Traffic Accidents Analysis Report - Tableau Dashboard & Insights

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1. Introduction

Traffic accidents are a major concern affecting road safety, leading to casualties and property damage. This analysis aims to identify key patterns in accident data to derive meaningful insights that can help improve road safety measures.

Dataset Overview:

Total Records: [660, 679]

Key Fields: Accident Date, Location (Latitude & Longitude), Severity, Road Type, Weather Conditions, Number of Casualties, and Number of Vehicles.

2. Data Cleaning & Preparation

Objective: Ensure data accuracy and consistency before analysis.
Steps Taken:

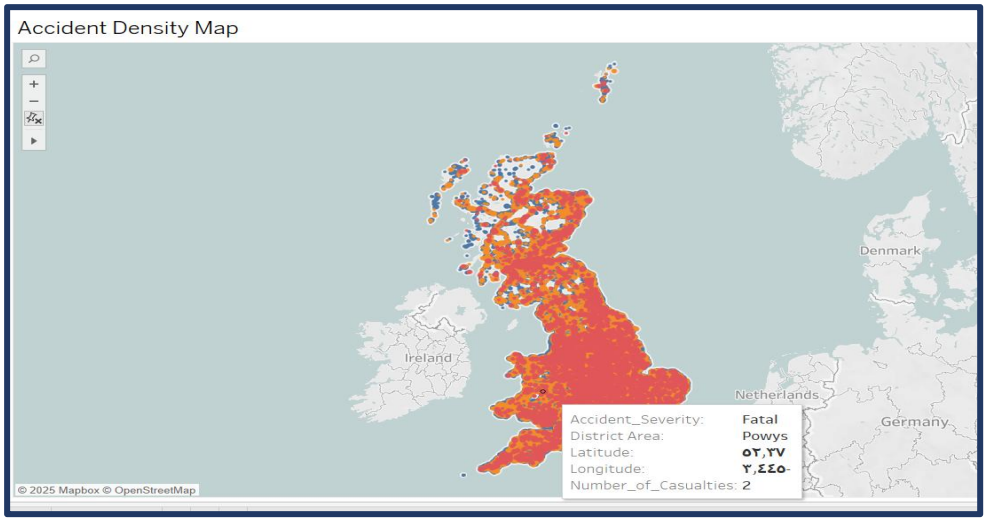
- **Handling Missing Values:** Removed or imputed missing values to maintain data integrity.
- **Standardizing Formats:** Adjusted date formats and standardized categorical variables.
- **Outlier Detection:** Identified and handled anomalies in accident severity and casualty counts.
- **Ensuring Data Consistency:** Checked for duplicate records and ensured correct data types.

Impact: Improved data quality, ensuring reliable insights from analysis.

3. Data Analysis & Insights

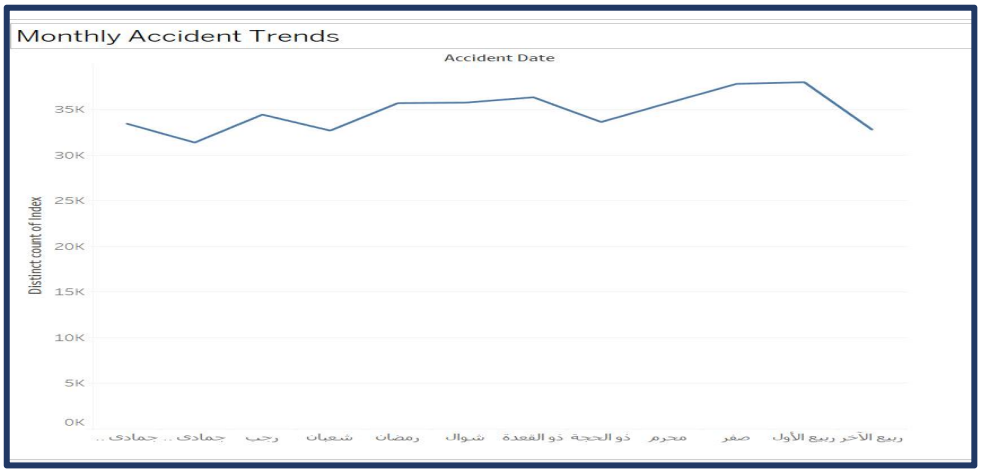
3.1 Accident Distribution by Location (Heatmap)

Objective: Identify accident hotspots to target high-risk areas. **Findings:** The majority of accidents occur in urban areas, particularly in high-traffic districts. **Visualization:** A heatmap displaying accident severity by location.



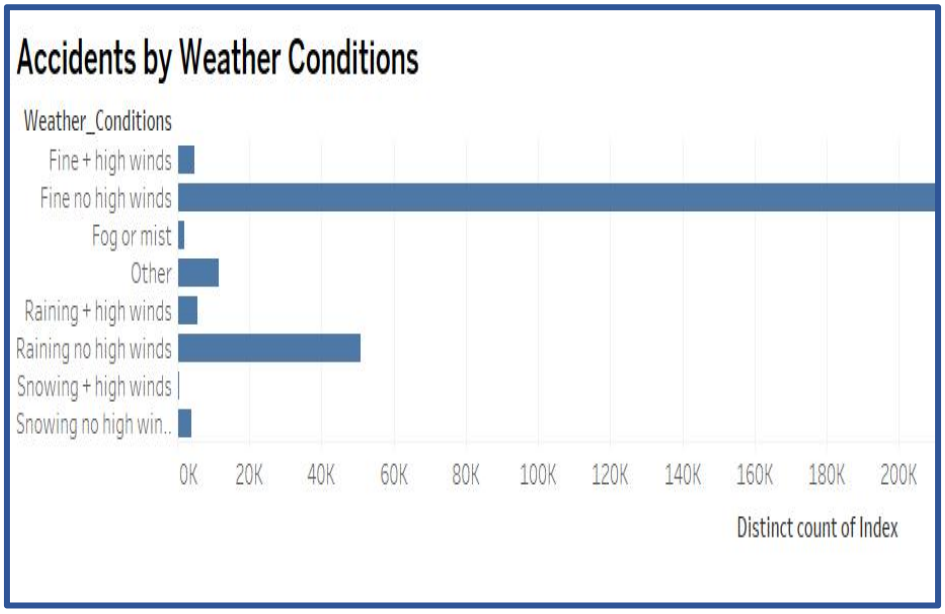
3.2 Monthly Trend of Accidents (Line Chart)

Objective: Analyze the monthly distribution of accidents to identify peak accident periods.
Findings: The highest number of accidents occur in [Month], while the lowest occur in [Month].
Visualization: A line chart showing accident trends over time.



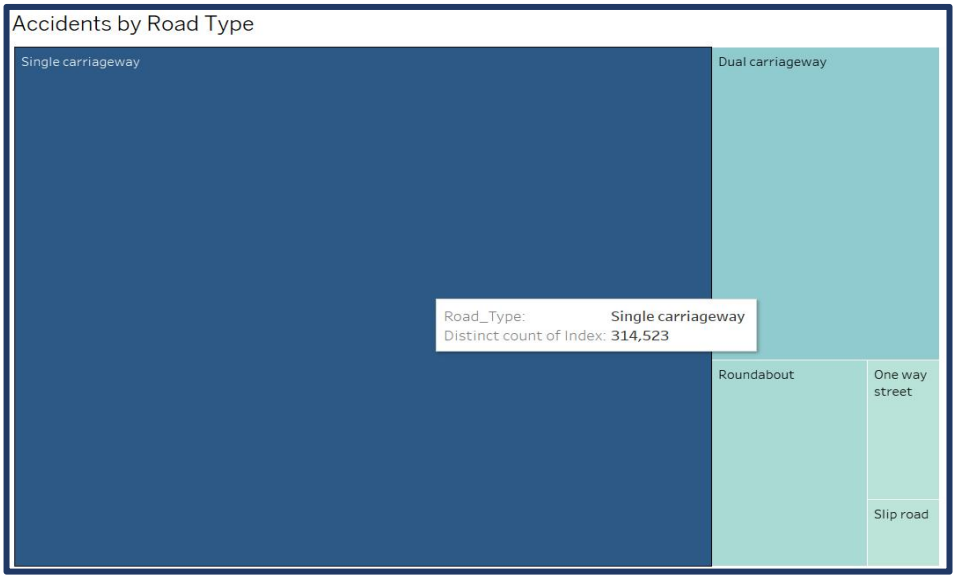
3.3 Impact of Weather Conditions (Bar Chart)

Objective: Understand the influence of weather on accident occurrences. **Findings:** Accidents are more frequent during [Weather Condition], suggesting a strong correlation between weather and accident rates. **Visualization:** A bar chart showing accident counts by weather type.



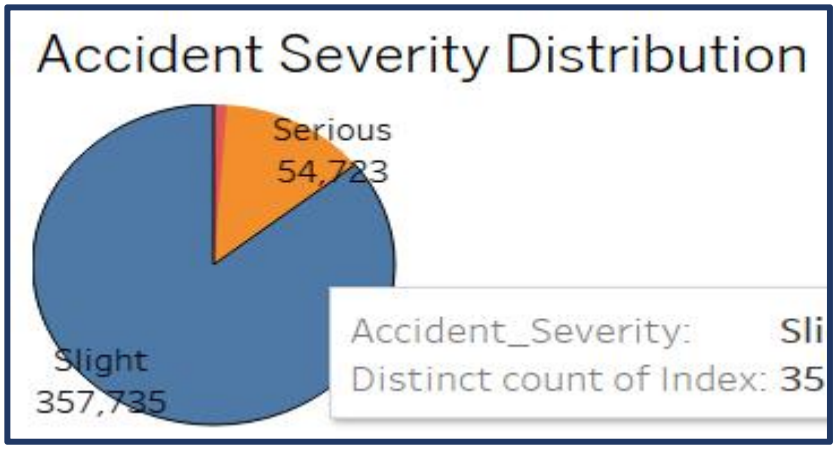
3.4 Accident Distribution by Road Type (Treemaps)

Objective: Determine which road types experience the highest accident rates. **Findings:** Most accidents occur on [Road Type], while the least occur on [Road Type]. **Visualization:** A bar chart categorizing accident frequency by road type.



3.5 Severity Analysis (Pie Chart)

Objective: Assess the proportion of severe vs. minor accidents. **Findings:** [Percentage]% of accidents are classified as 'Serious' or 'Fatal,' highlighting the need for better road safety measures. **Visualization:** A pie chart representing accident severity distribution.



4. Recommendations

✓ **Improve Road Infrastructure:** Enhance lighting, road signage, and traffic signals in accident-prone areas. ✓ **Weather-Responsive Safety Measures:** Implement stricter driving regulations during adverse weather conditions. ✓ **Public Awareness Campaigns:** Educate drivers on safe driving practices, especially during peak accident months. ✓ **Enhanced Law Enforcement:** Increase monitoring and law enforcement on roads with high accident rates.

5. Conclusion

This analysis highlights key factors contributing to traffic accidents. By addressing these risk factors through policy changes, infrastructure improvements, and driver education, road safety can be significantly enhanced. Further studies may involve machine learning models to predict high-risk areas more effectively.

6. Supporting Documents

Tableau Dashboard: [Traffic Accidents Analysis Dashboard | Tableau Public]
GitHub Repository: [Rewan120/-Traffic-Accidents-Analysis---Tableau-Dashboard-Insights]