

Which day of the week sees the most crashes, injuries, and/or fatalities?

Tejashri Dendi

Department of Computer Science | University of Illinois at Springfield

Introduction

Road safety is important now a days as road traffic crashes have a significant impact on individuals, communities, and the economy. We hear crash news mostly on weekends. So it is crucial for Transportation Dept. Professionals to intervene with high potential & infrastructure on the days of the week with high crash risks.

Transportation Data Analysis

The dataset used is from the NYC OpenData Motor Vehicle Collisions. It provides detailed records of motor vehicle collisions in New York City, encompassing various attributes related to the incidents. Data preprocessed by converting date, time to datetime format to extract day of the week and aggregated to compute the total number of crashes, injuries, and fatalities for each day using the key variables namely CRASH DATE, NUMBER OF PERSONS INJURED and NUMBER OF PERSONS KILLED. Further, visualized the frequency and severity of motor vehicle collisions in NYC by day of the week such as whether certain days have higher incidents of Key crashes, injuries, or fatalities helps in making roads safer for vulnerable road users.

Results

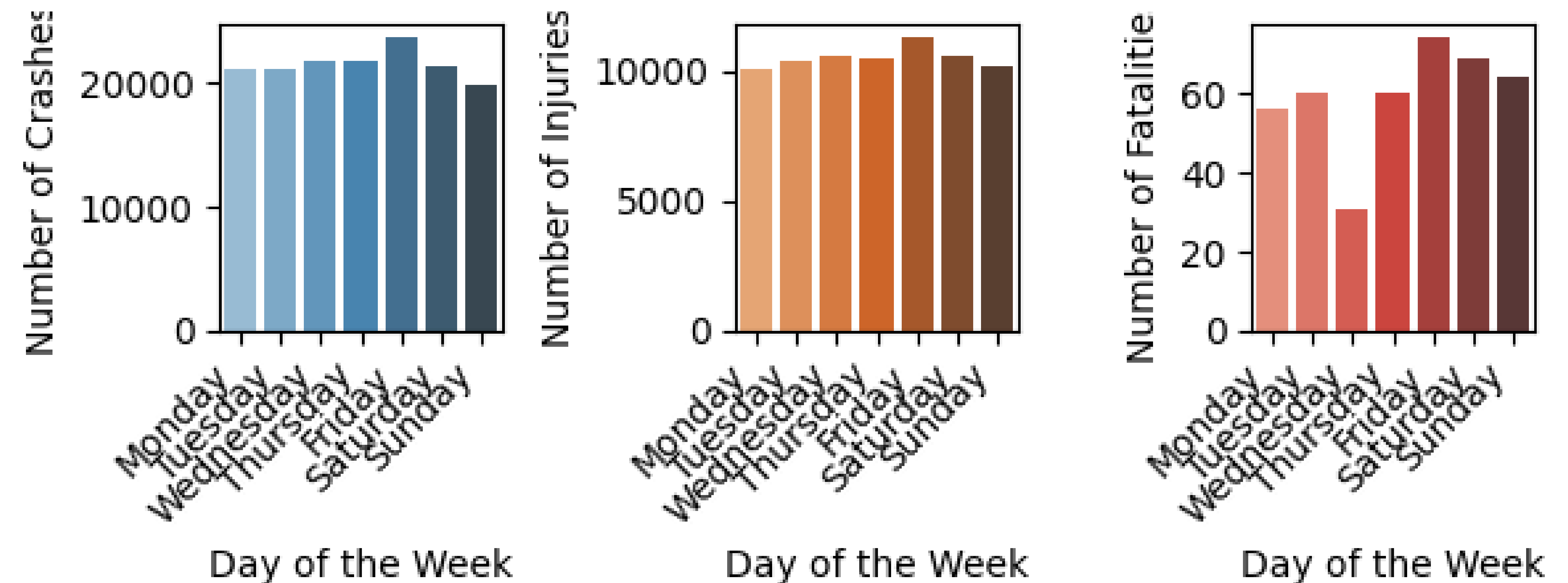


Figure1: Total Number of Crashes, Fatalities By Day of the Week

The highest number of crashes, injuries and fatalities occurred on Friday, Friday, Saturday respectively.

Interpretations and Implications

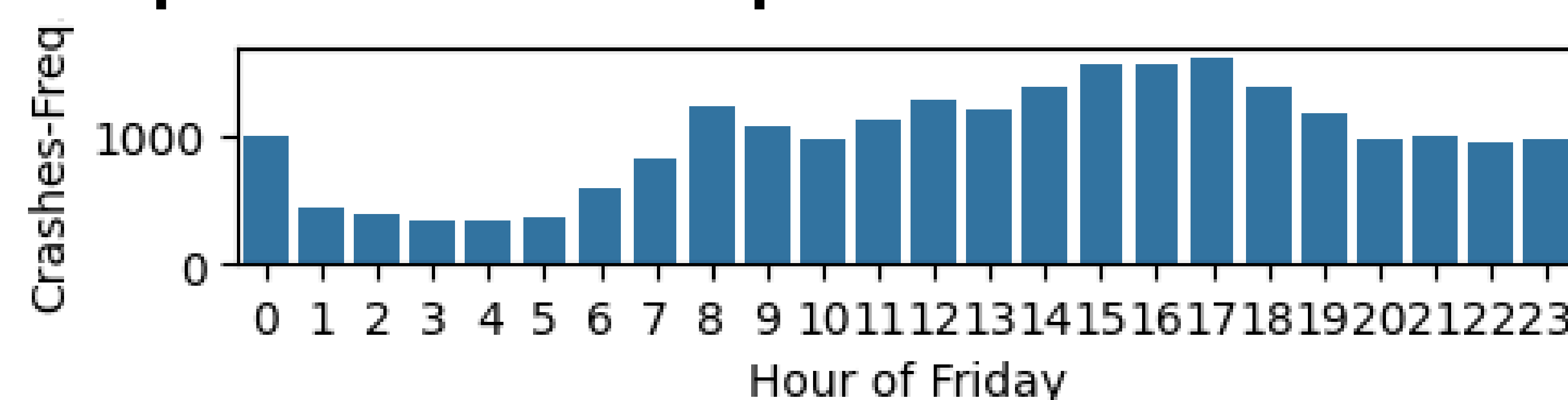


Figure2: Number of Crashes on Fridays by Hour of Day

Spikes are seen during rush hours notably 8 AM in the morning hours (7 AM -10 AM), 12 pm lunch hour and 5PM in the evening hours, it suggests a correlation with increased traffic. Similarly, late-night spikes are seen and remained at same range for a few hours starting from 8PM - 12PM until midnight when compared with early morning hours, could hint at potential alcohol-related incidents.

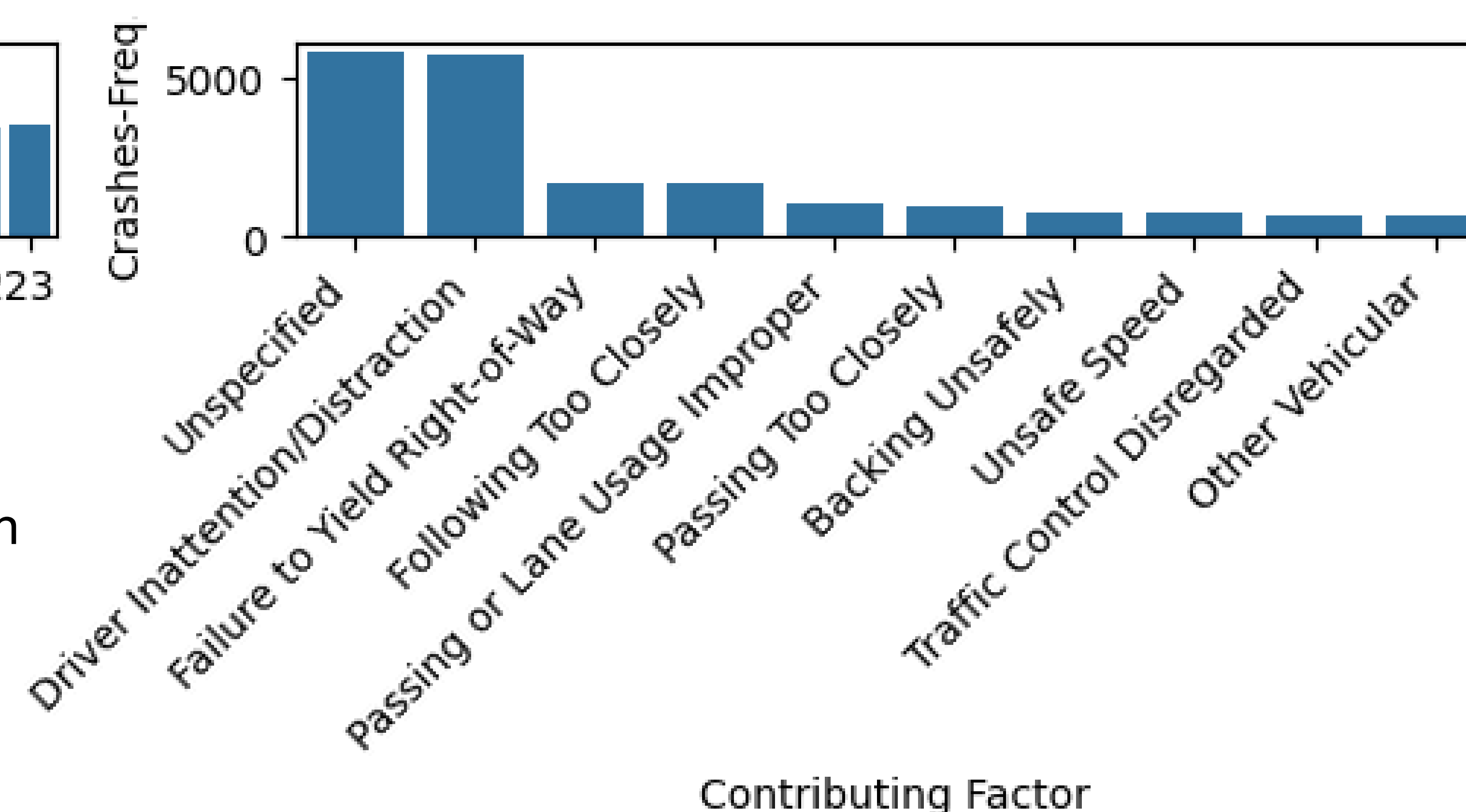


Figure 3: Top Contributing Factors in Crashes on Fridays

Driver inattention is the highest contributing factor for the motor vehicle collisions on roads.

Conclusion and Recommendations

On Friday evenings huge traffic is observed. Driver inattention or failure to yield the right of way, are more prevalent on Fridays, potentially indicating fatigue or distraction and heavy traffic on roads. But to draw definitive conclusions about the causes of increased risk on Fridays requires a more comprehensive approach by incorporating external datasets that provide information on traffic volume, alcohol sales, or weather conditions for the same period. Transportation Dept. should intervene on alcohol consumed drivers and divert the traffic when heavy to different paths.