Drug Abuse: Exploring the Nexus between substance Abuse and diverse criminal Activities

Dashboard

Objective

Aim of the Project

A. **Data Integration and validation:** Establish robust data integration processes to compile and validate diverse datasets related to substance abuse and criminal activities, ensuring data consistency and accuracy.

B. **Descriptive Analysis:** Perform descriptive data analysis to summarize key statistics and metrics related to drug-related crimes.

C. **Frequencies, location trends, and drug types involved.**

D. **Trend Identification:** Identify and document temporal trends in drug-related crimes, such as seasonal variations or long-term increases or decreases, using time-series analysis.

E. **Location Analysis:** Conduct location-based analysis to pinpoint geographical hotspots of drug-related criminal activities, supporting focused law enforcement efforts.

F. **Data Visualization:** Develop clear and intuitive data visualizations, such a chart, graphs, using Excel to present analytical findings for easy interpretation by stakeholders.

Business Overview/Problem

Insight Analytics Solutions has been approached by a Non-Governmental Organization eager to address a critical issue: the escalating criminal activities ostensibly linked to substance abuse. This organization has noted a marked escalation in crimes such as theft, assault, and vandalism, presumed to be connected to drug addiction within their jurisdiction. However, they find themselves without the requisite tools and insights to fully comprehend the dynamics and nuances of this alarming issue. The specific challenges they are encountering include:

- A. **Lack of Data Integration:** The agency collects data from various sources, but there is no centralized system for data integration and analysis.
- B. **Ineffective Resource Allocation:** Limited resources are currently allocated to address drug-related crime, but without accurate insights, resource allocated is suboptimal.
- C. **Inefficient Reporting:** Current reporting methods are time-consuming and not data-driven, making it challenging to identify trends and patterns.
- D. **Lack of Predictive capability:** The agency lacks the capability to predict and prevent drug-related crimes proactively.

Target audience

- Primary – Non-Governmental Organization

Rationale for the Project

To illustrate the nexus between substance abuse and criminal activities, consider the following examples:

- **Drug-Fueled Violence:** An increase in violent crimes, such as domestic violence and aggravated assault, can be directly linked to substance abuse. A detailed analysis can reveal the substances involved and the specific demographics affected.
- **Overdose Incidents:** Tracking overdose incidents can shed light on the most prevalent drugs in the community and highlight areas in need of addiction treatment and education programs.
- **Gang Involvement:** Substance abuse often plays a role in gang-related activities, Analysing connections between gang members and drug-related offenses can aid in dismantling criminal networks.
- **Drug Trafficking Hotspots:** Identifying areas with high drug trafficking activities can help law enforcement agencies allocate resources for interdiction efforts.

Data Description

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✓ Incident_ID: A unique identifier for each incident.

✓ Crime_Type: The type of crime committed in the incident (e.g., Theft, Vandalism, Assault).

✓ Crime_Location: The location where the crime took place (e.g., Urban, Downtown, Rural).

✓ Crime_DateTime: The date and time when the crime occurred.

✓ Crime_Details: A brief description of the specific details of the crime in each incident.

✓ Drug_Type: The type of drugs involved or related to the incident (e.g., Heroin, Cocaine, Methamphetamine, Marijuana).

✓ Abuser_Age: The age of the individual involved in the incident.

✓ Abuser_Gender: The gender of the individual involved in the incident.

✓ Treatment_History: Indicates whether the individual involved in the incident has a history of drug addiction treatment (e.g., "Yes" or "No").

✓ Demographic_Data: Information about the demographic background of the individual involved, such as their living area and income level.

✓ Arrest_Record: Indicates whether the individual was arrested in connection with the incident (e.g., "Arrested" or "Not Arrested").

✓ Conviction_Record: Indicates whether the individual has a prior conviction related to the incident (e.g., "Convicted" or "Not Convicted").

✓ Police_Activity: Describes the police activity related to the incident (e.g., "Investigating," "Patrolling," "Responding").

✓ Hospital_Admission: Indicates whether the individual was admitted to a hospital as a result of the incident (e.g., "Yes" or "No").

✓ Overdose_Incident: Indicates whether the incident involved an overdose (e.g., "Yes" or "No").

✓ Addiction_Treatment: Specifies whether the individual is receiving addiction treatment as a result of the incident (e.g., "Inpatient" or "Outpatient").

Tech Stack

Excel will be used for this project, by utilizing its built-in features for data filtering, sorting, and pivot tables to explore trends and relationships within the data. Additionally, Excel's charting capabilities can help visualize patterns and summarize key insights from the dataset.

Project Scope

A. **Data Collection:** Gather data related to substance abuse and criminal activities from various sources, Organize this data into structured Excel spreadsheets for analysis.

B. **Data Cleaning and Validation:** Conduct thorough data cleaning procedures with Excel to address issues such as missing values, duplicate entries, and formatting inconsistencies.

C. **Exploratory Data Analysis (EDA):** Utilize Excel's built-in statistical functions and tools to perform descriptive data analysis. Calculate key summary statistics, for crime frequencies, drug types, and demographics.

D. **Data Visualization:** Develop Excel - based data visualizations, Ensure that reports are structured for easy consumption by decision-makers.

Acceptance Criteria

The dashboard should list and display key metrics, frequencies, trends, and drug types involved as follow:

- ✓ Total incident
- ✓ Average age of abuser
- ✓ Trend of crime incident in 2022
- ✓ Arrested
- ✓ Not arrested
- ✓ Percentage Incident by Gender
- ✓ Total Incident by Age group
- ✓ Total Incident by Crime
- ✓ Total Incident by Location
- ✓ Total Incident by Crime type and Location
- ✓ Total Incident by Police Activity
- ✓ Total Incident by Drugs Type and Conviction Record
- ✓ Total Incidents by Drugs
- ✓ Total No of Incident by days and location
- ✓ Be user-friendly and easy to filter/sort

- ✓ Use the most recent data possible

Slicer

- ✓ Crime Details
- ✓ Police Activity
- ✓ Drug types
- ✓ Income Ranges
- ✓ Pollice Response by Location
- ✓ Total Incident by income

Additional requirements

- Document the solution and include the data sources, transformation processes and walk through on analysis conclusions
- Make source code and docs available on GitHub
- Ensure the solution is reproducible and maintainable so that it can support future updates