# Tools Uses

## SQL

I have used SQL to extract the required data from the Databases given and below are the SQL queries used to get the required data

### SQL Queries

#### Collecting Global Data

select \*

from global\_data

#### Collecting City Data

Below SQL query is used to extract all the data for my home City ‘Alexandria’, and I had to add an extra condition for Country since there are two cities with the same name one in Egypt and the other one in USA.

select \*

from city\_data

where city = 'Alexandria' and country = 'Egypt'

## Excel

I opened the Two CSV Files in Excel and combined them in in a single table in order to clean and visualize the temperature data

* I have used **VLOOKUP** formulas in Excel in order to combine the data from both CSV files according to date that the reading was collected.



**Sample Table**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **year** | **global\_avg\_temp** | **10-Year MA\_global** | **alex\_avg\_tmp** | **10-year MA\_alex** |
| 1791 | 8.23 |  | 22.60 |  |
| 1792 | 8.09 |  | 20.17 |  |
| 1793 | 8.23 |  | 19.94 |  |
| 1794 | 8.53 |  | 20.31 |  |
| 1795 | 8.35 |  | 20.22 |  |
| 1796 | 8.27 |  | 20.39 |  |
| 1797 | 8.51 |  | 20.48 |  |
| 1798 | 8.67 |  | 20.67 |  |
| 1799 | 8.51 |  | 20.66 |  |
| 1800 | 8.48 | 8.387 | 20.52 | 20.596 |
| 1801 | 8.59 | 8.423 | 20.83 | 20.419 |
| 1802 | 8.58 | 8.472 | 20.94 | 20.496 |
| 1803 | 8.5 | 8.499 | 20.94 | 20.596 |
| 1804 | 8.84 | 8.53 | 20.70 | 20.635 |
| 1805 | 8.56 | 8.551 | 20.35 | 20.648 |

* I have filtered and cleaned the data (Manually in Excel) since in some years there was no data present for the city that I have chosen

I have calculated the Moving average based on 10 years Average in order to better visualize and compare the city level data against the global data. I have used the AVERAGE Function in EXCEL in order to perform this calculation



# Line Chart

Below is a table that visualize and compare the average global temperature with the average temperature recorder in Alexandria City in Egypt. The Line Chart is capturing the 10 Years Moving average reading.

# Observations

Below are some observations that we can make based on the data the we analyzed

* The lowest Average Global temperature is 6.86 C and the maximum recorded temperature is 9.73 C.
* The lowest Average Temperature in Alexandria is 18.91 while the maximum recorded temperature in Alexandria is 22.6 C.
* Alexandria Average temperature is above the Average global temperature by around 12 C.
* As per the Global Average temperature data, the Average global temperature on Earth has increased by 1.5C over the last two decades. The same trend is also seen from Alexandria readings.
* The Line Chart is also illustrating that the Average temperature in steadily increasing in the last two decades except in the period between 1800 and 1820.