Lucas Willocq

4294489

In my analysis of the rental bike data set, I discovered several key factors that could potentially impact future rental numbers. When attempting to predict rental numbers for any given day of the year, there were numerous variables that I had to consider. While acknowledging the seasons and overall weather that comes with the everchanging Pittsburgh climate is no doubt crucial to understanding demand, there are more specific predictors that can affect demand. Aspects such as Dew, Humidity, Visibility and Solar levels for different times of the day and year were all considered and treated initially as equally important to more probable factors such as Rainfall and Temperature. After doing some digging around however, I managed to unearth a handful of predictors that tend to be more important than others.

If we had to choose one variable to predict bike rental demand, I never would have assumed that whether a day was a Holiday or not would have the biggest impact. In testing all the various factors to predict bike count, whether a day was a Holiday or not was more impactful than Rainfall or Date, aspects that you would commonly assume to matter a great deal. This phenomenon is most likely due to people migrating away from the area on Holidays, or simply just would rather spend their time with family and friends than exercising.

Another discovery I found was that Winter significantly damaged bike rental numbers. While this may seem intuitive, it was surprising that the other seasons showed little change from one another and only had contrast with Winter. Winter's impact on bike rental demand in the final prediction ended up being nearly 10 times as important as the other seasons. In fact,

the winter season ended up having the largest impact on bike rentals in this model, even more than hour of the day or temperature.

My last conclusion that I was able to draw from the dataset is that despite these surprising findings, the most common explanations for bike rental demand do in fact happen to be important. Temperature, Snowfall and Time of Day all had an impact on my predictions of bike demand. While these previous findings were surprising, as I dug deeper into the data, I began to realize that the truth was obvious from the start. People tend to ride bikes the higher the temperature is, as well as the later in the day it gets. The timing is probably due to most of the small hours (0 AM to 7 AM) occurring when nobody is awake, but nevertheless it is found that people enjoy riding bikes later in the day. Snowfall had an impact because, well, it is nearly impossible to ride a bike when it is snowing out.

Altogether, there are numerous factors that go into play when considering bike rental demand, but there are no illogical results as the predictors that you would think have an impact, do have an impact.