

Which zip code sees the highest amount of crashes?

Tejashri Dendi

Department of Computer Science | University of Illinois at Springfield

Overview

Road safety is a major concern these days amongst public especially where the crash risk is higher. Knowing the highly prone crashes zip codes would help transportation Dept. Professionals to work with utmost potential and deployment of infrastructure to minimize and avoid them as much as possible with proper action.

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, identified the zip code with the highest number of crashes & aggregated zip code and count crashes to analyze contributing Factors using the key variables namely CRASH TIME, ZIP CODE and COLLISION_ID. Furtherly, visualized these to help in making roads safer for vulnerable road users.

Results & Interpretations

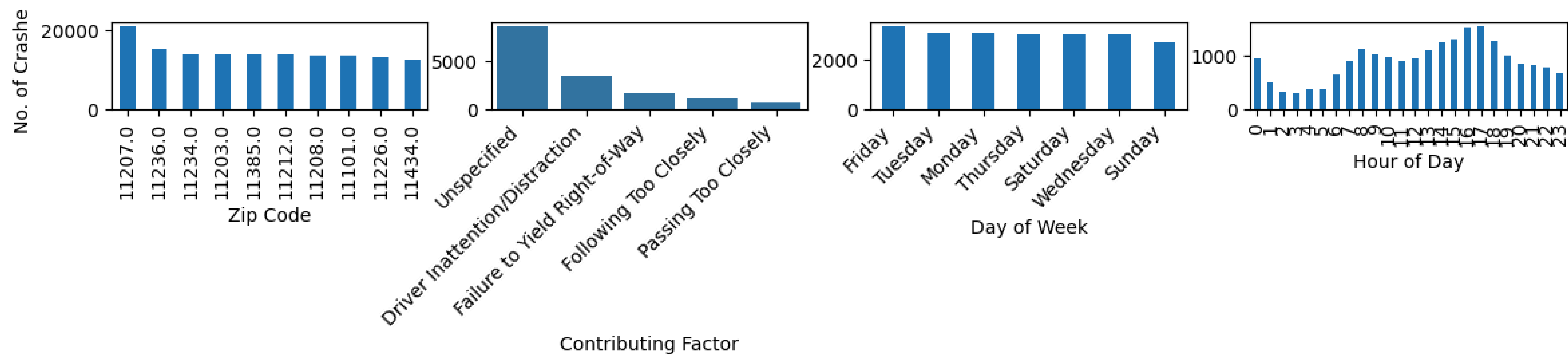


Fig 1:Top 10 Zip Codes with Most Crashes

The zip code with the highest number of crashes is: 11207.0 with 21312 crashes.

Fig 2:Top Contributing Factors of Crashes in 11207.0 by Day of Week and by Hour Of Day

Driver inattention is the highest contributing factor for the motor vehicle collisions on roads. The highest number of crashes occurred on Friday and the least occurred on Sunday, Most of the crashes occurred at 5pm in the evening in zipcode11207.

Conclusion

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. in a zip code 11207 with highest number of crashes occurrence.

This dataset provides a starting point for exploring potential correlations within the available data but to draw definitive conclusions about the causes of increased risk on Fridays in zip code 11207 requires a more comprehensive approach by incorporating external datasets that provide information on traffic volume, alcohol sales, or weather conditions for the same period.

Recommendations

Transportation Dept. should intervene on alcohol consumed drivers and divert the traffic when heavy to different pathand & also conduct public awareness campaigns about safe driving during rush hour, targeted public awareness campaigns on relevant days & targeted driver education programs inaddition to Improvement of road infrastructure, traffic calming measures, or increased signage. By acting on these recommendations, the Department of Transportation can better manage and reduce crash occurrences, even as they navigate the inherent uncertainties of future forecasts.

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 in zip code 11207.