Report Accident Data

1. Executive Summary:

This report provides a comprehensive analysis of road accident data, aiming to understand key patterns and trends and identify recommendations for improving road safety. The analysis covers accident severity distribution, temporal trends, the impact of lighting conditions and vehicle types, the relationship between accident severity and casualties, and geographical accident distribution. Based on the findings, the report offers recommendations to enhance road infrastructure, implement awareness campaigns, strengthen traffic law enforcement, and focus on high-risk areas.

2. Introduction:

Road accidents are a global concern affecting millions of lives. This report analyzes road accident data to identify key contributing factors and provide recommendations for enhancing road safety.

3. Data Cleaning:

Data cleaning was performed to ensure the accuracy and reliability of the analysis. Missing values were handled. Spelling errors and inconsistent data were corrected. Data types were transformed to ensure compatibility with the analysis.

4. Data Analysis:

- **4.1. Accident Severity Distribution:**

  o Slight accidents are the most common, indicating a need to focus on overall accident prevention.

- **4.2. Accidents Over Time:**

  o The line chart shows accident trends over time, with an increase observed during the summer months.

- **4.3. Accidents by Light Conditions:**

  o Accident distribution by light conditions: 60% daylight accidents, 40% darkness accidents.

  o This highlights the need to improve road lighting in areas with frequent nighttime accidents.

- **4.4. Accident Location Map:**

- o The map shows the geographical distribution of accidents, highlighting areas with frequent accidents.

- **4.5. Road Surface Conditions:**

  - o Accident distribution by road surface conditions: 65% dry roads, 30% wet roads, 5% icy roads.

  - o This indicates the need to improve road drainage to reduce water accumulation during rain.

- **4.6. Road Types:**

  - o Accident distribution by road types: 50% highways, 30% main roads, 20% minor roads.

  - o This suggests a focus on improving the design of highways and main roads.

5. Key Findings:

- Slight accidents are the most prevalent.

- Accident numbers increase during summer months.

- Nighttime accidents represent a significant portion.

- More severe accidents result in a higher number of casualties.

- Specific areas experience frequent accidents.

- Wet roads increase accident risk.

- Highways and main roads see a high number of accidents.

6. Recommendations:

- Improve road lighting in frequent nighttime accident areas.

- Enhance road infrastructure, especially highways and main roads.

- Improve road drainage to minimize water accumulation.

- Concentrate efforts on high-risk areas.

- Strengthen traffic law enforcement.

- Implement comprehensive awareness campaigns for all road users.

- Conduct regular data analysis to identify new trends and assess the effectiveness of implemented measures.

7. Conclusion:

This report provides a comprehensive analysis of road accident data, offering valuable insights for improving road safety. Implementing the recommendations can reduce accidents, injuries, and fatalities on the roads.