Collision Severity Prediction

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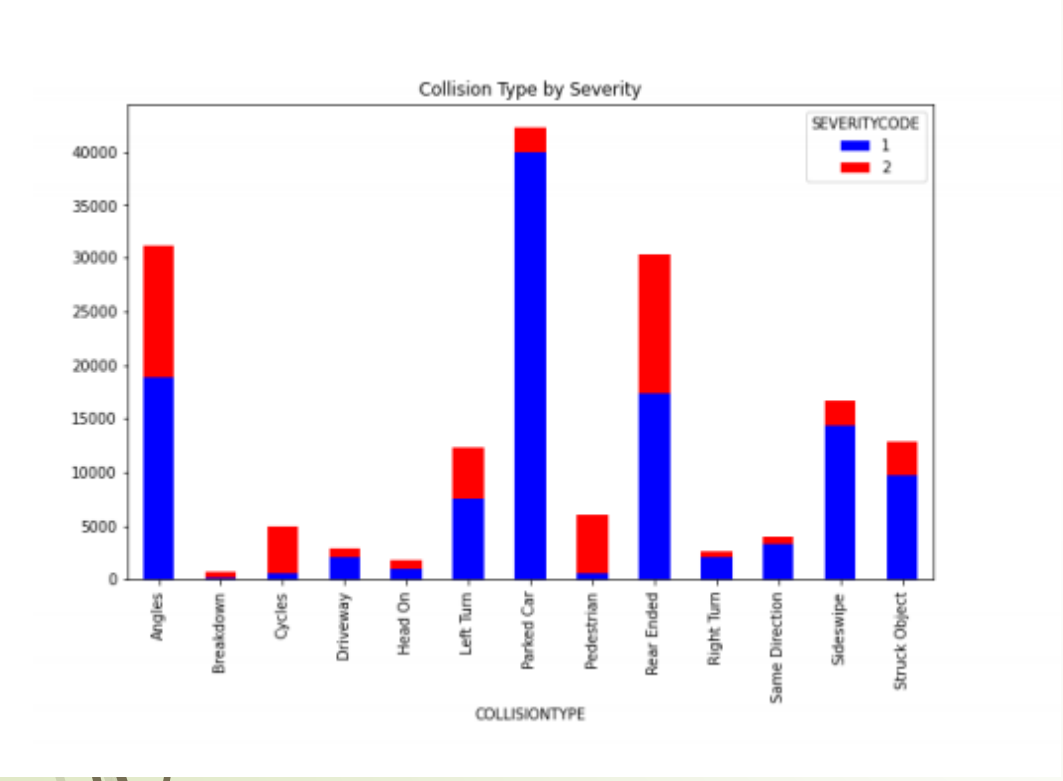
Business Problem

- Road Collisions are 9th leading cause of death worldwide and accounts for 2.2% death globally.
- Predicting collision severity helps first responders and city governments to prepared for adverse situations.
- Based on the prediction results, step can be taken to prevent loss of life.

DATA ACQUISITION AND CLEANING

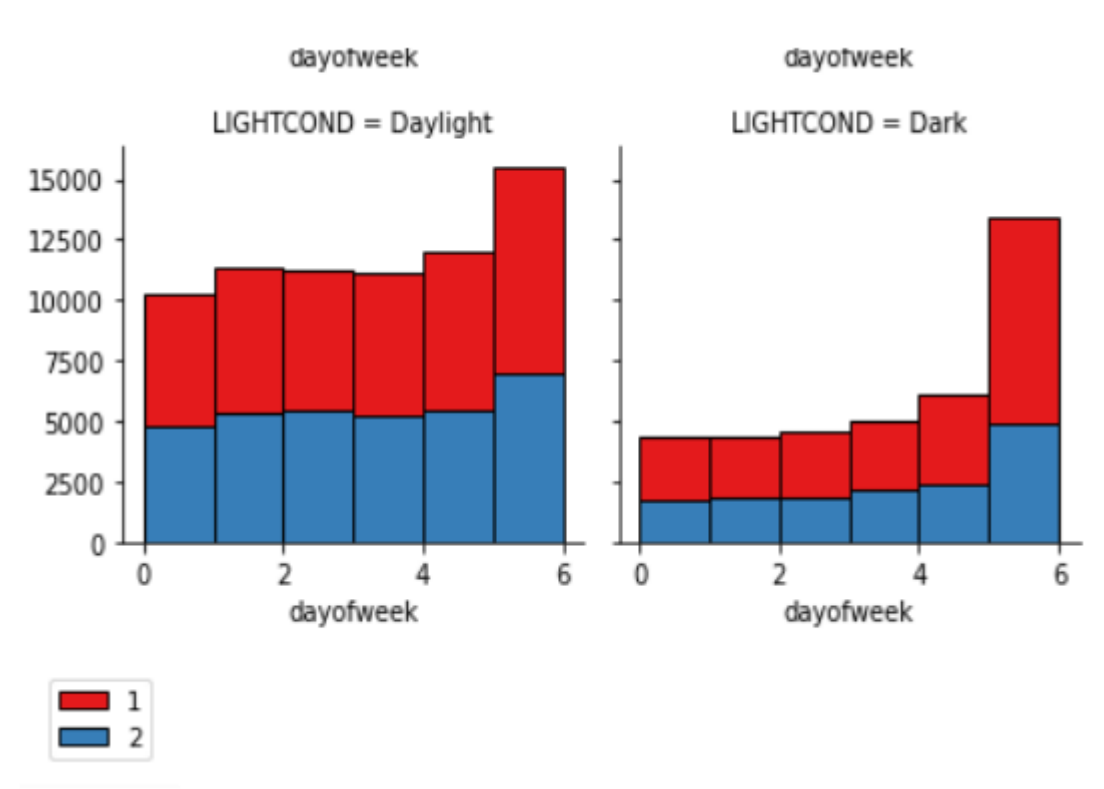
- Data provided by the Washington State Dept. of Transportation (WSDOT) is used.
- Data has 38 columns and 194673 rows.
- Insufficient data was dropped (ex data of year 2020).
- Missing values were derived based on related data. Columns holding the keys were dropped.

PEDESTERIANS AND CYCLIST ARE AT HIGHER RISKS



- If cyclist or pedestrians are involved the collision will be more severe.
- Hitting parked car is major cause of the collision.
- Rear ending may also result in high severity.

MORE COLLISIONS ONWEEKENDS!



- Contrary to belief accidents tends to happen during daylight than in dark.
- More accidents on weekend than a weekday

MODEL EVALUATION

- 4 classification models were evaluated
  - K Nearest Neighbor
  - Logistic Regression
  - SVM
  - Decision Tree
- Based on the evolution KNN model outsmarts the other model with accuracy of 75%.

Conclusion

- Based on the dataset the model selected yielded accuracy of 75%, which is good but still can be improved.
- Using this model one can closely predict the severity of collisions against various parameters.