

Project: Explore Weather Trends

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Project Outline:

1. Extract the data from the database. I wrote query as `SELECT * FROM` each 3 schemas then exported as .csv files, uploaded on my google drive.

The screenshot shows a data query interface. On the left, the 'Input' section displays a query: `1 SELECT *` and `2 FROM global_data;`. Below the query, the 'Output' section shows 266 results with columns 'year' and 'avg_temp'. On the right, a notification box states: 'ทางสตูดิโอจัดระเบียบข้อมูลของคุณได้สำเร็จ! ข้อมูลของคุณจะถูกอัปเดตในไฟล์แนบด้านล่างนี้' (Your data has been successfully organized! Your data will be updated in the attachments below). Below the notification, a list of files is shown: 'city_data.csv', 'city_list.csv', 'Explore Weather Trends', 'global_data.csv', and 'Project Report: Explore We...'. Each file has a download icon.

2. Use [google spreadsheets](#) as a tool. Three .csv files are imported in one spreadsheet named "Explore Weather Trends". Then I found that in `city_data` table, only data from Bangkok, Thailand is needed. So I selected only from Bangkok and saved as new sheet called `city_data_bangkok`. I later found out that Bangkok data could be query in different ways just using `WHERE country = 'Thailand'`.

The screenshot shows a Google Spreadsheet on the left and a data query interface on the right. The spreadsheet has columns 'year', 'city', 'country', and 'avg_temp'. It contains data for Bangkok, Thailand, with 'avg_temp' values ranging from 25.83 to 27.11. The query interface on the right shows a query: `1 SELECT *`, `2 FROM city_data`, and `3 WHERE country = 'Thailand';`. Below the query, the 'Output' section shows 198 results with columns 'year', 'city', 'country', and 'avg_temp'. The results show data for Bangkok, Thailand, with 'avg_temp' values ranging from 25.83 to 27.11.

3. There were null values for `avg_temp`. I decided to use before and after average temp to fill null values stored as `avg_temp_adjusted` column.

A	B	C	D	E		A	B	C	D	E	
year	city	country	avg_temp	avg_temp_adjusted		1	year	city	country	avg_temp	avg_temp_adjusted
	1816	Bangkok	Thailand	25.96	25.96	2		1816	Bangkok	Thailand	25.96
	1817	Bangkok	Thailand	25.83	25.83	3		1817	Bangkok	Thailand	25.83
	1818	Bangkok	Thailand	26.48	26.48	4		1818	Bangkok	Thailand	26.48
	1819	Bangkok	Thailand	25.9	25.90	5		1819	Bangkok	Thailand	25.90
	1820	Bangkok	Thailand	26.42	26.42	6		1820	Bangkok	Thailand	26.42
	1821	Bangkok	Thailand	26.81	26.81	7		1821	Bangkok	Thailand	26.81
	1822	Bangkok	Thailand	26.93	26.93	8		1822	Bangkok	Thailand	26.93
	1823	Bangkok	Thailand	26.78	26.78	9		1823	Bangkok	Thailand	26.78
	1824	Bangkok	Thailand	=average(D9,D11)		10		1824	Bangkok	Thailand	26.95
	1825	Bangkok	Thailand	27.11	27.11	11		1825	Bangkok	Thailand	27.11
	1826	Bangkok	Thailand	26.97	26.97	12		1826	Bangkok	Thailand	=Average(D11,D19)
	1827	Bangkok	Thailand	26.97	26.97	13		1827	Bangkok	Thailand	26.97
	1828	Bangkok	Thailand	26.97	26.97	14		1828	Bangkok	Thailand	26.97
	1829	Bangkok	Thailand	26.97	26.97	15		1829	Bangkok	Thailand	26.97
	1830	Bangkok	Thailand	26.97	26.97	16		1830	Bangkok	Thailand	26.97
	1831	Bangkok	Thailand	26.97	26.97	17		1831	Bangkok	Thailand	26.97
	1832	Bangkok	Thailand	26.97	26.97	18		1832	Bangkok	Thailand	26.97
	1833	Bangkok	Thailand	26.83	26.83	19		1833	Bangkok	Thailand	26.83
	1834	Bangkok	Thailand	26.82	26.82	20		1834	Bangkok	Thailand	26.82

4. a 7-Year Moving Average of temperature was conducted for both global and bangkok.

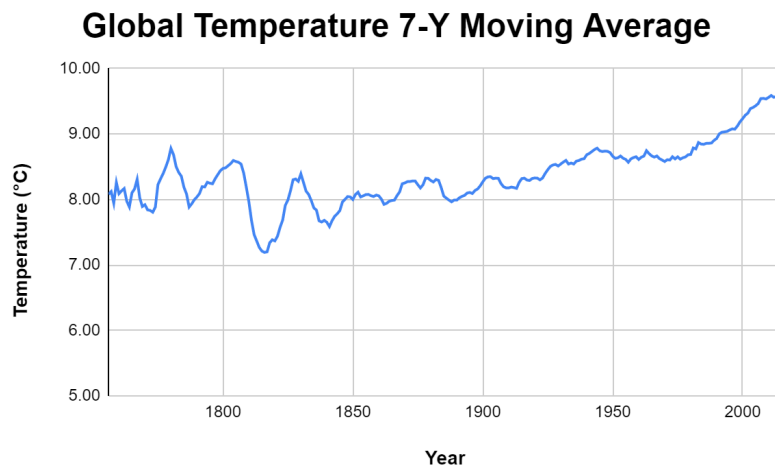
	A	B	C		A	B	C	D	E	F
1	year	avg_temp	7-Y MA Global	1	year	city	country	avg_temp	avg_temp_adjusted	7-Y MA Bangkok avg temp
2	1750	8.72		2		1816	Bangkok	Thailand	25.96	25.96
3	1751	7.98		3		1817	Bangkok	Thailand	25.83	25.83
4	1752	5.78		4		1818	Bangkok	Thailand	26.48	26.48
5	1753	8.39		5		1819	Bangkok	Thailand	25.9	25.90
6	1754	8.47		6		1820	Bangkok	Thailand	26.42	26.42
7	1755	8.36		7		1821	Bangkok	Thailand	26.81	26.81
8	1756	8.85	=AVERAGE(B2:B8)	8		1822	Bangkok	Thailand	26.93	=AVERAGE(E2:E8)
9	1757	9.02	8.12	9		1823	Bangkok	Thailand	26.78	26.45
10	1758	6.74	7.94	10		1824	Bangkok	Thailand	26.95	26.61
11	1759	7.99	8.26	11		1825	Bangkok	Thailand	27.11	26.70
12	1760	7.19	8.09	12		1826	Bangkok	Thailand	26.97	26.85
13	1761	8.77	8.13	13		1827	Bangkok	Thailand	26.97	26.93
14	1762	8.61	8.17	14		1828	Bangkok	Thailand	26.97	26.95
15	1763	7.5	7.97	15		1829	Bangkok	Thailand	26.97	26.96
16	1764	8.4	7.89	16		1830	Bangkok	Thailand	26.97	26.99
17	1765	8.25	8.10	17		1831	Bangkok	Thailand	26.97	26.99
18	1766	8.41	8.16	18		1832	Bangkok	Thailand	26.97	26.97
19	1767	8.22	8.31	19		1833	Bangkok	Thailand	26.83	26.95
20	1768	6.78	8.02							
21	1769	7.69	7.89							

5. Created a new sheet to join data from both tables in order to compare global vs local weather trends.

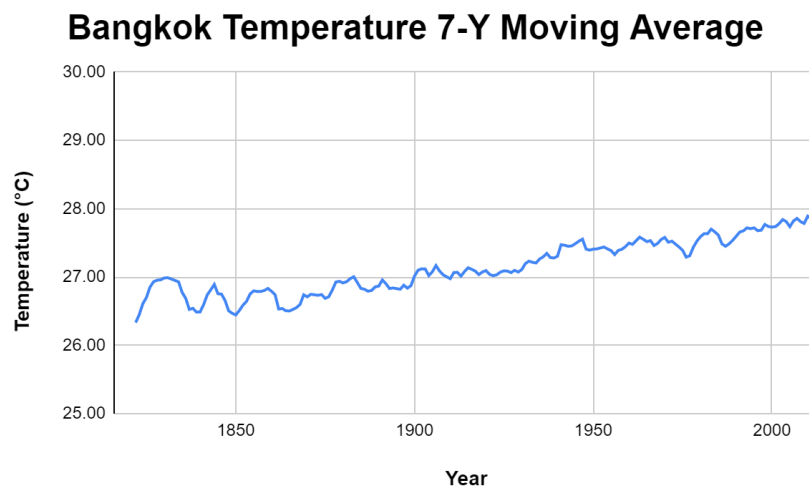
	A	B	C
1	Year	Global Average Temp	Bangkok Average Temp
66	1820	7.37	
67	1821	7.44	
68	1822	7.57	26.33
69	1823	7.69	26.45
70	1824	7.91	26.61
71	1825	7.99	26.70
72	1826	8.13	26.85
73	1827	8.30	26.93
74	1828	8.31	26.95
75	1829	8.28	26.96
76	1830	8.39	26.99
77	1831	8.26	26.99
78	1832	8.13	26.97
79	1833	8.08	26.95
80	1834	7.98	26.93

Line Chart:

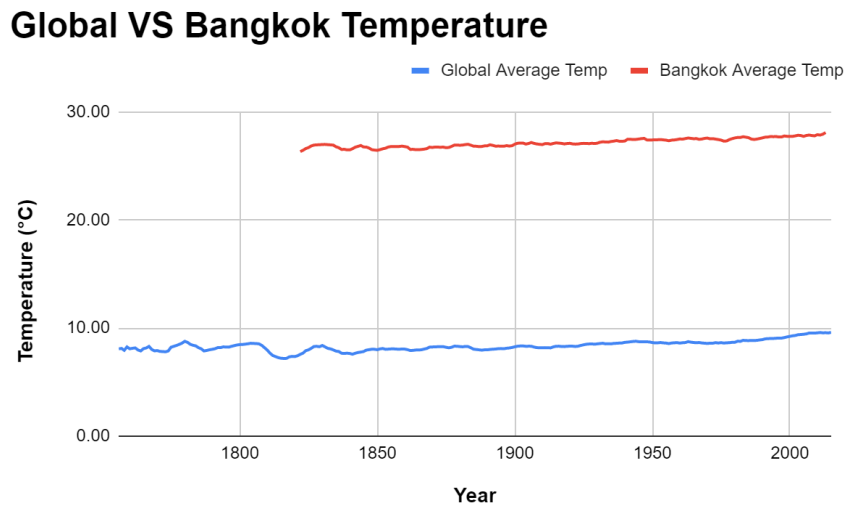
1. Global Temperature Trends using 7-Year Moving Averages



2. Bangkok Temperature Trends using 7-Year Moving Averages



3. Global vs Bangkok Temperature Trends



Observations:

1. Bangkok is hotter compared to the global average and the differences are consistent over time.
2. Temperature increases about 2 degrees in Bangkok but 3 degrees in global average.
3. The world is getting hotter and this trend has been consistent for over a hundred years.
4. Global moving average temperature is more fluctuated compared to Bangkok data.