1 Tools Uses

1.1 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

1.1.1 SQL Queries

1.1.1.1 Collecting Global Data

```
select *
from global_data
```

1.1.1.2 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 city_data.* , global_data.avg_temp as glb_avg_temp
from city_data
join global_data
on city_data.year = global_data.year
where city = 'Alexandria' and country= 'Egypt'
```

1.2 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.

```
=VLOOKUP(A13,Alex_data!$A$2:$D$224,4,0)
```

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

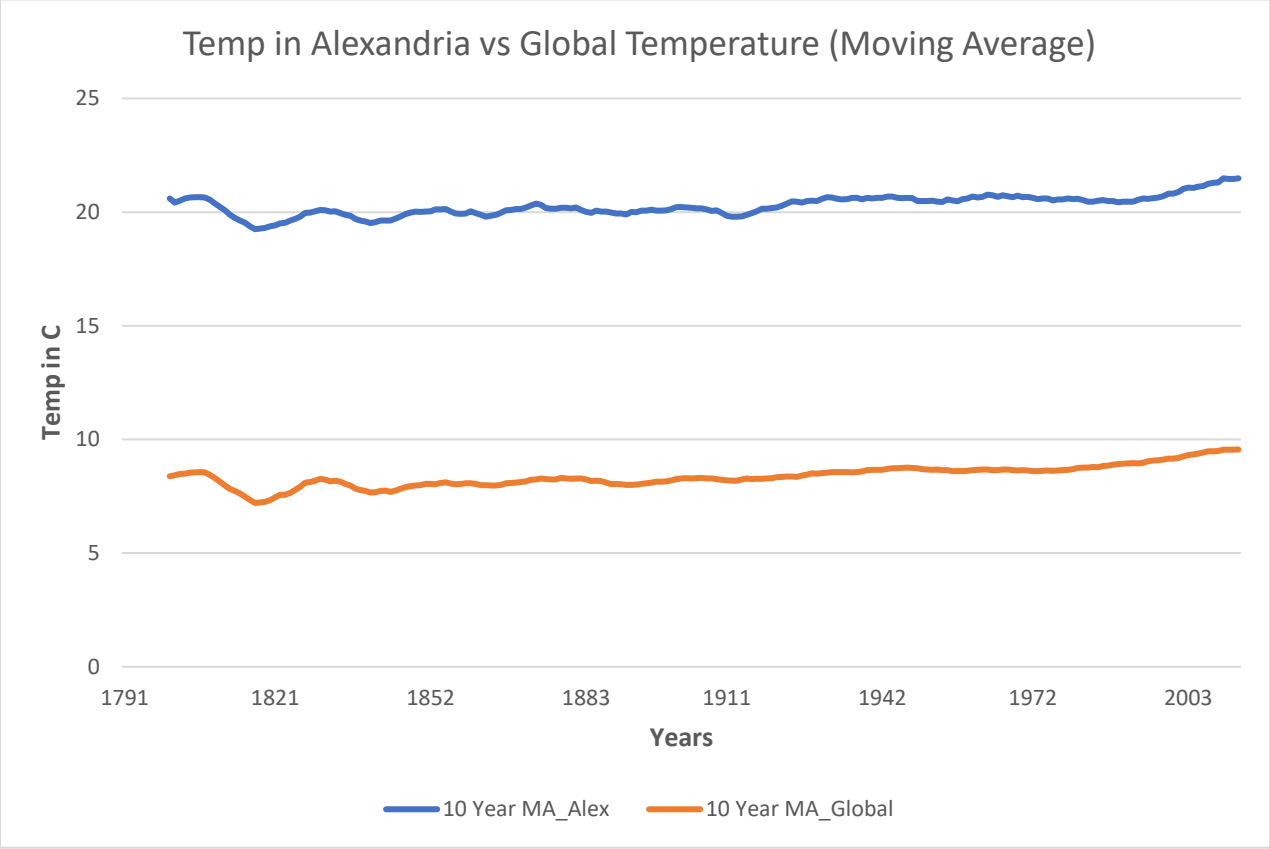
- I have filtered and cleaned the data (Manually in Excel) since in some years there was no data present for the city that I have chosen

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

=AVERAGE(B2:B11)

2 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.



3 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.