

## Project 1 – Exploring weather Trends

- I have used Microsoft Excel as a tool to make this project.
- The most important keys are to make visualizing clear, observable and readable.
- I have been calculate the 10 years moving average by making a new column for it and write a formula ( =Average( ) ) then select ten years temperatures to calculate there's average.

A	B	C	D	E	F
year	city	country	avg_temp	10y-MA	
1843	Riyadh	Saudi Arabia	24.74		
1844	Riyadh	Saudi Arabia	15.45		
1845	Riyadh	Saudi Arabia	20.82		
1846	Riyadh	Saudi Arabia			
1847	Riyadh	Saudi Arabia			
1848	Riyadh	Saudi Arabia	24.56		
1849	Riyadh	Saudi Arabia	24.8		
1850	Riyadh	Saudi Arabia	24.34		
1851	Riyadh	Saudi Arabia	25.33	=AVERAGE(D2:D10)	

< This picture shows how I calculate the 10 years moving average for city temperature

\*for the rest of the 10y-MA column just drag down the first element of the column and the Excel will calculate it automatically

H	I	J	K
year	avg_temp	10y-MA	
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	6.74	=AVERAGE(I2:I10)	

< This picture shows how I calculate the 10 years moving average for global temperature

\*for the rest of the 10y-MA column just drag down the first element of the column and the Excel will calculate it automatically

◇ **SQL queries used:-**

**1- SELECT \* FROM city\_list**

- I used this query to extract all cities stored in the database to find out which city is the nearest to mine.

The screenshot shows a SQL query interface. The 'Input' section on the left has a 'SCHEMA' dropdown with options: 'city\_data', 'city\_list', and 'global\_data'. The query editor shows the query 'SELECT \* FROM city\_list'. Below the editor is a 'Success!' message and an 'EVALUATE' button. The 'Output' section shows '345 results' and a 'Download CSV' link. The output table has two columns: 'city' and 'country'. The first three rows are: Abidjan, Côte D'Ivoire; Abu Dhabi, United Arab Emirates; and Abuja, Nigeria.

city	country
Abidjan	Côte D'Ivoire
Abu Dhabi	United Arab Emirates
Abuja	Nigeria

**2- Select \* From city\_data where city = 'Riyadh'**

- I used this query to extract all the data that relate to Riyadh city from database

The screenshot shows a SQL query interface. The 'Input' section on the left has a 'SCHEMA' dropdown with options: 'city\_data', 'city\_list', and 'global\_data'. The query editor shows the query 'Select \* From city\_data where city = 'Riyadh''. Below the editor is a 'Success!' message and an 'EVALUATE' button. The 'Output' section shows '171 results' and a 'Download CSV' link. The output table has four columns: 'year', 'city', 'country', and 'avg\_temp'. The first three rows are: 1843, Riyadh, Saudi Arabia, 24.74; 1844, Riyadh, Saudi Arabia, 15.45; and 1845, Riyadh, Saudi Arabia, 20.82.

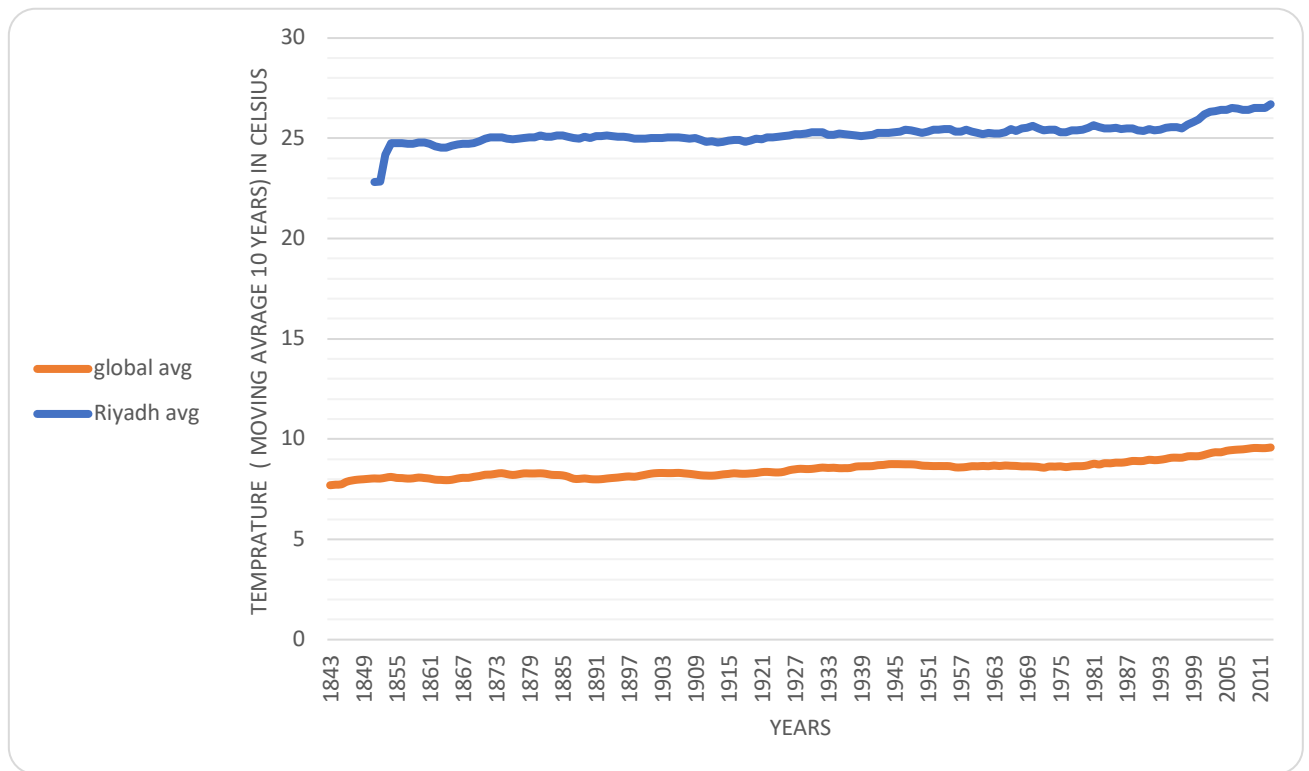
year	city	country	avg_temp
1843	Riyadh	Saudi Arabia	24.74
1844	Riyadh	Saudi Arabia	15.45
1845	Riyadh	Saudi Arabia	20.82

**3- Select \* From global\_data**

- I used this query to extract all the global data from database

The screenshot shows a SQL query interface. The 'Input' section on the left has a 'SCHEMA' dropdown with options: 'city\_data', 'city\_list', and 'global\_data'. The query editor shows the query 'Select \* From global\_data'. Below the editor is a 'Success!' message and an 'EVALUATE' button. The 'Output' section shows '266 results' and a 'Download CSV' link. The output table has two columns: 'year' and 'avg\_temp'. The first three rows are: 1750, 8.72; 1751, 7.98; and 1752, 5.78.

year	avg_temp
1750	8.72
1751	7.98
1752	5.78



○ I have been selected Riyadh city because it is the nearest big city to mine.

● **Observation:-**

- Riyadh temperature is hotter compared to the global temperature.
- In Riyadh the average temperature is around 25 while the global average temperature is around 9.
- The changes between the global temperature and City temperature are parallel .
- The world temperature is getting hotter and almost in past 40 years the speed of increasing temperature is getting faster.

❖ Correlation coefficient is the way to determine how strong the two variables are related to each other. **0 means no relation, +1 means there is strong relation and -1 means negative relation**

❖ The Correlation coefficient between the local and global temperatures **equal to ( 0.61306798 )** it means there is a relation between both.