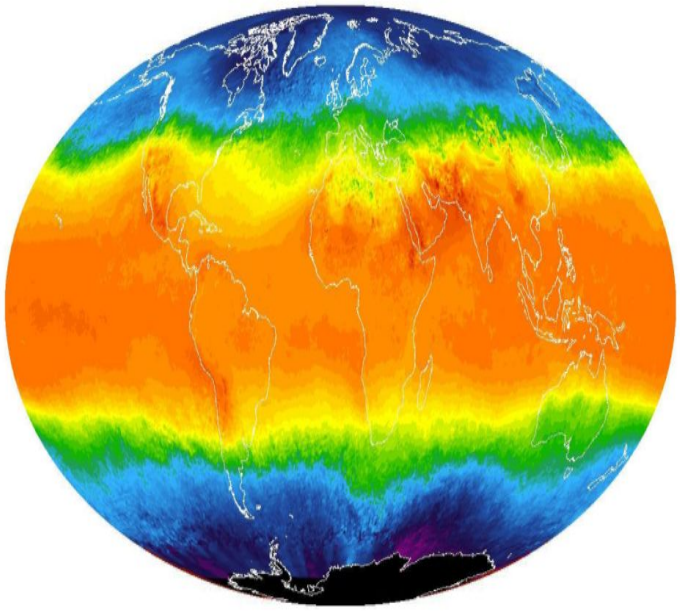
Udacity Data Analyst Nanodegree

Project 1 – Explore Weather Trends

26th of April, 2020



Student Mohammed Haroon Khan

learn.online.mohammed@gmail.com

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Introduction

Comparing global temperature trends to my city temperature trends, by using SQL to get the avg global and local temperatures and then getting the moving average for both the Global and Riyadh avg_temp and visualizing them using Line Chart.

Data Preparation

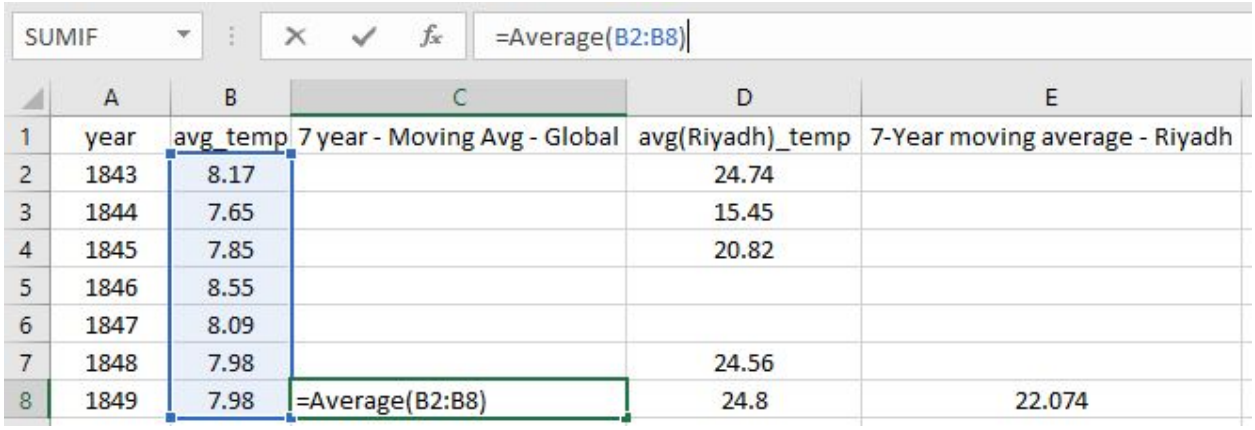
- Global avg temp and local avg temp were extracted from the database using SQL as follow:
    - Local Temperature SQL Query :

        ```
        select city, year, avg_temp from city_data where city='Riyadh'
        ```

    - Global Temperature SQL Query:

        ```
        select year, avg_temp from global_data
        ```

- Moving Average:



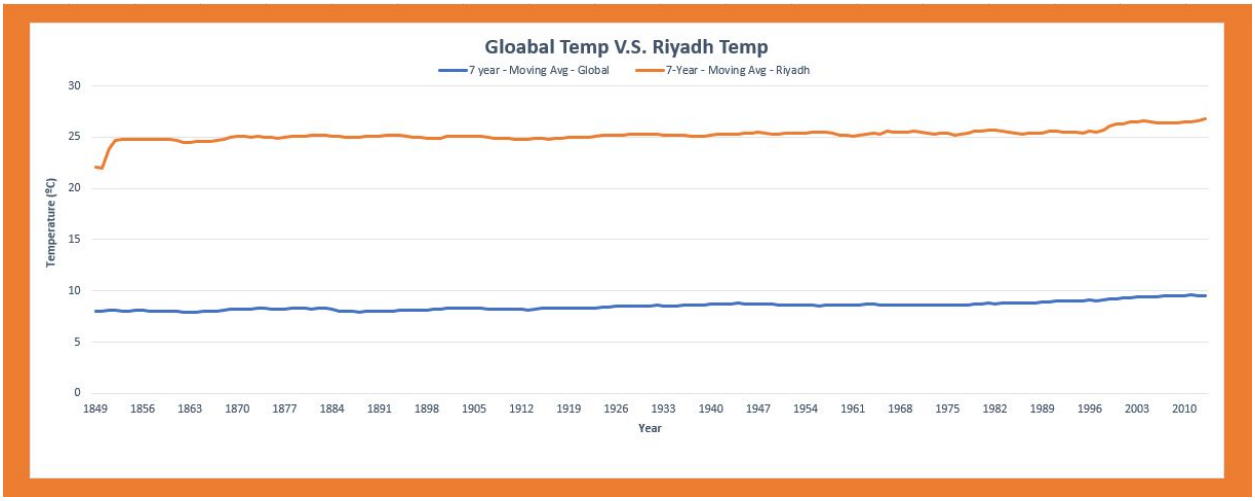
	A	B	C	D	E
1	year	avg_temp	7 year - Moving Avg - Global	avg(Riyadh)_temp	7-Year moving average - Riyadh
2	1843	8.17		24.74	
3	1844	7.65		15.45	
4	1845	7.85		20.82	
5	1846	8.55			
6	1847	8.09			
7	1848	7.98		24.56	
8	1849	7.98	=Average(B2:B8)	24.8	22.074

For a 7-year moving average for C8 at column C (Moving average for global), I took the average of the last 7 rows for the corresponding values at column B (Average temperature for global) including the B8. (C8 = Average(B2:B8) = 8.038571429)

- Key Considerations for visualizing the trends:
    - A smooth line chart.
    - Chart with clearly defined labels for the X-Axis and Y-Axis.
    - Chart with a clearly defined title.
    - Chart with a simple and clear design

Line Chart

Link to the Line Chart: LineChart.PNG



Observations

The observations from the Line Chart are:

- The temperature in Riyadh is significantly -3 times- higher than the Global temperature.
- The difference between the Global and Riyadh temperature is nearly the same over the years.
- The temperature in Riyadh had a sudden spike of around 2 ºC between 1849 and 1852.
- The temperature in both Riyadh and The Global is steadily rising.
- It could be predicted from this graph that the temperature is going to keep rising both globally and in Riyadh.
- There is a strong correlation between Global and Riyadh Temperature with a value of 0.80.