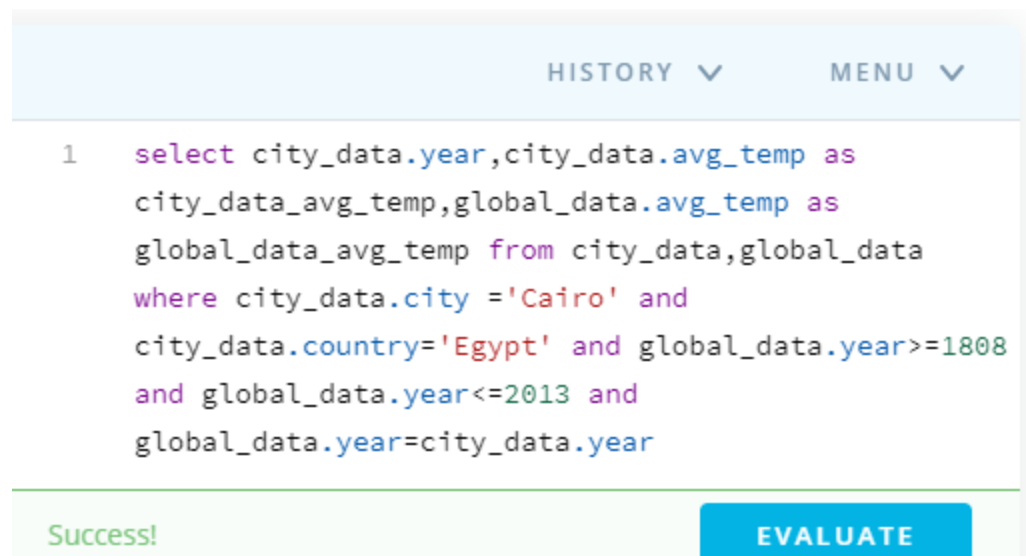


First project

Exploring Weather Trends

Using the Udacity workspace that is connected to the database write this SQL query to extract the city level data and the global data



The screenshot shows a SQL query editor interface. At the top, there are two dropdown menus labeled 'HISTORY' and 'MENU'. Below them, a SQL query is entered in a text area. The query is as follows:

```
1  select city_data.year,city_data.avg_temp as  
   city_data_avg_temp,global_data.avg_temp as  
   global_data_avg_temp from city_data,global_data  
   where city_data.city ='Cairo' and  
   city_data.country='Egypt' and global_data.year>=1808  
   and global_data.year<=2013 and  
   global_data.year=city_data.year
```

Below the query area, there is a green bar with the text 'Success!' on the left and a blue button labeled 'EVALUATE' on the right.

And then choose Download CSV to download the output of extracting this query



After downloading the file open it using the Excel and it will be look like that

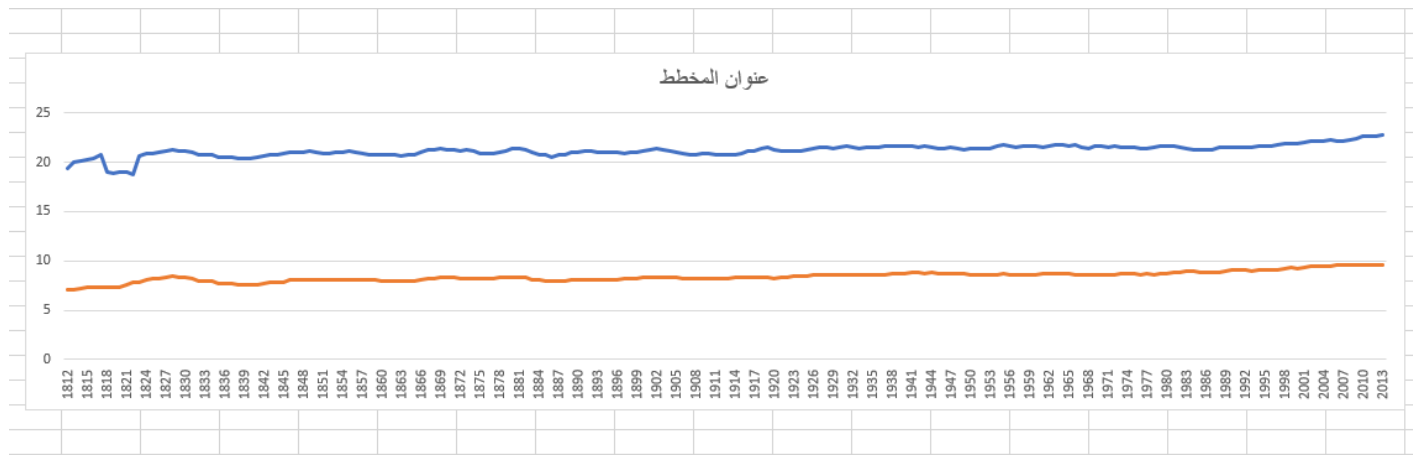
	A	B	C
1	year	city_data_avg_temp	global_data_avg_temp
2	1808	17.11	7.63
3	1809	19.87	7.08
4	1810	19.93	6.92
5	1811	20	6.86
6	1812	19.93	7.05
7	1813	20.51	7.74
8	1814	20.43	7.59
9	1815	20.3	7.24
10	1816	20.51	6.94
11	1817	21.88	6.98
12	1818	11.6	7.83
13	1819	20.31	7.37
14	1820	20.58	7.62
15	1821	20.63	8.09
16	1822	20.72	8.19
17	1823	20.71	7.72
18	1824	21.44	8.55
19	1825	21	8.39
20	1826	20.94	8.36
21	1827	21.63	8.81
22	1828	20.99	8.17
23	1829	20.91	7.94

After that calculate the moving average for the city_data_avg_temp and the global_data_avg_temp columns (here I used the average of 5 years) to calculate it you should create another two columns and name them any names and make the first one for the city and the second one for the global temperature and here I used the

average of five years so I started from the fifth year and use the AVERAGE() function to calculate the average temperatures for the first five years of my city (Cairo) then use Copy + Paste, Ctrl + D, or click and drag the formula down to the next cells and repeat these steps to calculate the moving average for the global temperatures. After that the Excel sheet will be like that

	A	B	C	D	E	F	G	H	I	J
1	year	city_data_avg_temp	global_data_avg_temp						5 years moving avg_city	5 years moving avg_global
2	1808	17.11	7.63							
3	1809	19.87	7.08							
4	1810	19.93	6.92							
5	1811	20	6.86							
6	1812	19.93	7.05						19.368	7.108
7	1813	20.51	7.74						20.048	7.13
8	1814	20.43	7.59						20.16	7.232
9	1815	20.3	7.24						20.234	7.296
10	1816	20.51	6.94						20.336	7.312
11	1817	21.88	6.98						20.726	7.298
12	1818	11.6	7.83						18.944	7.316
13	1819	20.31	7.37						18.92	7.272
14	1820	20.58	7.62						18.976	7.348
15	1821	20.63	8.09						19	7.578
16	1822	20.72	8.19						18.768	7.82
17	1823	20.71	7.72						20.59	7.798
18	1824	21.44	8.55						20.816	8.034
19	1825	21	8.39						20.9	8.188
20	1826	20.94	8.36						20.962	8.242
21	1827	21.63	8.81						21.144	8.366
22	1828	20.99	8.17						21.2	8.456
23	1829	20.91	7.94						21.094	8.334

Now we can use the I & J columns instead of the B & C columns to create the line chart and it will be something like that



The **x axis** represents the **years** and the **y axis** represents the **temperature** and the blue line represents the **city** (Cairo) trends and the orange line represents the **global** trends.

After looking to the chart take the observations :-

1. my city is hotter on average compared to the global average.
2. the difference was Approximately consistent over time but sometimes it differs such as in 1818 the difference get smaller.
3. The correlation is 0.58 (A moderate uphill (positive) relationship).
4. The average temperature in my country (Cairo) is 21.16961 and the average temperature in the global is 8.396845.