

python-api-challenge

Scope The scope for this activity was to understand the weather pattern in relationship with location in order to find an optimal vacation destination. A python script was created on Jupyter notebook and jupyter lab in order to better visualize the data. The weather of 500+ cities were analyzed based on location (Longitude, Latitude) and its location relative to the equator.

Part 1-WeatherPy

Analysis:

Weather prediction has always been on every traveler's mind. Finding the right information in order to plan the perfect trip is what every family vacation needs. By using Google API in conjunction with python and Jupyter NoteBooks, the correct data can be gathered.

First the data gets pulled out of the CSV file, under specific parameters such as longitude and latitude. With these parameters the request to Google's API is made.

Next, the base DataFrame is created with all the cities location. Places with high humidity get removed.

Finally, the data gets organized and plotted. Based on those visualisation the following conclusion can be reached:

1. The closer to the equator the higher the temperatures and as moved away from the equator temperatures tend to drop.
2. Humidity is noticeably more changing in the northern hemisphere. There are more places on the same hemisphere with very different values for humidity.
3. The behavior for cloud formation does not seem to be affected but the geographical location. Cloud formation seems more at random than following any path.

The first requirement is to create a series of scatter plots to showcase the following relationships:

Temperature (F) vs. Latitude

Plot analysis image: the change in temperatures is clearly visible as the location move toward the equator temperatures start to rise but as the move away from the equator, temperatures start to decent once more describing a parabola

Humidity (%) vs. Latitude

Plot analysis image: the humidity levels change as the location moves from the equator. The closer to the equator the more humid the environment.

Cloudiness (%) vs. Latitude

Plot analysis image: There seems to be not a clear relationship between the formation of clouds and the geographic location.

Wind Speed (mph) vs. Latitude:

Plot analysis image: there is a bigger difference between wind speed in the northern hemisphere and the southern hemisphere. Wind speeds are greater in the north than the south but the variation in speed is greater in the southern hemisphere.

After each plot, add a sentence or two explaining what the code is analyzing.

The second requirement is to run linear regression on each relationship. This time, separate the plots into Northern Hemisphere (greater than or equal to 0 degrees latitude) and Southern Hemisphere (less than 0 degrees latitude):

Northern Hemisphere - Temperature (F) vs. Latitude

for this side of the sphere there is a strong negative correlation between latitude and max temperature for northern hemisphere as we move away from the equator.

Southern Hemisphere - Temperature (F) vs. Latitude

for this side of the sphere there is a strong Positive correlation between latitude and max temperature for northern hemisphere as we move in the equator.

Northern Hemisphere - Humidity (%) vs. Latitude

There is a moderate positive correlation between latitude and humidity

Southern Hemisphere - Humidity (%) vs. Latitude

There is a moderate positive correlation between latitude and humidity

Northern Hemisphere - Cloudiness (%) vs. Latitude

There is a weak positive correlation between latitude and cloudiness for southern hemisphere

Southern Hemisphere - Cloudiness (%) vs. Latitude

There is a strong positive correlation between latitude and cloudiness for southern hemisphere

Northern Hemisphere - Wind Speed (mph) vs. Latitude

There is a weak positive correlation between latitude and wind speed for southern hemisphere.

Southern Hemisphere - Wind Speed (mph) vs. Latitude

There is a weak negative correlation between latitude and wind speed for southern hemisphere.