The First Project: Explore Weather Trends

The steps I followed to complete the project are listed below:

1. **I wrote 3 queries to extract the required data. I used the workspace that is connected to the database in Udacity**

- To know the closest city to where I live, I checked the listed cities in the city_list table by using this query:

```
SELECT *
FROM city_list;
```

- To select the local data, I wrote the following query:

```
SELECT *
FROM city_data
WHERE city='Riyadh';
```

- To select the global data, I wrote the following query:

```
SELECT *
FROM global_data;
```

2. **I downloaded the CSV files and open them using MS Excel software.**

3. **For each set of data (local & global), I calculated the 10-year moving average.** I decided to use this value because the dataset is large so, when I use the average of each 10 years, it will be visualized clearly and smoothly in the chart.

- The image below shows how I calculated the moving average for the local data. For example, in the cell E10, I calculated the average of the temperature values in the first 10 rows of the local data (Using the AVERAGE function). I used the same method to calculate the average of each 10 values.

E10 =AVERAGE(D2:D10)

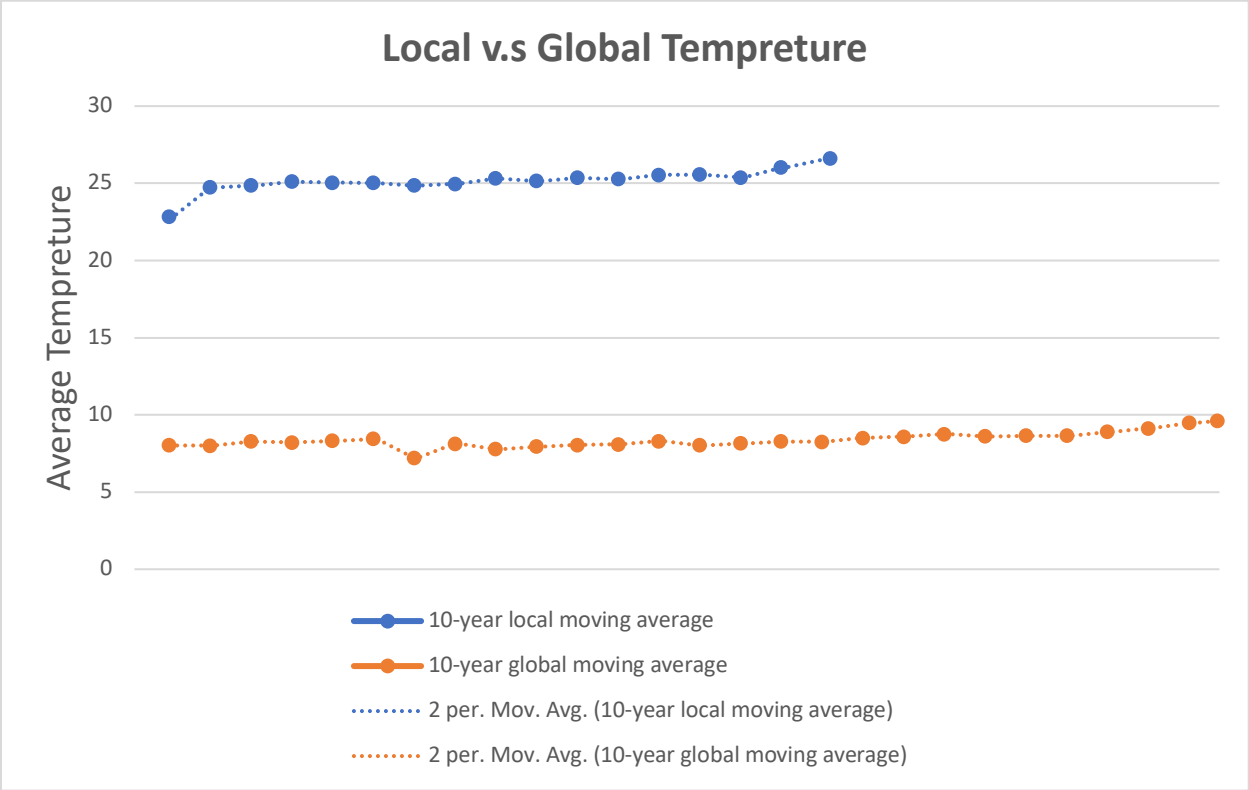
	A	B	C	D	E
1	year	city	country	avg_temp	10-year local moving average
2	1843	Riyadh	Saudi Arabia	24.74	
3	1844	Riyadh	Saudi Arabia	15.45	
4	1845	Riyadh	Saudi Arabia	20.82	
5	1846	Riyadh	Saudi Arabia		
6	1847	Riyadh	Saudi Arabia		
7	1848	Riyadh	Saudi Arabia	24.56	
8	1849	Riyadh	Saudi Arabia	24.8	
9	1850	Riyadh	Saudi Arabia	24.34	
10	1851	Riyadh	Saudi Arabia	25	22.820

- The image below shows how I calculated the moving average for the global data. For example, in the cell Q10, I calculated the average of the temperature values in the first 10 rows of the global data (Using the AVERAGE function). I used the same method to calculate the average of each 10 values.

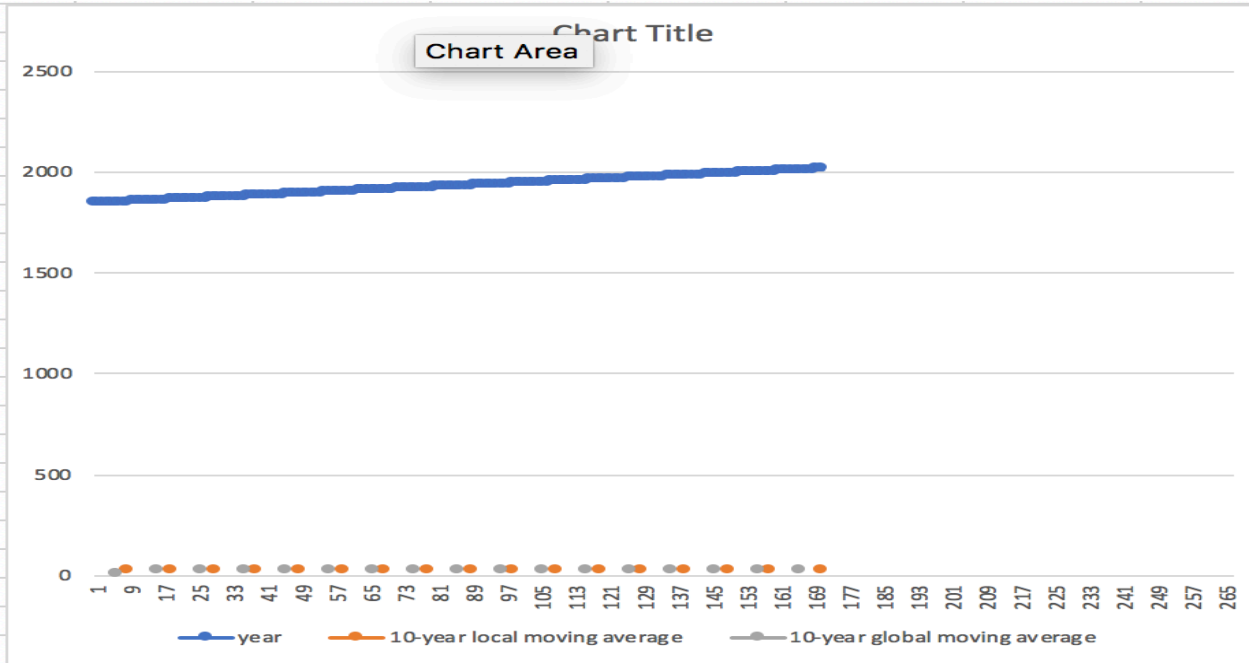
Q10 =AVERAGE(P2:P10)

O	P	Q
year	avg_temp	10-year global moving average
1750	8.72	
1751	7.98	
1752	5.78	
1753	8.39	
1754	8.47	
1755	8.36	
1756	8.85	
1757	9.02	
1758	6	8.034

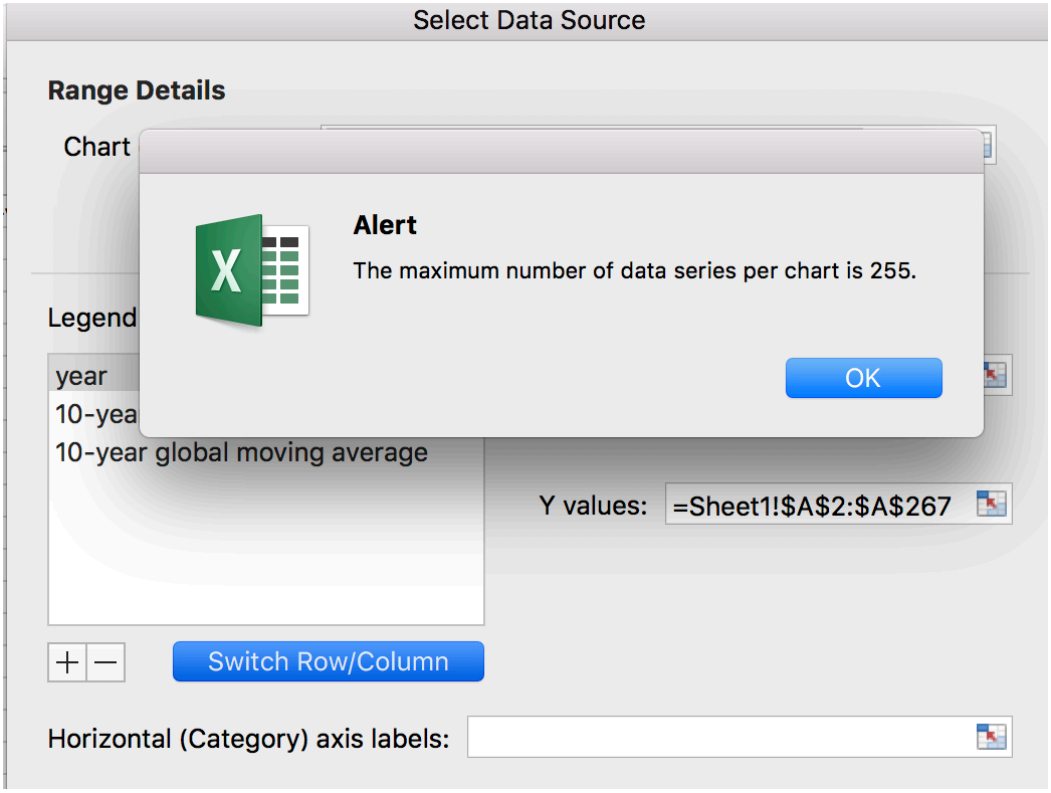
4. I used the "line chart" to visualize the data shown below:



When I tried to include the "year" values in the chart:



When I tried to switch the row and column, the following message appear:



5. Observations (Similarities & Dissimilarities):

- For the local level, the temperature increased and approximately stayed stable for a long time then, it increased again.

- For the global level, after a long while, the temperature declined then, it started to increase again and then stayed stable.

- On average, the local city “Riyadh” is hotter comparing to the global courtiers. The temperature difference between them(Riyadh & global countries) is consistent over time.

- In general, the local temperature is consistent at 24 to 25 degree while global temperature is consistent at 8 degree.