

Road Accident Data Summary *(by Shashanka Debnath)*

Analysis Approach:

Deduplication of Accident Records

- Applied a deduplication step on the Accident_Index column.
- Ensured that each accident case was unique by removing duplicate entries.

Validation of Unified Values Across Columns

- Checked whether key columns (e.g., Accident_Severity, Junction_Control) had consistent and unified value entries.
- Identified and flagged inconsistent labels or unexpected categories.

Label Value Correction

- Standardized categorical fields for better readability and grouping.
- Corrected inconsistent or misspelled values in key columns.

Correction of Accident Severity Labels

- Fixed the typo in the Accident_Severity field.
- Replaced incorrect entry "Fetal" with correct spelling "Fatal".

Normalization of Junction Control Field

- Cleaned up the Junction_Control column by replacing the value: "Data missing or out of range" → NULL (to clearly represent missing data).
- This enhanced accuracy in filtering and grouping within visuals.

Key Findings

1. Total Casualties: 418K
2. Total Accidents: ~308K
3. Most Affected District: Birmingham

Accident_Severity:

- Slight injuries dominate with ~263K cases
- Serious injuries: ~40K
- Fatal injuries: ~4K

Weather & Road Conditions:

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- Majority of accidents occurred in fine + high visibility weather and on dry roads (208K+ cases).
- Hazardous road conditions (snow, floods) contributed very little but were more severe in nature (higher fatality ratio).

Junction_Control:

- Auto traffic signals were involved in 48.7% of cases.
- No junction involvement: ~31.8%.

Time Trends:

- Peak accident months: October (28.4K) and November (29K).
- Lowest accident month: February (21.9K).
- Most accident-prone day: Friday (51K); least: Sunday (34K).

Insights Derived

Policy and Enforcement:

High accident rates in **clear weather and on dry roads** point to driver error as a major cause. Stricter signal monitoring and junction enforcement are needed.

Awareness Campaigns:

Accidents peak on **Fridays** and during **October–November**.

Focus awareness drives around weekends and festive seasons, even in good driving conditions.

Infrastructure Improvements:

Nearly 50% of junction accidents occur at **automated signals**.

Review junction designs, improve signage, and add pre-warning systems.

Emergency Readiness:

Birmingham has the most accidents—highlighting a need for faster emergency response.