**Introduction/Business Problem**

This data analytics project looks at the traffic accident data in Seattle Washington 2004 - 2020 and addresses the following question:

Can we leverage traffic accident data to discover patterns/trends that could be used in apps that provide directions to provide the “safest” route?

The audience for this paper are the residents of Seattle, WA to gain insight into the impact of weather, time of day, and location on the safety of their planned driving route. In addition, Google Maps, Apple’s Maps, and other apps that provide directions can leverage this paper to determine if traffic accident data could be used when calculating the directions they provide.

**Data**

The data that will be provided for this data analysis is all collisions provided by the SPD (Seattle Police Department) and recorded by traffic records from 2004 to the present. Specifically, the data this analysis will look at is:

* Weather
* Time of Day
* Severity
* Location

I will explore if bad weather has an impact on the frequency or severity of collisions. Assumptions probably lead someone to think obviously yes; however, does the weather lead to people driving more cautiously leading to fewer or less sever collisions?

In addition, I will explore if the time of day has an impact on the frequency or severity of collisions. I will also create a heat map to see if there are hot zones for collisions.

Furthermore, I will look to see if there are any trends over time in the following time windows:

* 2004 - 2009
* 2010 - 2015
* 2016 - 2020
* Year over Year from 2004 to 2020

Lastly, I will look to see if machine learning can leverage the data to better direct traffic in apps and possibly provide a “safest” route option.