Crash, Injuries, and Fatalities: Day of the Week Analysis

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Introduction

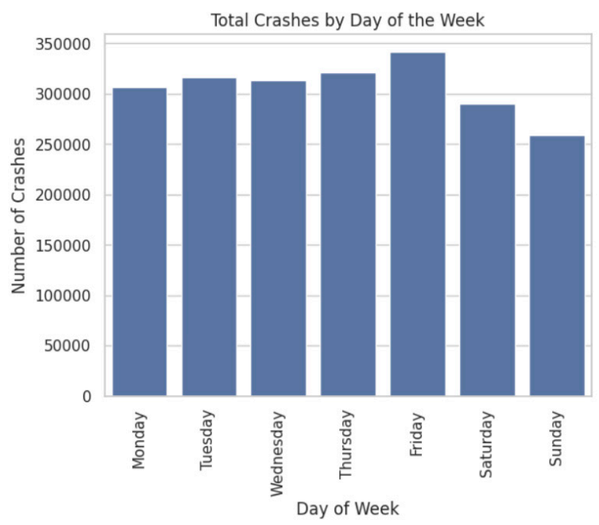
Motor vehicle collisions are a persistent public safety concern, often resulting in substantial personal injury, fatalities, and economic cost. In this project, we investigate whether certain days of the week see higher crash frequencies and more severe outcomes (injuries and fatalities). Our working hypothesis is that specific weekday and weekend travel patterns may correlate with increased crash risk. By comparing crash data across all days of the week, we aim to identify patterns that could help policymakers, law enforcement, and urban planners develop targeted interventions to enhance road safety.

Objectives

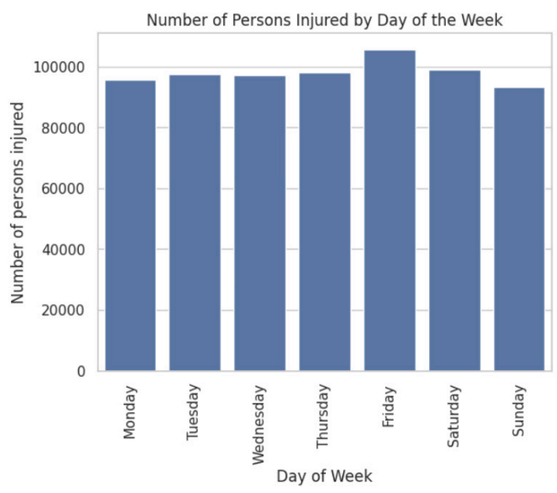
1. Identify which days of the week exhibit the highest number of crashes.
2. Measure the severity of crashes by day to reveal differences.
3. Determine if weekday versus weekend travel habits correlate with increased crash risk.
4. Provide insights that can help policy makers, urban planners, and law enforcement agencies prioritize traffic safety interventions.

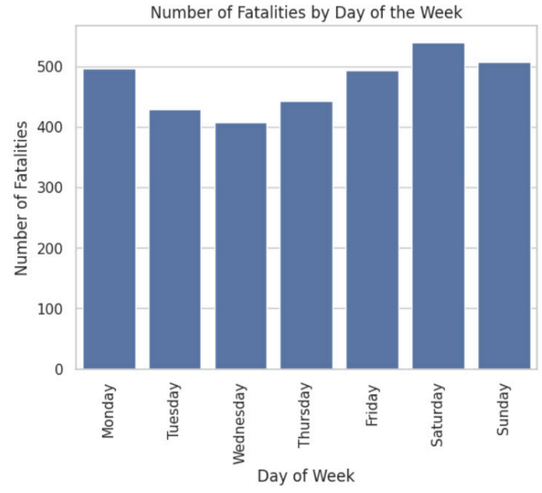
Crash Analysis

Friday shows the highest crash count (over 340,000), while Sunday has the fewest (around 250,000). Weekday crash levels (Monday through Friday) tend to hover between 300,000 and 340,000, suggesting workweek commuting may drive up crash numbers. On weekends (Saturday and Sunday), we see notably fewer crashes, most likely due to lighter traffic or different travel habits. This visual overview of crashes by day of the week highlights a peak on Fridays, maybe reflecting heavier end-of-week traffic, and a low on Sundays. Apart from that clear Friday spike, no other unusual patterns stand out, but it's evident that the day of the week can significantly influence crash rates.



Injury and Death Analysis





The injuries chart reveals that Friday experiences the highest number of injured persons, topping 100,000, while Sunday sees noticeably fewer (around 85,000). This pattern suggests heightened crash severity on Fridays, potentially tied to heavier traffic or end of week travel behavior. In the fatalities chart, Saturday shows the highest death toll at just over 500, with Monday close behind. Meanwhile, weekday figures (Tuesday to Friday) hover somewhat lower, indicating the weekend could be more prone to fatal collisions, possibly because of increased social travel, late-night driving, or other risk factors. Overall, this data shows varying crash severity by day of the week, with Fridays standing out for injuries and Saturdays for fatalities.

Key Findings

- Crash Frequencies: Friday records the largest overall crash counts, suggesting heavier end-of-week traffic may drive up collision rates.
- Injuries: Most injuries occur on Friday, hovering above 100,000, while Sunday sees significantly fewer.
- Fatalities: Saturday leads in fatalities (just over 500), with Monday close behind; weekdays generally see slightly fewer fatal crashes.

Overall, the data show that weekends, particularly Friday for injuries and Saturday for deaths, pose higher risks most likely due to increased social travel and potentially riskier driving behaviors.