# IBM Data Science Capstone
# Car Accident Severity

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# Introduction

- This project is based on the case study which is to predict the severity of an accident

-  the bad weather and the road conditions leads to car accident

- Solution to problem is to create an algorithm which predict the severity of an accident given the current weather, road and visibility conditions.

- When conditions are bad, this model will alert drivers to remind them to be more careful.

# Data Understanding and Methodology

▶ Our predictor or target variable will be 'SEVERITYCODE' because it is used measure the severity of an accident and other attributes used to weigh the severity of an accident are 'WEATHER', 'ROADCOND' and 'LIGHTCOND'

▶ We will visualized the data in the form of bar graphs

▶ SEVERITYCODE, which assigns a crash a value of 1, which means property damage and no injury , and 2, indicating injury.

▶ COLLISIONTYPE, which describes the type of crash

▶ WEATHER, which describes the weather at the time of crash,

▶ LIGHTCOND, which describes the light conditions at the time of crash,

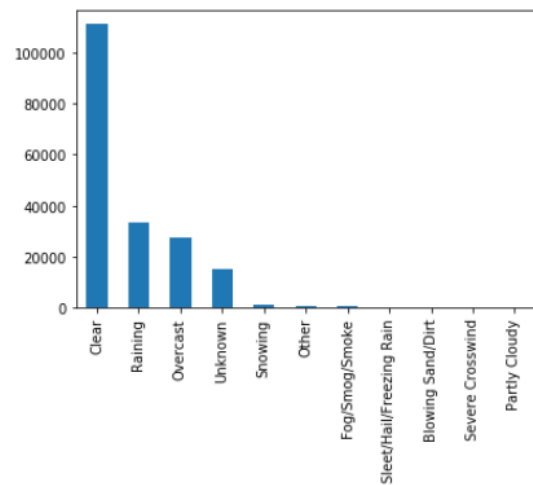In [11]: `df_Conditions_balanced['SEVERITYCODE'].value_counts().plot(kind = 'bar')`

Out[11]: `<matplotlib.axes._subplots.AxesSubplot at 0x7f6166a136a0>`
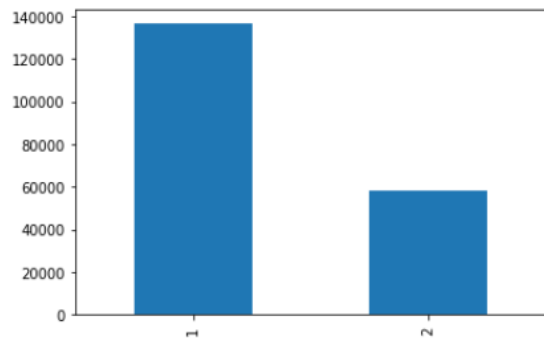


SEVERITYCODE, which assigns a crash a value of 1, which means no injury, and 2, indicating injury

In [9]: `df_Conditions_balanced['COLLISIONTYPE'].value_counts().plot(kind = 'bar')`

Out[9]: `<matplotlib.axes._subplots.AxesSubplot at 0x7f6166d96518>`



In [10]: `df_Conditions_balanced['WEATHER'].value_counts().plot(kind = 'bar')`

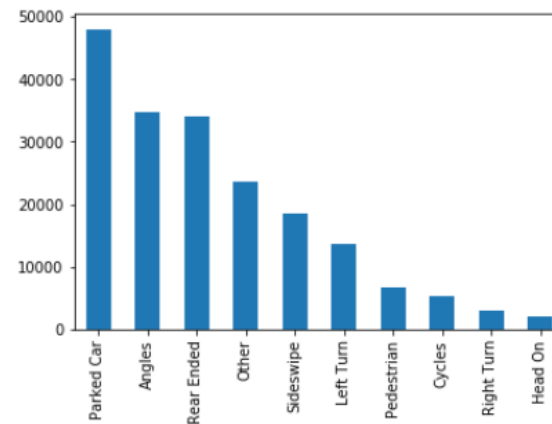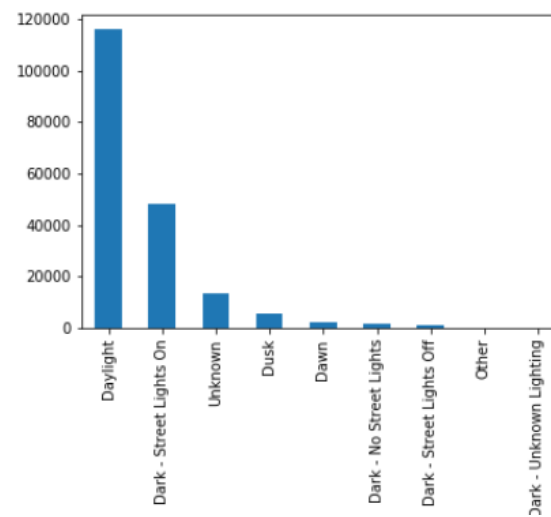Out[10]: `<matplotlib.axes._subplots.AxesSubplot at 0x7f6166a8bcc0>`



In [13]: `df_Conditions_balanced['LIGHTCOND'].value_counts().plot(kind = 'bar')`

Out[13]: `<matplotlib.axes._subplots.AxesSubplot at 0x7f61669ea588>`

# Conclusion

▶ Most crashes happened in clear, dry, and bright conditions. I also found out that crashes with a distracted driver or an impaired driver are statistically more likely to result in injury. The results of the data indicate to city officials that they should ask drivers to be more alert in ideal conditions.

▶ Based on historical data from weather conditions pointing to certain classes, we can conclude that particular weather conditions have a somewhat impact on whether or not travel could result in property damage (class 1) or injury (class 2).

▶ The lack of lighting in areas does not appear to have a big impact or correlation to accidents at all. The location where there is no street light that had the most accidents, as well as streets with lights also have quite a number of accidents.

# Thank You