

# Road Accident Analysis

Key Insights & Risk Factors (2023)

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- Includes multiple charts: heatmap, treemap, bar graphs, time trends
  - Interactive filters: Speeding, Helmet Use, Seat Belt, Response Time
  - `Designed for decision-makers and safety departments.
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## ➤ Task 1: Handling Missing Values

### Insight:

- 16 records had missing helmet use values, categorized as "**Unknown**".
  - Ensures data completeness without losing information.
  - Recommendation: Encourage consistent reporting standards.
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## ➤ Task 2: Road Accident Trends Over Time

### Insight – Monthly Accident Trends:

- **Peak months:** January, April, July, October (5 each).
  - **Lower incidents:** 2–4 in other months.
  - Indicates **quarterly spikes**, possibly due to travel or weather patterns.
  -  *Recommendation:* Launch awareness campaigns during these high-risk periods.
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## ➤ Task 3: Impact of Weather Conditions on Accidents

### Insight:

- **Clear weather** saw the most accidents (19), likely due to overconfidence.
  - **Stormy and rainy** conditions showed moderate accident counts.
  - **Foggy** had the fewest but still risky due to visibility.
  -  *Recommendation:* Promote year-round safe driving habits.
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## ➤ Task 4: Seat Belt & Helmet Use

### Insight:

- Accidents are more frequent when **either helmet or seat belt was not used**.
  - Dual usage is rare and significantly reduces accident counts.
  -  *Recommendation:* Enforce stricter safety gear compliance.
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#### ➤ Task 5: Fatality Analysis by Road Type & Speeding

##### Insight:

- **Expressways** and **rural roads** show the highest fatalities.
  - Speeding plays a major role on expressways.
  - **Highways** have fewer fatalities — suggesting better enforcement.
  -  *Recommendation:* Focus enforcement on high-risk road types.
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#### ➤ Task 6: Emergency Response Time Impact

##### Insight:

- Majority of fatalities occurred during **Delayed Response** cases.
  - Slight difference also observed in **Fast Response** group.
  -  *Recommendation:* Improve response infrastructure in remote or accident-prone areas.
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