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UDACITY Data Analysis Nanodegree Project 01: Exploring Weather Trends.

INTRODUCTION:

SQL Query was used to download (CSV) file that contains yearly average temperature of the City 'Cairo' and the global temperature.

Then the data has been analyzed using Python Programming Language using IPython Notebook (Jupyter).

Which these analyzed data has shown that the global temperature have been raising over the past years.

Progress outline:

- / SQL Query was used to download two CSV Files that contain :
 1. Data about global temperature such as ("year", "Average")And has been imported by using the query underneath:

```
SELECT * FROM global_data;
```

2. The closest city to my country that has information about the same data plus the name of the country and the City.

And has been imported by using the query underneath:

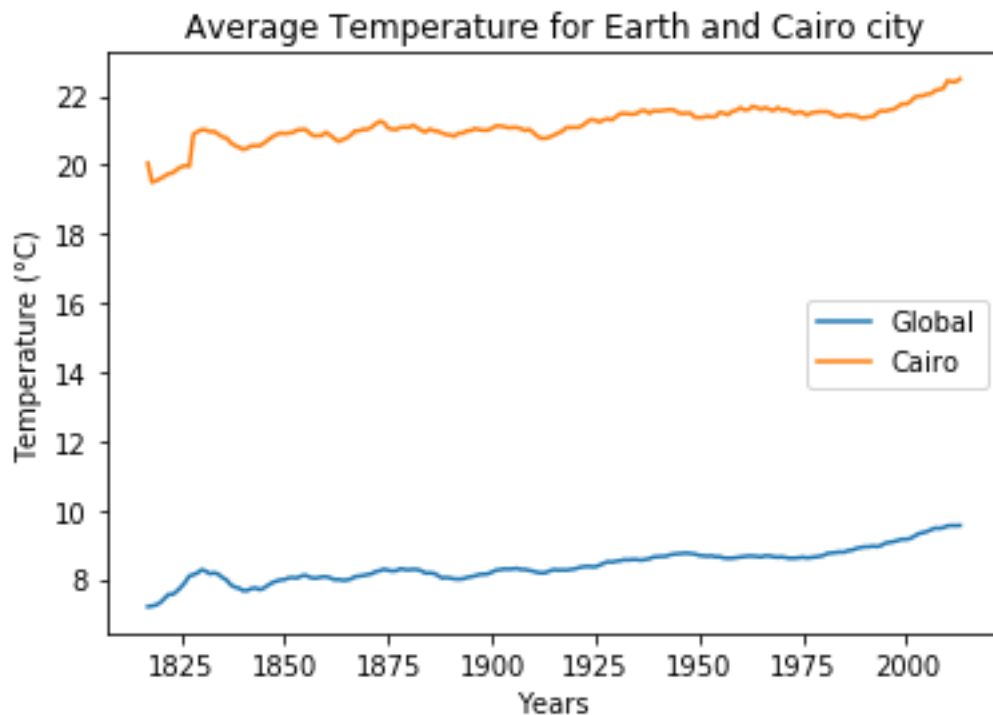
```
SELECT * FROM city_data
WHERE city = 'Cairo' AND country = 'Egypt';
```

// Moving Averages:

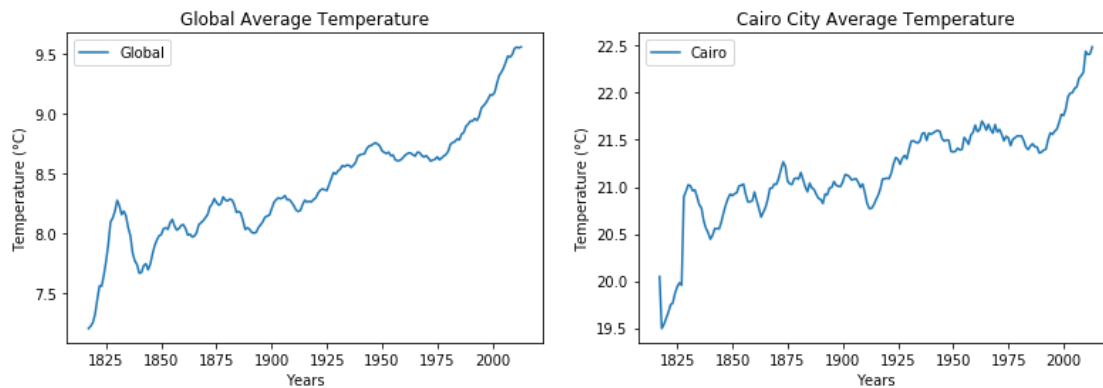
- Rolling Average has been calculated to smooth out data and to make it easier to observe the trends when it be shown in Charts.
- The Rolling Average has been calculated for every 10 years to each single data but the first 10!
- Python was used for calculating the Moving Average Using built-in Functions such as ("rolling", "mean").
- Python Code for what has been explained:

```
glb_mv_avg = globaltemp['avg_temp'].rolling(10).mean()
local_mv_avg = citytemp['avg_temp'].rolling(10).mean()
```

/// Line Chart for the data:



.Two other charts for Global Temperature and Cairo City separately.



Observations:

- By noticing the chart it shows that the temperature is raising over the years due to climate change.
- The Global temperature started to raise 'exponentially' since the middle of 1800 which happened to be the same data as oil mining.
- Since 1975 the temperature is raising without any stops
- The difference between year 1800 and ~2010 in temperature is more than 2 degrees in the Global average chart (increasing).
- The difference between year 1800 and ~2010 is more than 3 degrees in the Cairo City average chart (increasing).
- Cairo city is getting hotter over time.
- The change of the climate between the globe and Cairo city is slightly small, and both of them are raising.

Conclusion:

There is an evidence suggests that the global temperature is raising over the years which support the case of climate change.