Introduction: Business Understanding

According to the National Safety Council report, approximately 38,300 people were killed and about 4.4 million injured in the road accidents United States. There are a variety of reasons that contribute to accidents. Some of the reasons are adverse Weather and Traffic conditions that cause accident prone situations. Predicting likelihood of vehicular crashes because of Weather and Traffic features would be a major step towards achieving better road safety.

In most cases, not paying enough attention during driving, abusing drugs and alcohol or driving at very high speed are the main causes of occurring accidents that can be prevented by enacting harsher regulations. Besides the aforementioned reasons, weather, visibility, or road conditions are the major uncontrollable factors that can be prevented by revealing hidden patterns in the data and announcing warning to the local government, police and drivers on the targeted roads.

The target audience of the project is local Seattle government, police, rescue groups, and last but not least, car insurance institutes. The model and its results are going to provide some advice for the target audience to make insightful decisions for reducing the number of accidents and injuries for the city.

The data generated by the City of Seattle has been openly available to the public for the purpose of increasing the quality of life for the residents, increasing transparency, accountability and comparability, promoting economic development and research, and improving internal performance management.

The Traffic Records Group, Traffic Management Division, Seattle Department of Transportation, provides data for all collisions and crashes that have occurred in the state from 2004 to the present day. The data is updated weekly and can be found at the Seattle Open Geo Data Portal.

The objective is to exploit this data to extract vital features that would enable us to end up with a good model that would enable the prediction of the severity of future accidents that take place in the state. This would further enable the Department of Transportation to prioritize their responses and channel their energy to ensure that fewer fatalities result in automobile collision

# **Research Question**

Predicting the occurrences of vehicular crashes on roadways of the State of Seattle based on Seattle Department of Transportation, provided data for all collisions and crashes that have occurred in the state from 2004 onwards.