LIMITING SEVERITY OF COLLISIONS

INTRO

- Roughly 38,000 Americans are killed in car crashes every year
- Preventable
- What causes car accidents?
- Goal is to save time, resources and more importantly, lives.

DATA

- Seattle Police Department Data
- Conditions under which the crash occurred, the location, the severity of the collision etc.
- Does weather have an affect on the severity of the accidents?
- City could make decisions such as spending more money on snow plowing equipment or providing driving lessons about how to drive in the rain, that could bring the accidents into check if weather was a factor.
- Separate data frame just looking at weather and the severity code of the accident called df_weather.

METHODOLOGY

- Percentage of accidents that happen for each type of weather for the whole data set.

```
In [36]: df['WEATHER'] .value_counts().to_frame()
```

Out[36]:

	WEATHER
Clear	111135
Raining	33145
Overcast	27714
Unknown	15091
Snowing	907
Other	832
Fog/Smog/Smoke	569
Sleet/Hail/Freezing Rain	113
Blowing Sand/Dirt	56
Severe Crosswind	25
Partly Cloudy	5

```
In [58]: (df_weather.groupby('WEATHER').size()/df['WEATHER'].count())*100
```

```
Out[58]: WEATHER
         Blowing Sand/Dirt            0.029537
         Clear                       58.617980
         Fog/Smog/Smoke               0.300118
         Other                        0.438837
         Overcast                    14.617705
         Partly Cloudy                0.002637
         Raining                     17.482278
         Severe Crosswind             0.013186
         Sleet/Hail/Freezing Rain     0.059602
         Snowing                      0.478396
         Unknown                      7.959724
         dtype: float64
```

METHODOLOGY 2

- Weather conditions impact the severity of these accidents, I made a separate data frame called df_severity with only the more severe crashes
- Looked at the percentages of the weather for each accident with only severe cases

```
In [59]: (df_severity.groupby('WEATHER').size()/df_severity['WEATHER'].count())*100

Out[59]: WEATHER
         Blowing Sand/Dirt            0.026268
         Clear                       62.762679
         Fog/Smog/Smoke               0.327473
         Other                        0.203138
         Overcast                    15.314164
         Partly Cloudy                0.005254
         Raining                     19.571308
         Severe Crosswind             0.012258
         Sleet/Hail/Freezing Rain     0.049033
         Snowing                      0.299454
         Unknown                      1.428972
         dtype: float64
```

RESULTS

- 58.6% of crashes happened when the day was clear and 17.48% when it was raining
- In the case of only looking at severity=2, 63.76% of crashes happened with clear weather and 19.57% were when it was raining.
- Does not appear like bad weather made accidents more severe like I had thought would be a possibility.
- While there was a slight increase in percentage of severe accidents with bad weather, such as rain, a higher percentage of the crashes also happened during clear days.
- This is not the result I had expected.

DISCUSSION

- I did not see the result I was hoping to in this test
- The difference in this could be that people are might be more careful when the weather is not good for driving because they know that they have to stay alert to stay safe.
- This extra attention and care could potentially outweigh the additional hazards that rain, snow or other extreme weather conditions cause on the road.
- investing in strategies to deal with extreme weather or teaching drivers to better deal with un-ideal weather conditions would be a waste of money for the city as it would likely not have much of an impact on lessening the severity of the accidents in Seattle.

CONCLUSION

- Thank you for your time and attention