Accidents in Seattle

Introduction

In this project we want to find out how the circumstances under which a collision occurs influence its severity. This could be interesting for:

- everyone who drives, walks, or cycles through cities frequently

- politicians and city employees making traffic laws, planning cities (e.g. deciding on speed limits) and the maintenance of roads (e.g. clearing snow)

Certain behavior, for example speeding, driving under the influence of alcohol or drugs, can be avoided by any driver.

While we cannot change the weather, we can decide to postpone a trip to the city, take the train or adjust our speed.

Data

We are using data for accidents in Seattle between the first of January 2004 and the 20th of May 2020. We are looking at the following:

- Are there injuries?

- Are pedestrians or cyclists involved?

- Weather, Road Conditions and Light

- Speeding, Inattention, Pedestrians right of way not granted, driver under influence of drugs or alcohol

Methodology

We are using a decision tree to predict if there are injuries in an accident.

With a decision tree we obtain a prediction and we can see which factors where important for the prediction.

We will first look at all the accidents in the data.

We will then only look at the accidents where there where no pedestrians or cyclists involved.

Results

- In about 30 % of all accidents someone is injured
- If there is a cyclist or pedestrian involved the likelihood for someone being injured is nearly 90 %
- Other factors had very little influence on the severity of the accidents

Discussion

- We concentrated on one model, other models or parameters might lead to better results

- We could define the severity of the accident differently

- We could add different data, like weather data to compare the overall number of accidents under certain conditions

- Minor accidents in particular accidents without cars involved where no one gets seriously injured are likely to be missing from the data

- While we know if pedestrians/cyclists where involved in an accident, we do not know if the injured person was sitting in a car or not.

Conclusion

- It seams that accidents in Seattle have worse consequences for cyclists and pedestrians. This would be an insteresting topic for further investigations.

- For further investigations on the influence of the other factors, different data would be needed.