Data Analysis Report – Accident Analysis Dashboard using Excel

1. Project Overview

This document presents a comprehensive Data Analysis Report for an end-to-end accident analysis project. The objective is to analyze traffic accident patterns and visualize insights using Excel and Power BI dashboards.

2. Business Problem Statement

Traffic authorities and policymakers require data-driven insights to reduce accidents and fatalities. This analysis helps identify high-risk locations, peak accident times, and factors affecting accident severity.

3. Dataset Description

The dataset includes the following fields:

- Accident ID, Date, Time, Location, Severity Level, Weather Condition, Vehicle Type, Casualties, Road Type

4. Data Cleaning & Preparation

Steps performed during data preparation:

- Removed duplicate and missing records
- Converted date and time formats
- Created derived columns (Year, Month, Day, Hour)
- Categorized severity levels
- Standardized text fields

5. Key Performance Indicators (KPIs)

- Total number of accidents
- Accidents by region
- Accidents by time of day
- Severity-wise accident distribution

- Weather impact on accidents

6. Dashboard Analysis & Insights

Analysis shows that certain regions have consistently high accident counts. Peak accident times occur during rush hours. Severe accidents are more frequent under poor weather conditions.

7. Tools & Technologies Used

Microsoft Excel, Power BI, Power Query, DAX

8. Business Insights

- High-risk zones require focused safety measures
- Time-based accident trends help in traffic planning
- Weather-related insights support preventive alerts

9. Conclusion

The accident analysis dashboard provides actionable insights that support better traffic management and safety decision-making.

10. Future Scope

- Real-time accident data integration
- Predictive analytics for accident prevention
- Advanced geographic mapping analysis