

Data Analyst Project 1 Report

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1 Data Extraction

SQL is used to extract the data from database (Figure 1).

Input

SCHEMA

↺

city_data

▼

city_list

▼

global_data

▼

1

SELECT c.year, c.city, c.country, c.avg_temp city_avg_temp, g.avg_temp global_avg_temp

2

FROM city_data c

3

JOIN global_data g

4

ON c.year=g.year

5

WHERE city='Hanoi' AND country='Vietnam'

6

Success!

EVALUATE

Output

174 results

Download CSV

year	city	country	city_avg_temp	global_avg_temp
1840	Hanoi	Vietnam	21.00	7.80
1841	Hanoi	Vietnam	21.30	7.69
1842	Hanoi	Vietnam	21.16	8.02
1843	Hanoi	Vietnam	21.26	8.17
1844	Hanoi	Vietnam	20.78	7.65
1845	Hanoi	Vietnam	20.68	7.85
1846	Hanoi	Vietnam	21.25	8.55

Figure 1: SQL query for data extraction.

2 Moving Average Calculation

Google Sheets is used to manipulate the data (Figure 2). The moving average of 10 years of `city_avg_temp` is calculated with `=AVERAGE(D2:D11)` and then the cell is dragged down until the last value. The same is done for `global_avg_temp`.

3 Data Visualization

I produce a line chart to observe the trend in moving average temperature (Figure 3).

F11	=AVERAGE(D2:D11)						
	A	B	C	D	E	F	G
1	year	city	country	city_avg_temp	global_avg_temp	MA_city_avg_temp	MA_global_avg_temp
2	1840	Hanoi	Vietnam	21	7.8		
3	1841	Hanoi	Vietnam	21.3	7.69		
4	1842	Hanoi	Vietnam	21.16	8.02		
5	1843	Hanoi	Vietnam	21.26	8.17		
6	1844	Hanoi	Vietnam	20.78	7.65		
7	1845	Hanoi	Vietnam	20.68	7.85		
8	1846	Hanoi	Vietnam	21.25	8.55		
9	1847	Hanoi	Vietnam	20.83	8.09		
10	1848	Hanoi	Vietnam	20.73	7.98		
11	1849	Hanoi	Vietnam	20.94	7.98	=AVERAGE(D2:D11)	7.978
12	1850	Hanoi	Vietnam	21.11	7.9	21.004	7.988
13	1851	Hanoi	Vietnam	21.26	8.18	21	8.037
14	1852	Hanoi	Vietnam	21.12	8.1	20.996	8.045
15	1853	Hanoi	Vietnam	21.51	8.04	21.021	8.032
16	1854	Hanoi	Vietnam	21.45	8.21	21.088	8.088
17	1855	Hanoi	Vietnam	21.1	8.11	21.13	8.114

Figure 2: Moving Average Calculation.

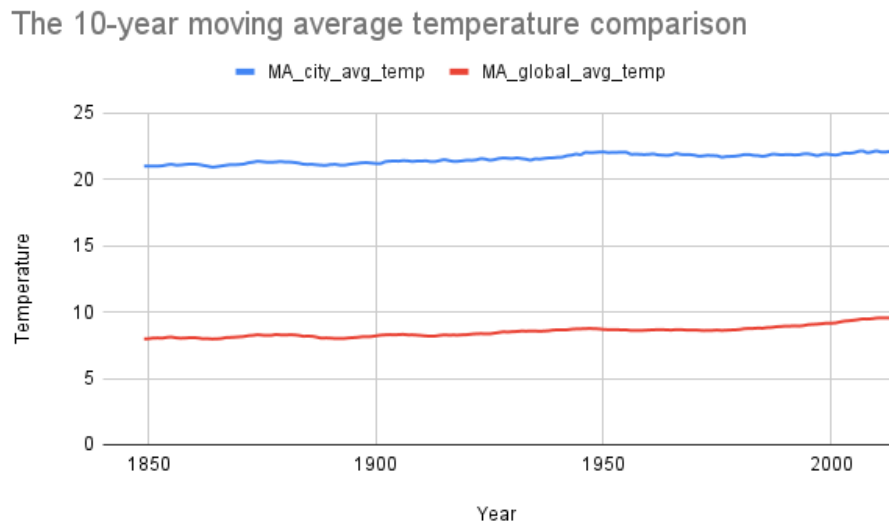


Figure 3: The 10-year moving average temperature comparison.

4 Observations

- There is a slow increase trend for global temperature average and Hanoi temperature average.
- Both Hanoi and global shows increase in average temperature with time.
- Hanoi temperatures are in the 21-23 Celsius degree, whereas global temperature range between 8-10 Celsius degree, so Hanoi average temperature is observed to be hotter than the global average temperature.
- Global moving average temperature is increasing faster rate in comparison to Hanoi moving average temperature