Preparation of data to be visualized in the chart

Steps:

• Gathering data: I used SQL to extract the columns: year, city, country, avg global temp and avg city temp for the nearest city Cairo in my country Egypt, and the SQL code:

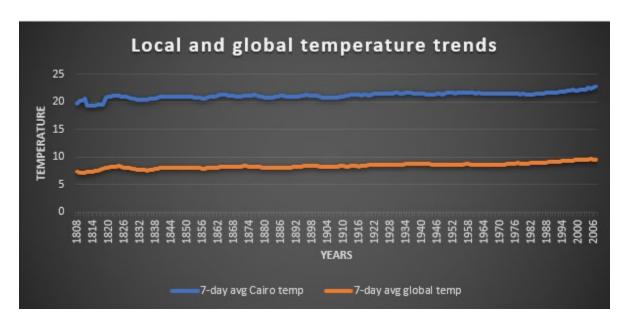
```
SELECT c.year, c.city, c.country, c.avg_temp
city_temp, g.avg_temp global_temp
FROM city_data c
JOIN global_data g
ON c.year = g.year
WHERE c.city = 'Cairo' AND c.country = 'Egypt';
```

• I calculated the moving average using AVERAGE function in excel by taking the average of each 7 rows of avg city temp column and so on with avg global temp.

	Α	В	С	D	E	F	G
	year	city	country	city_temp	global_ter	7-day moving average city_temp	7-day moving average global_temp
	1808	Cairo	Egypt	17.11	7.63		
	1809	Cairo	Egypt	19.87	7.08		
	1810	Cairo	Egypt	19.93	6.92		
	1811	Cairo	Egypt	20	6.86		
	1812	Cairo	Egypt	19.93	7.05		
	1813	Cairo	Egypt	20.51	7.74		
	1814	Cairo	Egypt	20.43	7.59	19.68285714	7.26714285
	1815	Cairo	Egypt	20.3	7.24	=AVERAGE(D3:D9)	7.21142857
)	1816	Cairo	Egypt	20.51	6.94	20.23	7.19142857
1	1817	Cairo	Egypt	21.88	6.98	20.50857143	7.:
2	1818	Cairo	Egypt	11.6	7.83	19.30857143	7.33857142
3	1819	Cairo	Egypt	20.31	7.37	19.36285714	7.38428571
4	1820	Cairo	Egypt	20.58	7.62	19.37285714	7.36714285
5	1821	Cairo	Egypt	20.63	8.09	19.40142857	7.43857142
5	1822	Cairo	Egypt	20.72	8.19	19.46142857	7.57428571
7	1823	Cairo	Egypt	20.71	7.72	19.49	7.68571428
,	1824	Cairo	Egypt	21.44	8.55	19.42714286	7.9
,			F	21	8.39	20.77	7.9
9	\leftarrow	Cairo resu	ts +				:
g dit	\leftarrow)		7-day moving average city_temp	7-day moving average global_temp
g di	t year	resu	lts +)		7-day moving average city_temp	7-day moving average global_temp
g di	t year 1808	resu	country	city_temp	global_ter	7-day moving average city_temp	7-day moving average global_temp
dir	year 1808 1809	city Cairo	country Egypt	city_temp	global_ter 7.63	7-day moving average city_temp	7-day moving average global_temp
dir	year 1808 1809 1810	city Cairo Cairo	country Egypt Egypt	city_temp 17.11 19.87	global_ter 7.63 7.08	7-day moving average city_temp	7-day moving average global_temp
dir	year 1808 1809 1810	city Cairo Cairo	country Egypt Egypt Egypt	city_temp 17.11 19.87 19.93	global_ter 7.63 7.08 6.92	7-day moving average city_temp	7-day moving average global_temp
dir	year 1808 1809 1810 1811 1812	city Cairo Cairo Cairo Cairo	country Egypt Egypt Egypt Egypt Egypt	city_temp 17.11 19.87 19.93 20	global_ter 7.63 7.08 6.92 6.86	7-day moving average city_temp	7-day moving average global_temp
dir	year 1808 1809 1810 1811 1812 1813	city Cairo Cairo Cairo Cairo Cairo	country Egypt Egypt Egypt Egypt Egypt Egypt	city_temp 17.11 19.87 19.93 20 19.93	global_ter 7.63 7.08 6.92 6.86 7.05	7-day moving average city_temp =AVERAGE(D2:D8)	
)	year 1808 1809 1810 1811 1812 1813	city Cairo Cairo Cairo Cairo Cairo Cairo	country Egypt Egypt Egypt Egypt Egypt Egypt Egypt Egypt Egypt	city_temp 17.11 19.87 19.93 20 19.93 20.51	global_ter 7.63 7.08 6.92 6.86 7.05		7.26714285
dir	year 1808 1809 1810 1811 1812 1813 1814 1815	city Cairo	country Egypt	city_temp 17.11 19.87 19.93 20 19.93 20.51 20.43	global_tei 7.63 7.08 6.92 6.86 7.05 7.74	=AVERAGE(D2:D8)	7.26714285 7.21142857
din	year 1808 1809 1810 1811 1812 1813 1814 1815 1816	city Cairo	country Egypt	city_temp 17.11 19.87 19.93 20 19.93 20.51 20.43 20.3	global_ter 7.63 7.08 6.92 6.86 7.05 7.74 7.59	=AVERAGE(D2:D8) 20.13857143	7.26714285 7.21142857 7.19142857
dit	year 1808 1809 1810 1811 1812 1813 1814 1815 1816	city Cairo	country Egypt	city_temp 17.11 19.87 19.93 20 19.93 20.51 20.43 20.3	global_ter 7.63 7.08 6.92 6.86 7.05 7.74 7.59 7.24 6.94	=AVERAGE(D2:D8) 20.13857143 20.23	7.26714285 7.21142857 7.19142857
(in the contract of the contra	year 1808 1809 1810 1811 1812 1813 1814 1815 1816 1817	city Cairo	country Egypt	city_temp 17.11 19.87 19.93 20 19.93 20.51 20.43 20.3 20.51 21.88	global_ter 7.63 7.08 6.92 6.86 7.05 7.74 7.59 7.24 6.94 6.98	=AVERAGE(D2:D8) 20.13857143 20.23 20.50857143	7.26714285 7.21142857 7.19142857 7.
)) l	year 1808 1809 1810 1811 1812 1813 1814 1815 1816 1817 1818	city Cairo	country Egypt	city_temp 17.11 19.87 19.93 20 19.93 20.51 20.43 20.3 20.51 21.88 11.6	global_ter 7.63 7.08 6.92 6.86 7.05 7.74 7.59 7.24 6.94 6.98 7.83	=AVERAGE(D2:D8) 20.13857143 20.23 20.50857143 19.30857143	7.26714285 7.21142857 7.19142857 7.33857142 7.338428571
)	year 1808 1809 1810 1811 1812 1813 1814 1815 1816 1817 1818 1819 1820	city Cairo	country Egypt	city_temp 17.11 19.87 19.93 20 19.93 20.51 20.43 20.51 21.88 11.6 20.31	global_tei 7.63 7.08 6.92 6.86 7.05 7.74 7.59 7.24 6.94 6.98 7.83 7.37	=AVERAGE(D2:D8) 20.13857143 20.23 20.50857143 19.30857143 19.36285714	7.26714285 7.21142857 7.19142857 7.33857142 7.338428571 7.36714285
)	year 1808 1809 1810 1811 1812 1813 1814 1815 1816 1817 1818 1819 1820	city Cairo	country Egypt	city_temp 17.11 19.87 19.93 20 19.93 20.51 20.43 20.51 21.88 11.6 20.31 20.58	global_ter 7.63 7.08 6.92 6.86 7.05 7.74 7.59 7.24 6.94 6.98 7.83 7.37 7.62 8.09	=AVERAGE(D2:D8) 20.13857143 20.23 20.50857143 19.30857143 19.36285714 19.37285714 19.40142857	7.26714285 7.21142857 7.19142857 7.33857142 7.38428571 7.36714285 7.43857142
) diri	year 1808 1809 1810 1811 1812 1813 1814 1815 1816 1817 1818 1819 1820 1821	city Cairo	country Egypt	city_temp 17.11 19.87 19.93 20 19.93 20.51 20.43 20.3 20.51 21.88 11.6 20.31 20.58 20.63	global_ter 7.63 7.08 6.92 6.86 7.05 7.74 7.59 7.24 6.94 6.98 7.83 7.37 7.62 8.09	=AVERAGE(D2:D8) 20.13857143 20.23 20.50857143 19.30857143 19.36285714 19.37285714 19.40142857 19.46142857	7.26714285 7.21142857 7.19142857 7.33857142 7.38428571 7.36714285 7.43857142
din	year 1808 1809 1810 1811 1812 1813 1814 1815 1816 1817 1818 1819 1820 1821 1822	city Cairo	country Egypt	city_temp 17.11 19.87 19.93 20 19.93 20.51 20.43 20.51 21.88 11.6 20.31 20.58 20.63 20.72	global_ter 7.63 7.08 6.92 6.86 7.05 7.74 7.59 7.24 6.94 6.98 7.83 7.37 7.62 8.09 8.19 7.72	=AVERAGE(D2:D8) 20.13857143 20.23 20.50857143 19.30857143 19.36285714 19.37285714 19.40142857 19.46142857	7.19142857 7. 7.33857142 7.38428571 7.36714285 7.43857142 7.57428571

My key considerations when deciding how to visualize the trends:
 I wanted to compare between the two trends, so I decided to make two lines one for the selected city and the global.

Line Chart



Observations about similarities and differences between trends

- 1. The nearest city which is Cairo is hotter on average compared to the global average and the difference has been consistent over time.
- 2. The changes in my city's temperatures over time are similar of the changes in the global average.
- 3. The overall trend looks like that the global temperature increases over time, so the world is getting hotter, and the trend has not been consistent over the last few years because between 1830 and 1841 the world was getting cooler.
- 4. I observe that my city's temperature was decreasing between 1817 and 1824.

The correlation coefficient between average Cairo temperature and average global temperature: 0.912938881 which means that there is positive strong relationship between them.