UDACITY

Project 1: Exploring Weather Trends

Course: Data Analysis

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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:

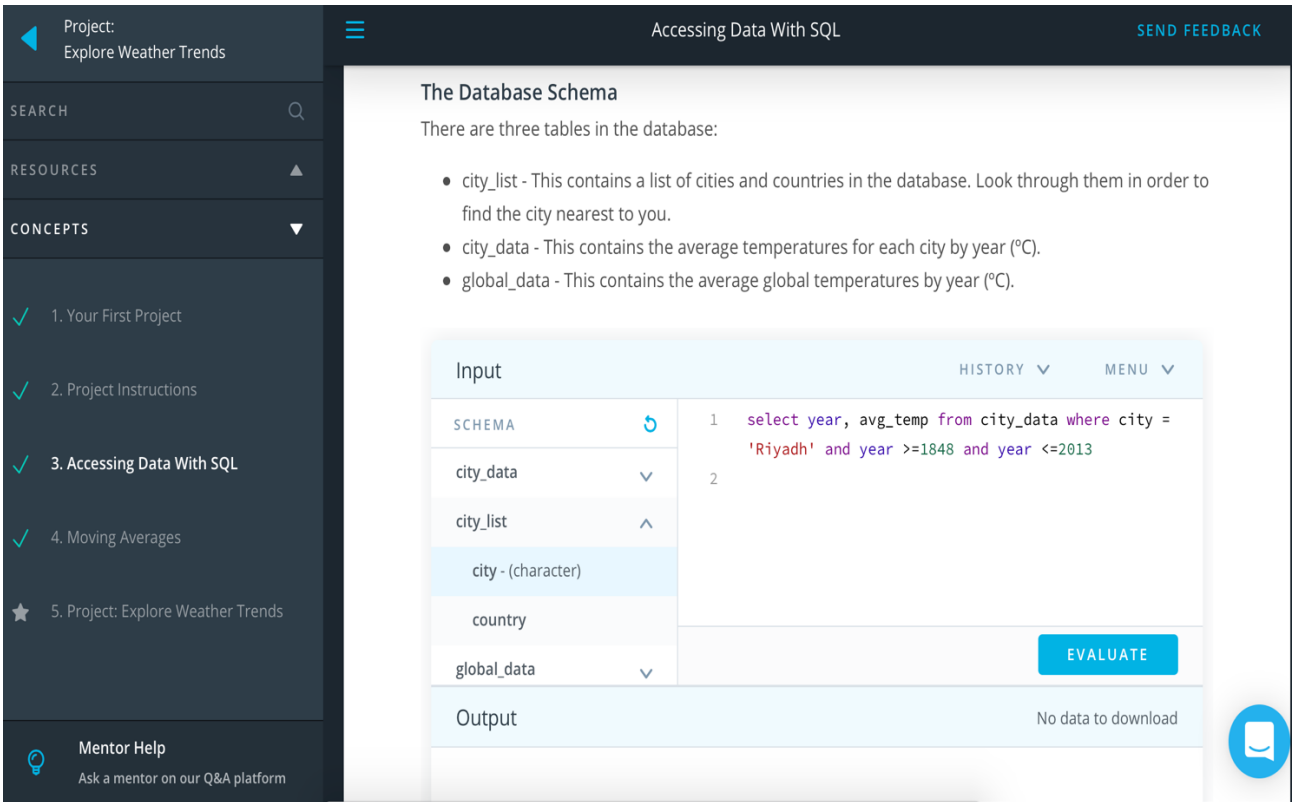


Figure1: SQL query to extract the Riyadh data

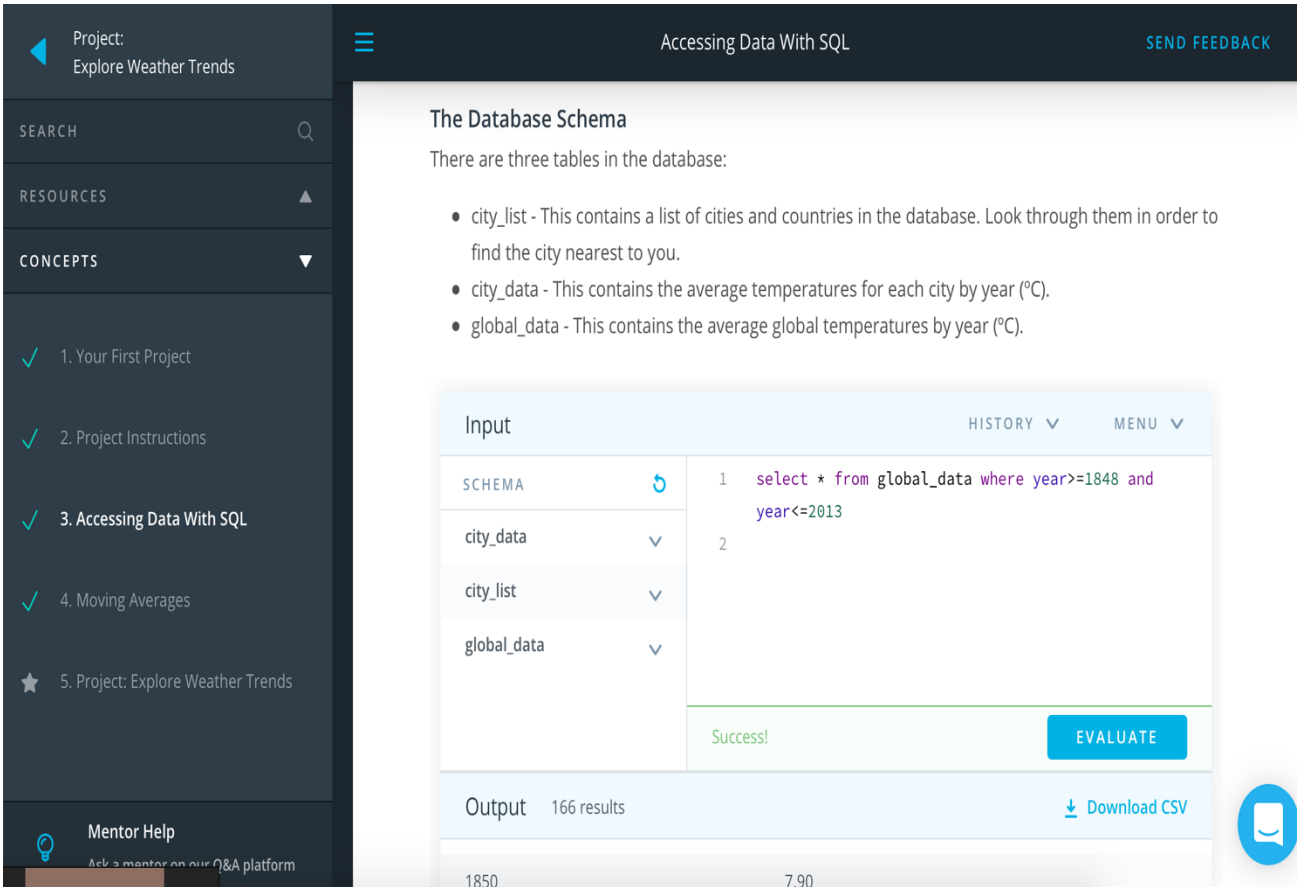
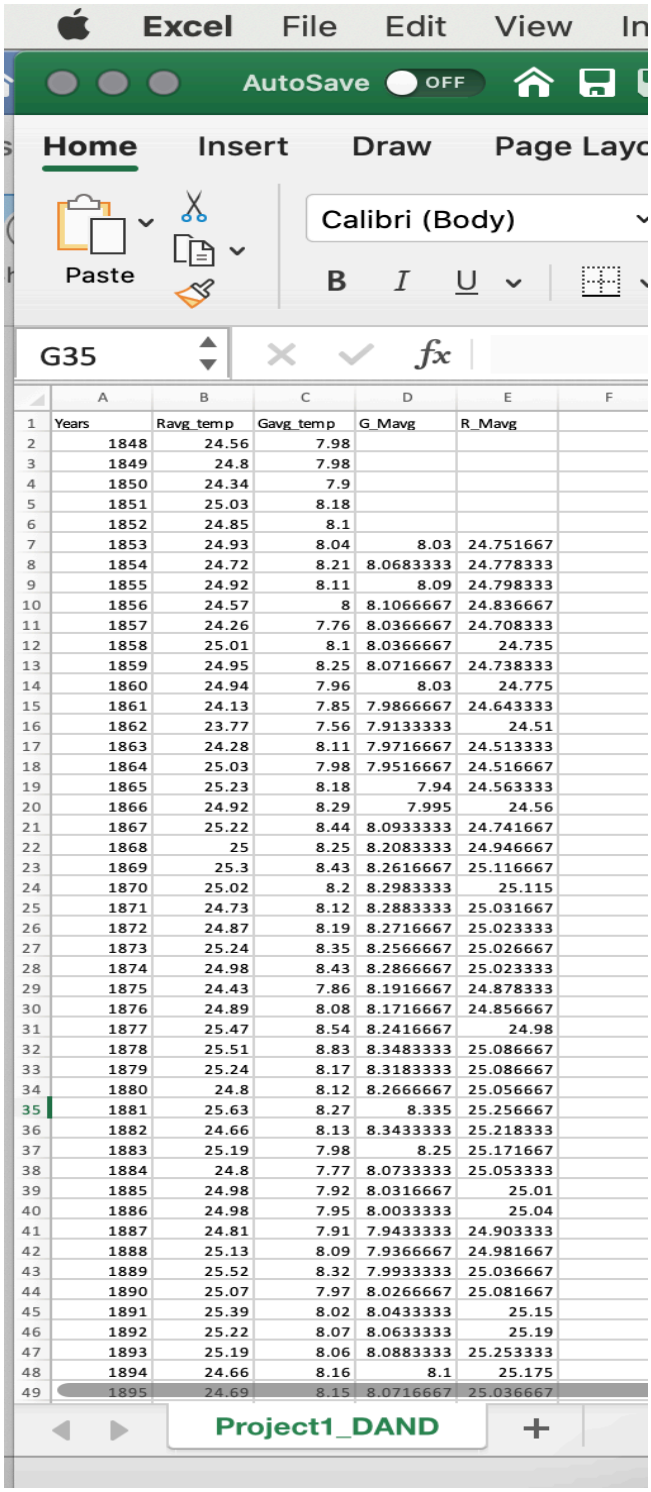


Figure 2: SQL query to extract the Global data

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
1	Years	Ravg_temp	Gavg_temp	G_Mavg	R_Mavg	
2	1848	24.56	7.98			
3	1849	24.8	7.98			
4	1850	24.34	7.9			
5	1851	25.03	8.18			
6	1852	24.85	8.1			
7	1853	24.93	8.04	8.03	24.751667	
8	1854	24.72	8.21	8.0683333	24.778333	
9	1855	24.92	8.11	8.09	24.798333	
10	1856	24.57	8	8.1066667	24.836667	
11	1857	24.26	7.76	8.0366667	24.708333	
12	1858	25.01	8.1	8.0366667	24.735	
13	1859	24.95	8.25	8.0716667	24.738333	
14	1860	24.94	7.96	8.03	24.775	
15	1861	24.13	7.85	7.9866667	24.643333	
16	1862	23.77	7.56	7.9133333	24.51	
17	1863	24.28	8.11	7.9716667	24.513333	
18	1864	25.03	7.98	7.9516667	24.516667	
19	1865	25.23	8.18	7.94	24.563333	
20	1866	24.92	8.29	7.995	24.56	
21	1867	25.22	8.44	8.0933333	24.741667	
22	1868	25	8.25	8.2083333	24.946667	
23	1869	25.3	8.43	8.2616667	25.116667	
24	1870	25.02	8.2	8.2983333	25.115	
25	1871	24.73	8.12	8.2883333	25.031667	
26	1872	24.87	8.19	8.2716667	25.023333	
27	1873	25.24	8.35	8.2566667	25.026667	
28	1874	24.98	8.43	8.2866667	25.023333	
29	1875	24.43	7.86	8.1916667	24.878333	
30	1876	24.89	8.08	8.1716667	24.856667	
31	1877	25.47	8.54	8.2416667	24.98	
32	1878	25.51	8.83	8.3483333	25.086667	
33	1879	25.24	8.17	8.3183333	25.086667	
34	1880	24.8	8.12	8.2666667	25.056667	
35	1881	25.63	8.27	8.335	25.256667	
36	1882	24.66	8.13	8.3433333	25.218333	
37	1883	25.19	7.98	8.25	25.171667	
38	1884	24.8	7.77	8.0733333	25.053333	
39	1885	24.98	7.92	8.0316667	25.01	
40	1886	24.98	7.95	8.0033333	25.04	
41	1887	24.81	7.91	7.9433333	24.903333	
42	1888	25.13	8.09	7.9366667	24.981667	
43	1889	25.52	8.32	7.9933333	25.036667	
44	1890	25.07	7.97	8.0266667	25.081667	
45	1891	25.39	8.02	8.0433333	25.15	
46	1892	25.22	8.07	8.0633333	25.19	
47	1893	25.19	8.06	8.0883333	25.253333	
48	1894	24.66	8.16	8.1	25.175	
49	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:

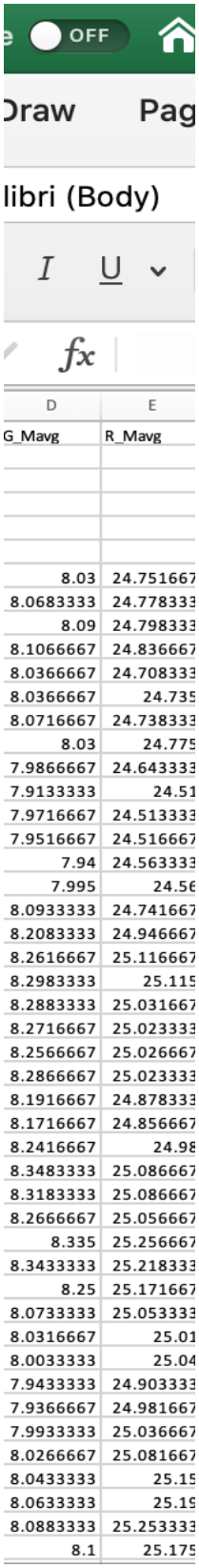


Figure 4: Excel sheet for MOVING AVG

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

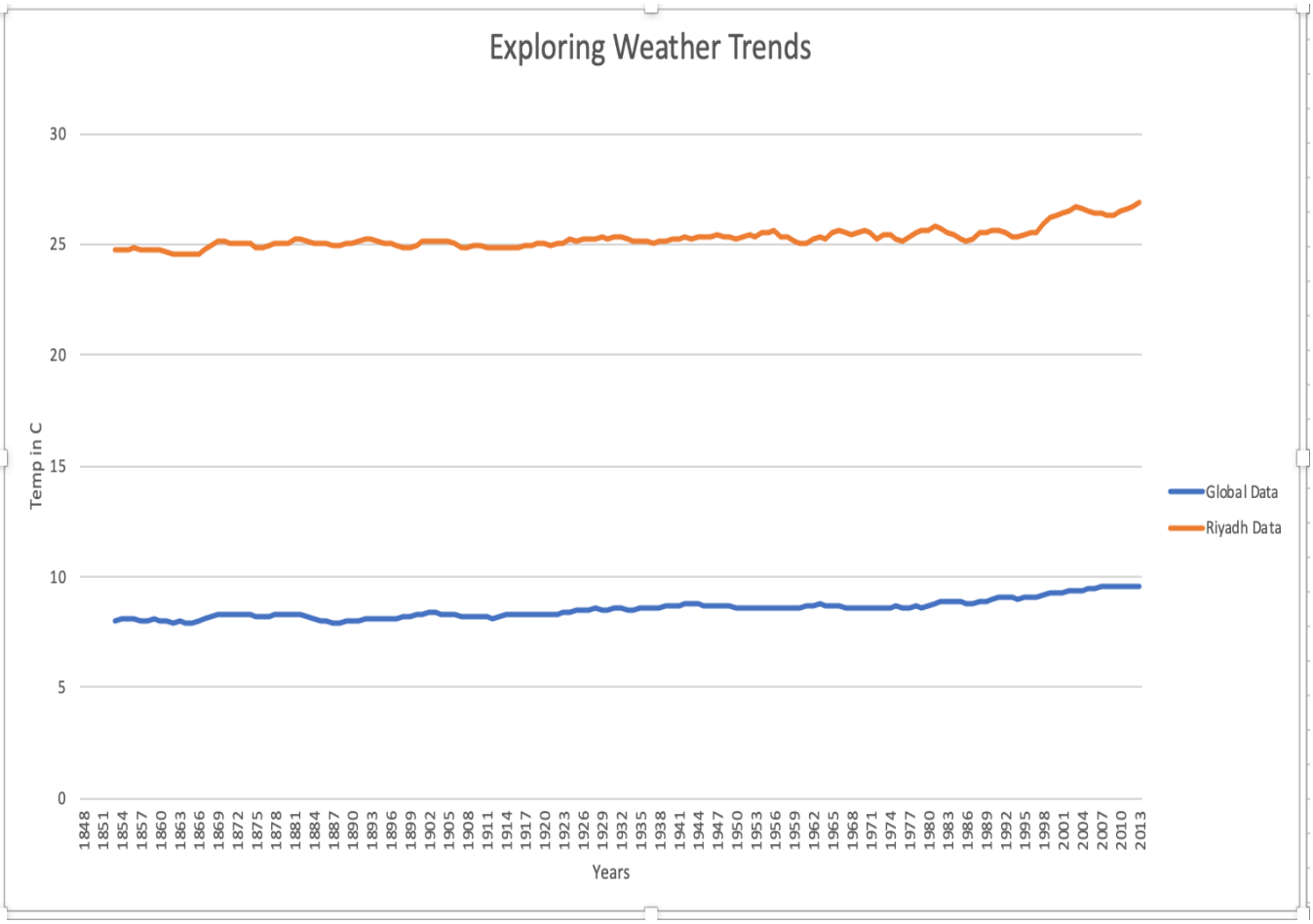


Figure 5: Line chart

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.