Exploring Weather Trends

1ˢᵗ Project – Udacity Data Analyst Nanodegree

Project Description: analyze local and global temperature data and compare the temperature trends where I live to overall global temperature trends.

1- **Extract the data from the database.**

First, Find out the nearest big city:

```
1    SELECT city
2    FROM city_list
3    WHERE country = 'Saudi Arabia'
```

Success!   EVALUATE

The results were the cities of Mecca and Riyadh, since I live in Jeddah, the nearest city to me is Mecca, so I chose it.

Second, extract average temperatures for mecca by year:

```
1    SELECT year, avg_temp
2    FROM city_data
3    WHERE city = 'Mecca'
```

Success!   EVALUATE

The results were 171 rows.

Finally, extract average global temperatures by year:

```
1    SELECT *
2    FROM global_data
```

Success!   EVALUATE

The results were 266 rows.

2- **Open the CSV in Excel**

While extracting the data for the city of Makkah, I discovered that there are deficient values, which are the average temperatures from 1846 to 1860, and given that this gap will cause arithmetic problems when calculating the moving average, I filled spaces by average temperature for all years, which is equal 25.60891.

While extracting global data, I noticed that the data included more years than the data for the city of Mecca, so I reduced the data to become from 1843 to 2013 so that I compare them.

After cleaning up the data, I calculated 7-year moving average for both global and mecca average temperature to smooth out the lines and make trends more observable.

3- **Create a line chart by Excel**
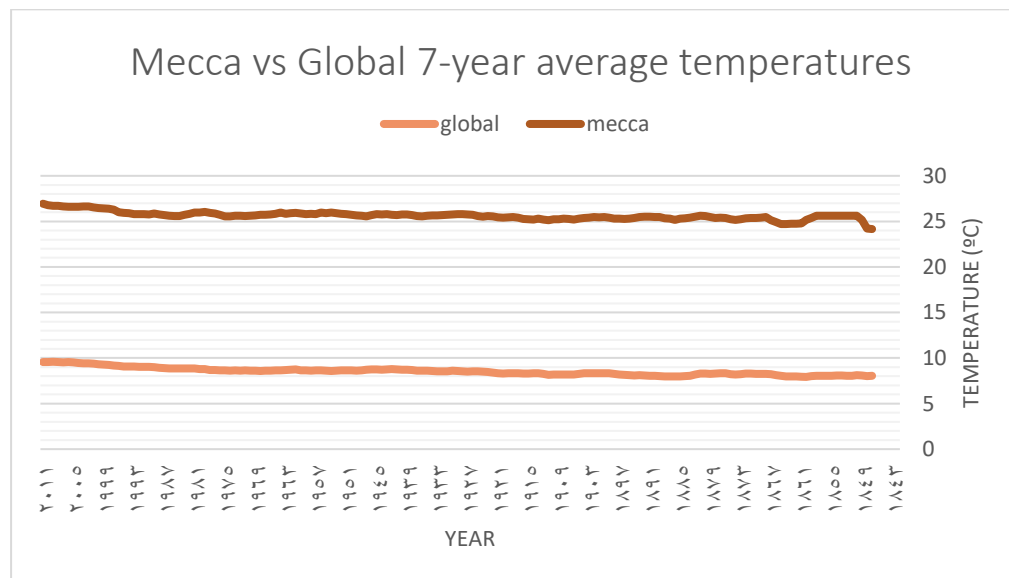
4- **Make observations**

- The average temperature in Mecca is much higher than the global average, and this is expected due to the fact that Mecca is in the tropical region.

- Temperatures rose as the new millennium entered locally and globally.

- There is a direct relationship between raise in temperature locally and globally.

- Global temperatures are more stable than Mecca.

- The world is getting hotter over time, which is to be expected due to global warming.