Final project report

1- Introduction :

It may surprise you to know that Seattle is the same as New York when it comes to traffic congestion. According to the TomTom Index Traffic Report, which was based on 2014 data, Seattle is tied with the Big Apple for having the fourth worst traffic congestion in the United States. This may not sound so bad – after all, Seattle is a big city. However, given that Seattle's population is less than one-tenth that of New York's, the fact that the two cities have the same amount of traffic congestion should make city planners in Seattle sit up and take notice.

2- problem :

The world as whole suffers due to car accidents, including the USA. National Highway Traffic Safety Administration of the USA suggests that the economical and societal harm from car accidents can cost up to $871 billion in a single year. According to 2017 WSDOT data, a car accident occurs every 4 minutes and a person dies due to a car crash every 20 hours in the state of Washington while Fatal crashes went from 508 in 2016 to 525 in 2017, resulting in the death of 555 people. The project aims to predict how severity of accidents can be reduced based on a few factors.

3-Stakeholders :

- Public Development Authority of Seattle
- Car Drivers

The reduction in severity of accidents can be beneficial to the Public Development Authority of Seattle which works towards improving those road factors and the car drivers themselves who may take precaution to reduce the severity of accidents.

4- Data :

The dataset used for this project is based on car accidents which have taken place within the city of Seattle, Washington from the year 2004 to 2020. This data is regarding car accidents the severity of each car accidents along with the time and conditions under which each accident occurred. The data set used for this project can be found in https://s3.us.cloud-object-storage.appdomain.cloud/cf-courses-data/CognitiveClass/DP0701EN/version-2/Data-Collisions.csv

The model aims to predict the severity of an accident, considering that, the variable of Severity Code was in the form of *1* (Property Damage Only) and *2* (Physical Injury) which were encoded to the form of *0* (Property Damage Only) and *1* (Physical Injury). Following that, *0* was assigned to the element of each

variable which can be the least probable cause of severe accident whereas a high number represented adverse condition which can lead to a higher accident severity.