# Predicting the Severity of a Car Crash

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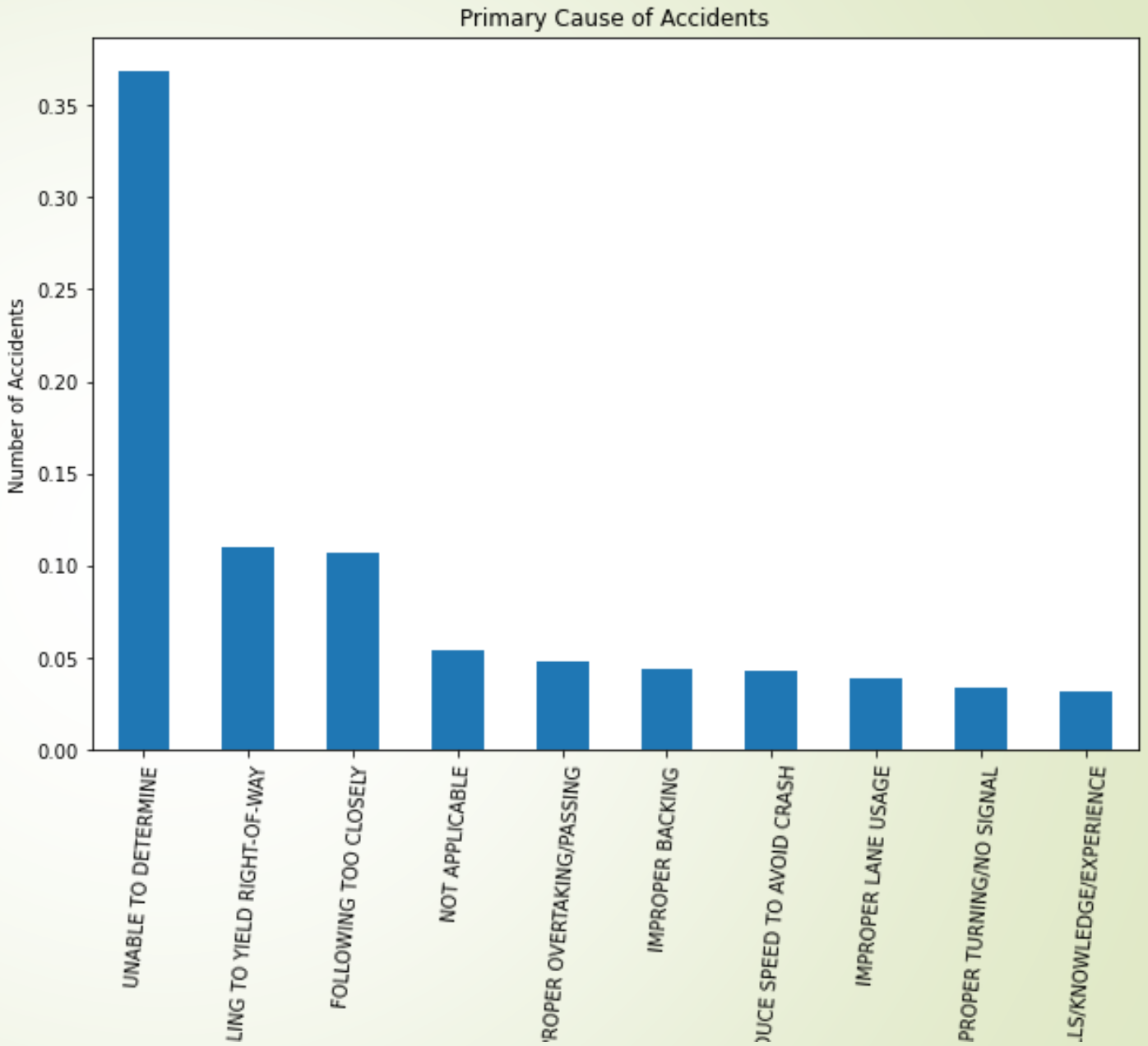
# Data Set

- The data acquired is from Chicago Police Department crash data set., link attached below
- https://data.cityofchicago.org/Transportation/Traffic-Crashes-Crashes/85ca-t3if
- This data set has more than 470,000 records of car crashes
- It has the details of the date, location, time, number of units and cause of accident
- It also provides road conditions, weather, traffic, work zone and the severity`

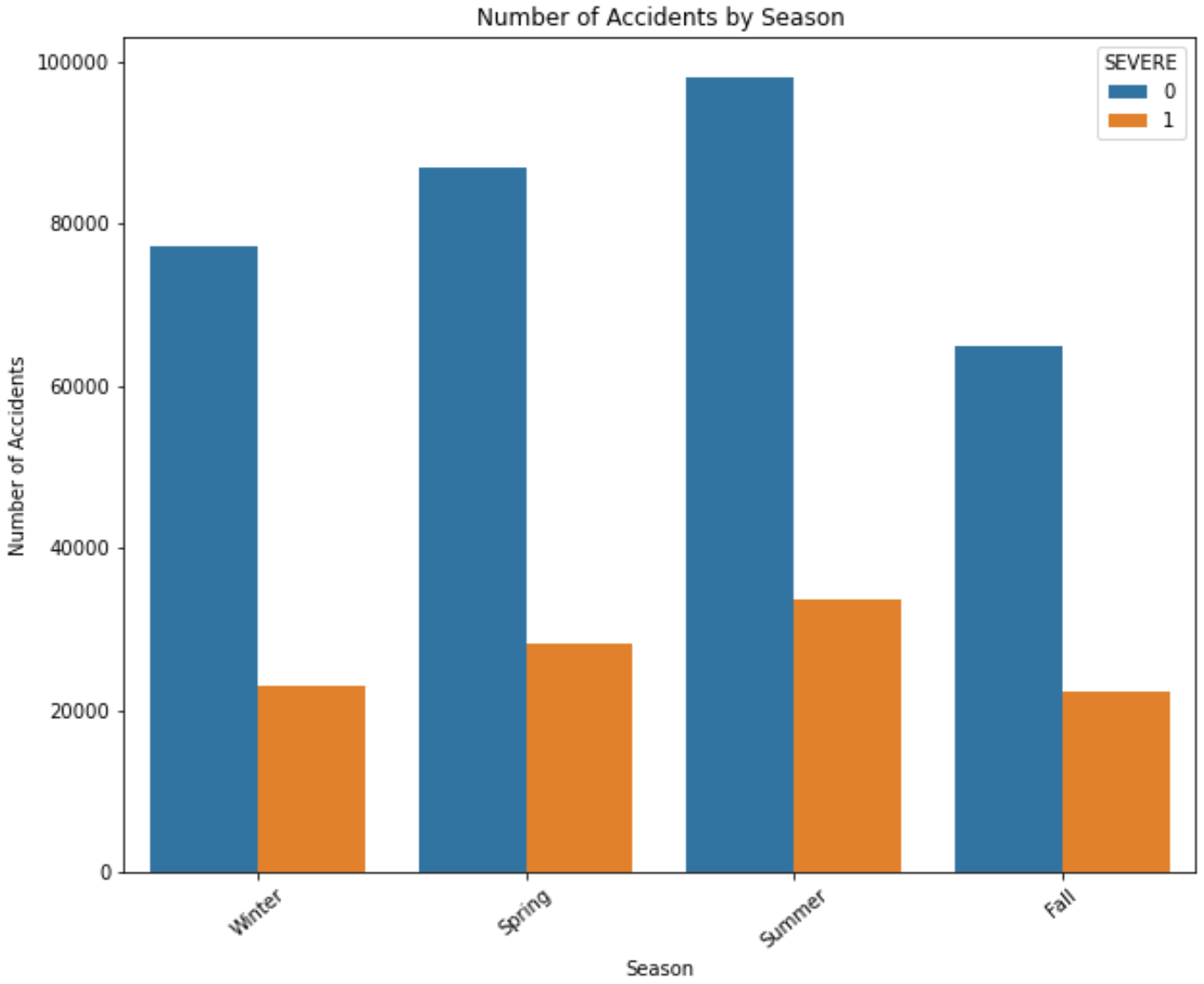
# Primary Cause of Accidents

The chart shows the top ten primary causes of car accidents



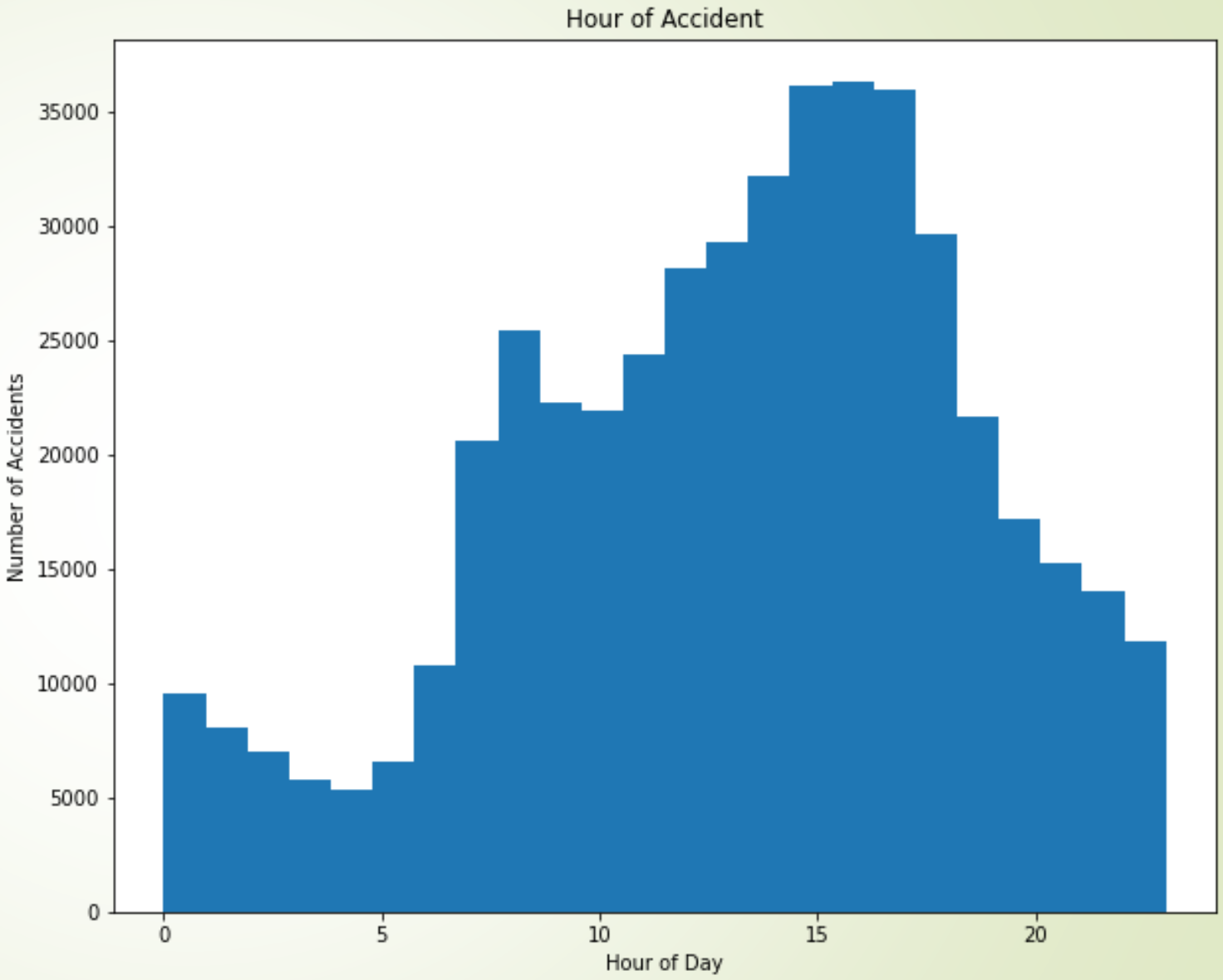
# Number of Accidents by Seasons

- The chart shows the number of accidents that occurred in each season
- The blue bar indicates the non severe car accidents
- The orange bar indicates the severe accidents



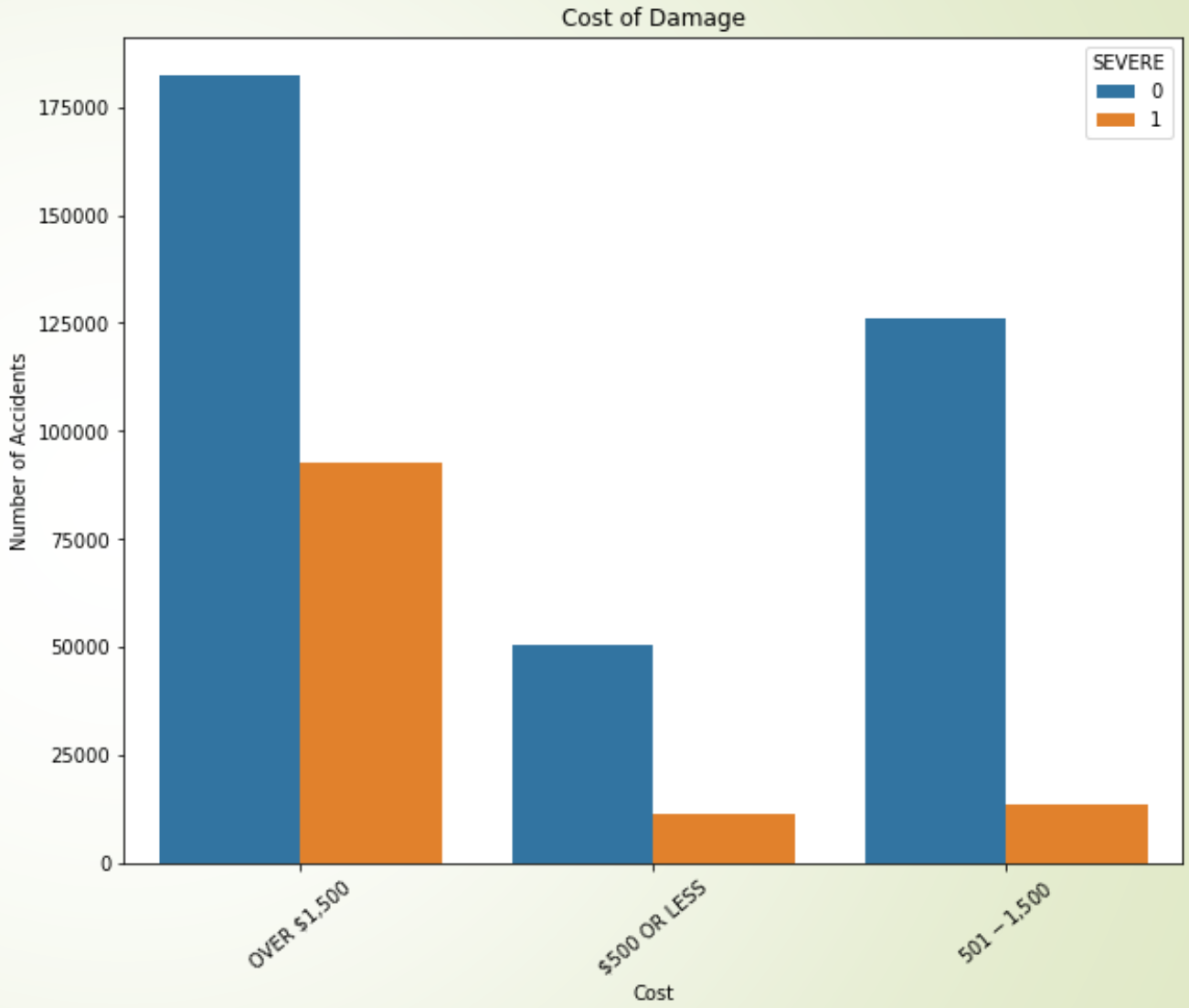
# Accidents per Hour

The most accidents occurred in morning and evening rush hours



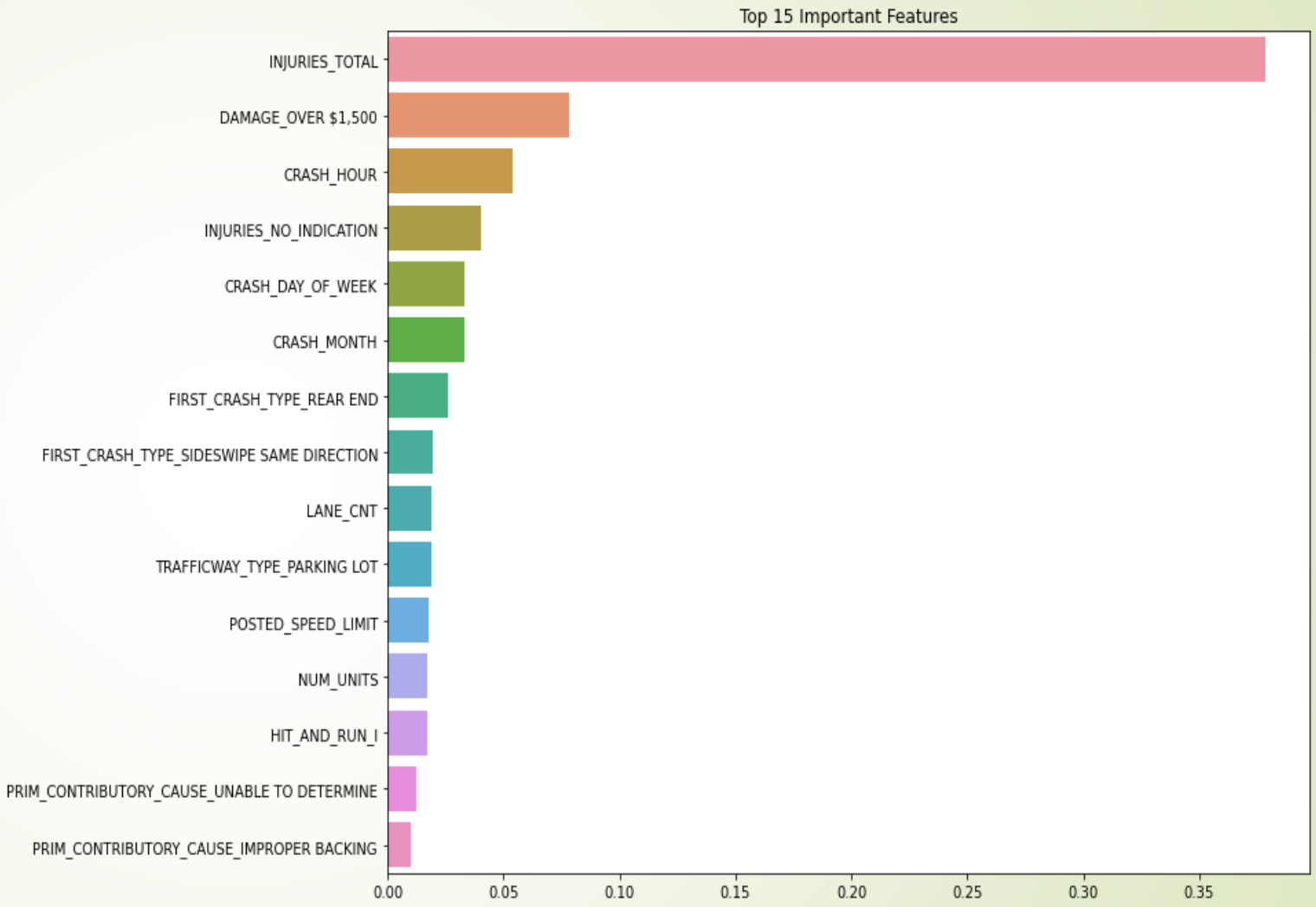
# Cost of Damage

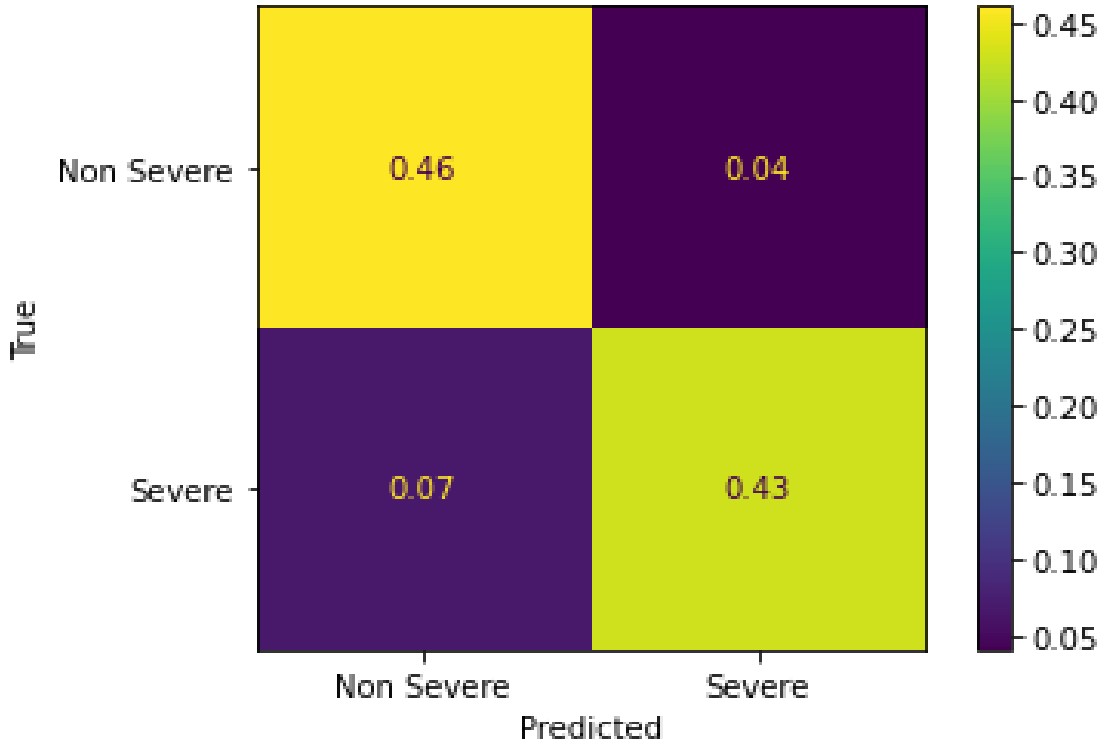
Most severe and non severe accidents damage cost is more than $1500



# Important Features

This chart shows the top 15 features which can predict the severity of a car crash






| Model | Accuracy |
|---|---|
| Logistic Regression | 0.89 |
| KNearest Neighbors | 0.86 |
| Decision Tree | 0.88 |
| Random Forest | 0.89 |

# Final Model

- Logistics regression model Accuracy -89%
- Confusion matrix of the Logistics Regression model.

# Conclusion

- Final models show that certain columns have more of an effect on the severity of a car accident than others.
- Accidents involving pedestrians are more likely to result in severe injury.
- Accidents where there is just a side swipe leads to non severe.

# Future Work

- Focus on crash types , which leads to severe injuires and damage.
- Binning data to find the location of crashes , through which can suggest to reduce a speed limit or adding a Traffic Signal and soon at that location.
- Collect and combine the Drivers dataset, and check on the condition of Drivers .

# Thank You

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