



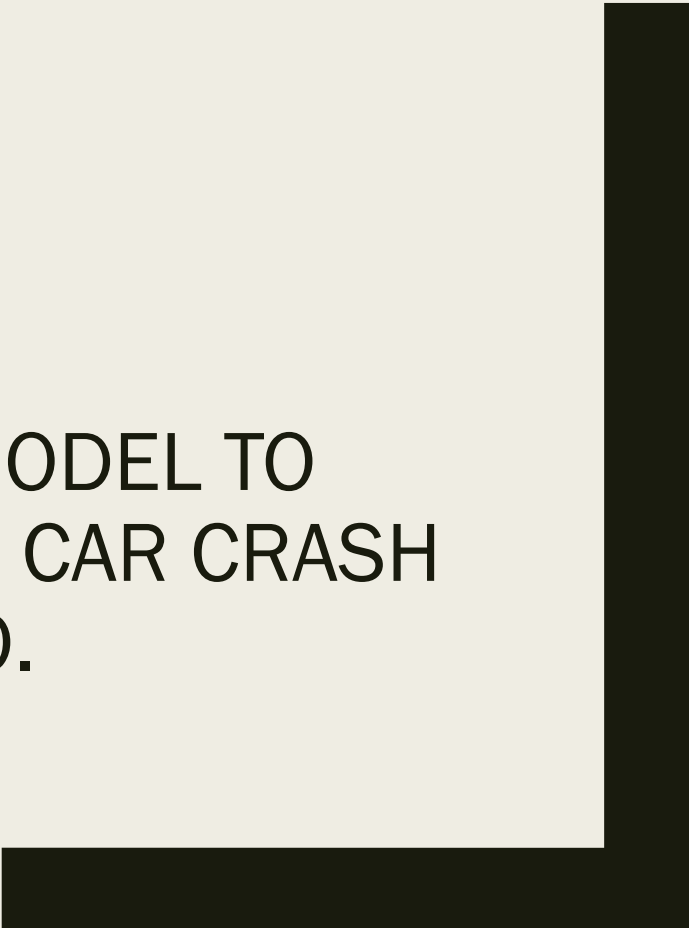
# PRIMARY CAUSES OF CAR CRASH IN CHICAGO

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# Summary

BUILDING A CLASSIFICATION MODEL TO  
PREDICT THE MAIN CAUSE OF THE CAR CRASH  
INCIDENTS IN CHICAGO.



# Outline



Business Problem



Data Information



Exploration Analysis of Data



Modeling



Conclusion

# Business Problem

- Vehicle Safety Board is interested in reducing traffic accidents
- The City of Chicago is interested in becoming aware of any interesting patterns in traffic accidents.
- Being able to predict the main cause for an incident might help the city to effectively act against it.

# Data

## Data Obtaining

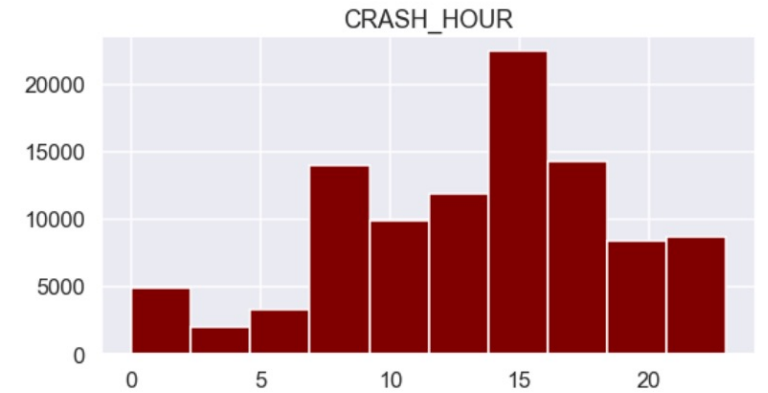
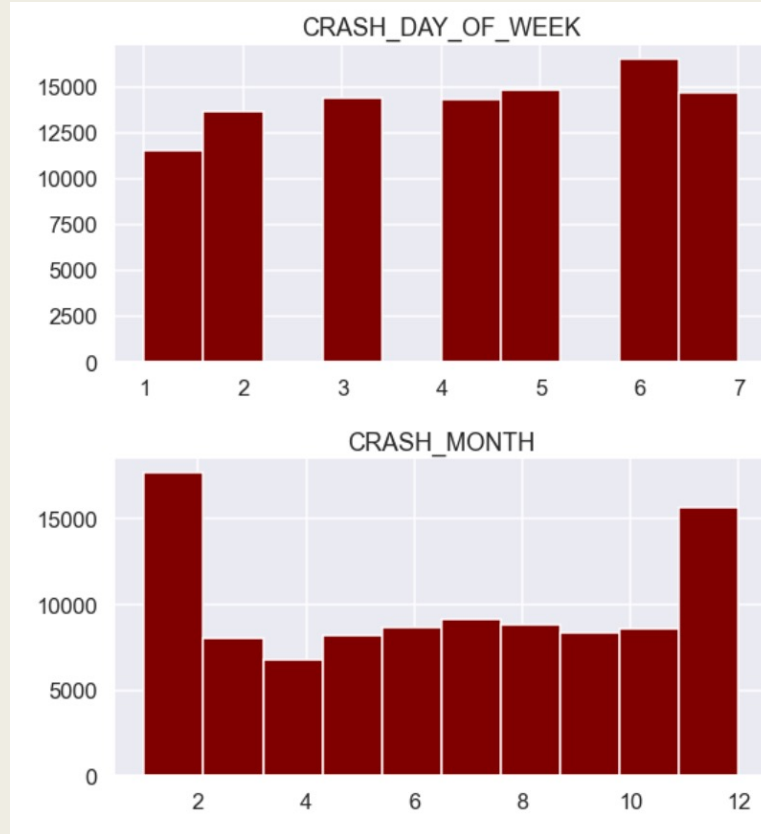
- The data comes from the Chicago Data Portal, an open data source maintained by the city of Chicago.
- It is linked with other two datasets: People and Cars involved in accident.

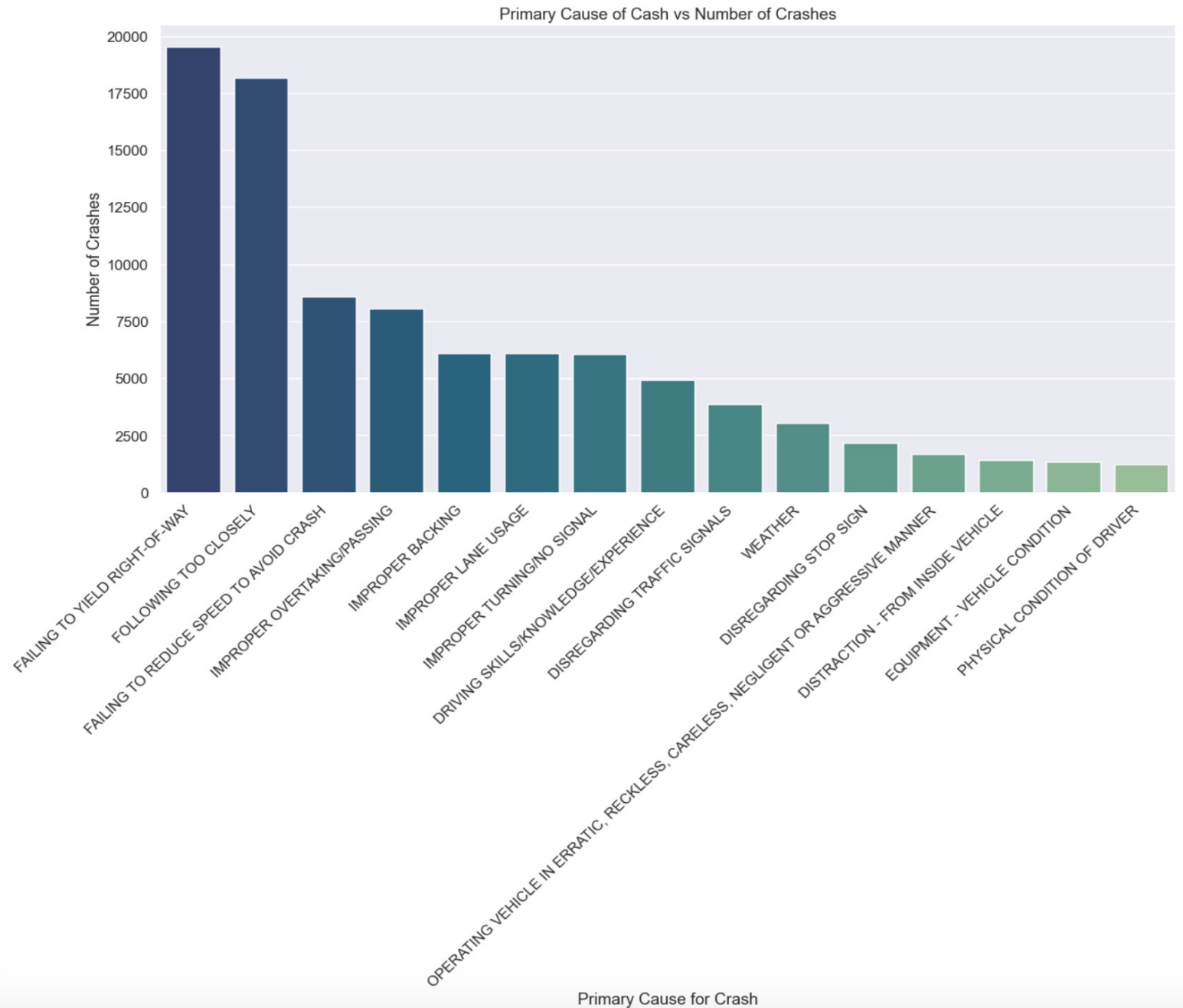
## Data Cleaning

- Observations from January 2019 to December 2020
- Binning the Categories of the primary cause of incident
- Removing unrelated information

# EXPLORATION

- Majority of crashes take place during January and December
- The peak hours for the crashes with injury are from 1 PM to 5 PM.



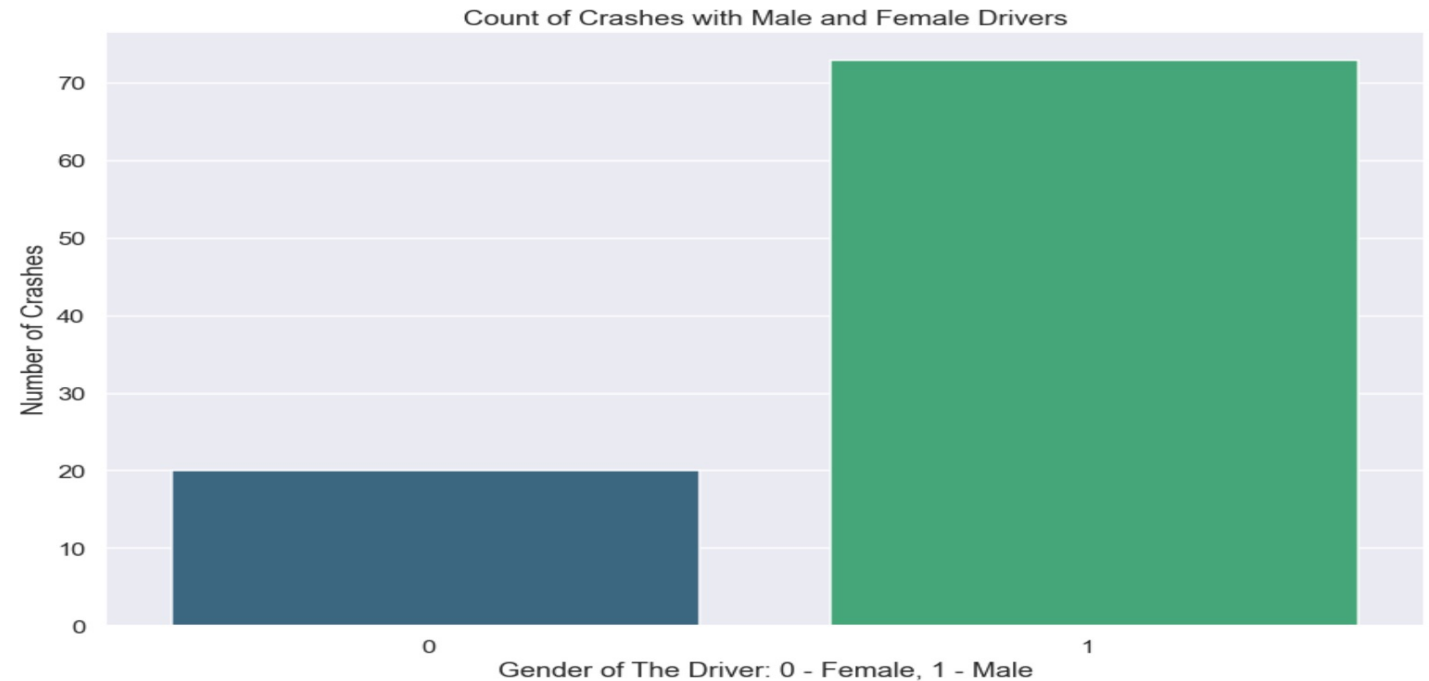
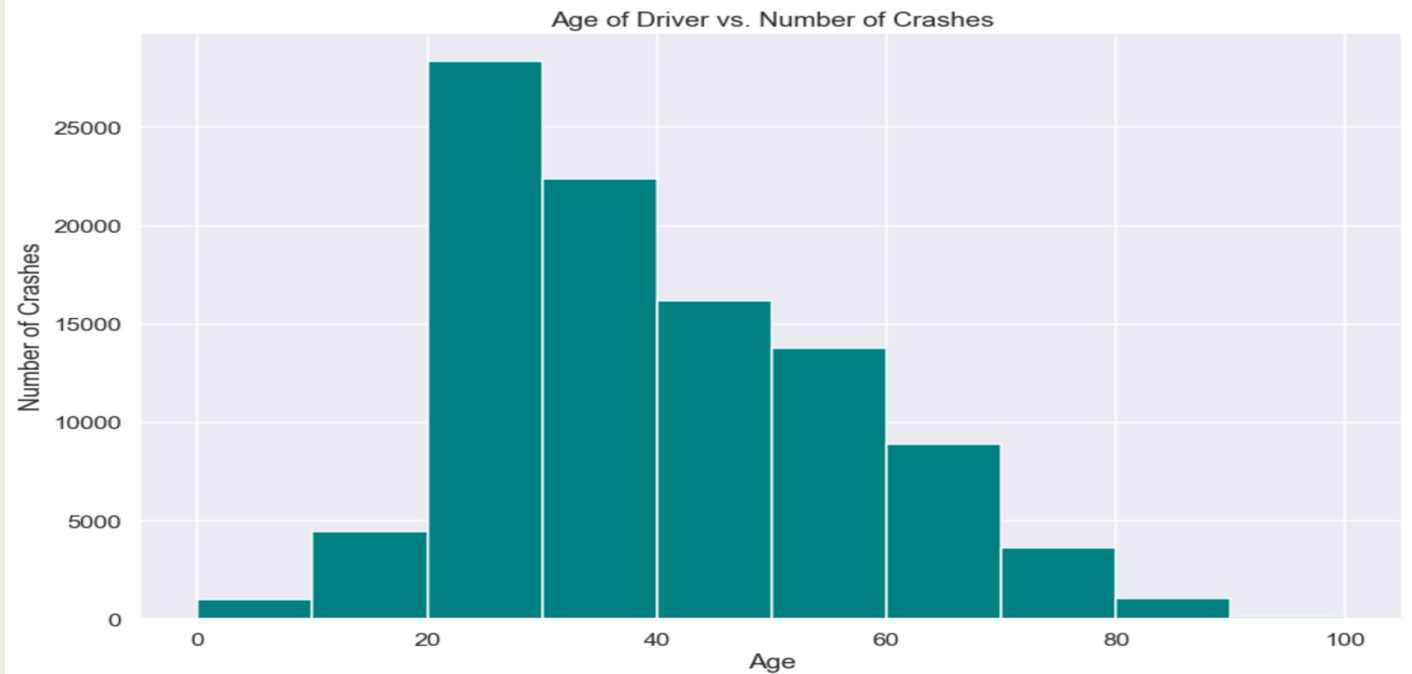


## Exploration (cont.)

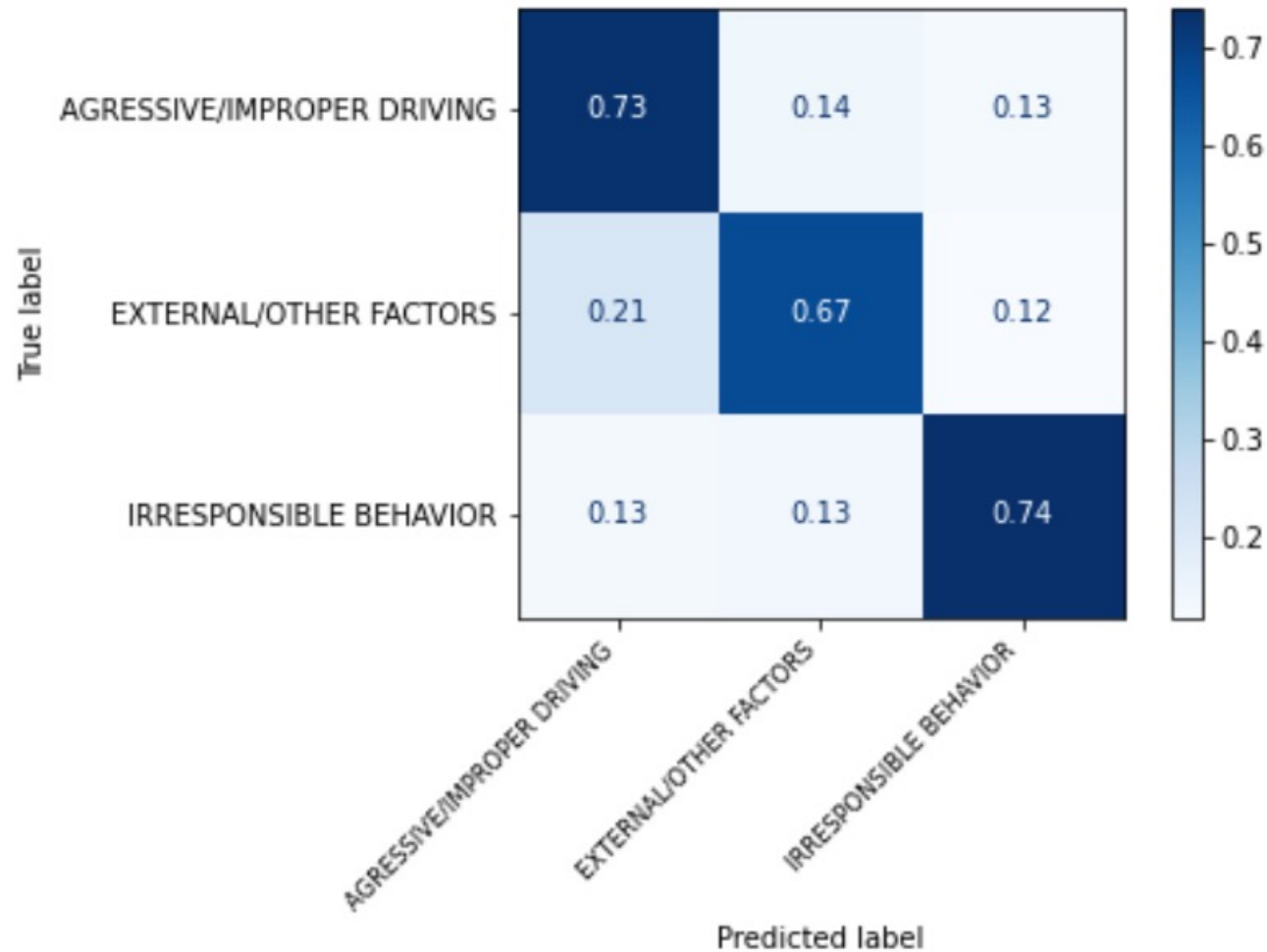
- The most frequent causes of the traffic incidents are Failing to Yield and Following too closely
- Majority of accidents happened from rear end or sideswiped.

# Exploration (cont.)

- Most of the drivers involved in incident are aged in range of 20 – 35.
- Majority of drivers involved in crashes with fatal injury are males.







## Modeling

- Three categories of causes: **Aggressive/Improper Driving, Irresponsible Behavior, External/Other Factors**
- Best Performed Model – Logistic Regression. Had **Accuracy Score 0.74**.
- Predicts 73% true values for Aggressive/Improper Driving, 67% for External/Other Causes and 74% for Irresponsible Behavior.

# Conclusion

Promotion of less aggressive driving and driving at a lower speed

Promotion of drivers' safety, especially during traffic time and winter season

Assuring enough of driving experience of the young drivers



# THANK YOU!

GitHub Link:

[https://github.com/zyazyaG/Chicago\\_Car\\_Crash.git](https://github.com/zyazyaG/Chicago_Car_Crash.git)

