EXPLORE WEATHER TRENDS

(PROJECT 1)

-Priya

EXTRACT THE DATA

1. Write a SQL query to extract the city level data. Export to CSV.

2.Write a SQL query to extract the global data. Export to CSV.

SOLUTIONS:

QUERY TO EXTRACT CITY LEVEL DATA:

```
SELECT *

FROM city_data

WHERE city='Alexandria' AND country='Egypt';
```

EXTRACTING DATA FROM ALL THE TABLES:

```
SELECT * FROM city_data;

SELECT * FROM city_list;

SELECT * FROM global_data;
```

OPEN UP THE CSV

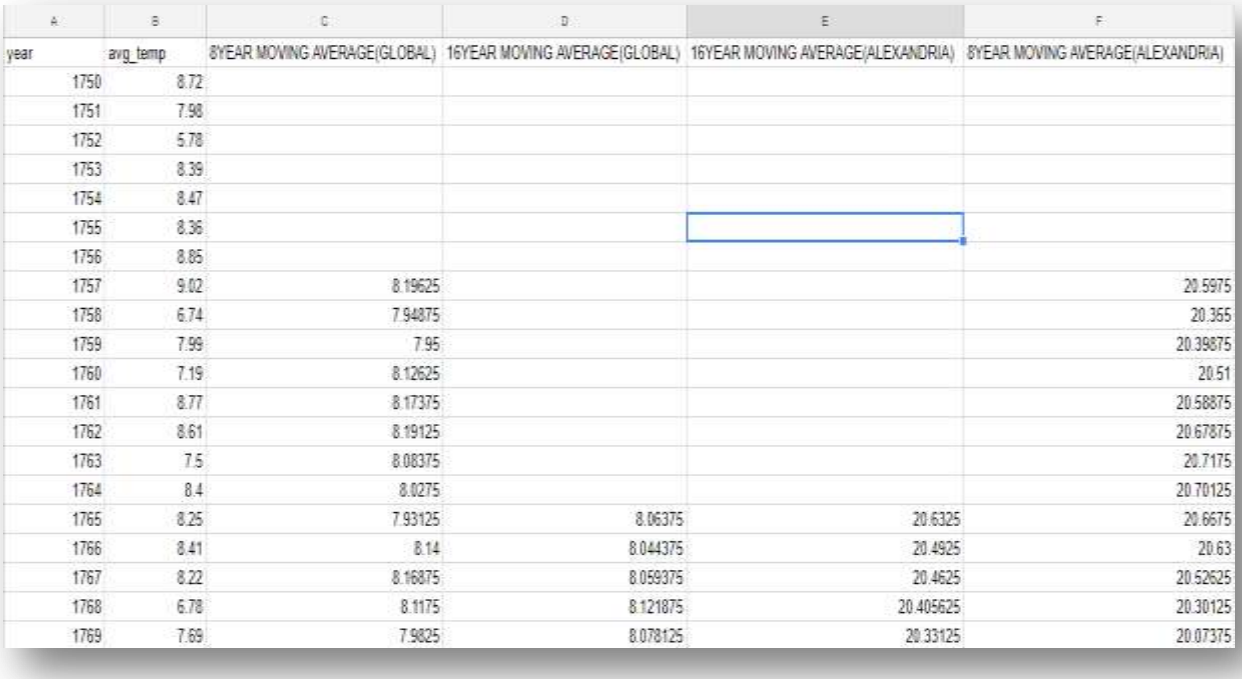
The next step involved downloading the data received from the above SQL queries in the form of CSV Files.

CREATE A LINE CHART

Since MOVING AVERAGES are to be used in the line chart, so they had to be calculated. The preliminary step was to calculate MOVING AVERAGES for 8 years and 16 years. They were plotted using AVERAGE function.

The AVERAGE function was used in Google Spreadsheets in the following form: AVERAGE(CELL2:CELL9) for 8 years and AVERAGE(CELL2:17) for 16 years

Then these values were saved in a different column. Then the values were inculcated in the same table. A screenshot for the same has been shown below.

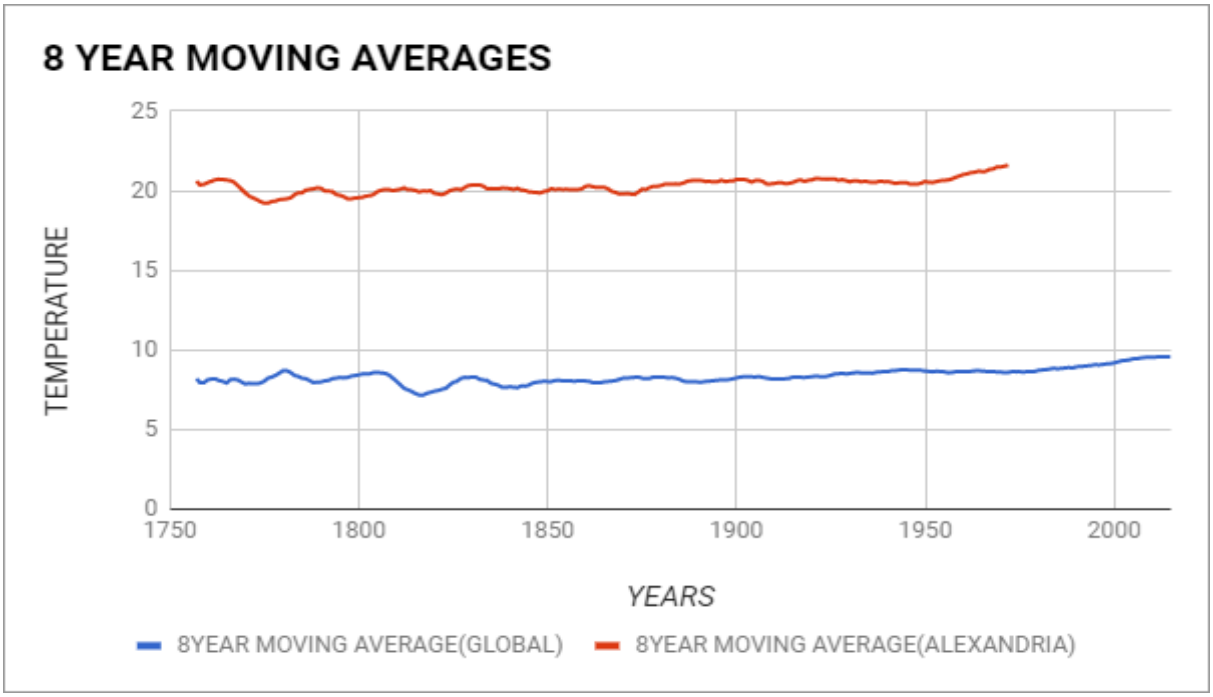


A	B	C	D	E	F
year	avg_temp	8YEAR MOVING AVERAGE(GLOBAL)	16YEAR MOVING AVERAGE(GLOBAL)	16YEAR MOVING AVERAGE(ALEXANDRIA)	8YEAR MOVING AVERAGE(ALEXANDRIA)
1750	8.72				
1751	7.98				
1752	5.78				
1753	8.39				
1754	8.47				
1755	8.36				
1756	8.85				
1757	9.02	8.19625			20.5975
1758	6.74	7.94875			20.365
1759	7.99	7.95			20.39875
1760	7.19	8.12625			20.51
1761	8.77	8.17375			20.58875
1762	8.61	8.19125			20.67875
1763	7.5	8.08375			20.7175
1764	8.4	8.0275			20.70125
1765	8.25	7.93125	8.06375	20.6325	20.6675
1766	8.41	8.14	8.044375	20.4925	20.63
1767	8.22	8.16875	8.059375	20.4625	20.52625
1768	6.78	8.1175	8.121875	20.405625	20.30125
1769	7.69	7.9825	8.078125	20.33125	20.07375

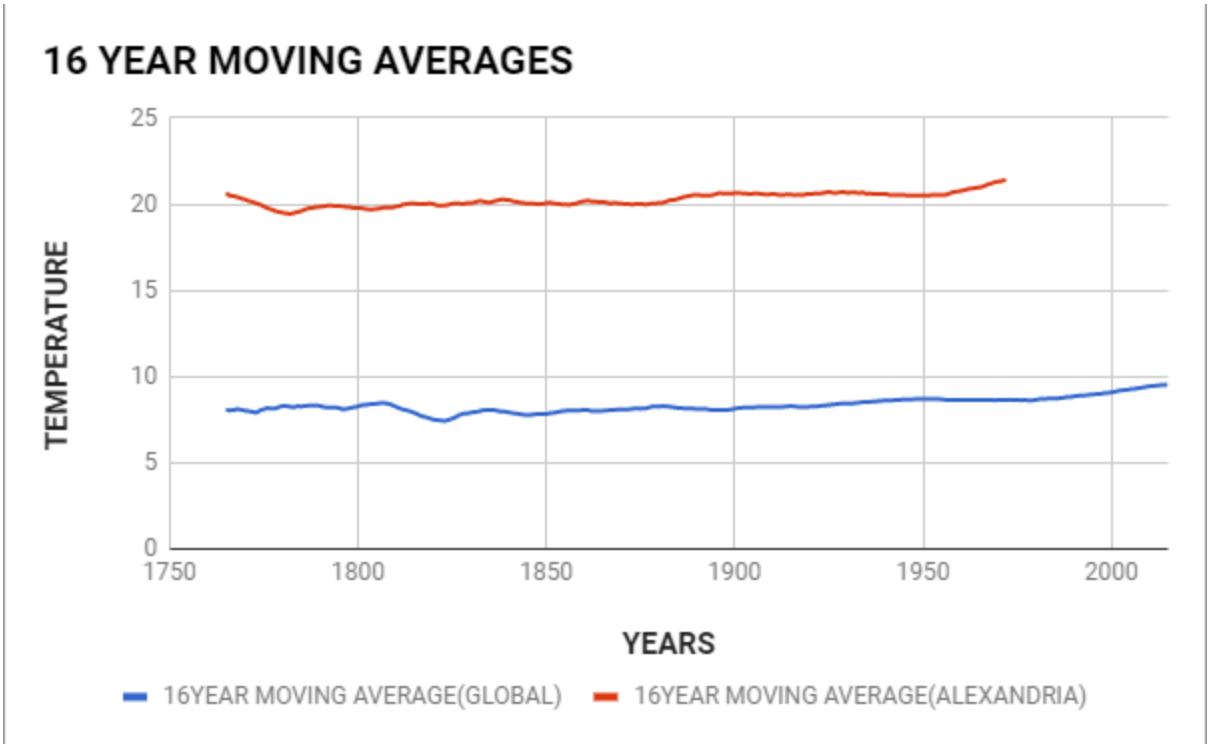
Then the smooth line chart was created once all the values had been calculated.

RED colour was assigned to ALEXANDRIA and BLUE colour was assigned to global values. The legends have been provided in the line charts for description.

LINE CHART(For 8 year M.A.):



LINE CHART(For 16 year M.A.):



OBSERVATIONS

1. Alexandria has been hotter on average as compared to global average.
2. The difference has been consistent from a long interval of time.
3. Changes in Alexandria's temperature with the global temperatures look related.
4. The data values appear to be moving in a homogeneous pattern.
5. It can be seen in both the tables that Alexandria's and global temperatures show a rising trend.
6. The world is getting hotter.
7. If we see the past few years values we can observe that the globally the temperature has been rising.
8. In the initial years, Alexandria's temperature decreased but now the temperature has been rising.

KEY CONSIDERATIONS TO VISUALISE THE TRENDS:

1. A smooth line chart was mentioned. And it was plotted using the moving averages of Alexandria city and global values.
2. In order to maintain a consistency, Alexandria being hotter was depicted by red colour and global trends were shown by blue colour.
3. Celsius was mentioned as the unit of temperature and so is used in the Y-axis label. X-axis has been labelled to denote Moving Average of 8 and 16 years.

Thank you!