Exploring Weather Trends Project

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Summary

In this project, I will analyze local and global temperature data and compare the temperature trends where I live to overall global temperature trends.

Step 1: Extract the data

From Udacity database by using SQL query.

First Query: Get a list of the closest big city to where I live. The result are Mecca and Riyadh.

```
SELECT *
FROM city_list
WHERE country= 'Saudi Arabia'
```

Second Query: The closest city for me is Riyadh. And I specify two columns in select which are year and avg_temp. Then export to CSV file.

```
SELECT year, avg_temp
FROM city_data
WHERE country='Saudi Arabia' and city='Riyadh'
```

Third Query: Get global temperature trends which contain are year and avg_temp. Then export to CSV file.

```
SELECT *
FROM global_data
```

Step 2: Data Cleaning

I will use **Microsoft Excel** for analyzing and visualizing. After open CSV file for Riyadh temperature, there are missing avg_temp value of some years. Then I will start from 1848 year. Also, the last year was up to 2013. However, the global temperature start from 1750 year up to 2015.

To compare the temperature moving averages for local and global temperature I will take the same period of years which is from 1848 year to 2013 year.

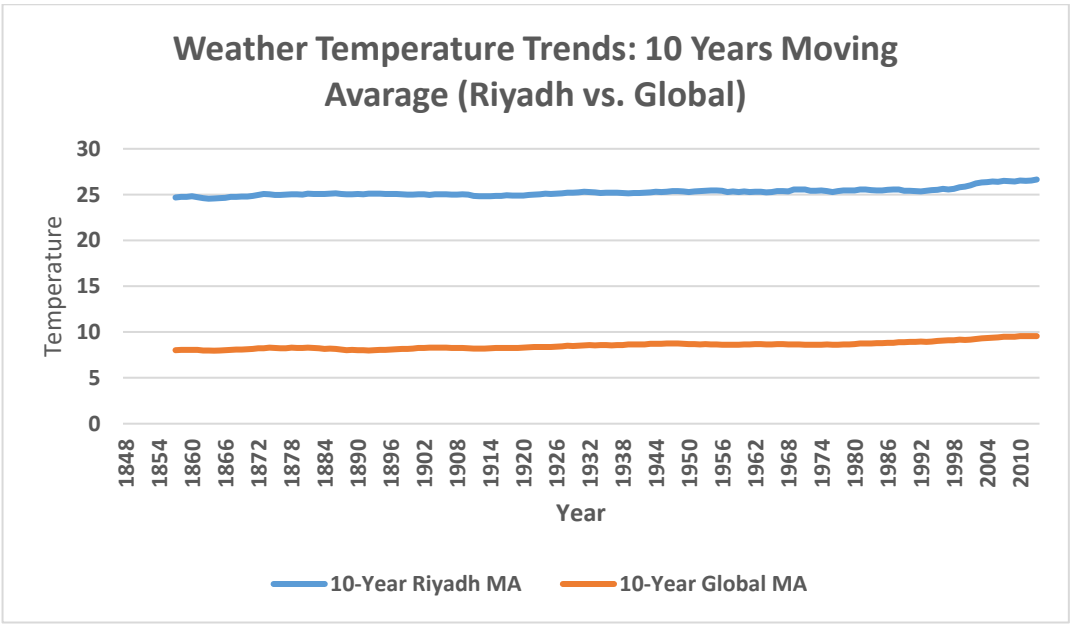
Step 3: Calculate Moving average

I suggest to get 10 year to calculate Moving Average.

SUM | =AVERAGE(B2:B11)

	A	B	C	D	E
1	Year	Riyadh_avg_temp	Global_avg_temp	10-Year Riyadh MA	10-Year Global MA
2	1848	24.56	7.98		
3	1849	24.8	7.98		
4	1850	24.34	7.9		
5	1851	25.03	8.18		
6	1852	24.85	8.1		
7	1853	24.93	8.04		
8	1854	24.72	8.21		
9	1855	24.92	8.11		
10	1856	24.57	8		
11	1857	24.26	7.76	=AVERAGE(B2:B11)	8.026
12	1858	25.01	8.1	24.743	8.038
13	1859	24.95	8.25	24.758	8.065
14	1860	24.94	7.96	24.818	8.071
15	1861	24.13	7.85	24.728	8.038
16	1862	23.77	7.56	24.62	7.984
17	1863	24.28	8.11	24.555	7.991
18	1864	25.03	7.98	24.586	7.968
19	1865	25.23	8.18	24.617	7.975
20	1866	24.92	8.29	24.652	8.004

Step 4: Visualization



Observations:

The differences between the global averages and Riyadh averages:

- There is an observable upward trend for the global temperatures and Riyadh temperature averages.
- Riyadh averages temperature has hotter than global averages. Also, the difference has been consistent over time.
- The ranged averages temperature between 1848 up to 2013 year for the global around 7.9 to 10 and for Riyadh around 24.5 to 26.6.
- The temperatures of Riyadh before 1998 gone straight and after change observable upward trend. Also, for the global observable upward trend at 1986.