**Weather PY Project Goal:**

The purpose of this project was to analyze how weather changes as one gets closer to the equator. To accomplish this analysis, we first pulled data for the weather for over 500 cities (with varying distances from the equator) from around the world using the [OpenWeatherMap](https://openweathermap.org/api) API. We then used *JSON* traversals to help retrieve the data and *Python* script to visualize the weather of these cities using *CityPy* a Python library.

After assembling the dataset, we used *Matplotlib* to plot various aspects of the weather vs. latitude. Factors we looked at included: temperature, humidity, cloudiness and wind speed. The attached [WeatherPY.ipynb](https://github.com/jklinges/HW-5-Python-API-Challenge/blob/master/Weather/WeatherPY.ipynb) file provides the source data and visualizations (including regressions) of any determined trends and correlations.

**Data Analysis and Observations:**

• *Latitude vs. Temperature Plot*: Not surprisingly, temperature increases as one approaches the equator and vice versa (especially in the Northern Hemisphere with the "Max Temp vs. Latitude” regression / R squared correlation being -84.6%). However, the largest clusters of cities are at positive and negative 20 degrees latitude, not exactly at the equatorial line.

• *Latitude vs Cloudiness and Humidity Plots*: Cloudiness and humidity do not show a strong correlation to latitude. The provided visualizations show a great variety of values at similar latitudes. The humidity of most of the cities stays in the range of 60-100% from negative 60 to 80 degrees latitude with few exceptions.

• *Latitude vs Wind speed Plot:* Latitude does not seem to play a significant factor in wind speeds. Wind speed appears to only slightly increase as we move away from the equator. The wind speed of most of the cities stays in the range of 0-10 mph. from negative 60 to 80 degrees latitude with few exceptions.

**Conclusion:** A review of the all the trends plotted, tell us that latitude has some direct effect on the temperatures and not so much on humidity, cloudiness and windspeed directly. These three (humidity, cloudiness and windspeed) are more directly related to temperatures, which we can have more concluded results if we were to plot these three variables against temperatures rather than against latitude.