STOR 520: Statistical Computing for Data Science

Fall 2024

Group members

Each team should have at least two people but no more than 3.

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Datasets

[TrafficCrashes-_](#)
We do intend to download this data.

Introduction of the datasets

Our dataset is a collection of information on traffic crashes in the city of Chicago, Illinois from 2015 to 2023. Only crashes responded to by the Chicago Police Department (CPD) are included, so crashes along interstates or near city boundaries may not be included as Cook County sheriffs may have responded instead of the CPD. The dataset inclues around 48 different variables which divulge information about road conditions, speed limits, severity of injuries, fatalities, etc. for each crash. There is a healthy mix of both quantitative and categorial variables, including interesting data types like latitude and longitude. While there is robust analysis of traffic accidents on a national scale, we did not find robust analysis of accidents within Chicago itself, and we are interested in discovering what unique trends can be divulged from this smaller subset of data.

Initial Questions

- **Question 1:** How do the time of day and day of the week affect the frequency and severity of traffic crashes?
- **Question 2:** What impact does the posted speed limit have on the severity of injuries in traffic crashes?
- **Question 3:** Is there a correlation between the number of traffic lanes and the severity of injuries in crashes?
- **Question 4:** What is the relationship between road defects and the type of crash reported?

- **Question 5:** Does the presence of traffic control devices reduce the likelihood of crashes in work zones?
- **Question 6:** Is there a correlation between crashes involving multiple units and the severity of injuries?
- **Question 7:** Is there a correlation between hit-and-runs and the lighting condition?
- **Question 8:** Which trafficway type tends to have the highest amount of fatal accidents?
- **Question 9:** Is there a street in Chicago that is correlated with a significantly higher amount of accidents.