Weather and Vacation Data Collection and Analysis

Samantha Lane

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Part 1 Observable Trends

* I was able to observe that there is a relationship between latitude and temperature. By grouping the data by northern and southern hemispheres I was able to view that there is a strong correlation between temperature and latitude specifically in the southern hemisphere.
* I also was able to observe that despite what we may think there is not a strong relationship between humidity and latitude. I know that many people think that it is more humid closer to the equator but based on this data analysis no relationship was found.
* I also found it very interesting that neither windspeed nor cloudiness was impacted by latitude. It seems that wind and cloudiness can occur anywhere, and it does not depend on latitude.

1. 
   1. This scatter plot is showing that as the latitude approaches the equator the temperatures increase. Thus meaning that it is warmer in the area closes to a latitude of 0.
2. 
   1. This scatter plot represents that there is not a true relationship between latitude and cloudiness. It shows that there can be 100% cloud coverage or 0% cloud coverage regardless of the latitude.
3. 
   1. This scatter plot shows that windspeed is most commonly less than 20 mph, but there are several outliers that are represented on the graph. No true relationship is shown within the scatter plot, it would be interesting to drop the outliers and to look deeper into the data.
4. 
   1. Lastly, the relationship between latitude and humidity surprised me. I was expecting that closer to the equator there would be an increase in humidity. This graph certainly would be more interesting when the data is split based on north and south hemispheres.

Southern Hemisphere vs Northern Hemisphere Regressions

1. Temperature
   1. 
      1. R squared = 0.4914
   2. 
      1. R squared = 0.72339
   3. The linear regressions scatter plots between temperature and latitude based on hemisphere show that there is a positive correlation between temperature and latitude within the southern hemisphere and a negative correlation between temperature and latitude in the northern hemisphere. The r squared values represent how strong the correlation values is, we are able to determine that there is a stronger correlation between temperature and latitude in the Northern hemisphere with an r squared value of 0.72 than in the southern hemisphere with a value of 0.49.
2. Wind Speed
   1. 
      1. R squared = 0.1567
   2. 
      1. R squared = 0.029890224013068217
   3. The linear regressions plots displayed approve confirm that there is not a strong relationship between wind speed and latitude in either the northern or southern hemisphere.
3. Humidity
   1. 
      1. R squared = 0.09466151828654232
   2. 
      1. R squared = 0.06124577182066753
   3. The linear regressions plots displayed approve confirm that there is not a strong relationship between humidity and latitude in either the northern or southern hemisphere.
4. Cloudiness
   1. 
      1. R squared = 0.1403516720691378
   2. 
      1. R squared = 0.050533
   3. The linear regressions plots displayed above confirm that there is not a strong relationship between cloudiness and latitude in either the northern or southern hemisphere.

Map Images

1. Heat map with intensity based off of humidity

Map

Description automatically generated

1. Idea weather map with hotels in each location

Map

Description automatically generated