



Project 1: Exploring Weather Trends

Course: Data Analysis

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Date: 4/27/2020

Project Idea:

In this project my goal was create a visualization and prepare a describing the similarities and differences between global temperature trends and temperature trends in Riyadh

Steps taken to prepare the project:

1-Extract the data from the database by writing SQL query to extract data as CSV file ,the Riyadh data years and avg_temp from city_data table, also the global_data with year column and avg_temp from 1848 to 2013, because the years before 1848 were empty so I try to make everything constant as below:

Project:
Explore Weather Trends

SEARCH

RESOURCES

CONCEPTS

✓ 1. Your First Project

✓ 2. Project Instructions

✓ 3. Accessing Data With SQL

✓ 4. Moving Averages

★ 5. Project: Explore Weather Trends

Mentor Help

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Accessing Data With SQL

SEND FEEDBACK

The Database Schema

There are three tables in the database:

- city_list - This contains a list of cities and countries in the database. Look through them in order to find the city nearest to you.
- city_data - This contains the average temperatures for each city by year (°C).
- global_data - This contains the average global temperatures by year (°C).

Input

HISTORY ▼ MENU ▼

SCHEMA	1	select year, avg_temp from city_data where city = 'Riyadh' and year >=1848 and year <=2013
city_data	2	
city_list		
city - (character)		
country		
global_data		

EVALUATE

Output

No data to download

Figure1: SQL query to extract the Riyadh data

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Accessing Data With SQL

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Input

HISTORY ▼ MENU ▼

SCHEMA	1	select * from global_data where year>=1848 and year<=2013
city_data	2	
city_list		
global_data		

Success!

EVALUATE

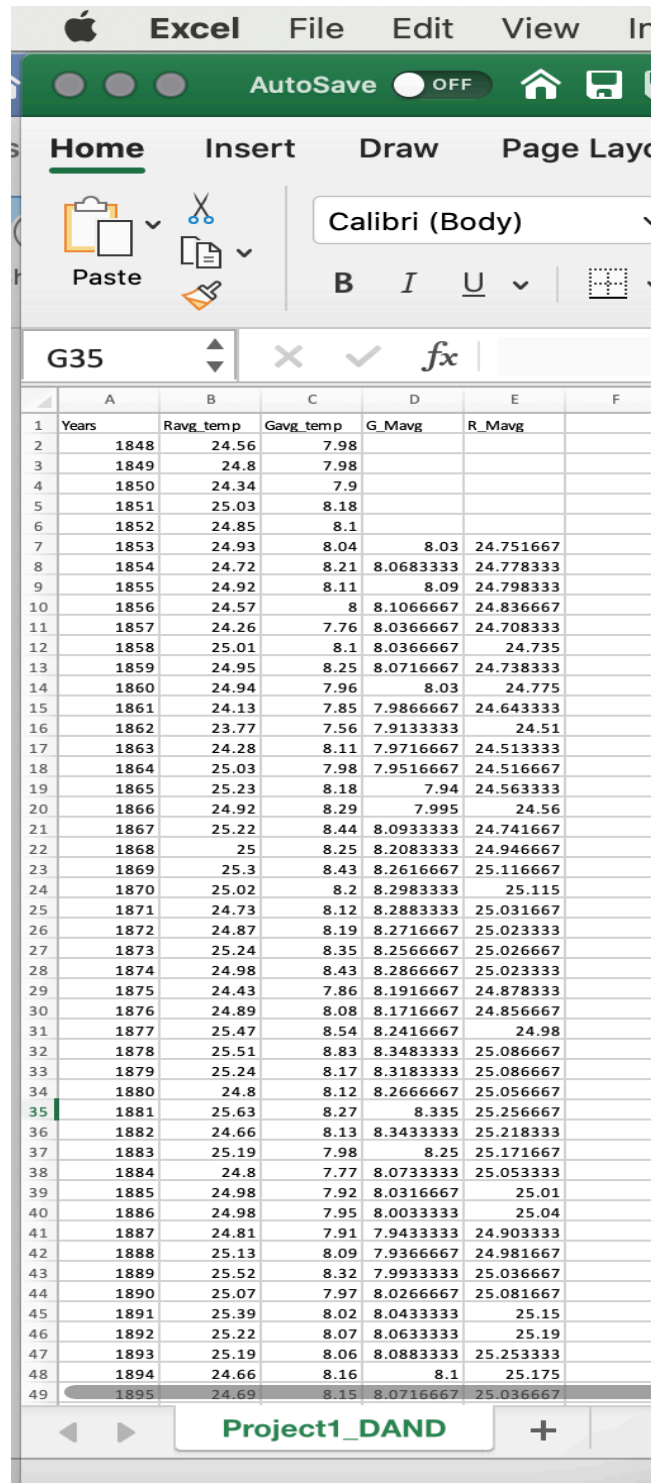
Output

166 results

Download CSV

Figure 2: SQL query to extract the Global data

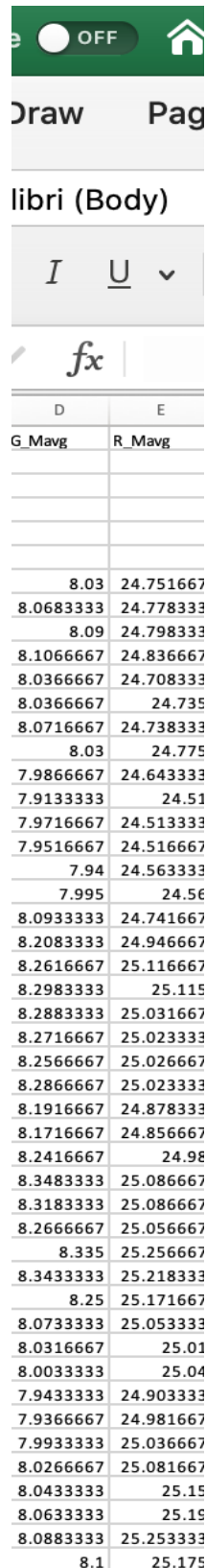
2.a- Open the CSV file in Excel with 5 Columns
years, Riyadh avg_temp, Global avg_temp, Global
Moving AVG, Riyadh Moving AVG as below:



	A	B	C	D	E	F
	Years	Ravg_temp	Gavg_temp	G_Mavg	R_Mavg	
1	1848	24.56	7.98			
2	1849	24.8	7.98			
3	1850	24.34	7.9			
4	1851	25.03	8.18			
5	1852	24.85	8.1			
6	1853	24.93	8.04	8.03	24.751667	
7	1854	24.72	8.21	8.0683333	24.778333	
8	1855	24.92	8.11	8.09	24.798333	
9	1856	24.57	8	8.1066667	24.836667	
10	1857	24.26	7.76	8.0366667	24.708333	
11	1858	25.01	8.1	8.0366667	24.735	
12	1859	24.95	8.25	8.0716667	24.738333	
13	1860	24.94	7.96	8.03	24.775	
14	1861	24.13	7.85	7.9866667	24.643333	
15	1862	23.77	7.56	7.9133333	24.51	
16	1863	24.28	8.11	7.9716667	24.513333	
17	1864	25.03	7.98	7.9516667	24.516667	
18	1865	25.23	8.18	7.94	24.563333	
19	1866	24.92	8.29	7.995	24.56	
20	1867	25.22	8.44	8.0933333	24.741667	
21	1868	25	8.25	8.2083333	24.946667	
22	1869	25.3	8.43	8.2616667	25.116667	
23	1870	25.02	8.2	8.2983333	25.115	
24	1871	24.73	8.12	8.2883333	25.031667	
25	1872	24.87	8.19	8.2716667	25.023333	
26	1873	25.24	8.35	8.2566667	25.026667	
27	1874	24.98	8.43	8.2866667	25.023333	
28	1875	24.43	7.86	8.1916667	24.878333	
29	1876	24.89	8.08	8.1716667	24.856667	
30	1877	25.47	8.54	8.2416667	24.98	
31	1878	25.51	8.83	8.3483333	25.086667	
32	1879	25.24	8.17	8.3183333	25.086667	
33	1880	24.8	8.12	8.2666667	25.056667	
34	1881	25.63	8.27	8.335	25.256667	
35	1882	24.66	8.13	8.3433333	25.218333	
36	1883	25.19	7.98	8.25	25.171667	
37	1884	24.8	7.77	8.0733333	25.053333	
38	1885	24.98	7.92	8.0316667	25.01	
39	1886	24.98	7.95	8.0033333	25.04	
40	1887	24.81	7.91	7.9433333	24.903333	
41	1888	25.13	8.09	7.9366667	24.981667	
42	1889	25.52	8.32	7.9933333	25.036667	
43	1890	25.07	7.97	8.0266667	25.081667	
44	1891	25.39	8.02	8.0433333	25.15	
45	1892	25.22	8.07	8.0633333	25.19	
46	1893	25.19	8.06	8.0883333	25.253333	
47	1894	24.66	8.16	8.1	25.175	
48	1895	24.69	8.15	8.0716667	25.036667	

Figure 3: Excel sheet

2.b-I calculate the Moving AVG for every 7 years by using AVG function in Excel as below:



libri (Body)

G_Mavg	R_Mavg
8.03	24.751667
8.0683333	24.778333
8.09	24.798333
8.1066667	24.836667
8.0366667	24.708333
8.0366667	24.735
8.0716667	24.738333
8.03	24.775
7.9866667	24.643333
7.9133333	24.51
7.9716667	24.513333
7.9516667	24.516667
7.94	24.563333
7.995	24.56
8.0933333	24.741667
8.2083333	24.946667
8.2616667	25.116667
8.2983333	25.115
8.2883333	25.031667
8.2716667	25.023333
8.2566667	25.026667
8.2866667	25.023333
8.1916667	24.878333
8.1716667	24.856667
8.2416667	24.98
8.3483333	25.086667
8.3183333	25.086667
8.2666667	25.056667
8.335	25.256667
8.3433333	25.218333
8.25	25.171667
8.0733333	25.053333
8.0316667	25.01
8.0033333	25.04
7.9433333	24.903333
7.9366667	24.981667
7.9933333	25.036667
8.0266667	25.081667
8.0433333	25.15
8.0633333	25.15
8.0883333	25.253333
8.1	25.175

Figure 4: Excel sheet for MOVING AVG

3-crate Line chart and plot the Global and Riyadh moving AVG as below:

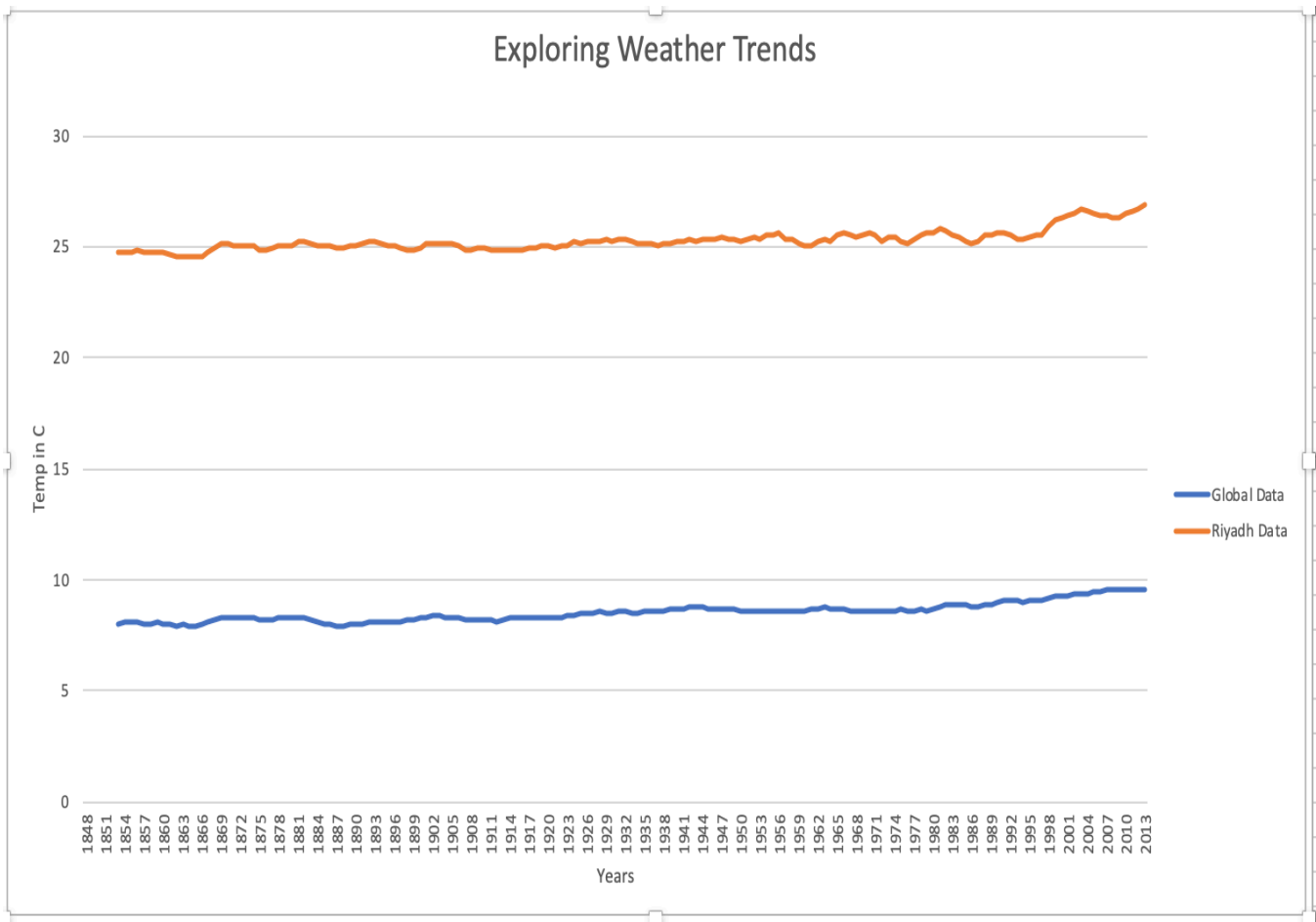


Figure 5: Line chart

4- Observations According to line charts, the following observations may be deduced:

- Riyadh's weather is much warmer than the global average considering that the temperature has always been greater in the past couple hundred years.
- In both cases, we can see that the average temperature is gradually increasing throughout the entire timeframe.
- A significant rise in the yearly average temperature can be observed in Riyadh in the past couple of decades starting from the year 1995 upwards.
- The yearly average temperature seems to be increasing abnormally on a global scale in the last 3-4 decades.