Exploring Weather Trends

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I. Process of work :

- First of all, I have restricted the comparison between 1848 - 2013 for both (closest big city temperature data as well as for the world temperature data); As there is an missed/empty information on the previous years (before 1848). Furthermore, city_data table data stopped at year 2013 (no more information is available; that is behind the reason of stopping at year 2013 to make sure the results are accurate).

- Moreover, 6 year moving average is calculated for year 1848 until 2013.

II. SQL statements:

- Extract data from Riyadh City:

```
SELECT year , avg_temp
FROM city_data
WHERE year>=1848 AND city='Riyadh';
```

- Extract data from the World:

```
SELECT year , avg_temp
FROM global_data
WHERE year BETWEEN 1848 AND 2013;
```

III. Manipulate Data In A Spreadsheet:

a.

D7				fx	=AVERAGE(B2:B7)

	A	B	C	D
1	year	avg_temp	city	6-Year MA
2	1848	24.56	Riyadh	
3	1849	24.8	Riyadh	
4	1850	24.34	Riyadh	
5	1851	25.03	Riyadh	
6	1852	24.85	Riyadh	
7	1853	24.93	Riyadh	24.7516667

Figure 1 Sample of the first Riyadh city data 6 Year Moving Average.

b.

C7				fx	=AVERAGE(B2:B7)

	A	B	C	D
1	year	avg_temp	6-Year MA	
2	1848	7.98		
3	1849	7.98		
4	1850	7.9		
5	1851	8.18		
6	1852	8.1		
7	1853	8.04	8.03	

Figure 2 Sample of the first World data 6 Year Moving Average.

3
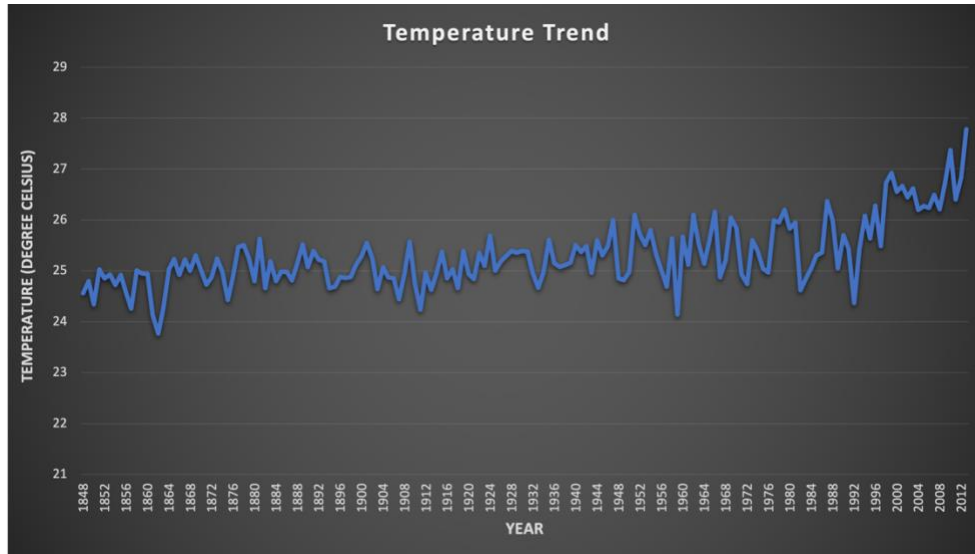
IV. Data Visualization:

c.

Figure 3 Temperature Trend For Riyadh city From 1848 until 2013.
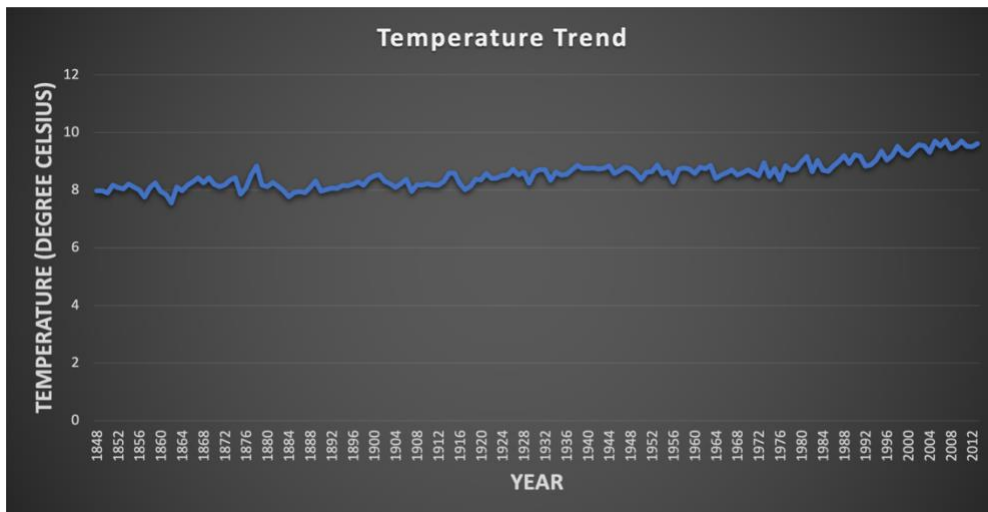
d.

Figure 4 Temperature Trend For the World From 1848 until 2013.
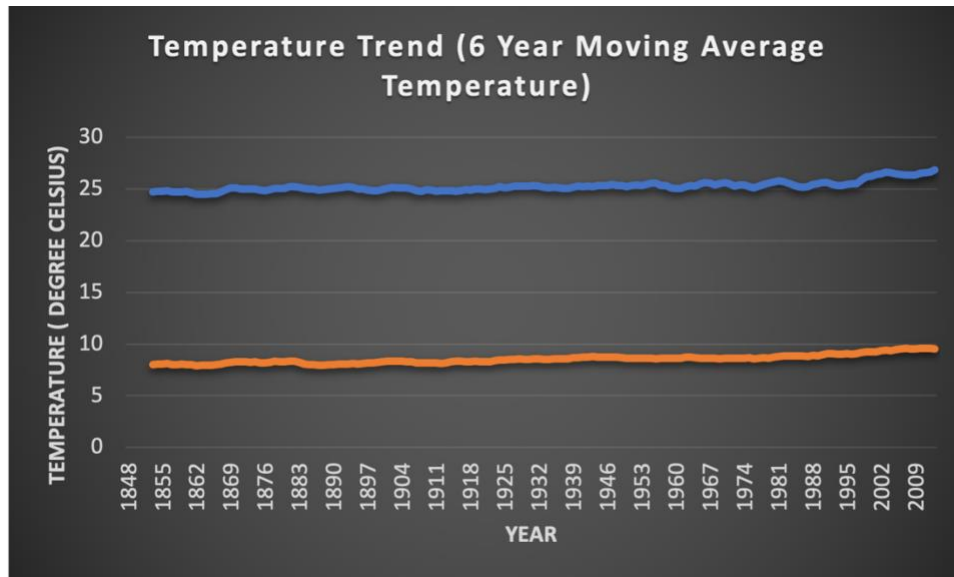
e.

Figure 5 Temperature Trend with 6-Year MV of Riyadh VS The World.

5

V. Observations:

1. There is a slight variation between the results of average temperatures of Riyadh and the World.

2. Riyadh average temperatures is higher than the World average temperatures. The difference between them is increased by around 17 °**C** degree.

3. The weather at Riyadh it increased slowly without make a huge difference. As we can see it starts from 24 °**C** degree at (1848) and it continues to be closer with the 27 °**C** degree at (2003) that is means it is higher approximately with 3°**C** degree.

4. The weather at the World is increased slowly. Consequently, the difference between the first and the last year is less than Riyadh, that means the weather in the World much colder than Riyadh. As what we have seen, it starts from 8 °**C** degree (at 1848) and it continuous to be closer with the 10 °**C** degree (at 2003), as a result of that it is higher approximately with 2 °**C** degree.

5. Lastly, Riyadh and the World have been increased in their average temperatures.