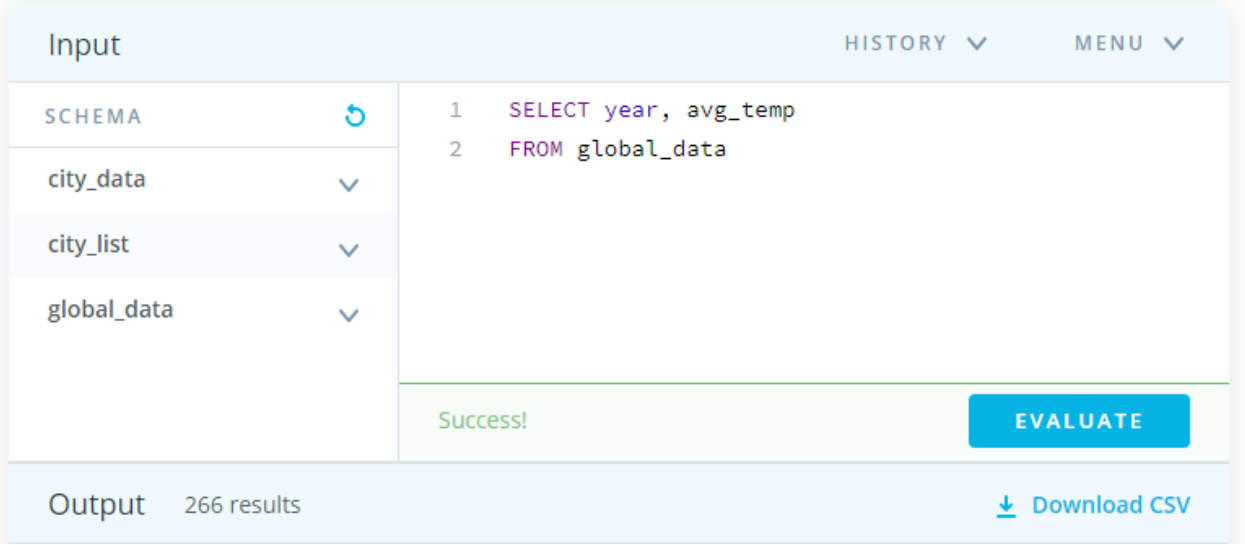
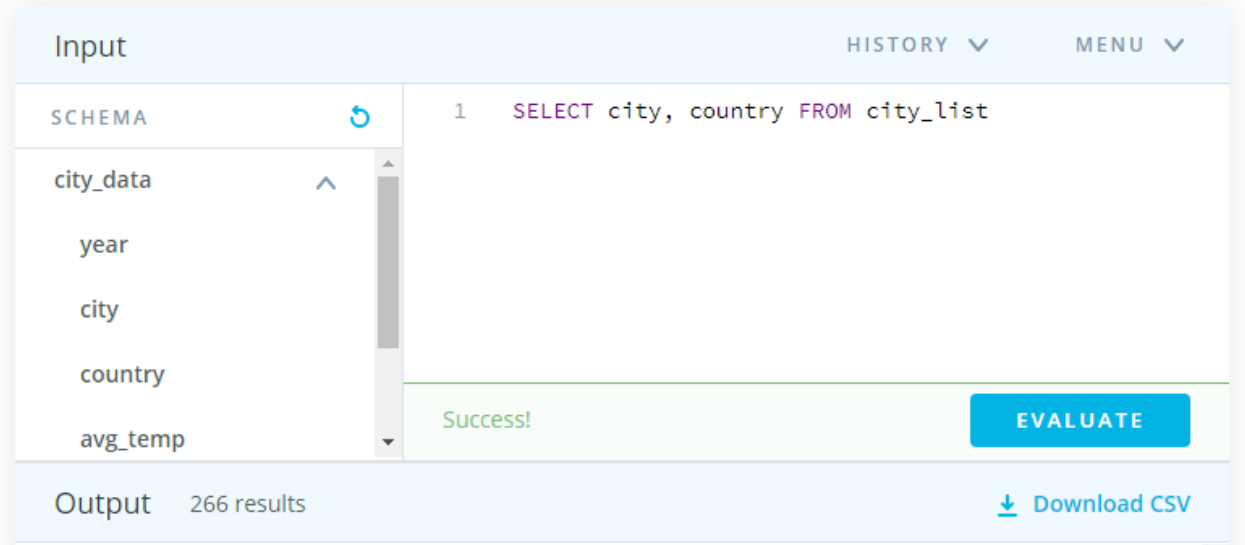
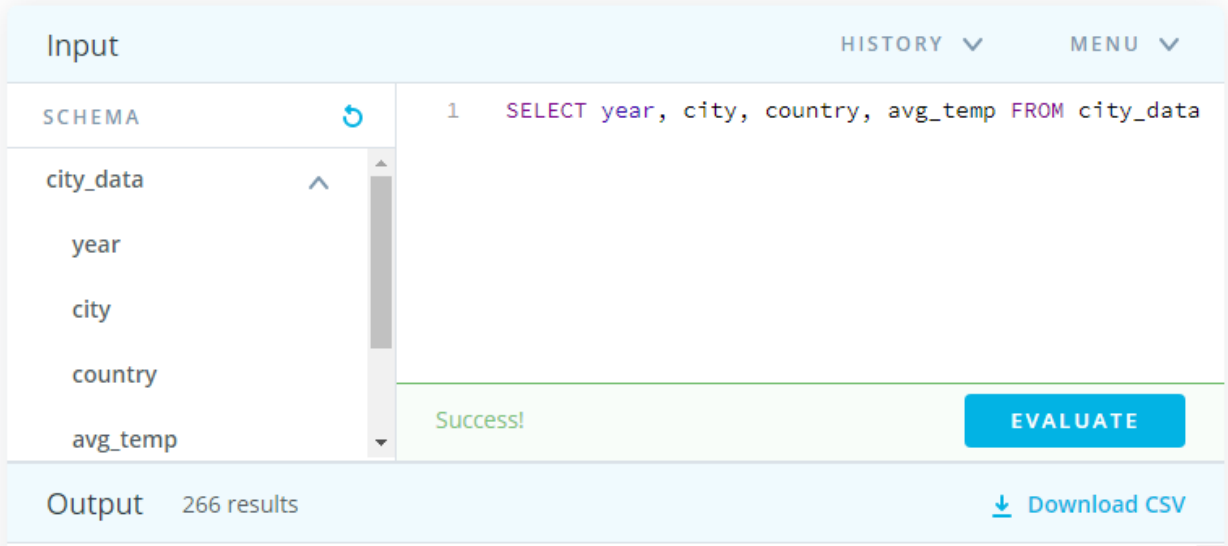
Outline

In order to make the project, I followed the next steps:

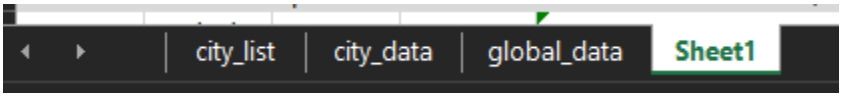
1. Download the CSVs through an SQL query.







2. Import all the CSVs into an Excel sheet.



3. Get my city data (Madrid) from “city_data.csv” by filtering the content and copy it to a different worksheet.

	A	B	C	D	E	F	G
1	year	city	country	avg_ten	10y_moving_avg_tem	avg_temp_global	10y_moving_avg_temp_global
2	1750	Madrid	Spain	1201		872	
3	1751	Madrid	Spain	1271		798	
4	1752	Madrid	Spain	707		578	
5	1753	Madrid	Spain	1147		839	
6	1754	Madrid	Spain	1149		847	
7	1755	Madrid	Spain	1117		836	
8	1756	Madrid	Spain	1150		885	
9	1757	Madrid	Spain	1134		902	
10	1758	Madrid	Spain	1024		674	
11	1759	Madrid	Spain	1135	1103,5	799	803
12	1760	Madrid	Spain	1092	1092,6	719	787,7
13	1761	Madrid	Spain	1153	1080,8	877	795,6
14	1762	Madrid	Spain	1143	1124,4	861	823,9
15	1763	Madrid	Spain	1079	1117,6	750	815
16	1764	Madrid	Spain	1146	1117,3	840	814,3
17	1765	Madrid	Spain	1148	1120,4	825	813,2
18	1766	Madrid	Spain	1134	1118,8	841	808,8
19	1767	Madrid	Spain	1145	1119,9	822	800,8
20	1768	Madrid	Spain	1077	1125,2	678	801,2
21	1769	Madrid	Spain	1123	1124	769	798,2
22	1770	Madrid	Spain	1108	1125,6	769	803,2
23	1771	Madrid	Spain	1157	1126	785	794
24	1772	Madrid	Spain	1218	1133,5	819	789,8
25	1773	Madrid	Spain	1115	1137,1	822	797
26	1774	Madrid	Spain	1179	1140,4	877	800,7
27	1775	Madrid	Spain	1193	1144,9	918	810
28	1776	Madrid	Spain	1143	1145,8	830	808,9
29	1777	Madrid	Spain	1127	1144	826	809,3
30	1778	Madrid	Spain	1162	1152,5	854	826,9
31	1779	Madrid	Spain	1180	1158,2	898	839,8
32	1780	Madrid	Spain	1221	1169,5	943	857,2
33	1781	Madrid	Spain	1185	1172,3	810	859,7
34	1782	Madrid	Spain	1084	1158,9	790	856,8
35	1783	Madrid	Spain	1140	1161,4	768	851,4

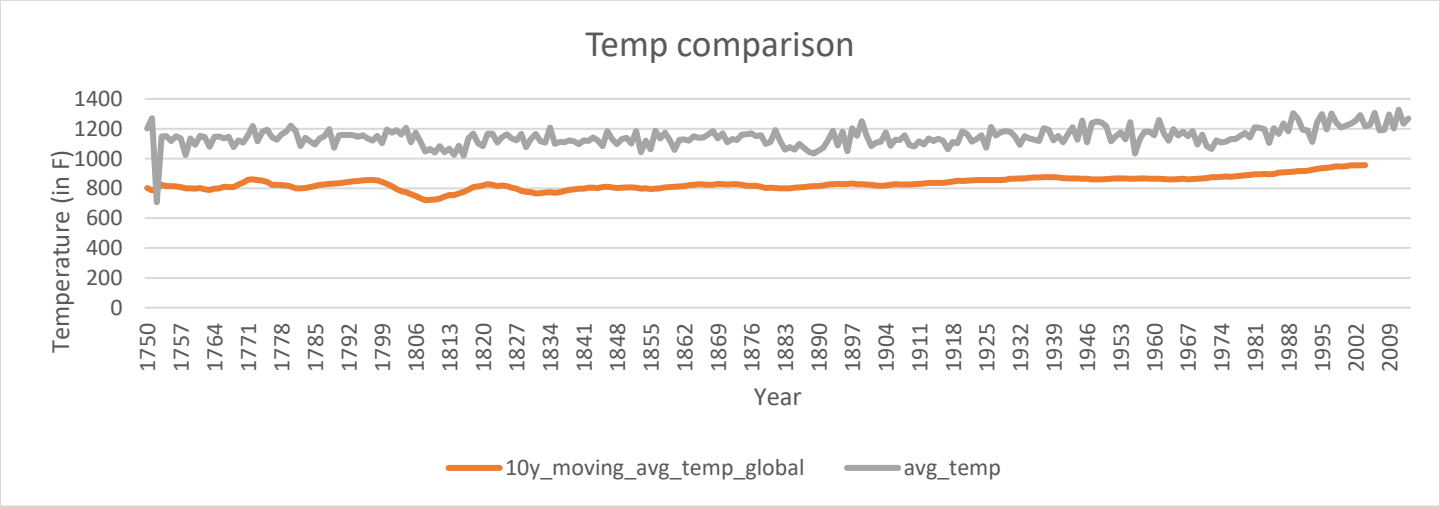
4. Get the global data from “global_data.csv” and copy it to the same worksheet as in step 3.
5. Normalize the data by adjusting the years. I had to remove the first 6 years (1943-1949) of the “city_data” data and the last 2 from the “global_data”. This was done to ensure the years were compared without incurring in any error.
6. Calculate for both “city_data” and “global_data” the 10 years moving average. This was done to smooth the graph by reducing the number of peaks.

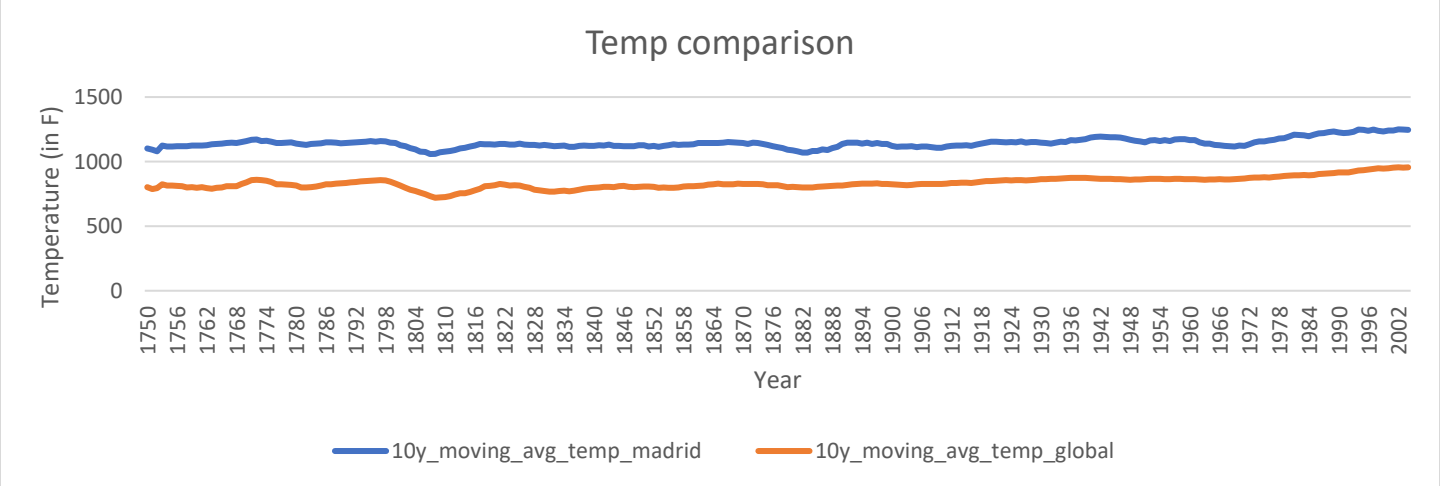
G11 =AVERAGE(F2:F11)

	A	B	C	D	E	F	G
1	year	city	country	avg_ten	10y_moving_avg_tem	avg_temp_global	10y_moving_avg_temp_global
2	1750	Madrid	Spain	1201		872	
3	1751	Madrid	Spain	1271		798	
4	1752	Madrid	Spain	707		578	
5	1753	Madrid	Spain	1147		839	
6	1754	Madrid	Spain	1149		847	
7	1755	Madrid	Spain	1117		836	
8	1756	Madrid	Spain	1150		885	
9	1757	Madrid	Spain	1134		902	
10	1758	Madrid	Spain	1024		674	
11	1759	Madrid	Spain	1135	1103,5	799	803
12	1760	Madrid	Spain	1092	1092,6	719	787,7
13	1761	Madrid	Spain	1153	1080,8	877	795,6

Graph

We can see the effects of representing the moving averages by looking at the next two graphs.





As we can see, the second graph gives us a better view of the temperature comparison by smoothing the Madrid average temps.

I chose the linear graph as I think it is the best way to compare both series. A column chart would not be as clear as a linear or an area graph. The data showed is clear and you can get insights just by looking at it. Insights like:

1. Madrid is, on average, hotter than the world. In fact, for all those years, Madrid was 300F hotter than the world.
2. We also can see that from 1800 to 1820, the world got colder but Madrid as well. Those were the colder years ever with temperatures lower than 710F in Madrid.
3. There have been a few times along the last 250 years than Madrid was not following the global trend. We can see it between 1885 and 1900 and 195 and 1975.
4. We also can see that Madrid is following the global trend. It is getting hotter. Over the last 250 years, the average global temperature has raised from 800F to 1000F roughly.