

Emergency Medical Services Alert System (EMSAS)

Introduction/Business Problem

Accidents happen! Road accidents are a risk most people have to contend with at various points in their lives. They can be anything from a simple property damage situation to a fatality as well as various degrees of injury.

However road accidents are made worse by their unpredictability and while its important to make sure there are enough police officers on duty to attend and process every incident, it is vital that a sufficient number of paramedics and emergency support staff is present when needed.

There is thus a need for a model that based on easily observable conditions such as the weather, light and road conditions can predict if a serious incident is likely to occur to alert the Emergency Medical Services (EMS) which can prepare paramedics in advance and improve readiness.

Data

The data used will be a sample from the city of Seattle where the target variable SEVERITYCODE can vary between 0 and 4. However the sample only includes entries for CODE 1 – Property Damage and CODE 2 – Injury, which is fine since for the purpose of the model every code other than CODE 1 would need to alert the paramedics and as such would be included under Injuries (CODE 2).

The dataset provides many variables for analysis but not all of them, even if they could be used for general analysis can be used for prediction. For example, if the data were to suggest that accidents between a pedestrian and a car lead to a higher number of injuries (CODE 2) than property damage (CODE 1) it is of limited predictive value since the number of pedestrians at each accident cannot be determined beforehand in a useful and expedient way – it cannot be used to alert the Emergency Medical Services (EMS).

As such a more limited number of variables will be chosen and several machine learning models will be applied. The one with the best accuracy will be deployed to alert the Emergency Medical Services (EMS) and help save lives.