Prediction of car accidents severity

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1. Introduction

There are many factors causing car accidents such as weather conditions, human factors or human error, and technical problems. For example, a lot or rain decreases visibility and makes the road slippery therefore, extra care is needed when driving in this condition. Also, snow makes the driving conditions difficult. Human factors or errors such as distractions, driving under the influence of alcohol and drugs, tiredness or medical conditions can be the cause of accidents. Finally, technical problems of the car such as blown tires can be a cause of accidents. Keeping track of weather conditions is important for all drivers in order to drive safely and avoid accidents.

1.1 Objective

The objective of this project is to build a model to predict car accident severity based on weather conditions. This will allow drivers to decide their best route and the level of alertness needed to drive safely. A data-driven model will be constructed and presented in this report, the model will allow the driver and the authorities to be better prepare when the roads become dangerous due to weather conditions.

1.2 Dataset:

The data has been collected in Seattle, Washington from 2004 to present. The Dataset is provided by Seattle Department of Transportation (SDOT) Traffic Management Division. It contains data from collisions registered in Seattle. The dataset includes the location of the accident (Latitude and Longitude), severity of the accident, collision address type, type of collision, whether pedestrians were involved, number of vehicles involved in the collision, number of injuries, number of fatalities, whether the collision was due to inattention, whether the driver was under the influence of drugs or alcohol, weather conditions during the time of collision as well as road and light conditions during the accident. This dataset has been chosen because of the climate in Seattle includes cold wet winters and warm dry summers, there are rarely temperatures below 0 ºC. Therefore, snow is not a common occurrence.