely, ensuring your report includes all required analyses and interpretations

Scenario

Crime analysis is important for law-and-order maintenance at any place. It helps the police department and law enforcement agencies to identify patterns of crime, which is crucial for the effective planning of a crime prevention program. You are a data analyst in the research wing of the police department, and you are reached out to help the department analyze the data of past criminal activities. The purpose of crime data analysis is to support the operations of the police department, like criminal investigation, apprehension, prosecution, and development of crime prevention and reduction strategies.

Task

As a data analyst, to keep the police department and the city updated on the statistics of crime events, you are tasked to create a dashboard or story using Tableau for the communication website and pay attention to data storytelling.

Variable Description

ID	Indicates the unique identifier for the record
Case Number	Indicates the police department's case number, which is unique to the incident
Date	Indicates the date when the incident occurred, which is sometimes the best estimate
Block	Is the partially redacted address where the incident occurred, placed on the same block as the actual address
UCR	Is the Uniform Crime Reporting code, which directly linked to the Primary Type and Description
Primary Type	Is the primary description of the UCR code
Description	Indicates the secondary description of the UCR code, a subcategory of the primary description
Location Description	Is the description of the location where the incident occurred
Arrest	Indicates whether an arrest was made
Domestic	Indicates whether the incident was domestic
Beat	Indicates the beat where the incident occurred, and the beat is the smallest police geographic area
District	Indicates the police district where the incident occurred
Ward	Indicates the ward (city council district) where the incident occurred
Community Area	Indicates the community area where the incident occurred
NIC Code	Indicates the crime classification as National Incident Code
X Coordinate	Indicates the x coordinate of the location, where the incident occurred in the state plane
Y Coordinate	Indicates the y coordinate of the location, where the incident occurred in state plane
Year	Indicates the year the incident occurred

Updated On	Indicates the date and time the record was last updated
Latitude	Indicates the latitude of the location, where the incident occurred
Longitude	Indicates the longitude of the location, where the incident occurred
Location	Indicates the location, where the incident occurred in a format that allows for the creation of maps and other geographic operations on this data portal

Action

1. Overall Crime Statistics Dashboard:
    a. For personnel and resource management, the department needs to understand the count and types of crimes reported across the city. Mark the locations on a geo-map highlighting the locations with recent criminal history.
    b. Identify the most common criminal incidents reported
    c. In this introductory dashboard, include a live crime feed to exhibit the total number of crimes reported to date for the current year and the most recently reported crimes with their time and locations

2. Time Period Analysis Dashboard:
   Along with locations, the study of crime statistics across time statistics is also crucial for understanding the patterns and planning those preventive strategies.
    a. Study distribution count of crime incidents across different time periods, such as day of the week or hour
    b. Further, explore the percentage of incident reporting for several time blocks (morning, afternoon, evening, and night)

3. Trend Analysis Dashboard:
    a. Create a dashboard to study the change in crime rate over different years
    b. Compare the change in the incident reporting over the years for the same date and time

4. Comparative Analysis:
    a. Study the distribution of incidents reported where an arrest was made vs. not
    b. Identify what percentage of the reported incidents under each incident category are severe

c. To make the dashboard interactive, provide filters for incident type and location in these dashboards for a granular study

Result

1. Overall Crime Statistics: Presents crime count and types across the city, with a geo-map marking recent incidents and a live feed of total crimes reported
2. Time Period Analysis: Analyzes crime distribution by time, such as day of the week and hour, and explores reporting percentages for different time blocks
3. Trend Analysis: Studies changes in crime rates over the years and compares incident reporting trends
4. Comparative Analysis: Examines the distribution of incidents where arrests were made versus those where no arrests were made. and identifies the percentage of domestic incidents
5. Interactivity: Provides filters for incident type and location for detailed study