PROJECT: Exploring Weather Trends

Summary: In this Project, I will analyze the Chicago and Global temperature data and compare the temperature trends of Chicago city to overall global temperature trends.

Steps Involved in completing this project:

1) Extract the data into csv file from given tables city_data, city_list, global_data using SQL statements and open them in excel file to perform operations.

2) Calculating Moving averages for temperatures in both city data and global data

3) Creating a line chart to show the comparison between the global temperature and city temperature.

4) Based the line chart created, observations are made which shows similarities and differences between temperatures.

By

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1) **Extracting Data:**

In the project workspace, we have given tables **city_data, city_list, global_data**.
We extract the tables into csv format and will open in excel to perform operations.

City_data: year, city, country, avg_temp
City_list: city, country
Global_data: year, avg_temp

SQL statements:

select * from city_data where city ='Chicago' AND country ='United States';

The above statement will extract the 'Chicago' city data with avg_temp.

1	year	city	country	avg_temp
2	1743	Chicago	United State	5.44
3	1744	Chicago	United State	11.73
4	1745	Chicago	United State	1.8
5	1746	Chicago	United States	
6	1747	Chicago	United States	
7	1748	Chicago	United States	
8	1749	Chicago	United States	
9	1750	Chicago	United State	10.49
10	1751	Chicago	United State	11.19
11	1752	Chicago	United State	4.5
12	1753	Chicago	United State	10.04
13	1754	Chicago	United State	10.64
14	1755	Chicago	United State	7.41
15	1756	Chicago	United State	11.15

select * from global_data;

The above statement will extract the global avg temperatures.

1	year	G_avg_temp
2	1750	8.72
3	1751	7.98
4	1752	5.78
5	1753	8.39
6	1754	8.47
7	1755	8.36

2) Calculating Moving Averages:

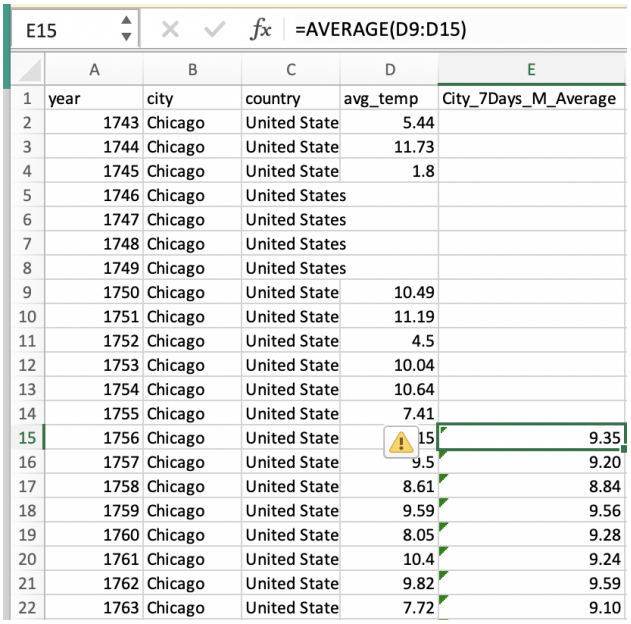
Moving averages are used to smooth out data to make it easier to observe long term trends and not get lost in daily fluctuations.

In this project, we are calculating 7 days moving average for the city data avg_temp and global data avg_temp.

We will use the function = Average(x:y) which will place in new column next to avg_temp in 8th row.

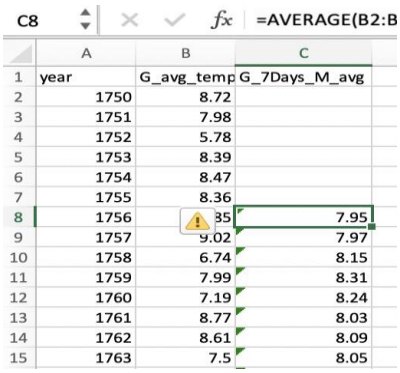
X = avg_temp value starting day
Y = avg_temp value 7th day

City_data with moving averages:



	A	B	C	D	E
1	year	city	country	avg_temp	City_7Days_M_Average
2	1743	Chicago	United State	5.44	
3	1744	Chicago	United State	11.73	
4	1745	Chicago	United State	1.8	
5	1746	Chicago	United States		
6	1747	Chicago	United States		
7	1748	Chicago	United States		
8	1749	Chicago	United States		
9	1750	Chicago	United State	10.49	
10	1751	Chicago	United State	11.19	
11	1752	Chicago	United State	4.5	
12	1753	Chicago	United State	10.04	
13	1754	Chicago	United State	10.64	
14	1755	Chicago	United State	7.41	
15	1756	Chicago	United State	15	9.35
16	1757	Chicago	United State	9.5	9.20
17	1758	Chicago	United State	8.61	8.84
18	1759	Chicago	United State	9.59	9.56
19	1760	Chicago	United State	8.05	9.28
20	1761	Chicago	United State	10.4	9.24
21	1762	Chicago	United State	9.82	9.59
22	1763	Chicago	United State	7.72	9.10

Global_data with moving averages:

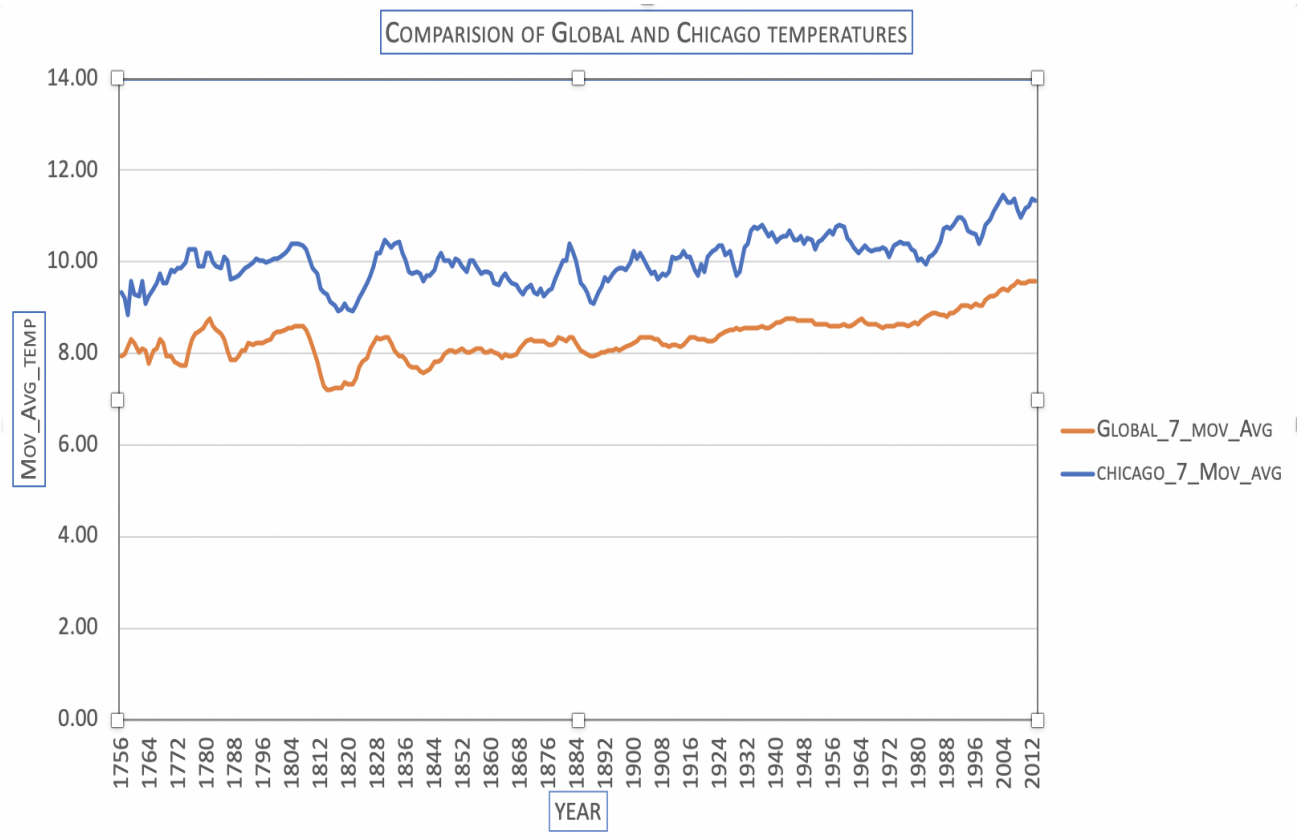


3) Creating Line chart to compare city and global temperatures:

I have created a new excel sheet with year column, moving averages of both city and global temperatures and created line chart.

year	Global_7Days_M_avg	Chicago_7Days_M_Average
1756	7.95	9.35
1757	7.97	9.20
1758	8.15	8.84
1759	8.31	9.56
1760	8.24	9.28
1761	8.03	9.24
1762	8.09	9.59
1763	8.05	9.10
1764	7.80	9.26
1765	8.08	9.43
1766	8.12	9.56
1767	8.32	9.75
1768	8.23	9.54
1769	7.93	9.54
1770	7.96	9.82

Line Chart:



4) Observations:

- Chicago city is hotter on average when compared to the global temperatures.
- The difference between the city and global temperatures are consistent with little fluctuations over the period of time.
- Both the Chicago city and global temperatures averages have parallel increase in temperatures over the period of time.
- Overall, the world is getting hotter and hotter and so as the city Chicago.