

CS 424
Project 1
Traffic Crashes -
Crashes

Md Nafiul Nipu
Farah Kamleh

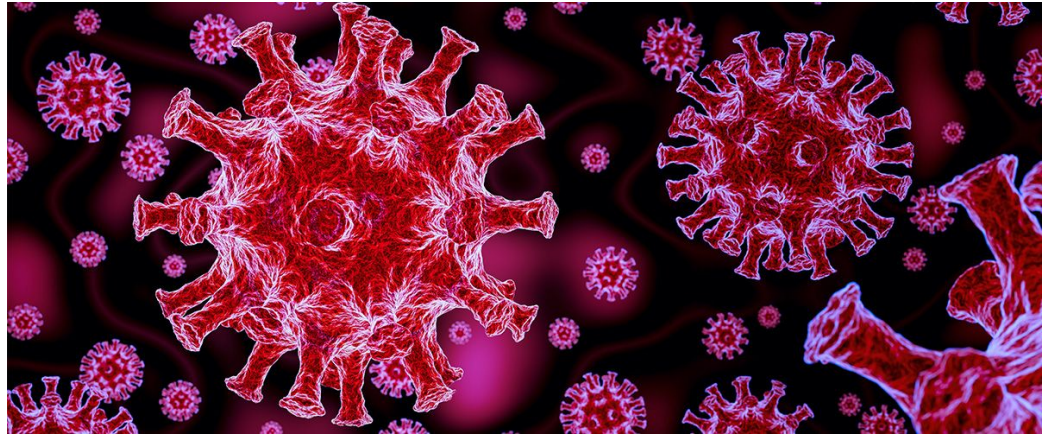
Dataset - Traffic Crashes - Crashes

- Information about each traffic crash on city streets within the City of Chicago limits and under the jurisdiction of the Chicago Police Department (CPD).
- From 2015 to Present
- 655K Rows
- 49 Columns

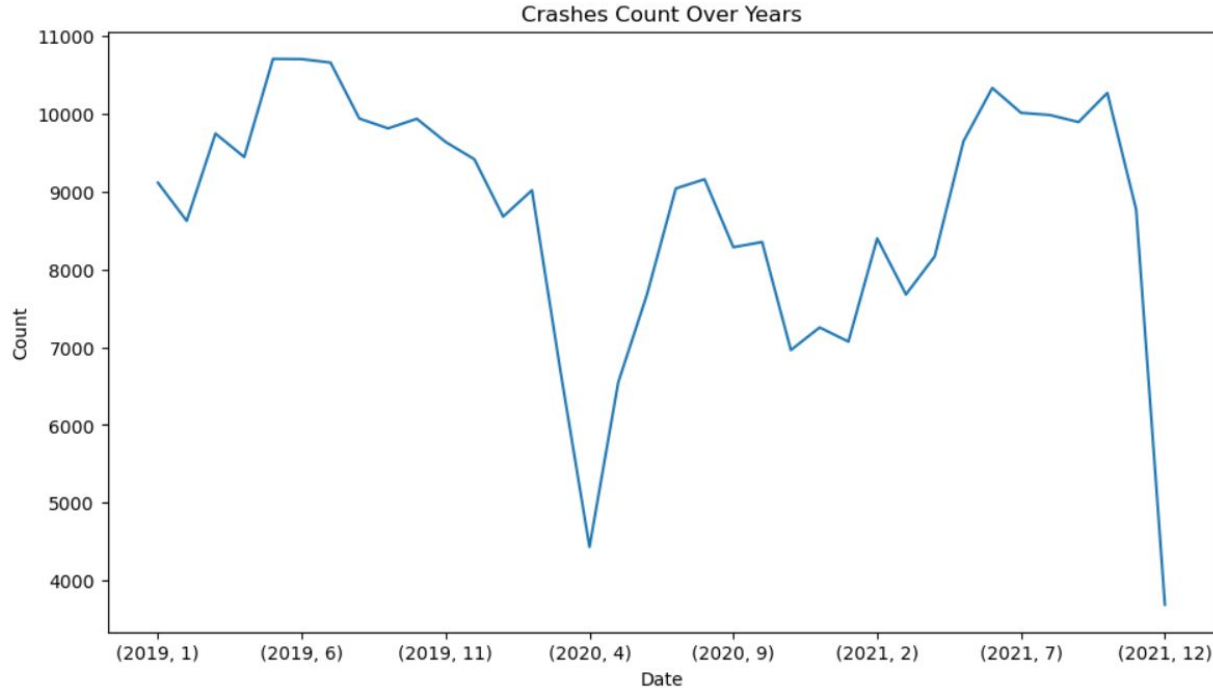


Hypothesis #1 - COVID-19

- Intention is to observe the effect of COVID-19 on traffic crash data.
- Subset: 2019 to 2021
- Hypothesis: There is a decrease in the number of traffic crashes during lockdown caused by COVID-19.



Number of Crashes Over the Years (2019 - 2021)



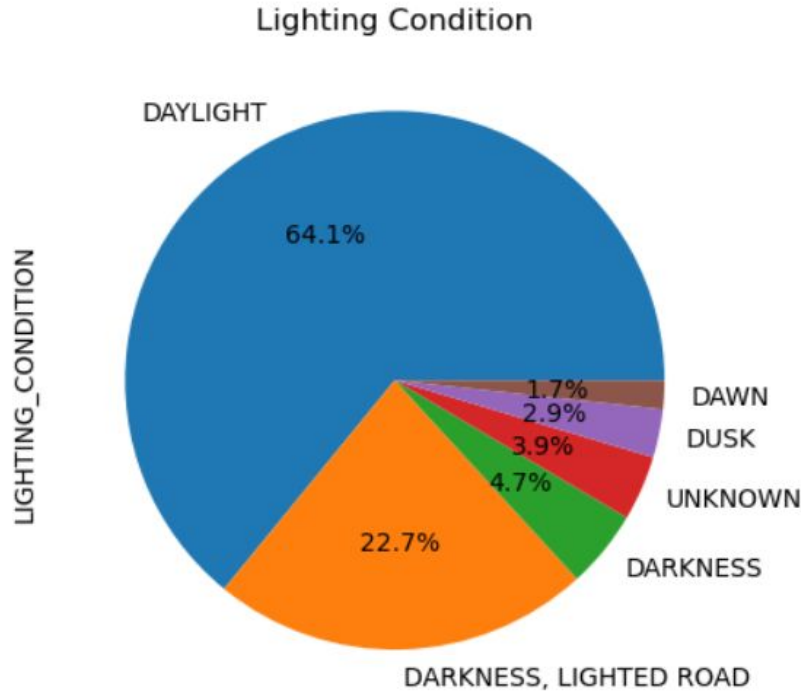
- Lockdown in Chicago occurred March 2020 to June 2020.
- Major dip observed in April 2020.
- Rise observed from April 2020 to July 2020.
- Hypothesis proven correct.

Hypothesis #2 - Lighting Conditions

- Assumed that crashes are more likely to occur in the dark due to obscured vision.
- Hypothesis: The highest number of crashes occur in the daylight because people are more active during those hours.



Lighting Conditions and Crashes



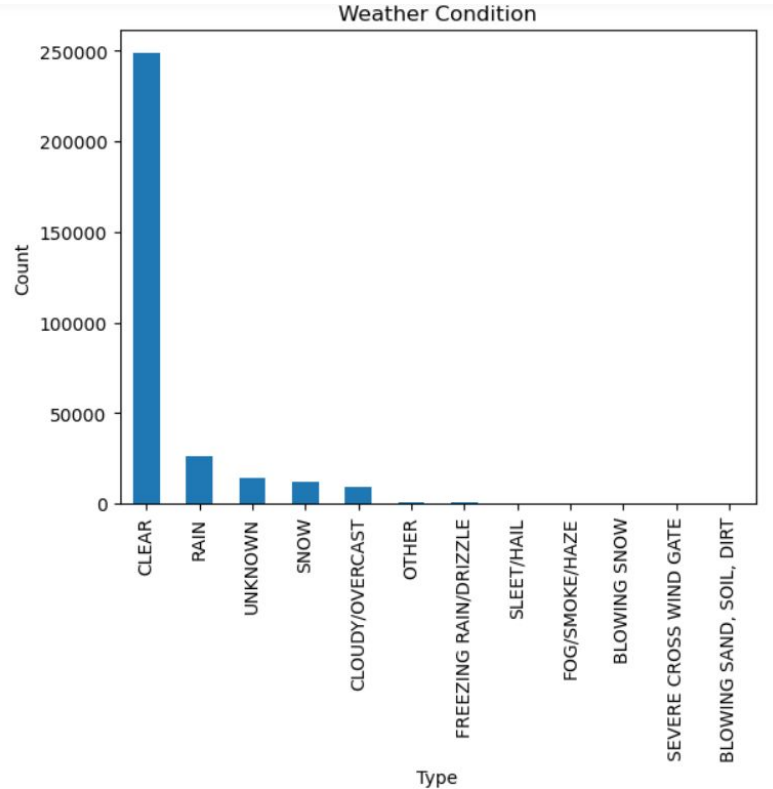
- Majority of the crashes occur in daylight (64.1%).
- The second most occur in the dark when the streets are lit (22.7%).
- The third most occur in complete darkness (4.7%).
- The second least occur at dusk (2.9%).
- The least occur at dawn (1.7%).
- Likely determined by human activity.

Hypothesis #3 - Weather Conditions

- Hypothesis: Majority of the crashes occur in weather conditions that make driving difficult such as rain or snow.



Weather Conditions and Crashes



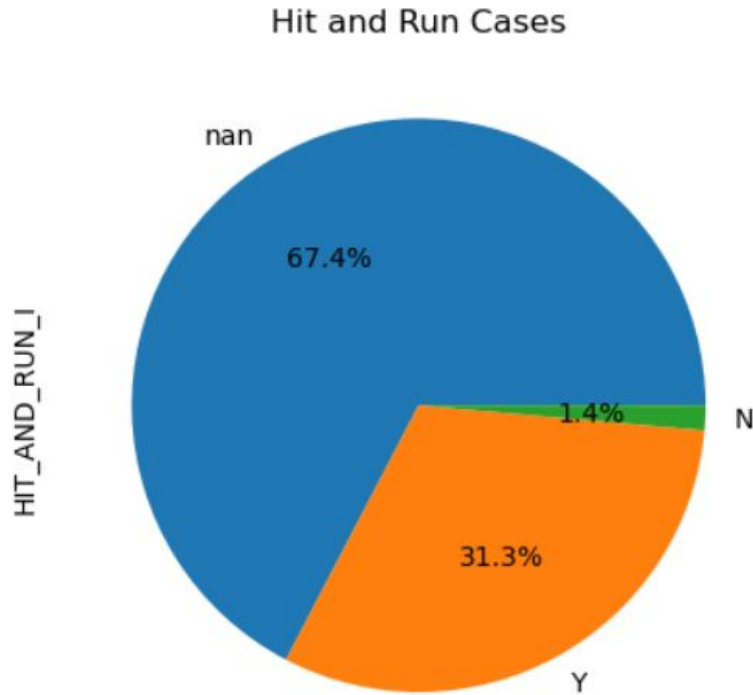
- Majority of the crashes occur during clear weather.
- Likely due to a larger number of people driving in clear weather conditions relative to all other conditions.
- In order of highest to lowest occurrence: rain, unknown, snow, cloudy/overcast, other, and freezing rain/drizzle.
- Rain and snow ranked #2 and #4 respectively.

Hypothesis #4 – Hit and Run Cases

- Hypothesis: Far less of the crashes fall under the category of a hit and run case.
- If individual is injured or killed, penalties include fines and jail time.

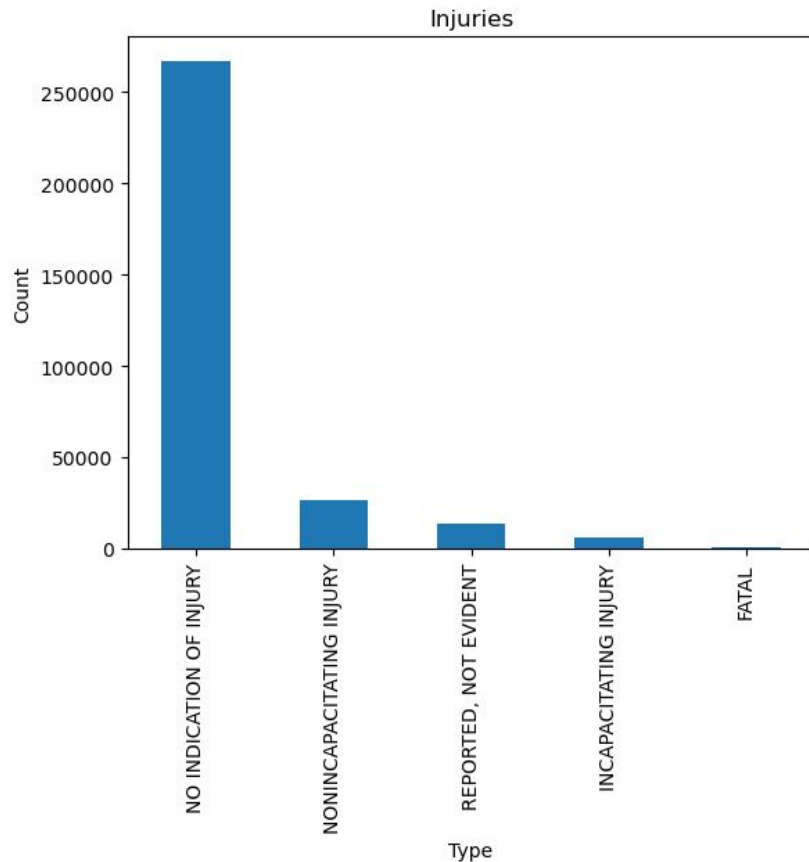


Hit and Run Cases



- NaN: Not a Number
- Y: Yes
- N: No
- Majority are “Not a Number” at 67.4%.
- 31.3% of the crashes are hit and run cases while 1.4% are not.



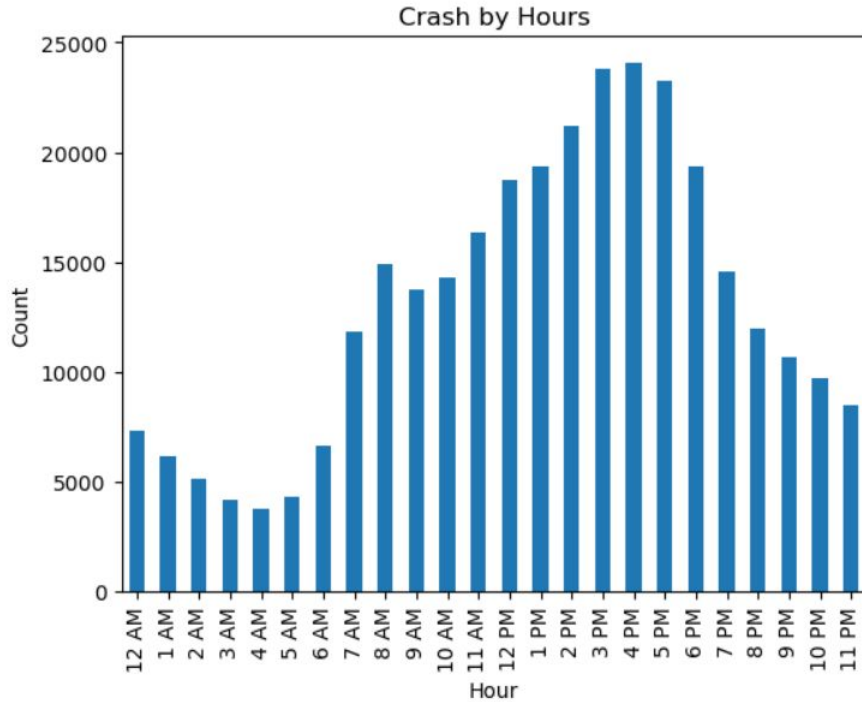


Types of Injuries

- Most common is “no indication of injury”.
- Least common are fatal injuries.
- In order from most common to least common: no indication of injury, non-incapacitating injury, reported/not evident, incapacitating injury, and fatal.



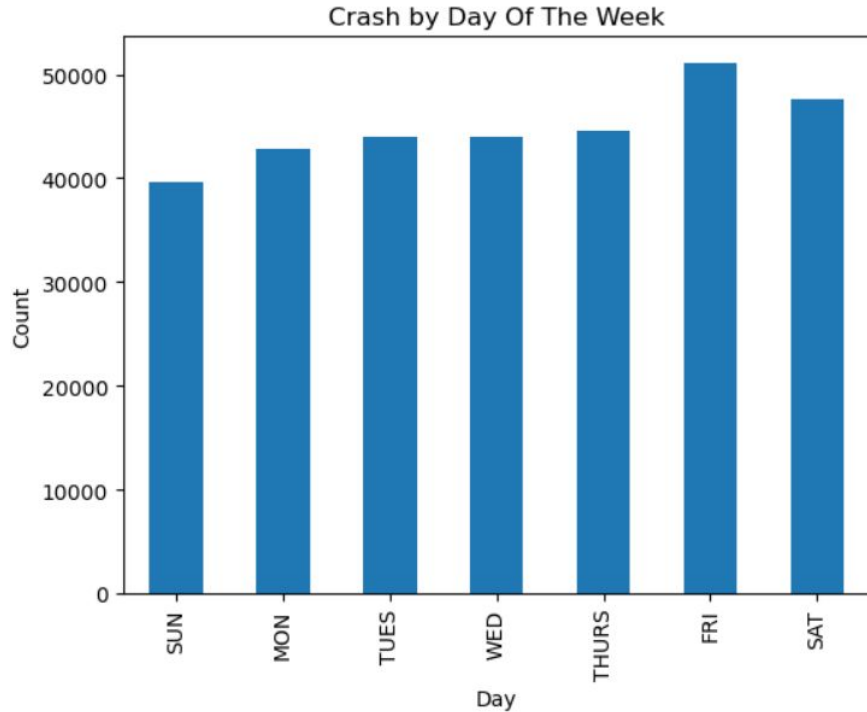
Number of Crashes by Hour



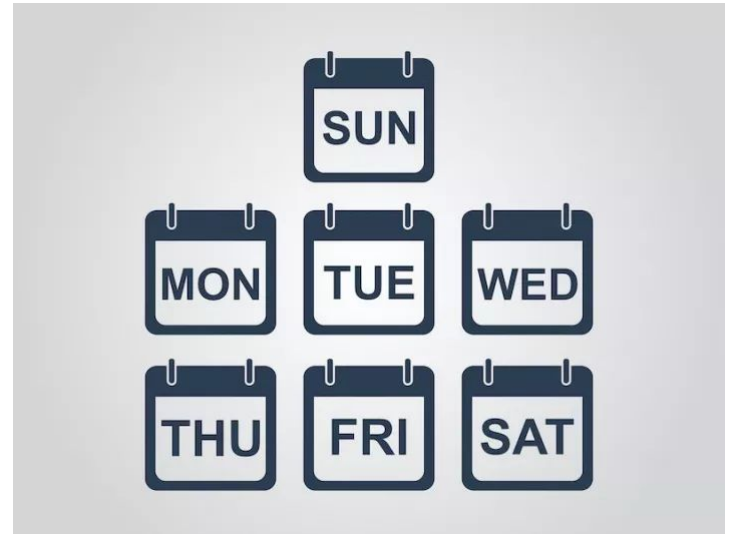
- The greatest number of crashes occur at 4 PM while the least number of crashes occur at 4 AM.
- Likely due to the number of people driving at each hour, as there are less people driving at 4 AM as opposed to 4 PM.



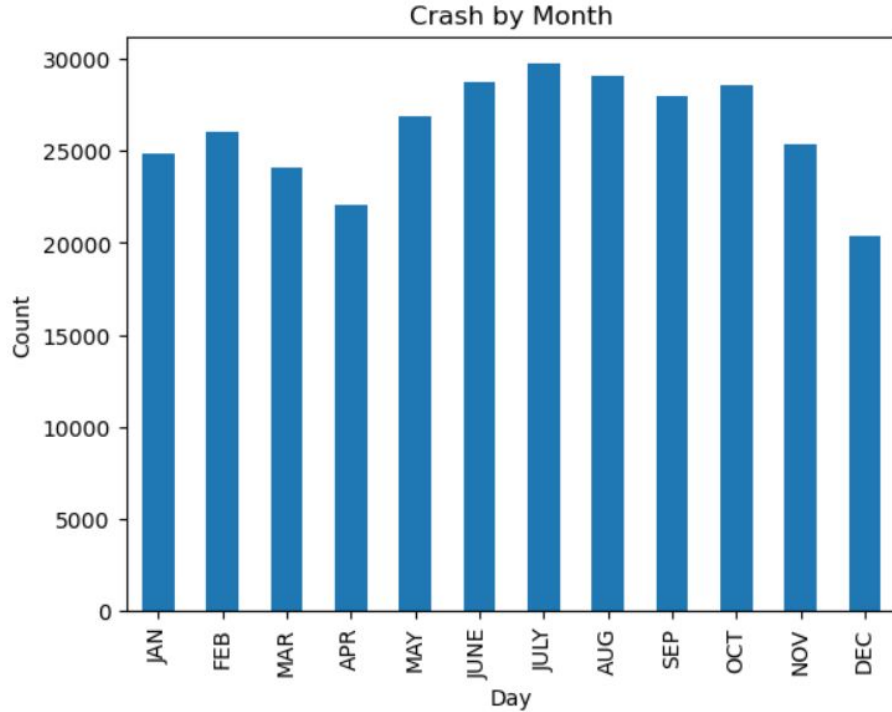
Number of Crashes by Day of the Week



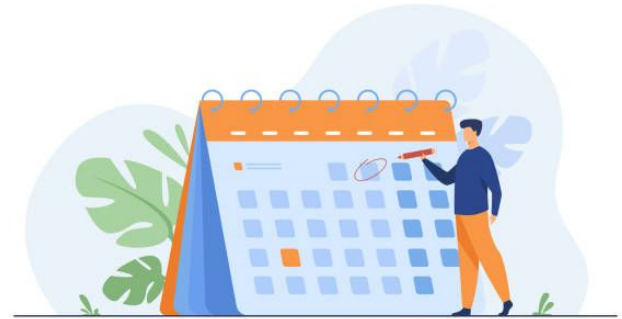
- The greatest number of crashes occur on Friday and the least number of crashes occur on Sunday.



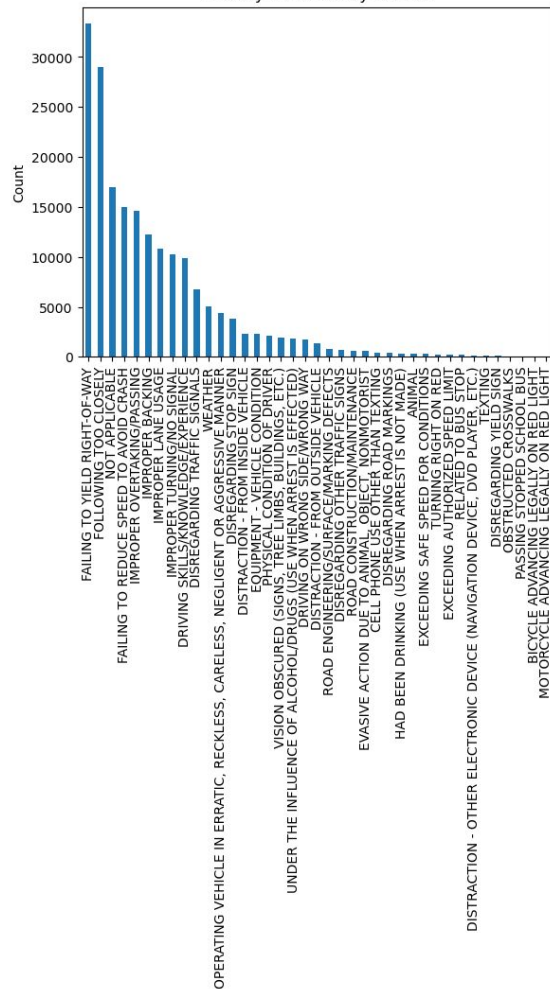
Number of Crashes by Month



- The greatest number of crashes occur during the month of July while the least number of crashes occur during the month of December.



Primary Contributory Causes

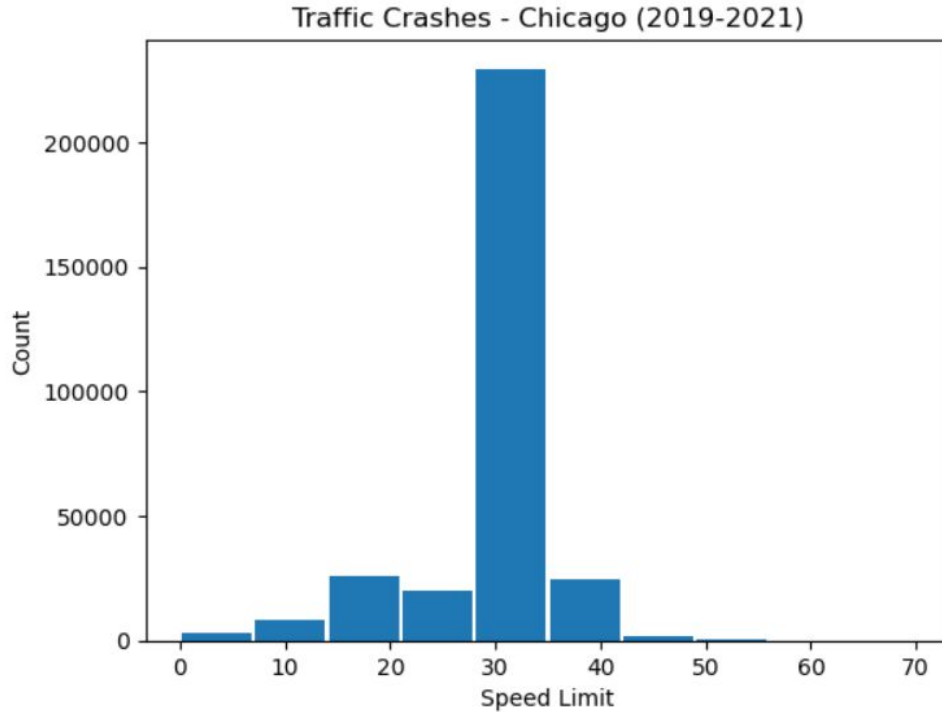


Primary Contributory Causes

- The greatest cause of crashes is failing to yield right-of-way.
- The second greatest cause is following too closely.
- The third greatest cause after “not applicable” is failing to reduce speed to avoid crash.



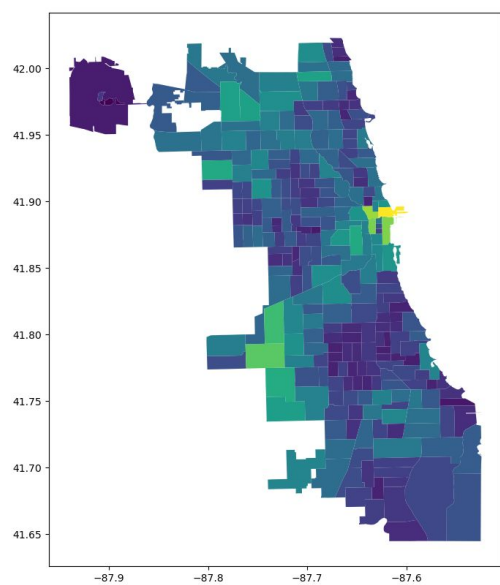
Speed Limit of Traffic Crashes



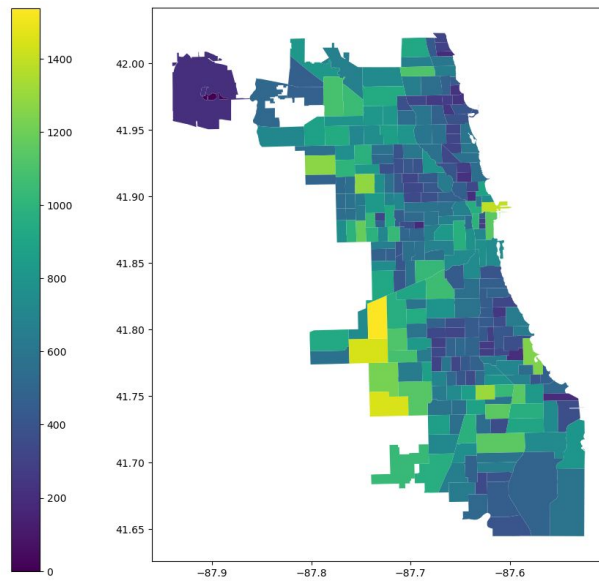
- The greatest number of crashes occur when driving at the speed limit of 30.



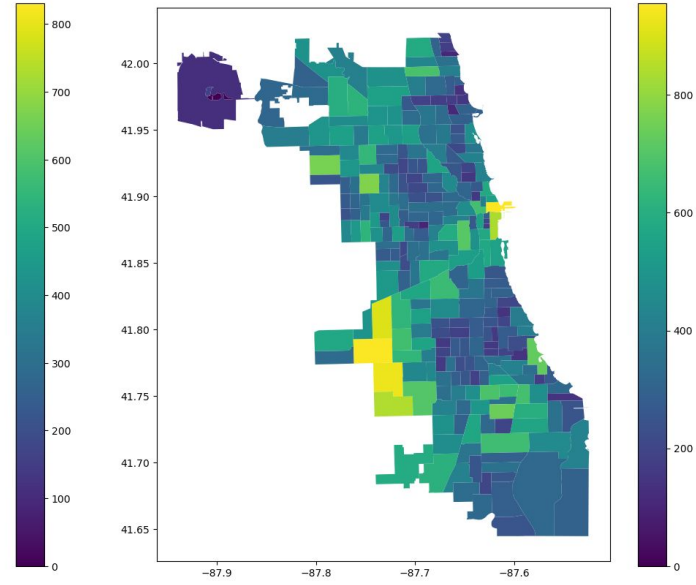
2019 VS. 2020 VS. 2021



2019

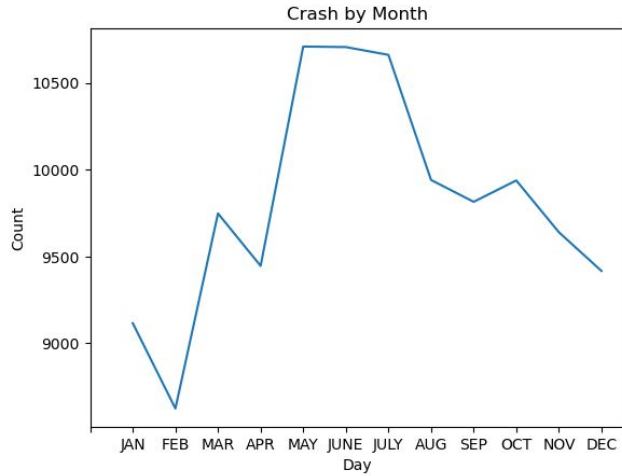


2020

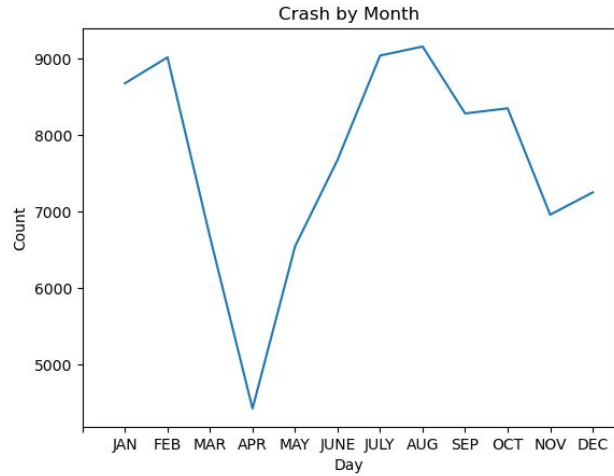


2021

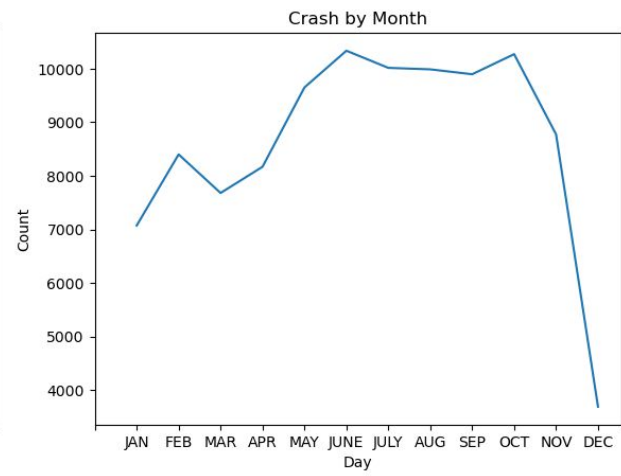
2019 VS. 2020 VS. 2021



2019

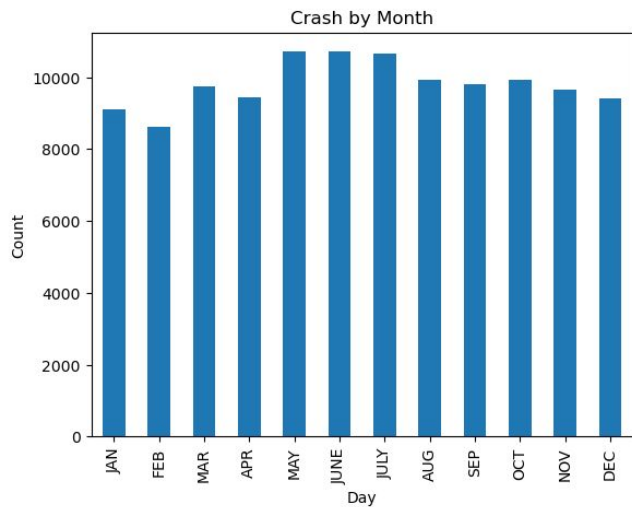


2020

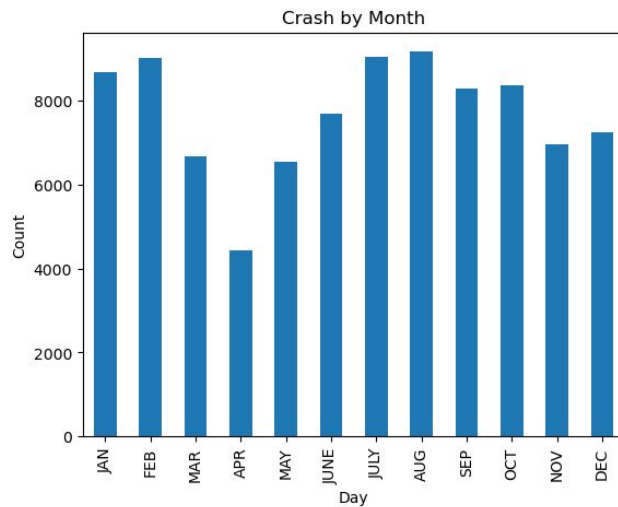


2021

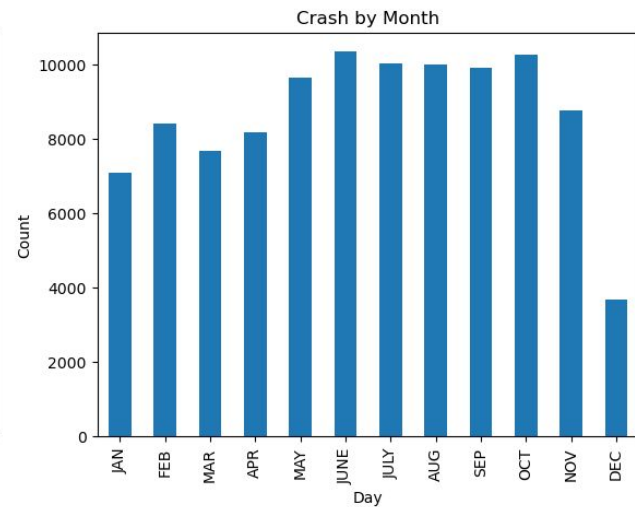
2019 VS. 2020 VS. 2019



2019



2020



2021

**Thank
You!**
