Predicting Car Accident Severity

Predicting Accident Severity is crucial for drivers

- Road accidents cause traffic jams, injuries and fatal issues.
- Waring car drivers will help to change the travel plan and can save lives.
- Car drivers are the target audience of this analysis
- Insurance companies might also be interested in predicting the severity of the accidents

Data acquisition and cleaning

The collision history of Seattle was downloaded from the site

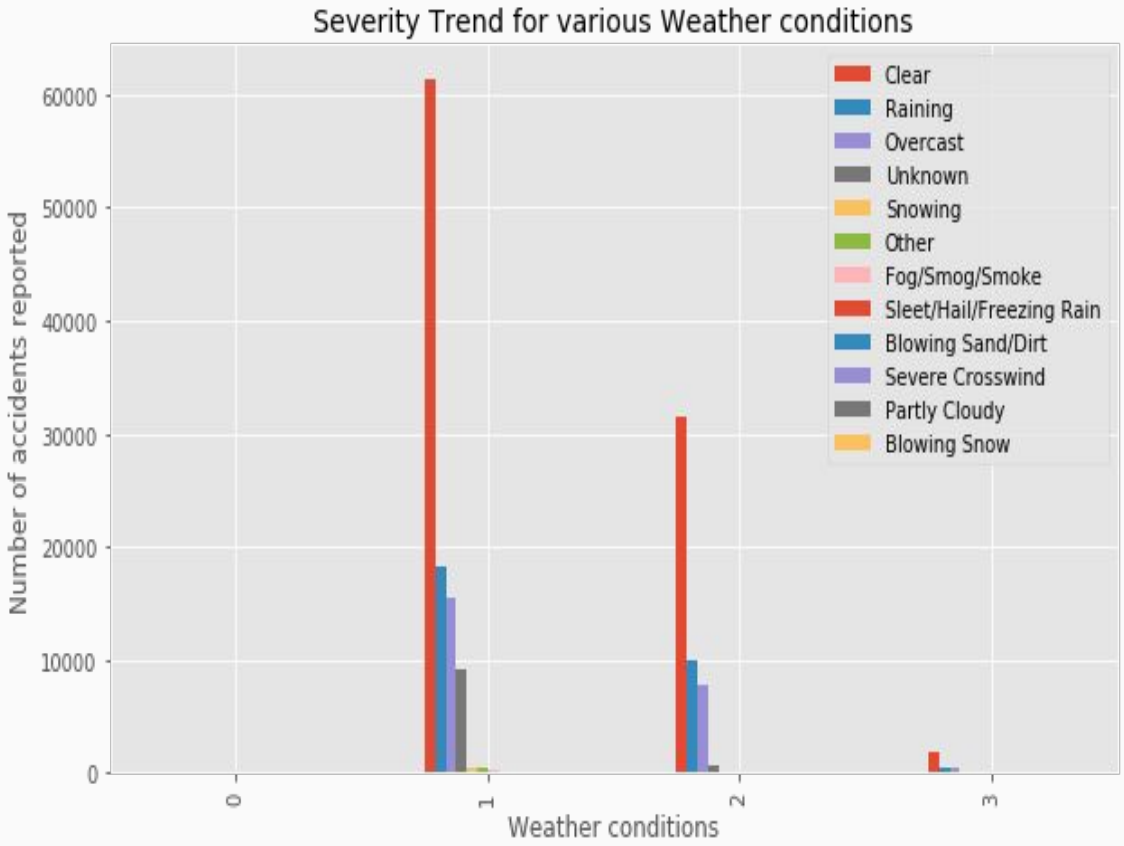
https://data-seattlecitygis.opendata.arcgis.com/datasets/collisions

It had 0.22M of raw data with 40 features.

The unnecessary, duplicate features were dropped

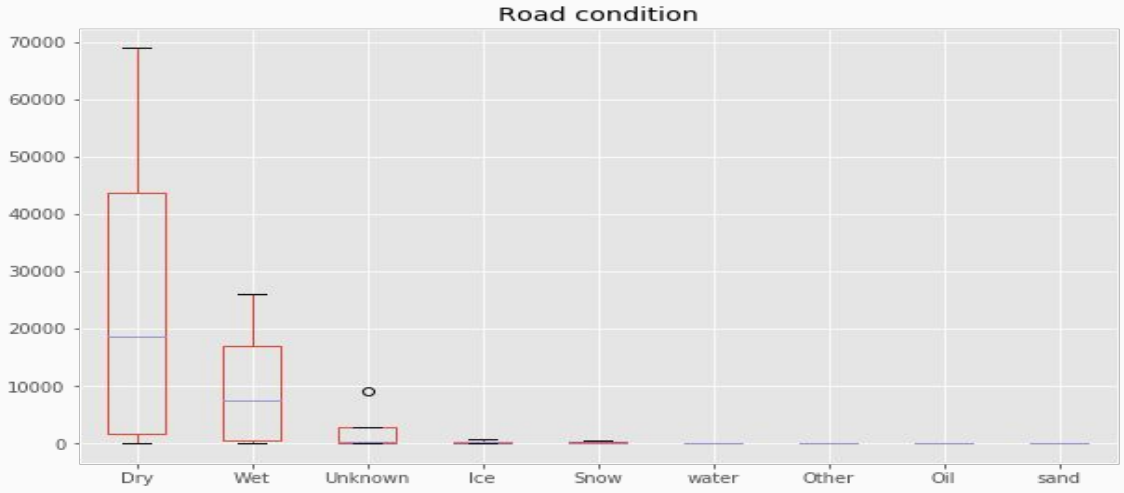
Weather and Severity analysis

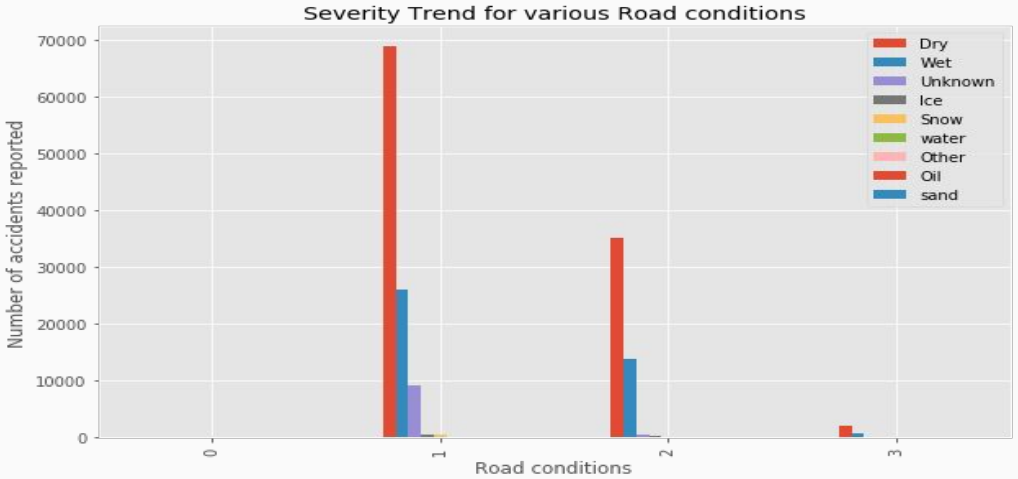
Clear weather reports most accidents



Road condition and Severity analysis

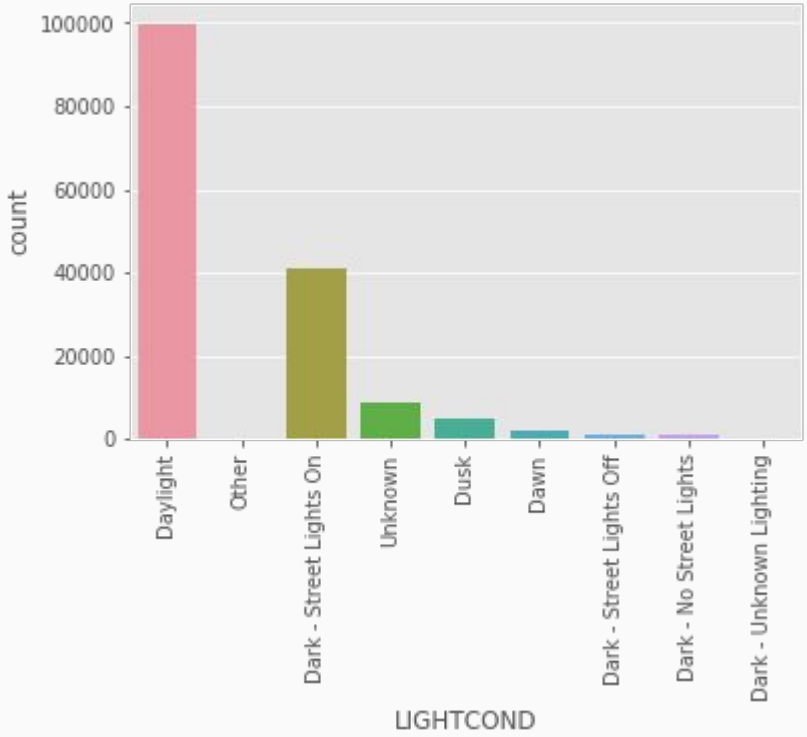
Dry road reports most accidents





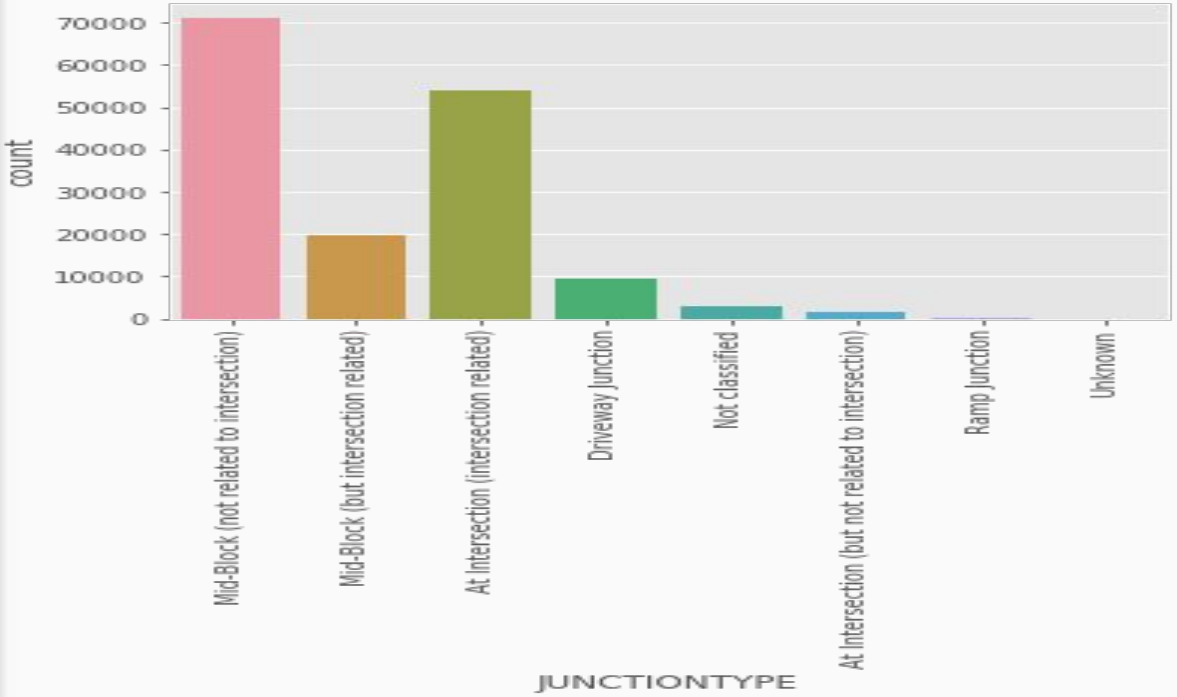
Light condition and Severity analysis

Daylight condition reports most accidents



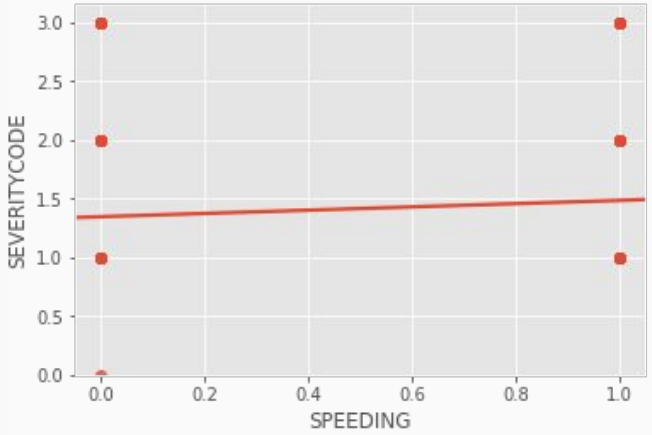
Junction Type and Severity analysis

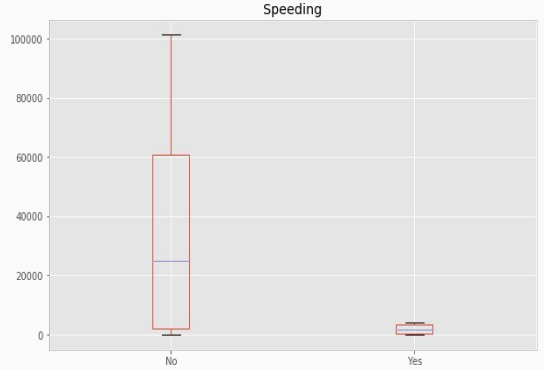
The highest number of accidents are either related to mid-block or intersection related.

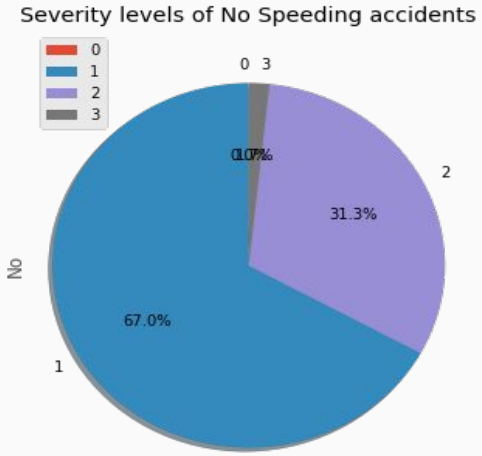


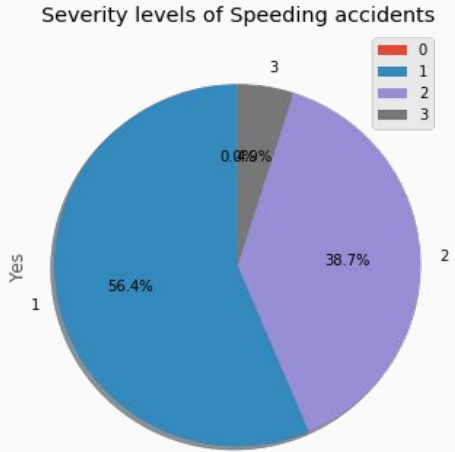
Speeding and Severity analysis

Speeding and severity code has positive correlation as anticipated.
if the reported accident has an observation of speeding, 4.9% of fatality accidents (sev 3) have been observed, whereas fatality accidents are just 0.7% if speeding is not reported.









Classification models - Logistic Regression

- Jaccard Similarity score - 0.688347
- F1 score average - 0.63
- Log loss - 0.61

Conclusion and Future directions

- Able to achieve ~63% accuracy in predicting the car accident severity.
- To see whether any other classification models can be applied and how it performs the severity prediction.