Predicting Traffic Accident Severity

1.Introduction

background:
The modern world has become more attractive. one of the causes is the growth of vehicles.
Huge amounts of vehicles should be a concern for us, humans.
Every person wants his own mobility such as: car, cycles etc.
As the more vehicles drive the more accidents there become.

The business Business Problem:
There are a lot of accidents in the world, most of them deadly. we want to know how these deadly accidents become so deadly.
We will explore the data and find some insights by building a model that predicts severity's accident.

Interest:
This project will interest the Transportation Authority of Seattle USA.
The model will help to reduce the amount of deadly accidents.

2. DATA

the data contains all the Collisions from the years: 2004-2020 in siattle USA
I will use the following features to predict the severity:
location, persons' count, day/night, where happened (interchange, alley and etc).
all these features will help me to analyze the question.

3. Methodology

I chose to use logistic regression because the output is Yes or no (1 or 0)
so I believe that is the best optimal methodology.

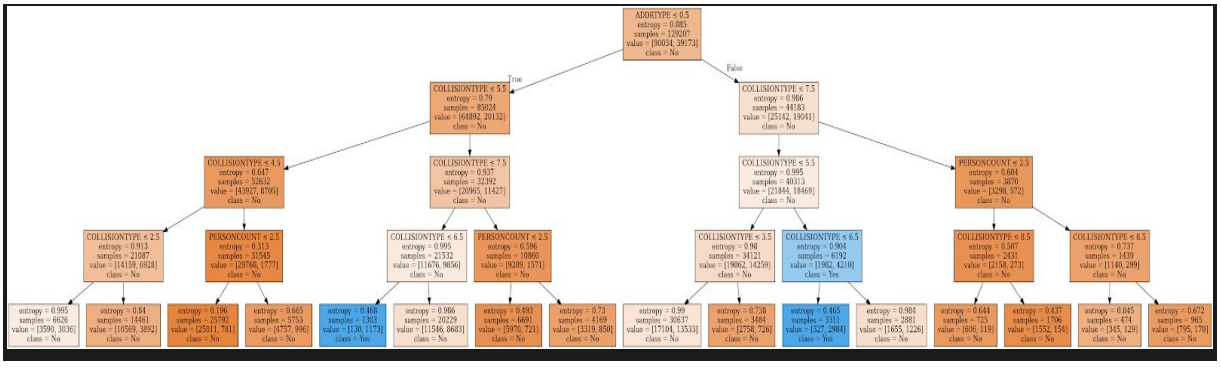
In addition, I've also used "Decision Tree Classifier" to try achieve better model's accuracy.

4. Results

Logistic regression -

	precision	recall	f1-score	support
0	0.74	0.95	0.83	25769
1	0.68	0.22	0.34	11148
accuracy			0.73	36917
macro avg	0.71	0.59	0.59	36917
weighted avg	0.72	0.73	0.68	36917

Decision Tree Classifier -



Decision Tree Accuracy: 75%

5. Discussion

First, I want you to look on the 2 blue blocks (leaves) on the fourth floor (don't count the first node)
The COLLISIONTYPE is worth 6 which means pedestrian.

Do you ask what is the point?

the point is it doesn't matter if the accident happened in block or at intersection
if there are pedestrians it will be deadly.

6. Conclusion

So, Transportation Authority of siattle USA pay attention please.
there is a high risk for pedestrian in your area, I demand to build more Infrastructure for pedestrian for instance:

- Bridges instead intersection
- More sidewalks
- Fences between sidewalks to road
- Integrated Street which the limit km/h is 30
- Explanation to pedestrians how to behave safely in crossways

Thank you for the reading,

Tomer