Road Accident Analysis Dashboard

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Introduction

The Road Accident Analysis Dashboard is a powerful and interactive tool developed in Excel to analyze road accident data comprehensively. This project aims to provide insights into various aspects of road accidents, enabling stakeholders to make informed decisions to improve road safety.

Project Overview

The dashboard visualizes key metrics such as total casualties, casualty types, vehicle types, and trends over time. It includes features like analysis by road type, surface conditions, location, and light conditions. This project is designed for data analysts, safety professionals, and policymakers focused on reducing road accidents and enhancing safety measures.

Data Sources

The data used in this project comes from reliable sources, including government databases and traffic reports. The dataset includes information on:

- Total casualties
- Fatal, serious, and slight casualties
- Casualties by vehicle type
- Monthly trends
- Casualties by road type and surface condition
- Casualties by location (rural vs. urban) and light conditions

Dashboard Components

1. Total Casualties

- Displays the overall number of casualties.
- Differentiates between fatal, serious, and slight casualties.

2. Casualties by Vehicle Type

- Shows the distribution of casualties across different vehicle types such as cars, motorcycles, bicycles, and trucks.

3. CY Casualties vs. PY Casualties Monthly Trend

- Compares the current year's casualties with the previous year's on a monthly basis.

4. Casualties by Road Type

- Analyzes casualties based on road types like single carriageway, dual carriageway, roundabout, slip road, and one-way streets.

5. Casualties by Road Surface

- Categorizes casualties by road surface conditions: dry, wet, and snowy.

6. Casualties by Location/Area

- Differentiates between rural and urban areas.

7. Casualties by Light Condition

- Shows the impact of different light conditions (daylight, dark) on accident rates.

Key Insights

- **High-Risk Vehicle Types:** Cars account for the majority of casualties.
- **Monthly Trends:** There are visible peaks and troughs in the number of casualties throughout the year.
- **Road Type Analysis:** Single carriageways see the highest number of casualties.
- **Surface Conditions:** Most accidents occur on dry roads, but wet and snowy conditions significantly impact casualty rates.
- **Location Impact:** Urban areas have a higher number of casualties compared to rural areas.
- **Light Conditions:** A substantial number of accidents occur during daylight hours.

Methodology

Data Cleaning and Preparation

- Data was cleaned and organized in Excel to ensure accuracy and consistency.
- Missing values were handled appropriately.

Data Visualization

- Various charts and graphs were created using Excel's advanced visualization tools.
- Conditional formatting was applied to highlight key metrics and trends.

Analysis

- Comparative analysis was conducted to identify trends and patterns.
- Statistical methods were used to derive insights from the data.

Conclusion

The Road Accident Analysis Dashboard provides a comprehensive view of road accident statistics. It helps in identifying key areas of concern and can be used to implement effective road safety measures. By understanding the data, stakeholders can make informed decisions to reduce casualties and improve road safety.

Future Work

Future enhancements to the dashboard could include:

- Integration with real-time data sources.
- Advanced predictive analytics to forecast future trends.
- More granular analysis by including additional variables such as weather conditions, time of day, and driver demographics.