# Analysis of Chicago Accidents Primary Causative Factors

By: Andres Ramirez
Flatiron School - Full time Data Science Program

# Introduction

- The City of Chicago is hoping to identify patterns and trends in their accident data in order to implement programs that will allow for safer roadways

- Using predictive models with the data provided will help analyze the causes of these accidents and help minimize their occurance.

# Obtaining and Cleaning the Data

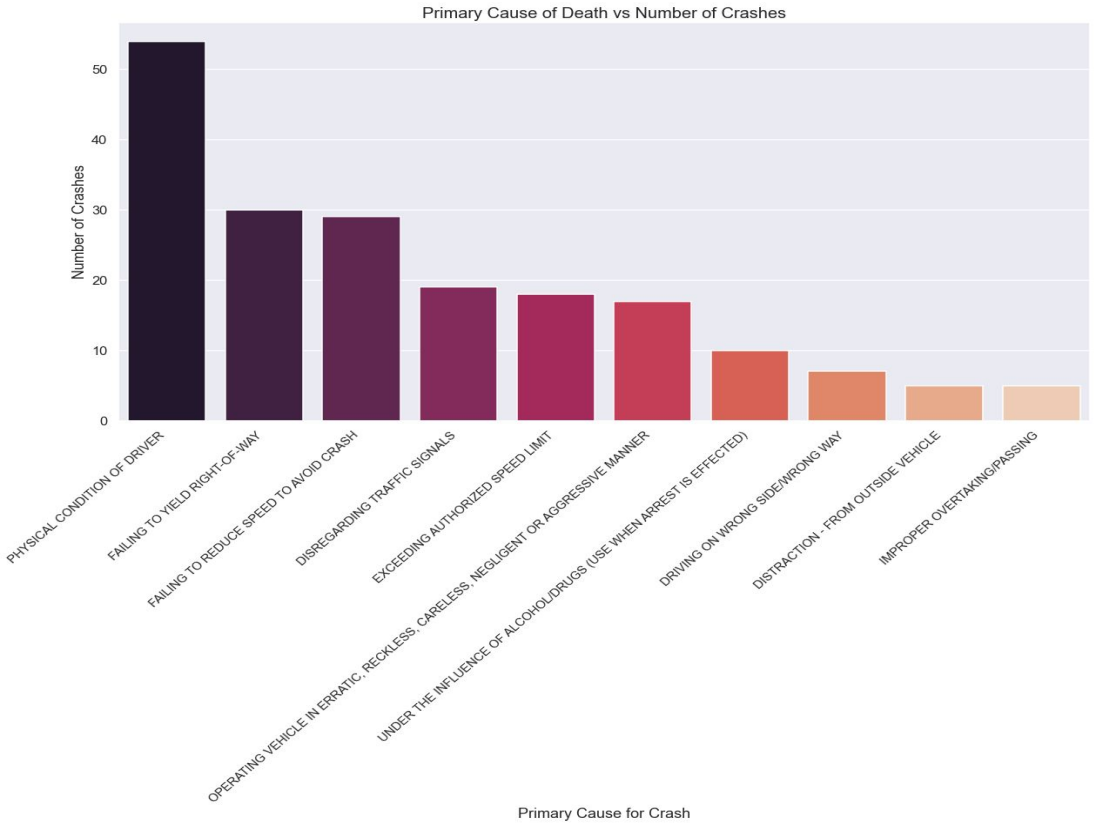
The data used in this project was obtained through the Traffic Crashes Dataset, which is available from the Chicago Data Portal.

- Only crashes with definitive causes was used
- Crash data ranged from 2015 to 2020
- Model used over 277,000 crashes

# Data Exploration

Primary analysis determined that the top three contributing factors to fatalities in accidents were:

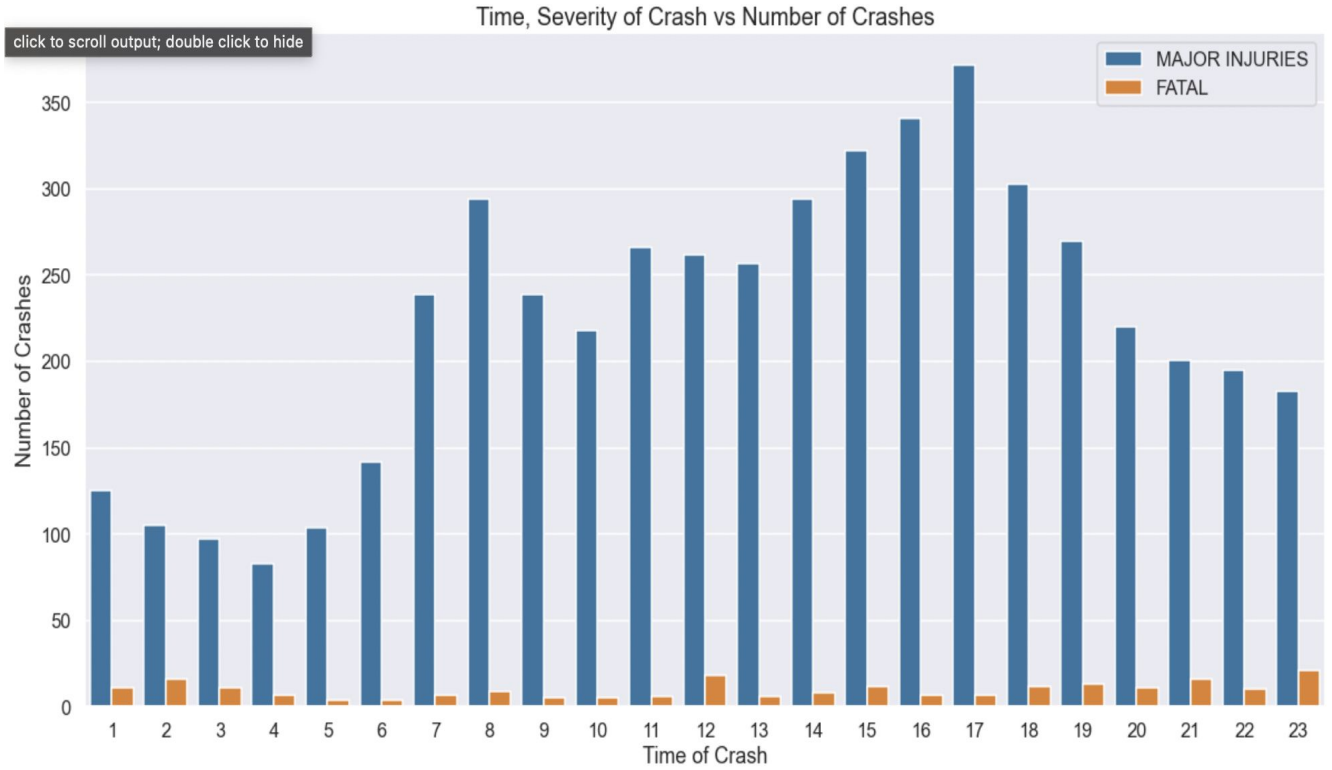
- Physical condition
- Failing to yield to right of way
- Failing to reduce speed to avoid accident



# Data Exploration

Time had a great influence on severity of crash injuries namely:

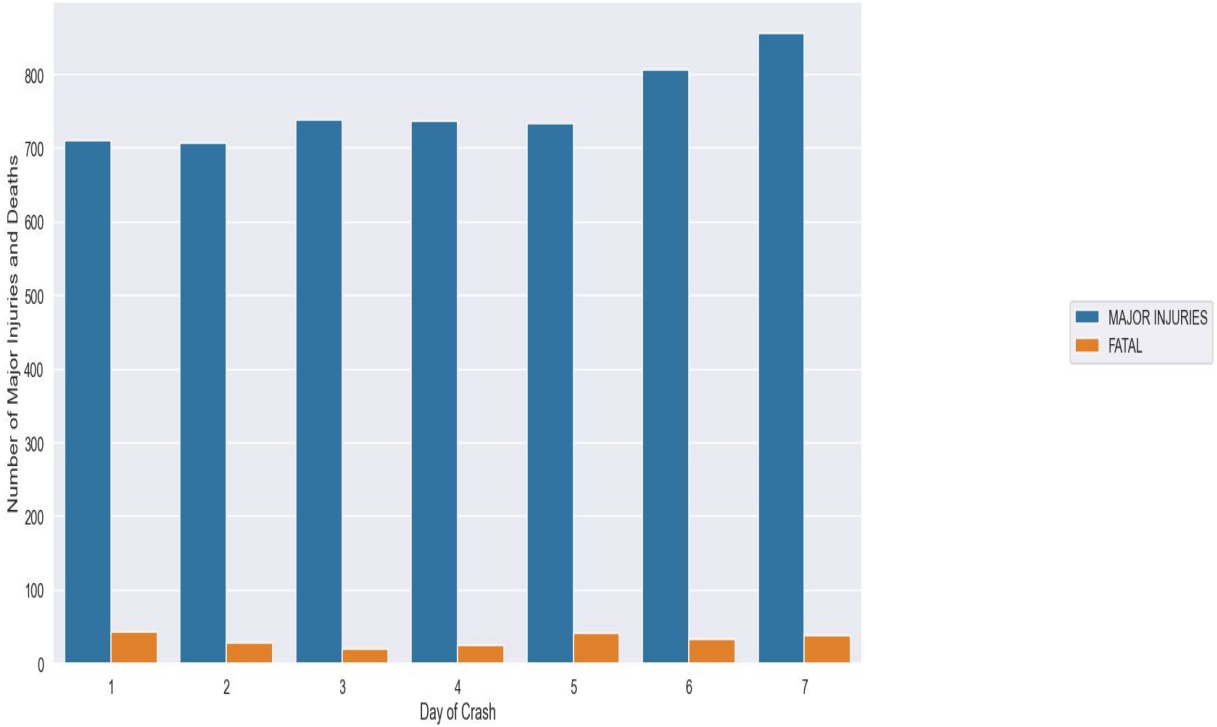
- Highest Fatality
  - 11 PM to 2 AM
- Highest Major Injuries
  - 3PM to 5PM



# Data Exploration

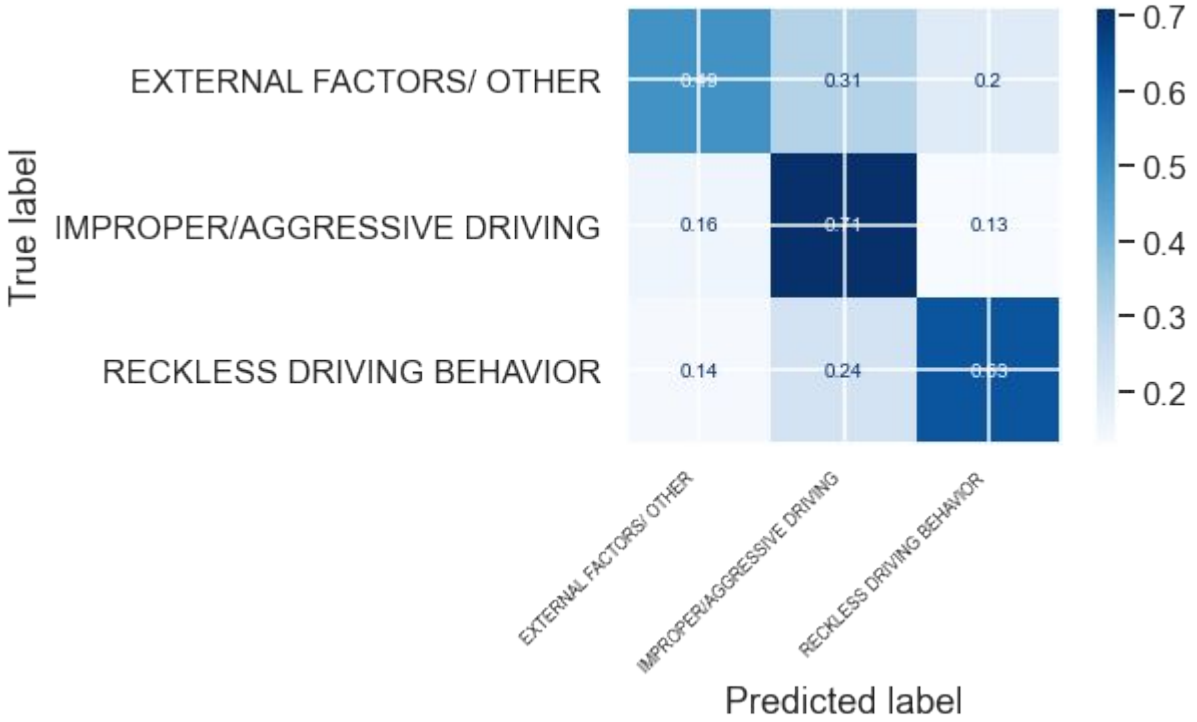
Day also had a great influence on severity of crash injuries namely:

- Highest Fatality
  - Friday
- Highest Major Injuries
  - Sunday



# Data Modeling

- Data was classified based on the following driving behaviors:
  - Improper/Aggressive Driving
  - Reckless Driving Behavior
  - External Factors and others



# Recommendations

From the information derived from classification and exploring trends supported by modeling, we believe that the City of Chicago should implement factors that will help reduce the amount of reckless driving behavior seen These include:

- Adding sobriety checkpoints on the weekends when there seems to be more fatal accidents than any other day of the week.
- Using speed markers that make drivers aware of their speed
- Red light cameras at busy intersections could reduce the amount of fatal accidents related to failing to yield to the right-of-way and failure to reduce speed to avoid an accident.

# Future Work

- Future work that will be useful is to continue to test our models with both historical data (data before 2015) and current crash incident data.

- The City of Chicago could also coordinate with other large cities such as Los Angeles and New York City to see if there are factors that Chicago may be missing that can help improve driver's safety.

- Look at other cities with low fatality resulting accidents and see if any preventive measure they have in place can be scaled to a city such as Chicago and obtain a reduction of accidents.

# Thank You!

Andres Ramirez
Email: aj.ramirez23@gmail.com
Github: https://github.com/6cats1dog