

# Chicago Car Crashes

## Injury Classification

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## BUSINESS PROBLEM

- Analyze data from car crashes in Chicago
- Determine best predictors for severity of injury/fatality
- Make recommendations to the Chicago Department of Transportation (CDOT) to improve outcomes



# DATA

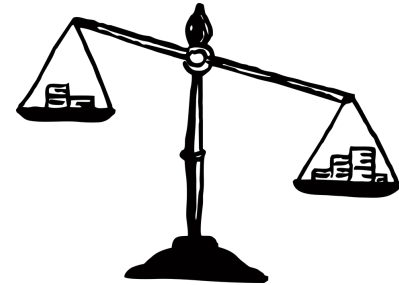
- Available from Chicago Data Portal:
  - ▷ Traffic Crashes - People
  - ▷ Traffic Crashes - Crashes
- Data from 2013 to present
- Over 800,000 records



**CHICAGO  
DATA PORTAL**

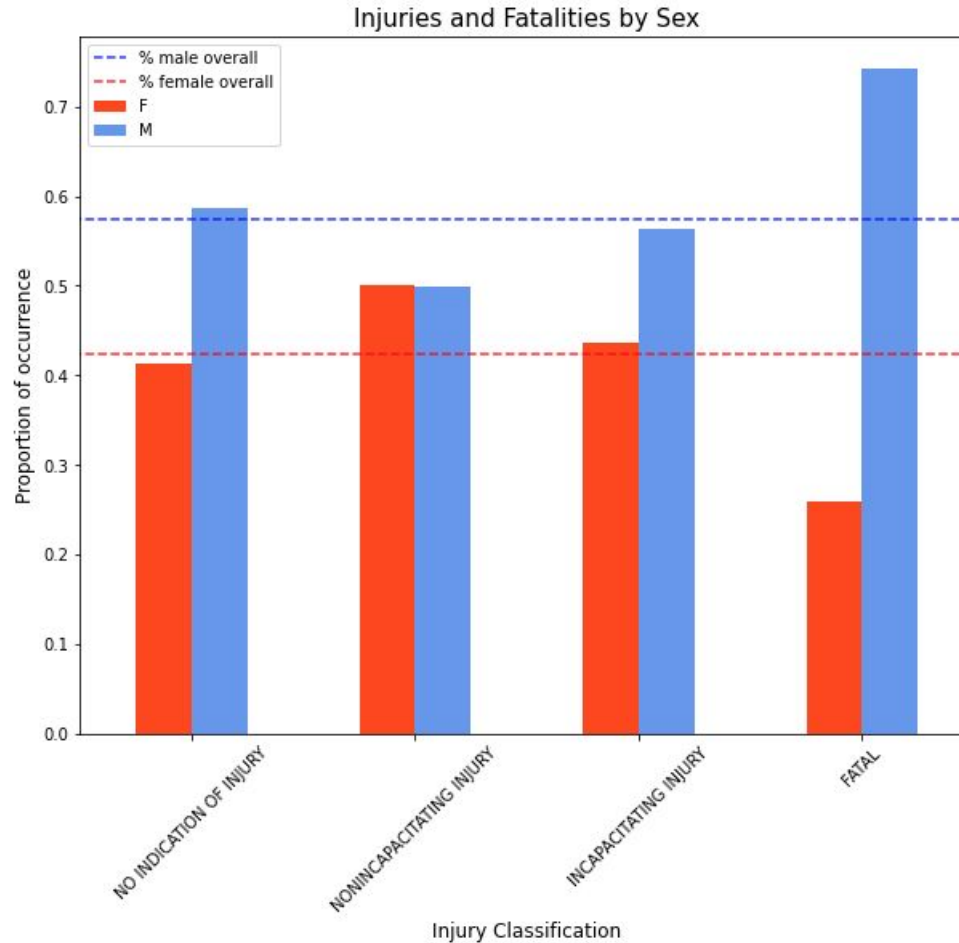
## Predicted Class

- Building models to predict level of injury

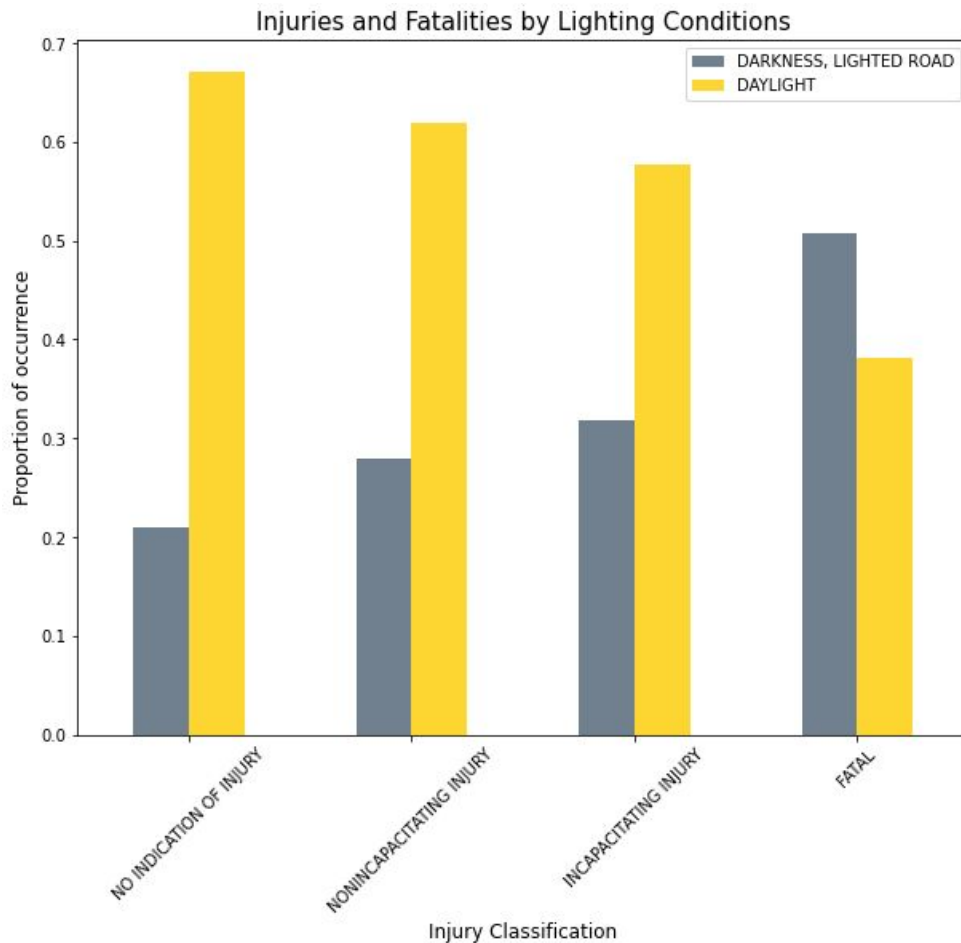


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SEVERITY OF INJURY	PERCENT OF DATA
No Injury	91.73%
Non Incapacitating Injury	7.31%
Incapacitating Injury	.91%
Fatal	.05%
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# Men die in crashes disproportionately



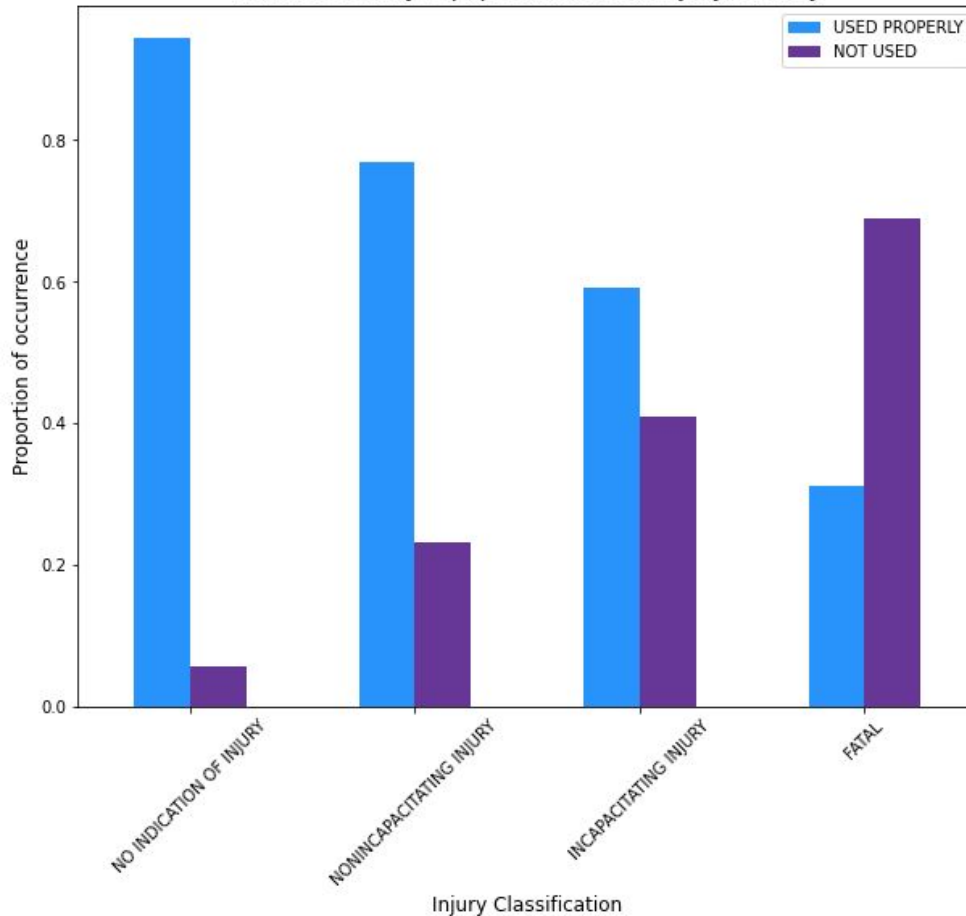
# Fatalities increase at night, but only on lighted roads



- Fatalities are consistently low across all other times of day and lighting conditions

# Safety equipment use reduces injuries and fatalities

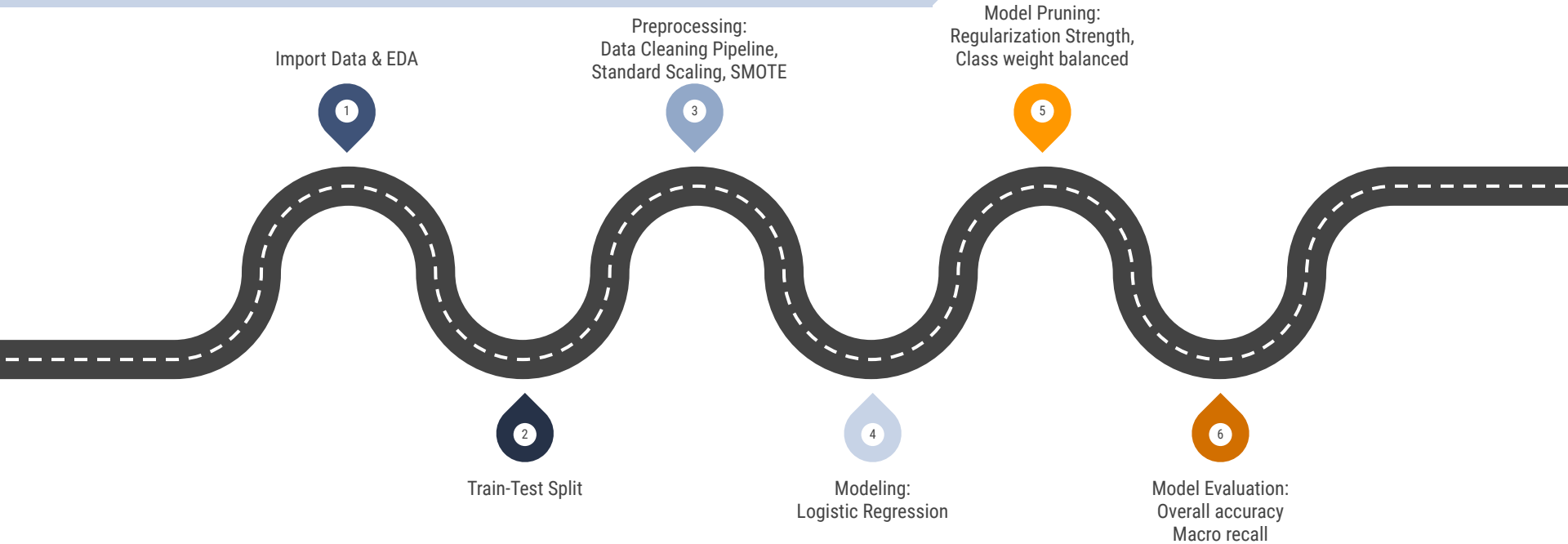
Effect of Safety Equipment Use on Injury/Fatality



- Includes seatbelts, motorcycle helmets, and child car seats



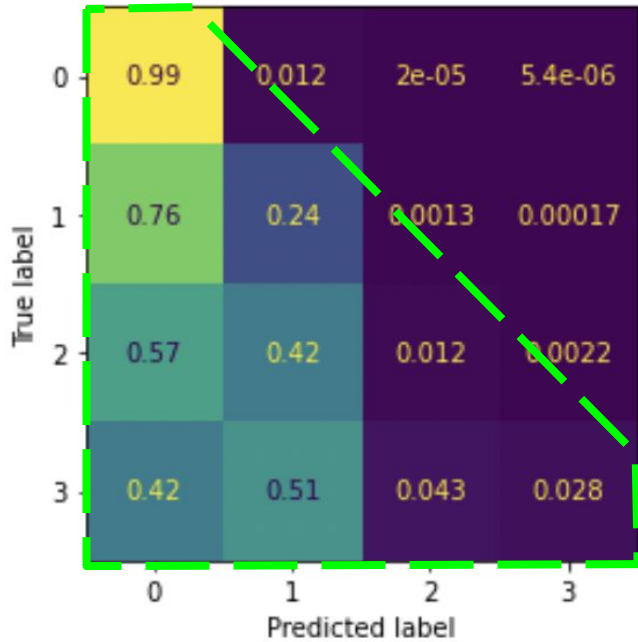
# MODELING



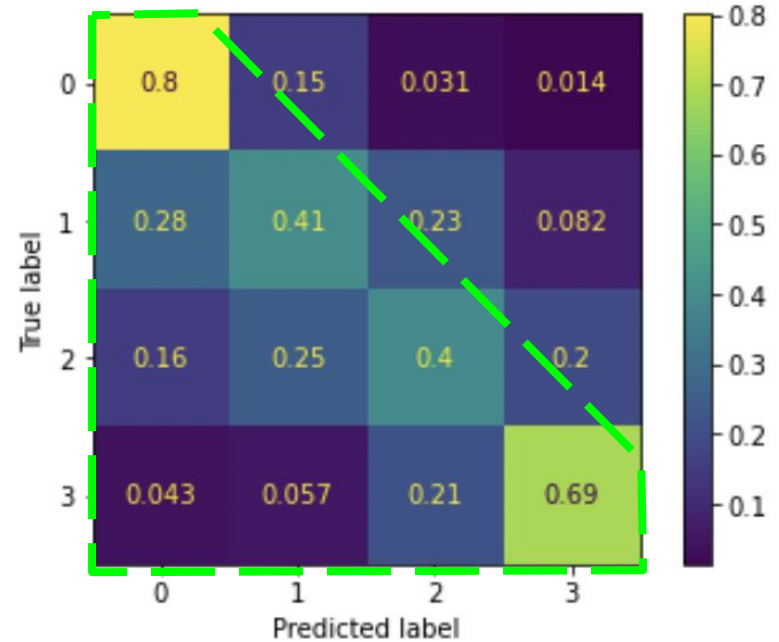




# MODEL PERFORMANCE



**Macro Recall: 31%**



**Macro Recall: 57%**

## RECOMMENDATIONS

In order to prevent serious injuries and fatalities, Chicago DOT should:

1. Increase public awareness of the importance of using safety equipment
2. Investigate nighttime crashes despite good lighting
3. Investigate sex differences in injury/fatality rate

# FUTURE EXPANSIONS

1. Further exploration of crashes involving bicycles.
2. Include information about vehicles to explore how car make and model impact severity of injury.



# THANK YOU!

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