

# Factors in Car accident severity

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# Introduction/Business problem

- Road accidents constitute a major problem in our societies around the world, also a significant source of death, injuries, property damage and a major cause of traffic jam. As a result, traffic safety has increasingly become a top issue today. As we all know a car accident cannot be happened single headed, there are varies of factor such as weather, driver's conditions and ext will cause a car accident, and depend on different situation, there are different level of severity.

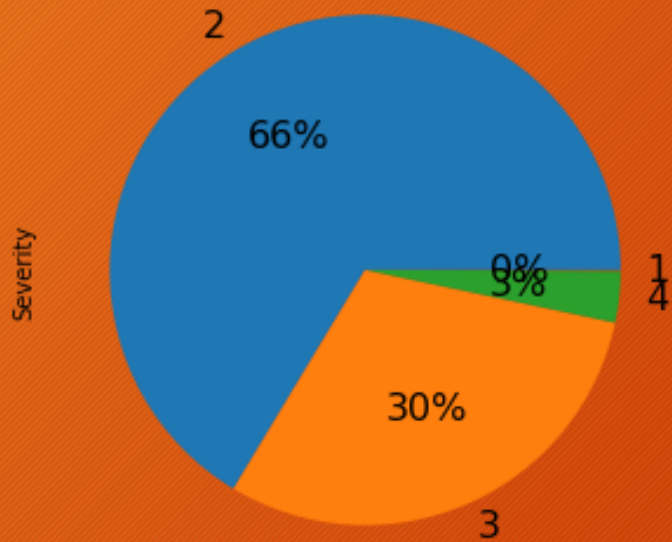
# Data

- The dataset I chose for this study was US-Accidents: A Countrywide Traffic Accident Dataset which I found on Kaggle. This csv file covers around 3.5 million accident records from 49 states of the US, and this file has been collected continuously starting from February 2016.
- This file has 49 different attributes for every single accident in record.
- For data cleaning, I printed out the missing value table, and clearly we can see that TMC, wind chill, precipitation, number, end lng and lat has a relatively large number of missing values.

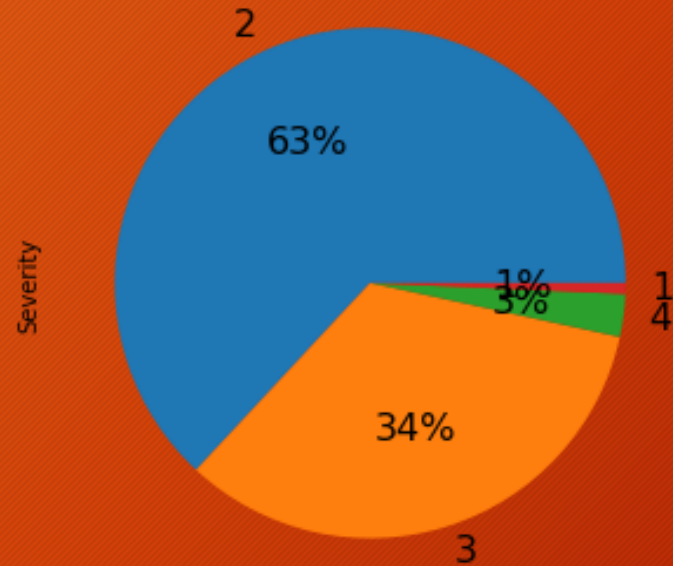


# Weather

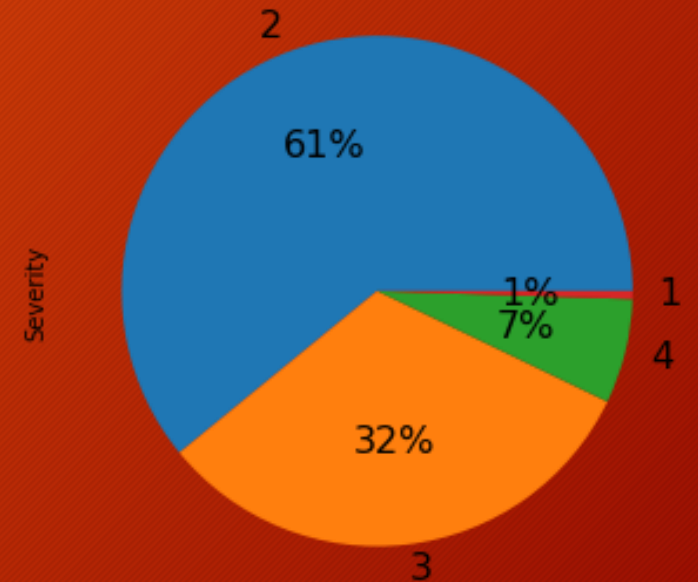
Accident Severity Under Clear



Accident Severity Under Rain



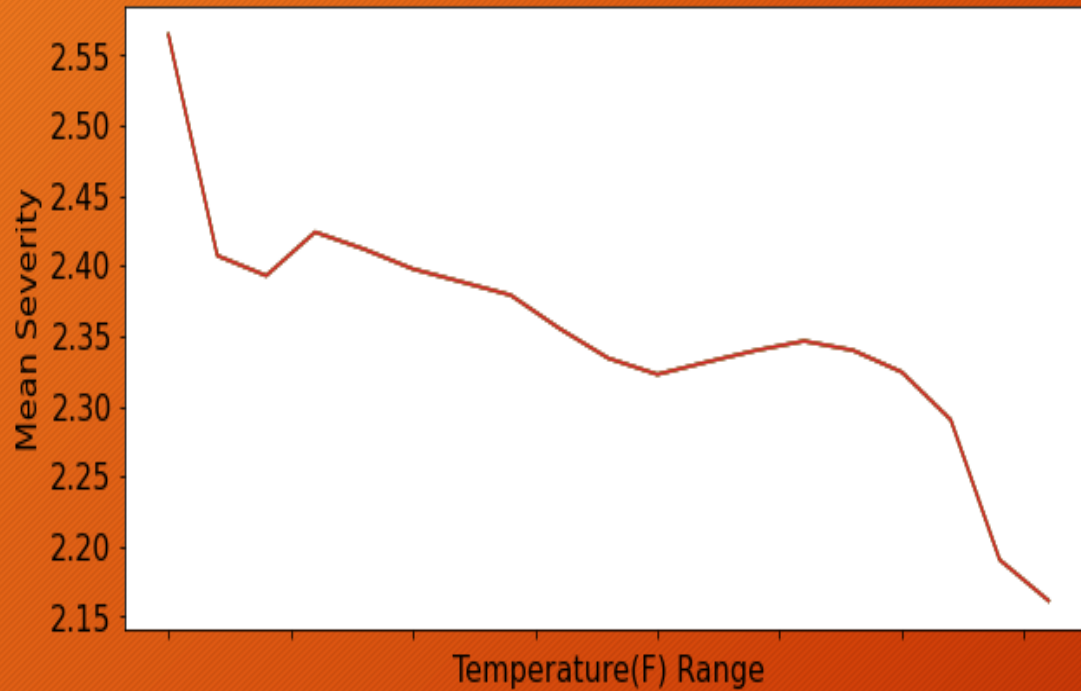
Accident Severity Under Snow



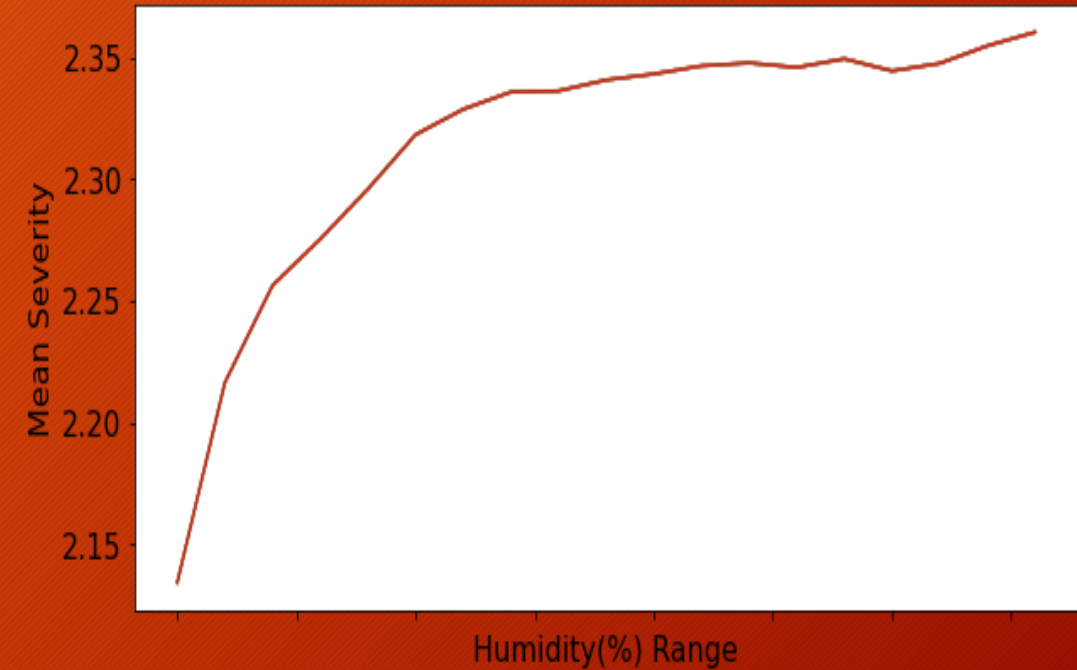
The most proportion of level 3 and 4 accidents, possibly because of the slippery road.

# Weather

Mean Severity as a Function of Temperature(F)



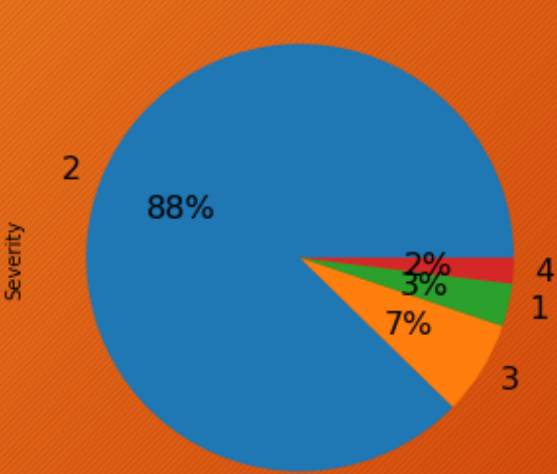
Mean Severity as a Function of Humidity(%)



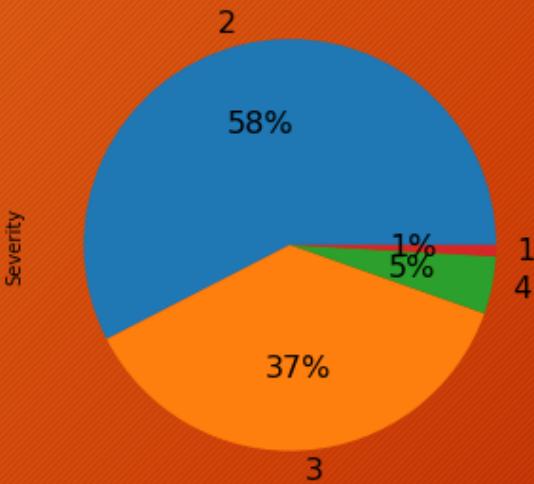
Compare temperature and humidity, the graph shows the severity will goes up as the temperature decreasing,

# Place of accidents

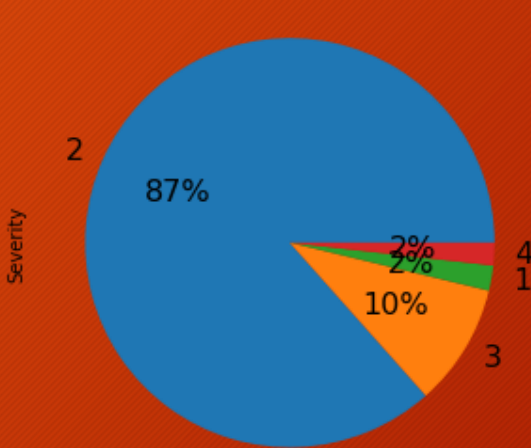
Accident Severity at Crossing



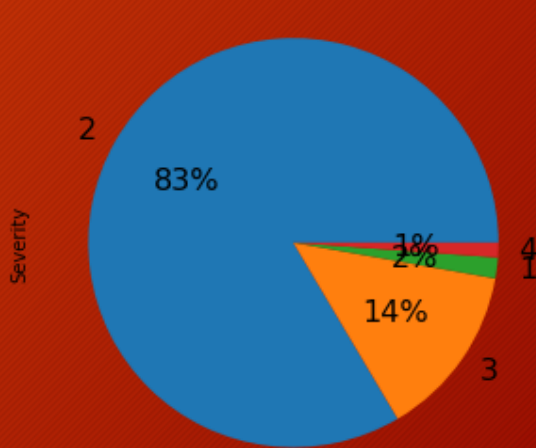
Accident Severity at Junction



Accident Severity at Traffic\_Signal

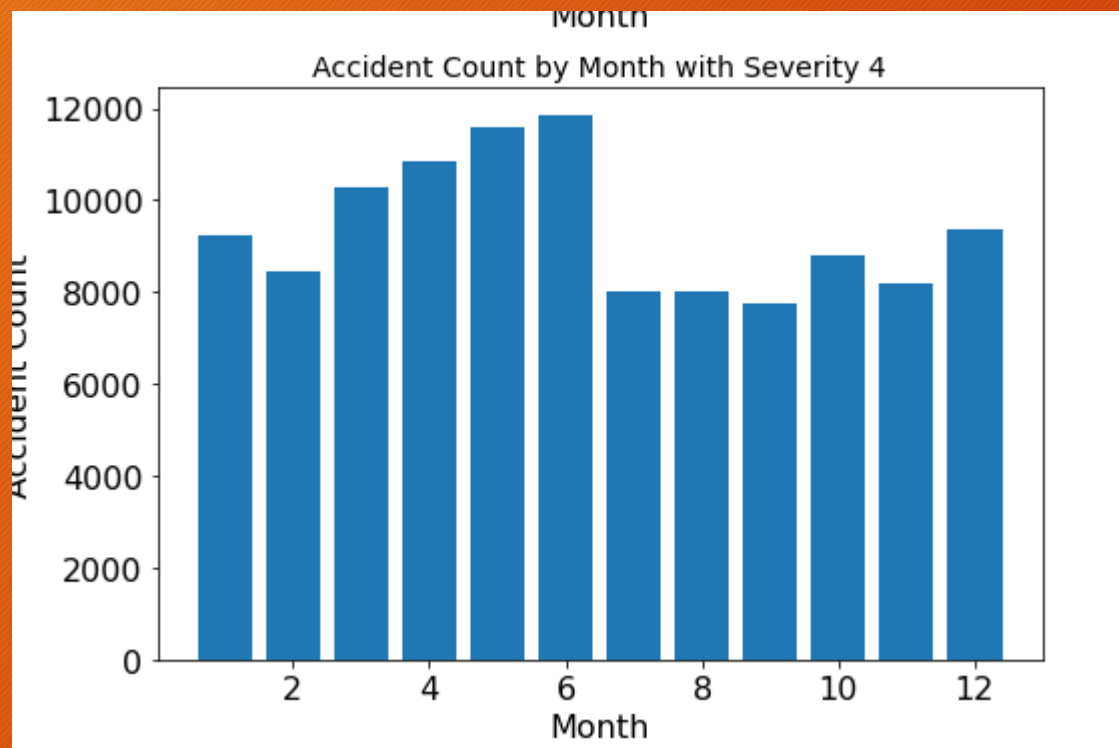


Accident Severity at Bump





# Time



From the graph we can tell that severity 4 has increased during march to June, especially on June, and decreases during July to September which is In summer months, schools are closed and people living there go to their cottages in cool locations, therefore, traffic flow decreases as well as the number of serious accidents.

# Result / Discussion

- Weather especially temperature and humidity are the major factors in accident severity.
- This study's topic is the factors of accident severity, and the severity of an accident can be measured in terms of the number of fatal accidents or total economic loss. So there is such a difficulty in terms of clustering and classification, especially predicting



# Conclusion

- This study focuses on finding the factors which have the most impact on severity to bring benefits to the city and the people for preventing unexpected losses from accident
- I suggest the city should put more effort into urban traffic planning; try to decrease the number of intersection may be a great solution.