

Title: Exploratory Data Analysis of US Accidents with 7.7 million Records.

Outcomes and Conclusion:

1. New York City Data Absence:

The analysis reveals a noteworthy absence of data for New York City, underscoring potential gaps in reporting or data collection specific to this metropolitan area.

2. Exponential Decrease in Accidents Per City:

A striking trend emerges as the number of accidents per city exhibits an exponential decrease, suggesting that a relatively small number of cities experience a disproportionately high frequency of accidents.

3. Frequency of High-Accident Cities:

Less than 8% of cities report more than 1000 yearly accidents, emphasizing that a small percentage of locales bear a substantial burden of accidents.

4. Prevalence of Lead Degree 2 Injuries:

A significant finding reveals that almost 80% of accidents result in lead degree 2 injuries, emphasizing the need for targeted safety interventions to mitigate more severe outcomes.

5. Temporal Patterns:

The temporal analysis exposes patterns in accident occurrence, with a concentration between 7 am to 9 am and 3 pm to 6 pm, aligning with typical rush hours. Additionally, the majority of accidents occurring on Fridays, as opposed to weekends, highlights specific days with higher risk.

6. Data Source Contributions:

The analysis discerns that Source3 data offers insignificant contributions that can be safely disregarded for the overarching analysis, streamlining the focus on more relevant sources.

7. Weather Conditions and Accidents:

An overwhelming majority of accidents occur in fair weather conditions, emphasizing the need for heightened vigilance and safety measures during clear weather periods.

8. Road Features Impacting Accidents:

Accidents predominantly occur near traffic signals, particularly at junctions or crossings. Surprisingly, the presence of nearby stations ranks as the fourth most common road feature, suggesting a correlation with high vehicular presence.

9. Single Accident Reporting Cities:

A unique insight reveals that over 1023 cities report only a single accident, warranting further investigation into potential underreporting or specific characteristics of these locales.

In conclusion, this EDA project not only unveils significant patterns and trends in US accidents but also provides actionable insights for stakeholders involved in traffic safety and urban planning. The findings offer a nuanced understanding of accident dynamics, guiding targeted efforts for accident prevention and improved emergency response strategies.