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Lab 1 Report

The Hidden Connection

After looking at the set of graphs that we had to plot in Task 1 of the assignment, I realised that there were some patterns that seemed to stand out. In particular, I thought that there was some possible correlation between Temperature and Humidity, and Rainfall and Pressure. However, I still wasn't sure whether this was the case. Hence, I decided to calculate the correlation between each of our main variables. And here are the results that I found -

```
>> corr_2 = rain.corr(pressure, method = 'pearson')
-0.4806542701820371
>> corr_5 = out_temp.corr(humidity, method = 'pearson')
0.6452498978476737
>>corr_6 = in_temp.corr(humidity, method = 'pearson')
0.48133399983654523
```

(There was also the obvious correlation between indoor and outdoor temperatures, but I didn't include it in my infographic since it seemed to be trivial) Though not a strong correlation, I now had a direction to work in and use my Tableau skills to graph some diagrams for our seasonal and monthly data.

While I was plotting the Monthly data, I immediately saw the correlation between Temperature and Humidity being highlighted by the colored bar graph. High temperatures corresponded with higher humidity (as shown with bright red/orange colors) and vice-versa. Similarly, a correlation between Rainfall and Pressure was highlighted as well. In fact, the four months with the lowest rainfall happen to be the months with the highest atmospheric pressure. This correlation was strong enough to be highlighted in the Seasonal graphs as well. Lower atmospheric pressures corresponded with Higher Rainfall.

However, the surprising discovery happened when I was working with the Seasonal data. While I was fiddling around with different combinations of our four main factors, I realised a surprising visual correlation between Rainfall and Humidity. In fact, the visual correlation between these two was stronger than that between Rainfall and Atmospheric Pressure. Higher humidity corresponded with higher rainfall. This was surprising because the correlation values that I calculated earlier showed no such patterns. This correlation was also missing in the monthly data, but somehow it seeped its way into the seasonal charts. This led me to believe that Humidity and Rainfall do indeed have a strong connection; it just isn't something that can be observed over the period of a day or a month, but over seasons.

In conclusion, Temperature and Humidity, and Rainfall and Pressure are closely related. However, there is also a hidden connection between Humidity and Rainfall which seems to be the connection which holds all the pieces together.