Vision Zero is a Washington D.C. government initiative to eliminate bicyclist and pedestrian deaths due to vehicle crashes. However, as of this month the number of fatalities in the year 2018 exceeds those in all of 2017. Thus issues remain and pedestrian and bicyclists alike would stand to benefit from an app that could inform them about the risk associated with their trip. My project focuses on aggregating several data sources to determine the effect of factors such as time of day, weather conditions, and spatial location on the risk of being involved in a crash. By analyzing existing data we can provide a user with a the risk associated with a certain trip and even recommend alternative safer routes.

The data for this project is drawn from a number of sources. Vehicle crashes involving bicyclists and pedestrians can be obtained from <http://opendata.dc.gov/datasets/crashes-in-dc>. The website provides a CSV files containing information related to each incident including location and date. By visualizing the locations the of these incidents in Bokeh (in conjunction with maps provided through the google maps API) we may begin to form a picture of which streets and intersections are particularly dangerous. For instance, a large number of incidents occur at the intersections of New York Avenue and North Capitol St as well as at Georgia Ave and Florida Ave. In addition, the capital bikeshare dataset provided by <https://www.capitalbikeshare.com/system-data> allows us to visualize the highest travelled routes. Finally, I incorporated weather data including temperature, rainfall, and snowfall by using NOAA historical data from Washington Reagan National Airport.

The next steps of project are two-fold. First, a more thorough data analysis is required in order to quantify a number of external factors on the possibility of being involved in an incident with a vehicle. Specifically, how does time of day, weather, and number of bikes on the rode affect the probability of a crash. Furthermore, it would be interesting to identify outliers such as streets that despite being relatively less travelled have an inordinate number of accidents. The second component will be the development of an application that can inform pedestrians and bicyclist of the risk associated with a planned trip and recommend safer alternatives. Ultimately this project will inform city government about which streets need the most immediate attention for improved safety, as well as inform the average commuter about safer routes.