

ROAD ACCIDENT DATA ANALYSIS – PROJECT REPORT

1. Project Title

Road Accident Data Analysis and Visualization using Microsoft Excel

2. Objective

The objective of this project was to analyze road accident data to uncover patterns in accident types, vehicle involvement, road conditions, and time-based trends. The goal was to present these insights through a dynamic, interactive dashboard to aid in public safety and decision-making.

3. Dataset Description

- Source: Kaggle
- Time Period: 2021 – 2023
- Number of Records: 307972 rows
- Columns/Fields Used: 23 columns
 - Accident Date
 - Casualty Severity (Fatal, Serious, Slight)
 - Vehicle Type
 - Road Type
 - Road Surface
 - Light Condition
 - Area (Rural/Urban)

4. Tools Used

Microsoft Excel:

- Pivot Tables
- Pivot Charts
- Slicers
- Data Validation
- Conditional Formatting
- Dashboard UI Design

5. Key Visualizations

The dashboard includes:

- Total and breakdown of casualties (fatal, serious, slight)
- Casualties by vehicle type (car, two-wheeler, bus, truck, etc.)
- Year-wise monthly trend comparison (2021 vs 2022)
- Casualties by:
 - Road Type (single, dual carriageway, etc.)
 - Road Surface (dry, wet, snow/ice)
 - Light Condition (daylight vs darkness)

- Area (rural vs urban)
- Interactive filter panel for year and area selection

6. Insights & Findings

- 84% of casualties were slight, indicating that although accidents are frequent, fatality rates are low.
- Car-related accidents made up ~80% of total casualties.
- Single carriageway roads had the highest number of accidents.
- Most accidents occurred on dry roads under daylight conditions.
- Urban areas saw higher accident volumes than rural ones.
- Monthly trends indicate a peak in mid-year months like June–August.

7. Conclusion

This project helped in identifying high-risk areas and patterns in accident types. The dashboard makes it easier for policymakers and road safety organizations to:

- Understand risk factors
- Focus on infrastructure improvements
- Educate the public about accident trends

8. Future Improvements

- Integrate geographical mapping (Power BI or Tableau) for region-wise heatmaps
- Include driver demographics, speed data, or weather conditions for deeper insights
- Transition to Python for automation and scalability

9. Project Preview





