Project 1: Explore Weather Trends

This project is completed in the following steps:

i) Extraction of data using SQL
ii)Calculation of moving average and line chart in google spreadsheets
iii)Key considerations when deciding how to visualize the trends
iii)Observation from the obtained charts from google sheets

i) Extraction of data using SQL

From the server, required data was extracted using SQL query which is listed below

```
Select city_data.country as Country,city_data.city as City,city_data.year as city_year,
city_data.avg_temp as city_average_temp,global_data.year as
global_year,global_data.avg_temp as global_avg_temp
from city_data,global_data
where city_data.year = global_data.year and city_data.city='Los Angeles' and
city_data.country='United States' ;
```

ii)Calculation of moving average and line chart in google spreadsheets

After extracting the data, the CSV file obtained from SQL Query was then opened in google spreadsheets. Then, the moving average was calculated as shown in the figure below :

Here I took moving average for 15 years i.e from D2: D16 here and then dragged the cell down till the end and then constructed the line charts as shown in the figure below:

Untitled spreadsheet

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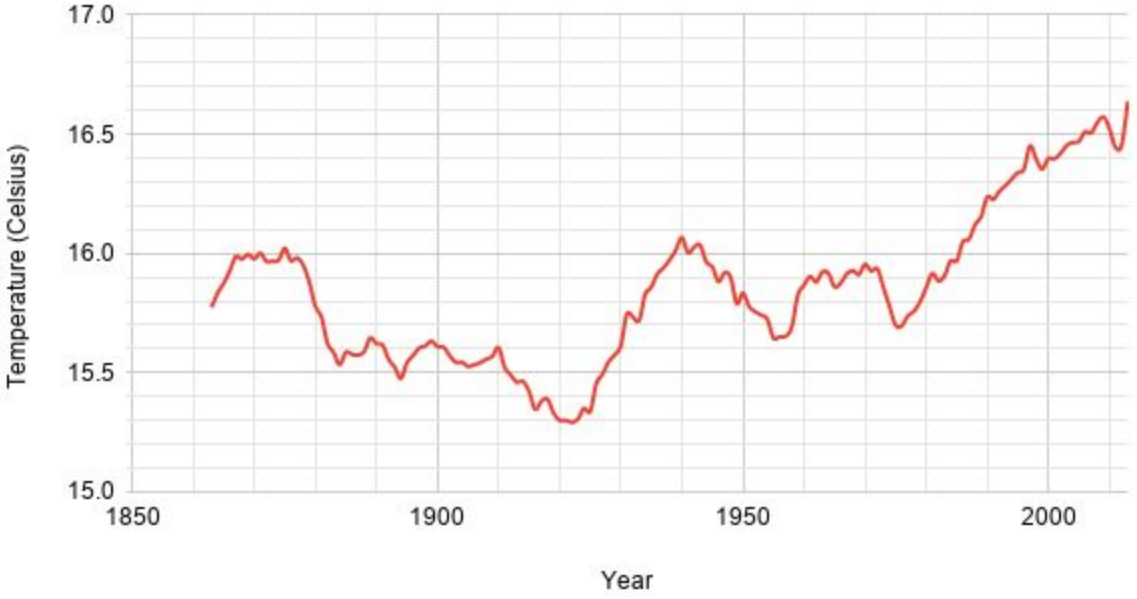
=AVERAGE(D2:D16)

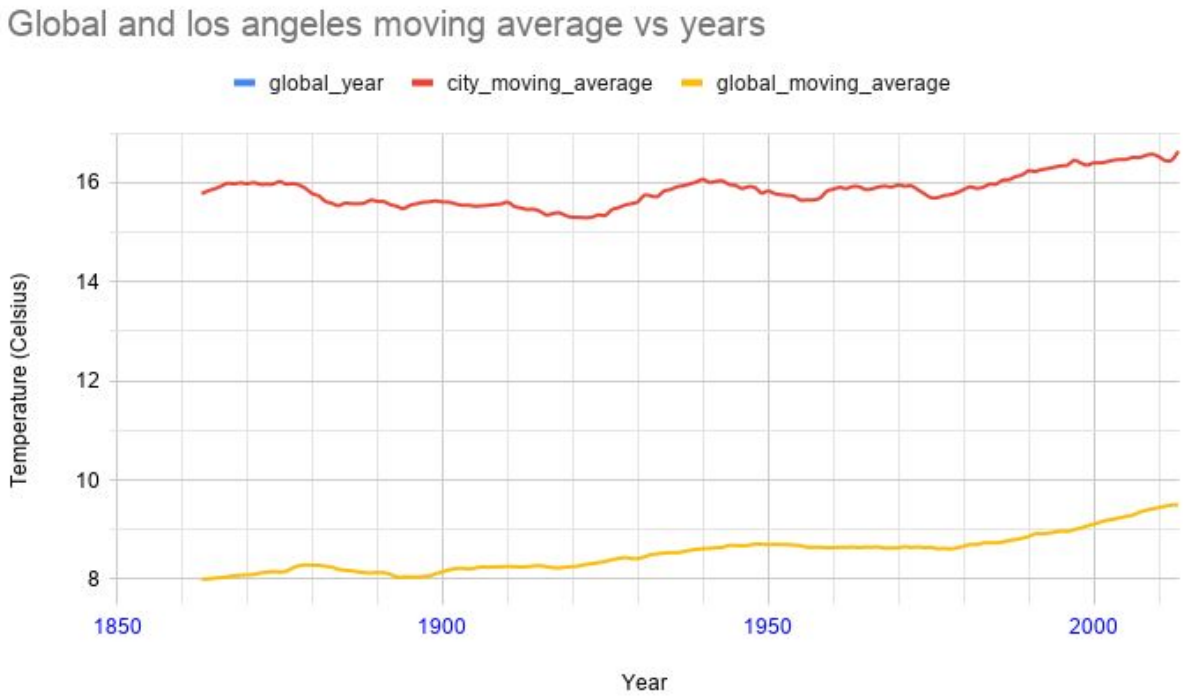
	A	B	C	D	E	F	G	H	I	J	K
2	United States	Los Angeles	1849	15.71	1849	7.98					
3	United States	Los Angeles	1850	15.28	1850	7.9					
4	United States	Los Angeles	1851	15.53	1851	8.18					
5	United States	Los Angeles	1852	15.61	1852	8.1					
6	United States	Los Angeles	1853	16.27	1853	8.04					
7	United States	Los Angeles	1854	15.74	1854	8.21					
8	United States	Los Angeles	1855	15.94	1855	8.11					
9	United States	Los Angeles	1856	15.52	1856	8					
10	United States	Los Angeles	1857	16.19	1857	7.76					
11	United States	Los Angeles	1858	15.67	1858	8.1					
12	United States	Los Angeles	1859	15.29	1859	8.25					
13	United States	Los Angeles	1860	15.41	1860	7.96					
14	United States	Los Angeles	1861	16.51	1861	7.85					
15	United States	Los Angeles	1862	16.05	1862	7.56					
16	United States	Los Angeles	1863	15.88	1863	8.1	=AVERAGE(D2:D16)	8.007333333			
17	United States	Los Angeles	1864	16.62	1864	7.98	15.834	8.007333333			
18	United States	Los Angeles	1865	15.89	1865	8.18	15.87466667	8.026			
19	United States	Los Angeles	1866	16.33	1866	8.29	15.928	8.033333333			
20	United States	Los Angeles	1867	16.51	1867	8.44	15.988	8.056			
21	United States	Los Angeles	1868	16.09	1868	8.25	15.976	8.07			
22	United States	Los Angeles	1869	16.05	1869	8.43	15.99666667	8.084666667			
23	United States	Los Angeles	1870	15.64	1870	8.2	15.97666667	8.090666667			
24	United States	Los Angeles	1871	15.89	1871	8.12	16.00133333	8.098666667			
25	United States	Los Angeles	1872	15.66	1872	8.19	15.966	8.127333333			
26	United States	Los Angeles	1873	15.7	1873	8.35	15.968	8.144			
27	United States	Los Angeles	1874	15.33	1874	8.43	15.97066667	8.156			
28	United States	Los Angeles	1875	16.19	1875	7.86	16.02266667	8.149333333			

Sheet1

Global moving average temperature vs years

Moving average temperature vs years for Los Angeles





iii)Key considerations when deciding how to visualize the trends

Readability of the data, along with proper labeling of the title of chart and labeling across x-axis as well as y-axis and proper legend were considered.

iv)Observation from the obtained charts from google sheets

From the line charts above, the following observations are drawn :

a)Looking at the global trends, we can observe that the temperature of the globe has increased by 1.5 celsius from 8 to 9.5 degrees celsius. It suggests that the global temperature on average has risen and the earth is hotter in the 21st century than it used to be in the 19th century.

b)Looking at the trend of Los Angeles, we see the rise of temperature from 15.8 to 16.6 degrees i.e, by 0.8-degree celsius. This increase in temperature is low in comparison to the global trend.

c) We can come to the conclusion from the above charts that, although the temperature of the globe has increased on average, the temperature in cities everywhere has not increased by the same rate.

d)This also suggests that some cities might not have experienced any change in temperature while others could have experienced more change in temperature than the global average.

e) Looking at the local and global temperature vs years chart, we can observe that the pattern of change in temperature of Los Angeles and the World is nearly consistent with each other i.e, I nearly follow the same pattern, although, with different rates, it also suggests, however slowly, the local temperature is also increasing.