Submission of Exploring Weather trends project for Data Analysis Nanodegree.
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1.Extracting the data from database using SQL query and saving as CSV file

City data

```
SELECT *
FROM city_data
WHERE city = 'London'
AND country = 'United Kingdom'
ORDER BY year ASC
```

Global data

```
SELECT *
FROM global_data
```

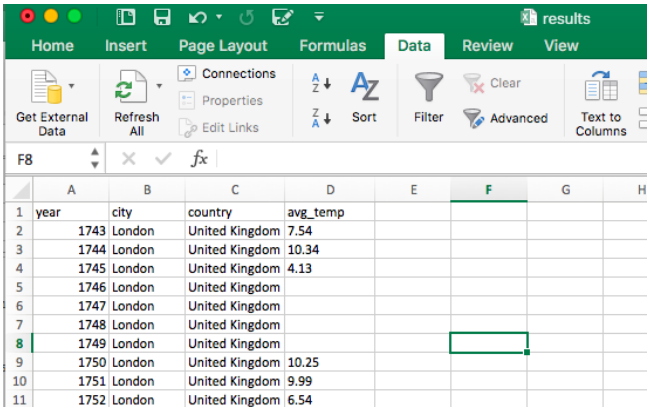
After reviewing the feedback, now I know I could use one query to extract all needed data.

I tried using the query suggested in the feedback but it gave me an error that column 'London' does not exist. I tried adding the country condition first and then adding London in my query, and this time it worked. I wonder if it was because there is more than one city called London in the world?

So the query I could use might look like this:

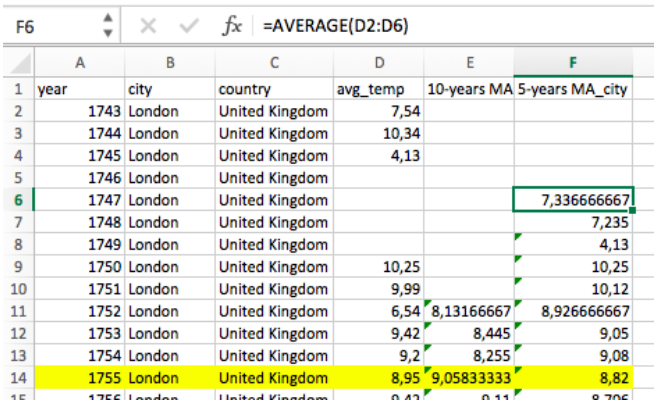
```
SELECT city_data.year,
    city_data.avg_temp as city_temp,
    global_data.avg_temp as global_temp
 FROM city_data, global_data
 WHERE city_data.year = global_data.year
    AND NOT city_data.avg_temp is NULL
    AND city_data.country = 'United Kingdom'
    AND city_data.city = 'London'
```

2. Opening the CSV file using Excel.
Using "Text to columns" tool to create an Excel table.



	A	B	C	D	E	F	G	H
1	year	city	country	avg_temp				
2	1743	London	United Kingdom	7.54				
3	1744	London	United Kingdom	10.34				
4	1745	London	United Kingdom	4.13				
5	1746	London	United Kingdom					
6	1747	London	United Kingdom					
7	1748	London	United Kingdom					
8	1749	London	United Kingdom					
9	1750	London	United Kingdom	10.25				
10	1751	London	United Kingdom	9.99				
11	1752	London	United Kingdom	6.54				

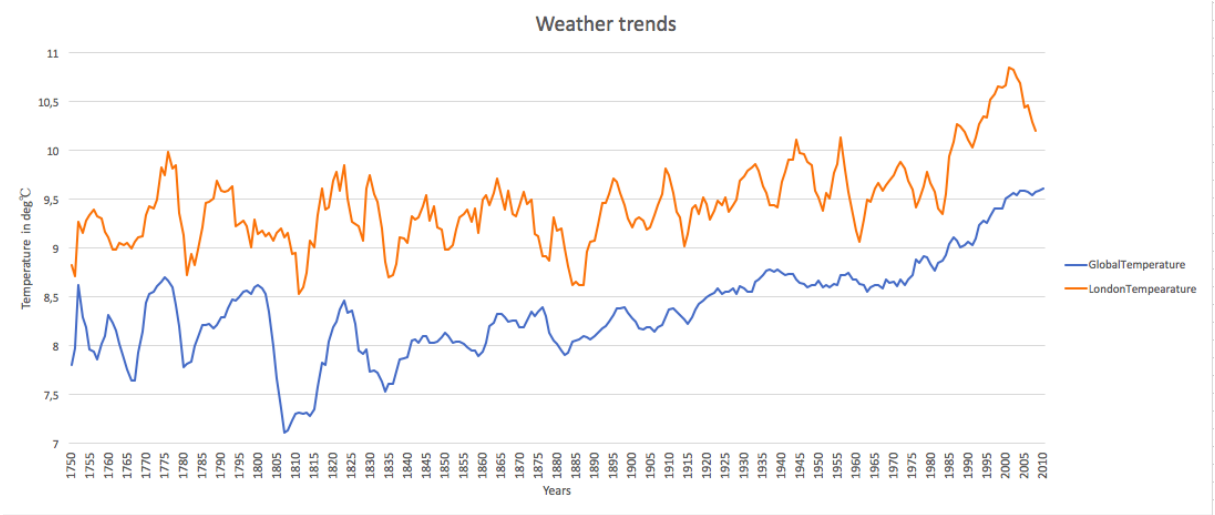
3. Calculating 10-year moving average and 5-year moving average. At the end, I decided to use 5-year moving average for my data visualisation.



	A	B	C	D	E	F
1	year	city	country	avg_temp	10-years MA	5-years MA_city
2	1743	London	United Kingdom	7,54		
3	1744	London	United Kingdom	10,34		
4	1745	London	United Kingdom	4,13		
5	1746	London	United Kingdom			
6	1747	London	United Kingdom			7,336666667
7	1748	London	United Kingdom			7,235
8	1749	London	United Kingdom			4,13
9	1750	London	United Kingdom	10,25		10,25
10	1751	London	United Kingdom	9,99		10,12
11	1752	London	United Kingdom	6,54	8,13166667	8,926666667
12	1753	London	United Kingdom	9,42	8,445	9,05
13	1754	London	United Kingdom	9,2	8,255	9,08
14	1755	London	United Kingdom	8,95	9,05833333	8,82

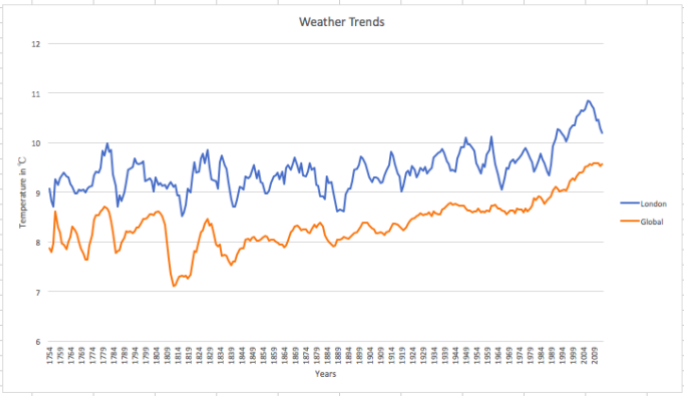
4. After comparing both datasets (city and global) I decided to start plotting the line chart form data starting at year 1755. This allowed me to omit the missing temperatures between 1746 and 1750, and to have the first moving average complete (complete 5 years) for both datasets. I skipped the missing data and included the data that is represented in both global and city (London) datasets.

5. Line chart visualising 5-year moving averages of temperatures for London and overall global trends. I added the Celsius degrees on the y axis.



*Out of curiosity I reworked the dataset with the other SQL query (as discussed above) to see if this would affect the line graph. The colours are nor reversed, to show that this is a different attempt. I really like it.

year	city_temp	city_temp 5-years MA	global_temp	global_temp 5-years MA
1750	10,25		8,72	
1751	9,99		7,98	
1752	6,54		5,78	
1753	9,42		8,39	
1754	9,2	9,08	8,47	7,868
1755	8,95	8,82	8,36	7,796
1756	9,42	8,706	8,85	7,97
1757	9,34	9,266	9,02	8,618
1758	8,85	9,152	6,74	8,288
1759	9,8	9,272	7,99	8,192
1760	9,26	9,334	7,19	7,958
1761	9,69	9,388	8,77	7,942
1762	8,99	9,318	8,61	7,86
1763	8,75	9,298	7,5	8,012
1764	9,14	9,166	8,4	8,094
1765	8,95	9,104	8,25	8,306
1766	9,07	8,98	8,41	8,234
1767	8,98	8,978	8,22	8,156
1768	9,12	9,052	6,78	8,012
1769	9,04	9,032	7,69	7,87
1770	9,03	9,048	7,69	7,758
1771	8,78	8,99	7,85	7,646
1772	9,36	9,066	8,19	7,64
1773	9,33	9,108	8,22	7,928
1774	9,1	9,12	8,77	8,144
1775	10,1	9,334	9,18	8,442
1776	9,21	9,42	8,3	8,532
1777	9,25	9,398	8,26	8,546
1778	9,8	9,492	8,54	8,61



6. My observations:

a) Global 5-years moving average and London 5-years moving average dropped drastically between 1774 and 1780.

b) London 5-years moving averages are the subject of more drastic changes and are dropping or increasing over the bigger number of degrees.

c) London 5-years moving average is always significantly higher than the global 5-years moving average.

d) Between 2000 and 2010 the London 5-years moving average was dropping drastically, while the global was more stable.