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Homework 6

Three Trends in Data

Research Question: What’s the weather like as we approach the equator.

Alternative Hypothesis: The temperature will increase as we approach the equator.

1. There was evidence that the average temperature increased as we approached the equator and decreased as we moved away. This can be seen in the temperature plot.
2. However, there was no correlation (*r* = -.003) between the two variables because we included cities above and below the equator. Thus the relationship is curvilinear / quadratic. If we had just chosen cities above the equator there would have been a strong positive correlation. Same if we had just chosen cities below the equator. This is why **we cannot extrapolate**. If we only knew the cities above the equator and made a prediction equation, we would predict temperatures in the 120s by the time we reached the South Pole.
3. There was a slight relationship between Humidity and Latitude, however it would require a multivariate model to explain it. Near the equator the humidity levels are less variable and higher. When we move to between 15-30 degrees above/below the equator we see the variance increase and the mean decrease. This is due to the increased presence of both tropical and desert climates in those latitudes.
4. A clearly unreasonable outlier emerged in the Humidity (300%) versus Latitude analysis. This shows that even API call data requires a common-sense validity check.