

Exploring Weather Trends

Project Summary:

In this project, I analyzed local and global temperature data and compared the temperature trends where I live to overall global temperature trends.

Instructions:

- **Extract the data** from the database.
- **Open up the CSV** in whatever tool you feel most comfortable using.
- **Create a line chart** that compares your city's temperatures with the global temperatures.
- **Make observations** about the similarities and differences between the world averages and your city's averages, as well as overall trends.

Tools used:

- SQL - to extract data from database
- Excel - to analyze and plot visualization

Steps taken to complete the tasks:

Step 1: Viewing and extracting data from the database tables using SQL

Input

HISTORY ▾MENU ▾

SCHEMA

city_data ▾

city_list ▾

global_data ▾

↺

select * from global_data

Success!

EVALUATE

Output 266 results

[Download CSV](#)

year	avg_temp
1750	8.72
1751	7.98
1752	5.78
1753	8.39
1754	8.47
1755	8.36
1756	8.85
1757	9.02

Step 2: Selecting the nearby city data from the database using SQL

Input

HISTORY ▾MENU ▾

SCHEMA

city_data

year

city

country

avg_temp

↺

↻

↻

↻

↻

```
select * from city_list
where city = 'Toronto';
```

Success!

EVALUATE

Output

1 results

Download CSV

city	country
Toronto	Canada

Step 3: Renaming avg_temp col header on 2 datatables using SQL

Input

HISTORY ▾MENU ▾

SCHEMA

city_data

city_list

global_data

↺

↻

↻

↻

```
ALTER TABLE city_data RENAME COLUMN avg_temp to
city_avgTemp;
ALTER TABLE global_data RENAME COLUMN avg_temp to
global_avgTemp;
```

Success!

EVALUATE

Output

No data to download

Step 4: Joining the tables on year and where city is Toronto before exporting using SQL

The screenshot shows a web-based SQL editor interface. At the top, there's a header with 'Input', 'HISTORY', and 'MENU' dropdowns. Below this is a table with a 'SCHEMA' column and a list of tables: 'city_data', 'city_list', and 'global_data'. To the right of the schema table is a text area containing a SQL query. The query is as follows:

```
1
2
SELECT global_data.year,
global_data.global_avgTemp,city_data.city_avgTemp
FROM global_data
JOIN city_data
ON global_data.year = city_data.year
WHERE city LIKE 'Toronto';
```

Below the query text area, there's a green 'Success!' message and a blue 'EVALUATE' button. At the bottom of the interface, there's an 'Output' section showing '264 results' and a 'Download CSV' button.

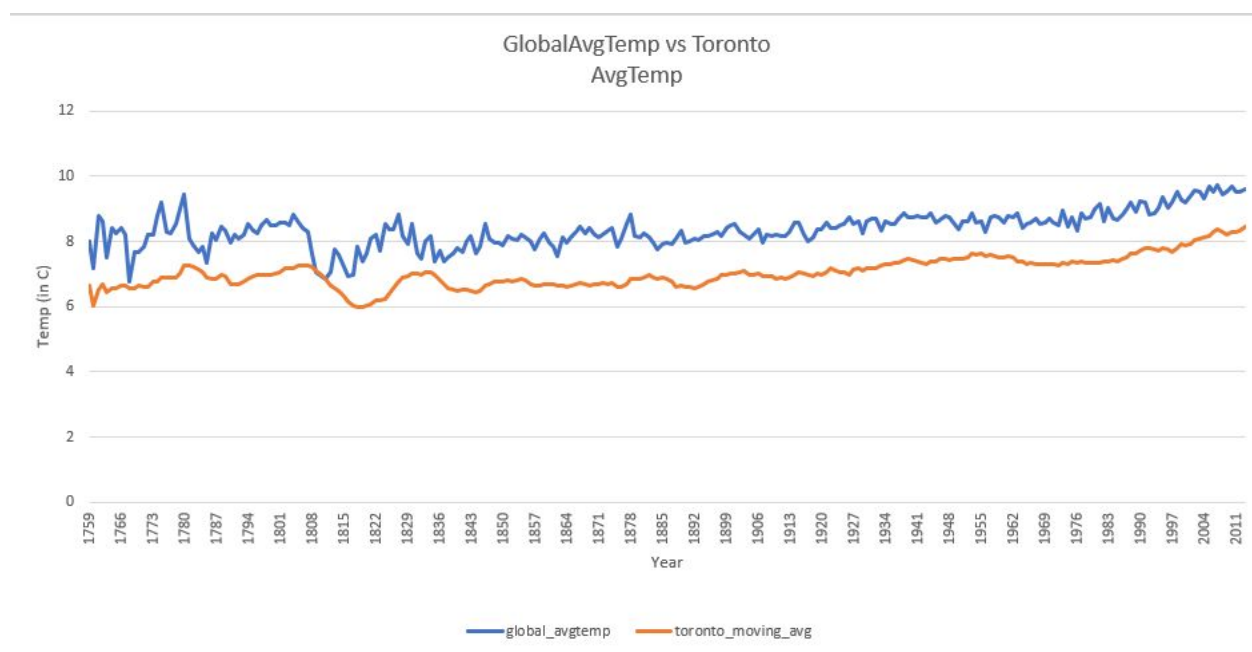
Step 5: Open and analyze the file in EXCEL. Delete any missing values from the spreadsheet for data consistency

Step6: Find the moving average using average formula for 10 yrs interval

=AVERAGE(B2:C11)

011				
=AVERAGE(B2:C11)				
A	B	C	D	E
year	global_avg	city_avgtemp	moving_avg	
1759	7.99	5.27	6.63	
1760	7.19	3.74	6.0475	
1761	8.77	6.25	6.535	
1762	8.61	5.79	6.70125	
1763	7.5	3.32	6.443	
1764	8.4	5.76	6.549167	
1765	8.25	5.14	6.57	
1766	8.41	6.27	6.66625	
1767	8.22	4.74	6.645556	
1768	6.78	4.81	6.5605	

Step7: Plot a line chart for global_avg and moving_avg :



Observations:

- Toronto's temperature is cooler than global average temperature
- Throughout the timeline temp differences remain pretty consistent
- Global avg temp had a spike from 1773 to 1787, while Toronto's temp didnt see that much of a fluctuations during that same periods
- In 1818, toronto recorded it's lowest temp of 5.9c
- Temperature is rising steadily for both global and the city of Toronto
- From 1845 to 1893, Toronto's temperature was pretty flat

