**Author:- Aman Dadhich**

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**Road Accident Analysis Report**

**Project Overview**

This report presents an analysis of road accident data, focusing on **casualty types, vehicle involvement, accident severity, and environmental factors** such as road conditions, lighting, and area type (urban/rural). The data was **cleaned, structured, and visualized** using Excel, with interactive **dashboards and slicers** for deeper insights.

**Data Cleaning & Transformation**

* **Corrected Data Entries:**
  + "signl" → "signal," "fetal" → "fatal," and other inconsistencies corrected.
* **Date-Based Features Created:**
  + Extracted **month and year** from accident dates for trend analysis.

**Key Performance Indicators (KPIs):**

* **Total Casualties:** **417,883**
* **Casualty Severity Breakdown:**
  + **Fatal:** **7,135 (1.71%)**
  + **Serious:** **59,312 (14.19%)**
  + **Slight:** **351,436 (84.1%)**

**Vehicle Involvement:**

* **Total Casualties by Vehicle Type:**
  + **Cars:** **333,485 (79.8%)**
  + **Other Vehicles (bikes, buses, vans, etc.):** **84,398 (20.2%)**

**Dashboard Insights & Visualizations**

The **Excel dashboard** was designed for easy exploration using **slicers and interactive charts**:

**1. Casualty Severity Distribution**

* **Visualized using separate donut charts** for **fatal, serious, and slight casualties.**

**2. Yearly Trend Analysis**

* **Displayed through a line chart**, showing **monthly and yearly trends** of casualties over time.

**3. Light Conditions & Area Type Impact**

* **Separate donut charts** for casualties based on:
  + **Light conditions** (Daylight, Dark—lit, Dark—not lit, etc.).
  + **Area type** (Urban vs. Rural).

**4. Interactive Filters & Slicers**

* **Slicers for Year & Timeline:** Allow users to analyze trends over different years.
* **Urban/Rural Slicer:** Enables comparison of accident severity and distribution across different area types.

**Key Insights & Conclusions**

* **Majority of accidents (79.8%) involve cars**, highlighting the need for improved road safety for private vehicles.
* **Fatal casualties are only 1.71%,** with most accidents resulting in slight injuries (84.1%).
* **Yearly trends show fluctuations**, indicating potential seasonal or policy-related factors affecting accidents.
* **Lighting conditions & area type significantly impact accident severity**, requiring targeted safety measures in high-risk zones.

**Next Steps & Recommendations**

* **Further analysis** could explore correlations between weather conditions, road quality, and accident rates.
* **Predictive modeling** using past trends could help in forecasting accident hotspots.
* **Policy recommendations** based on data insights can help in reducing accidents and improving road safety.