Road Accident Analysis Using Excel

Objective:

The project aims to analyse road accident data using Excel, focusing on identifying key trends and risk factors. The analysis helps understand accident causes, evaluate the impact of road conditions, and assess casualty rates based on area, vehicle type, and time of occurrence. These insights can support road safety initiatives and policy-making to reduce accidents and improve public safety.

Purpose of the Project:

The road accident analysis project provides a data-driven approach to understanding accident patterns using Excel. By leveraging pivot tables, charts, and interactive dashboards, the project highlights accident hotspots, identifies high-risk factors, and evaluates seasonal trends. The findings can assist traffic authorities, urban planners, and policymakers in implementing safety measures, optimizing road infrastructure, and raising awareness to prevent accidents.

Key Findings from Road Accident Analysis

1. **Total Casualties:** The analysis reveals a total of **409,784 casualties**, highlighting the severity of road accidents.
2. **Impact of Road Surface:** Most accidents occurred on **dry roads (273.3K)**, but **wet roads (113.9K)** and **snow/ice (22.5K)** still pose significant risks, emphasizing the need for cautious driving in adverse conditions.
3. **Casualties by Area:** Urban areas (250.6K) reported higher casualties than rural areas (159.2K), indicating increased accident risks in densely populated regions.
4. **Casualties by Light Condition:** A majority of accidents happened during **daylight (299.2K)**, suggesting that higher traffic volume during the day contributes to accidents, though night-time (110.6K) accidents remain a concern due to visibility issues.
5. **Casualties by Road Type: Single carriageways (304.7K)** recorded the highest number of casualties, followed by **dual carriageways (66.6K)** and **roundabouts (26.2K)**, indicating areas needing safety improvements.
6. **Vehicle Involvement:** Cars accounted for **80% of casualties**, followed by motorcycles and buses, stressing the importance of stricter road safety regulations for high-usage vehicles.
7. **Interactive Dashboard:** By using Excel, an interactive dashboard was created to visualize accident trends, allowing users to filter data based on factors like area, road surface, and vehicle type for better decision-making.