

Explore Weather Trends

Lulwa A. Alfrayan

Udacity - Data Analyst Nanodegree
Project (1), Explore Weather Trends
Riyadh, Saudi Arabia

Project Overview

In this project, I have analyzed local temperature of Riyadh, Saudi Arabia in accordance with the global temperature data and compared

Tools Used

1. **SQL**: To extract the data from the database
2. **Excel**: For calculating moving average , plotting line chart and making observations

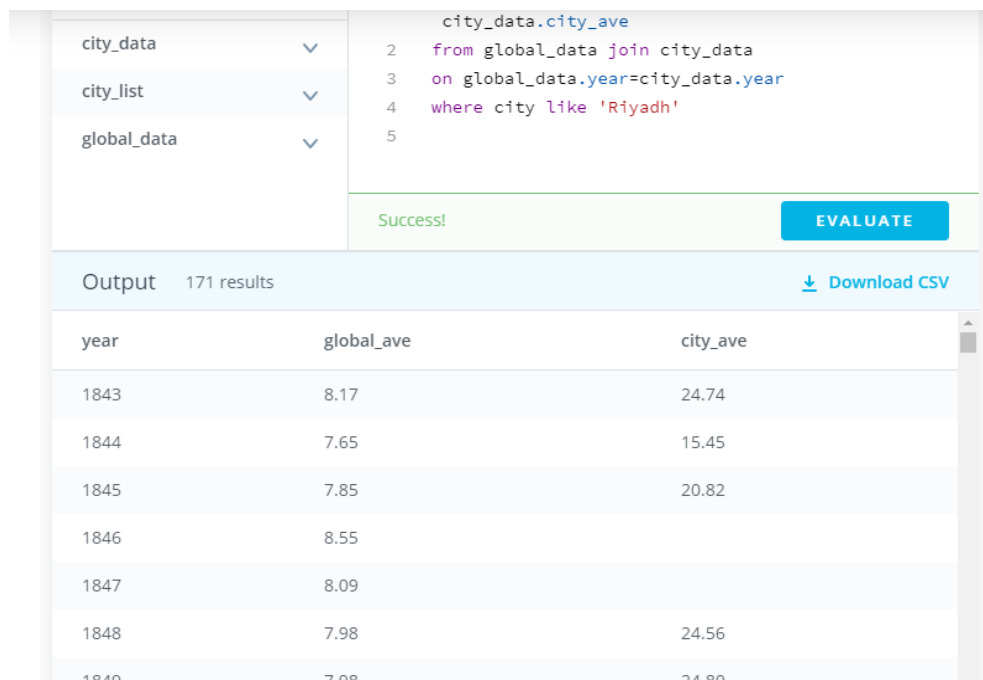
Extraction of Data from provided Database Using SQL Query

- 1) changing the names of the columns in order to have distinct columns, because the tables (city_data and global_data) contain same column named 'avg_temp'.

```
ALTER TABLE city_data rename column avg_temp to city_ave  
ALTER TABLE global_data rename column avg_temp to global_ave
```

- 2) Joining the two tables together using (Join)

```
select global_data.year, global_data.global_ave, city_data.city_ave  
from global_data join city_data  
on global_data.year=city_data.year  
where city like 'Riyadh'
```



The screenshot shows a SQL query execution interface. On the left, there are three dropdown menus for selecting tables: 'city_data', 'city_list', and 'global_data'. The 'city_data' dropdown is selected. In the center, the SQL query is displayed:

```
city_data.city_ave  
2 from global_data join city_data  
3 on global_data.year=city_data.year  
4 where city like 'Riyadh'  
5
```

 Below the query, a green bar indicates 'Success!'. To the right of the success bar is a blue button labeled 'EVALUATE'. Below the success bar, there is a section titled 'Output' with '171 results' and a 'Download CSV' link. The output is a table with three columns: 'year', 'global_ave', and 'city_ave'. The table contains data for the years 1843 through 1849.

year	global_ave	city_ave
1843	8.17	24.74
1844	7.65	15.45
1845	7.85	20.82
1846	8.55	
1847	8.09	
1848	7.98	24.56
1849	7.98	24.80

- 3) downloading the file as CSV format

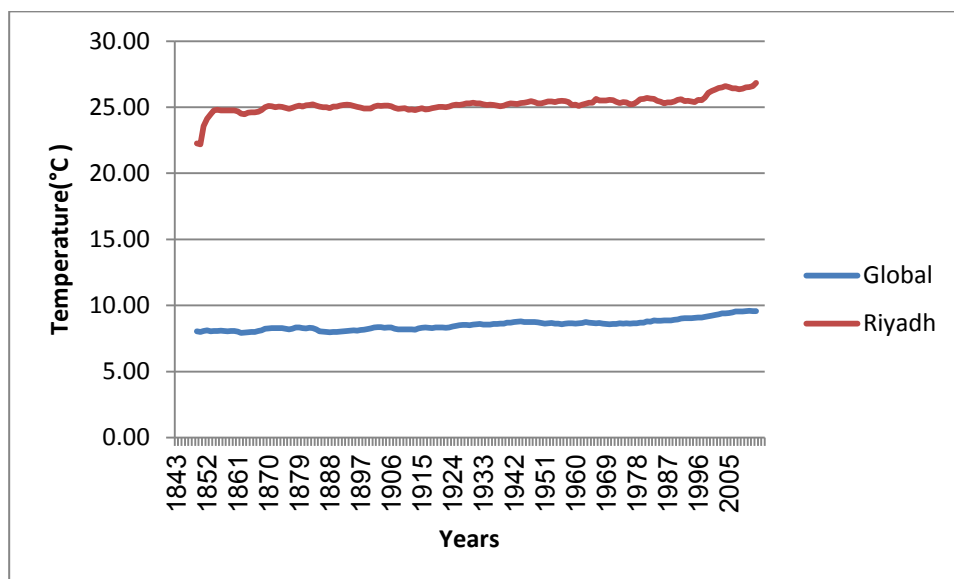
Calculate Moving Averages and create the Chart Line

-I have done 7 years moving average

-I have making the middle average for two missing values

	A	B	C	D	E
1	year	global_ave	city_ave	Moving (global_ave)	Moving (city_ave)
2	1843	8.17	24.74		
3	1844	7.65	15.45		
4	1845	7.85	20.82		
5	1846	8.55	22.69		
6	1847	8.09	22.69		
7	1848	7.98	24.56		
8	1849	7.98	24.8	8.04	22.25
9	1850	7.9	24.34	8.00	22.19
10	1851	8.18	25.03	8.08	23.56
11	1852	8.1	24.85	8.11	24.14
12	1853	8.04	24.93	8.04	24.46
13	1854	8.21	24.72	8.06	24.75
14	1855	8.11	24.92	8.07	24.80
15	1856	8	24.57	8.08	24.77
16	1857	7.76	24.26	8.06	24.75
17	1858	8.1	25.01	8.05	24.75
18	1859	8.25	24.95	8.07	24.77
19	1860	7.96	24.94	8.06	24.77
20	1861	7.85	24.13	8.00	24.68
21	1862	7.56	23.77	7.93	24.52

Global vs Riyadh 7-year Moving Average Temperature



Observations

- Riyadh and Global average temperature have similar kind of trend
- World is getting hotter because from 1850 to 2013 temperature is increase
- Riyadh is 16.65 degrees hotter than the world.
(the average for Global=8.54 , the average for Riyadh =25.18. So Riyadh is hotter than Global celsius degree 16.65)
- Riyadh gets hotter over time there are not many rains

Conclusion

The world is getting hotter