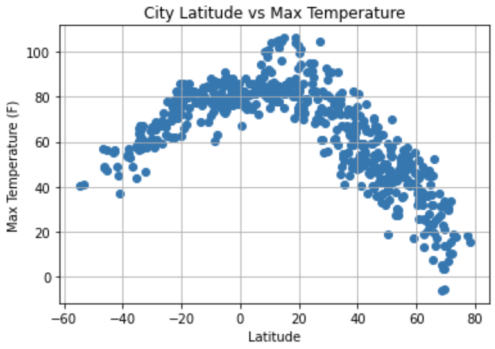
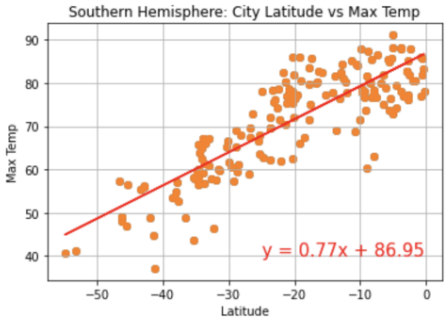
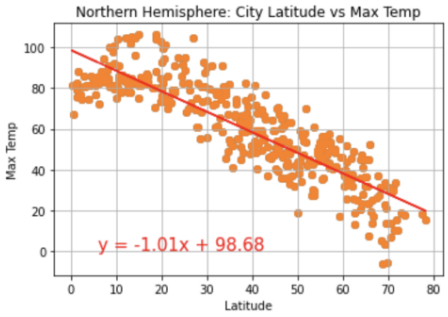
Nikunj Patel
HW6-api-challenge
Final Report and Analysis

1. For Part 1, you must include a written description of three observable trends based on the data.
   a. The first trend observed was from the Latitude vs Temperatures plot. As shown in the screenshot below, it is clear that cities closer to the equator have higher temperatures. This plot verifies what we already know about the earth's climate in different geographic locations.

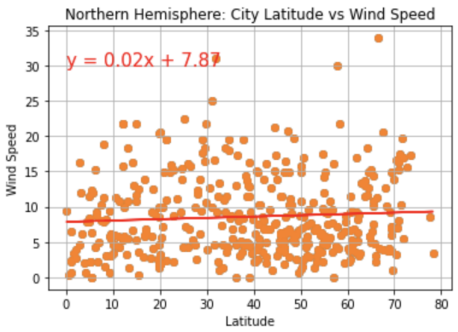


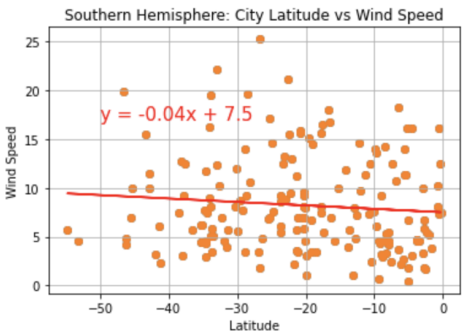

   b. The second trend observed was from the separate graphs comparing the respective hemispheres with temperature. Although from the previous observation above, the data appears parabolic, when separated into hemispheres, the data have strong linear correlations. For the Southern Hemisphere, the data had an r-value of 0.84, indicating a strong positive correlation. For the Northern Hemisphere, the data had an r-value of -0.87, indicating a strong negative correlation.




   c. The third trend observed was that wind speeds generally did not exceed 15-20mph regardless of latitude or hemisphere of the city. Further analysis would need to be done to identify parts of the world that have higher wind speeds (or when higher wind speeds may occur during the year).



2. For Part 2, you must take a screenshot of the heatmap that you create and include it in your submission.
    a. As shown in the screenshot below, I was able to output a map that displays the following:
        i. The first layer is the heat map, showing a circle for each city in my data set. Each city's circle has a radius dependent on the humidity. This can be seen when zooming in closer to a specific area of the world.
        ii. The next layer is the pins for cities that met the criteria for "good vacation weather". I designated this as max temp falling between 60-80 degrees. Hence, there are only pins on some cities, while other cities only show the humidity.
        iii. Clicking on any pin will show 3 things: Hotel Name, City, and Country