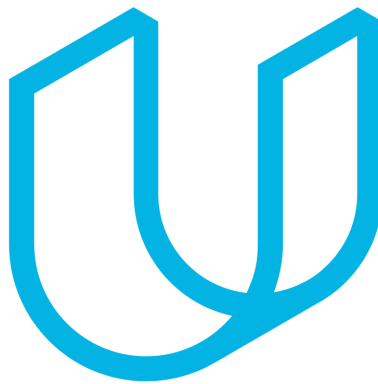


# Data Analyst Nanodegree

## Project 1: Explore Weather Trends



UDACITY

# Explore Weather Trends

## Summary

In this project, I made my analysis for local temperature and global temperature data and compared the temperature trends where I live (Riyadh) to overall global temperature trends with the moving average.

## Project steps

These are the steps for my project:

- **Extract the data from database (SQL)**

I used the Udacity workspace to access the data from database, and used these SQL commands:

```
SELECT *
```

```
FROM city_list;
```

To get the cities and countries to make sure that my city exists.

After that, I used these SQL commands:

```
SELECT global_data.year, global_data.avg_temp AS global_avg_temp,  
city_data.avg_temp AS local_avg_temp
```

```
FROM global_data INNER JOIN city_data
```

```
ON global_data.year = city_data.year
```

```
WHERE city_data.city = 'Riyadh'
```

```
AND global_data.year BETWEEN 1843 AND 2013;
```

To get the local and global average temperature for each year and save it as a CSV file.

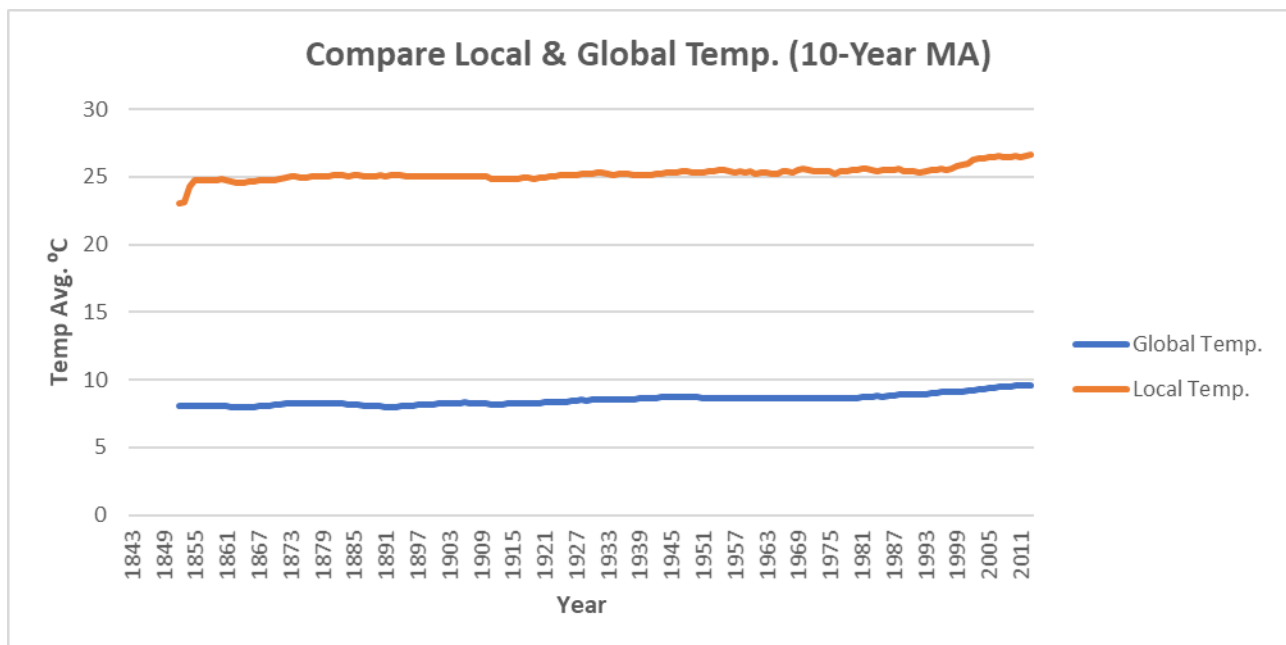
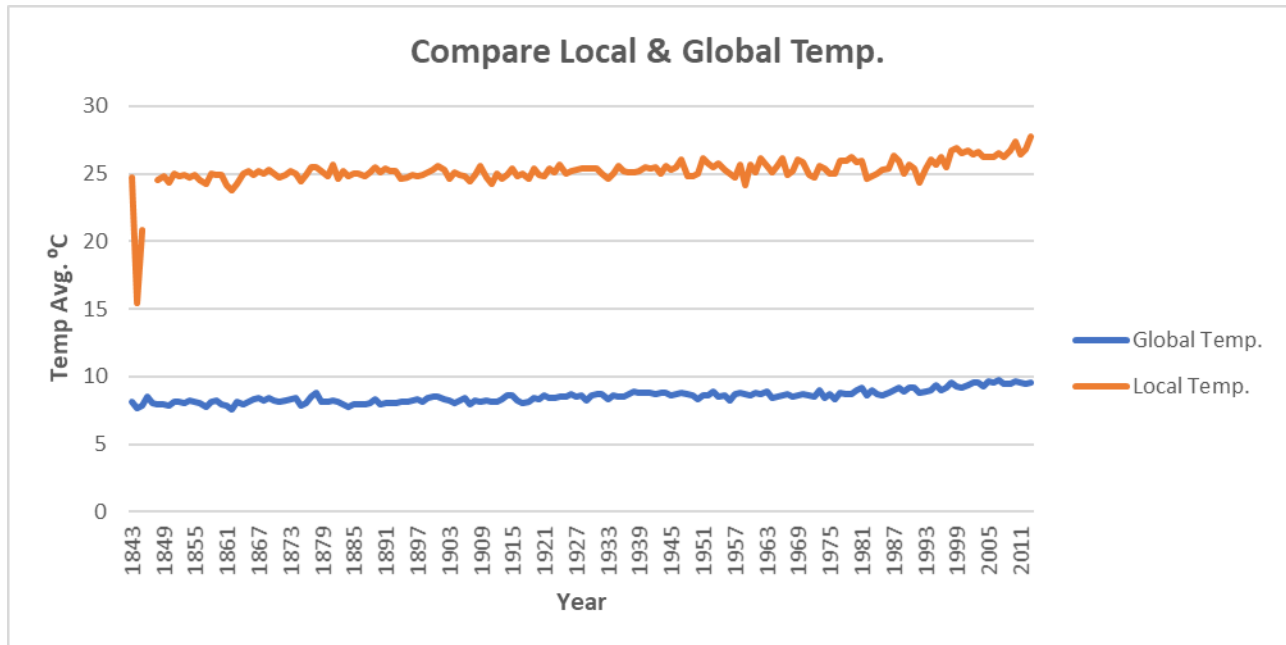
- **Gathering data and calculate the moving average (MS Excel)**

I opened the CSV file, then added two new columns “10-year MA (global)” and “10-year MA (local)” to calculate and apply the moving average on the data for 10 years with average formula **=AVERAGE(B2:B11)** for the global temp. and **=AVERAGE(C2:C11)** for the local temp. and so on for each year from 1852 until 2013 “this is the range of years that available data for my city”.

| 1  | year | global_avg_temp | local_avg_temp | 10-year MA (global) | 10-year MA (local) |
|----|------|-----------------|----------------|---------------------|--------------------|
| 2  | 1843 | 8.17            | 24.74          |                     |                    |
| 3  | 1844 | 7.65            | 15.45          |                     |                    |
| 4  | 1845 | 7.85            | 20.82          |                     |                    |
| 5  | 1846 | 8.55            |                |                     |                    |
| 6  | 1847 | 8.09            |                |                     |                    |
| 7  | 1848 | 7.98            | 24.56          |                     |                    |
| 8  | 1849 | 7.98            | 24.8           |                     |                    |
| 9  | 1850 | 7.9             | 24.34          |                     |                    |
| 10 | 1851 | 8.18            | 25.03          |                     |                    |
| 11 | 1852 | 8.1             | 24.85          | 8.045               | 23.07375           |
| 12 | 1853 | 8.04            | 24.93          | 8.032               | 23.0975            |
| 13 | 1854 | 8.21            | 24.72          | 8.088               | 24.25625           |
| 14 | 1855 | 8.11            | 24.92          | 8.114               | 24.76875           |
| 15 | 1856 | 8               | 24.57          | 8.059               | 24.74666667        |
| 16 | 1857 | 7.76            | 24.26          | 8.026               | 24.698             |
| 17 | 1858 | 8.1             | 25.01          | 8.038               | 24.743             |
| 18 | 1859 | 8.25            | 24.95          | 8.065               | 24.758             |
| 19 | 1860 | 7.96            | 24.94          | 8.071               | 24.818             |
| 20 | 1861 | 7.85            | 24.13          | 8.038               | 24.728             |
| 21 | 1862 | 7.56            | 23.77          | 7.984               | 24.62              |
| 22 | 1863 | 8.11            | 24.28          | 7.991               | 24.555             |
| 23 | 1864 | 7.98            | 25.03          | 7.968               | 24.586             |
| 24 | 1865 | 8.18            | 25.23          | 7.975               | 24.617             |
| 25 | 1866 | 8.29            | 24.92          | 8.004               | 24.652             |
| 26 | 1867 | 8.44            | 25.22          | 8.072               | 24.748             |
| 27 | 1868 | 8.25            | 25             | 8.087               | 24.747             |
| 28 | 1869 | 8.43            | 25.3           | 8.105               | 24.782             |
| 29 | 1870 | 8.2             | 25.02          | 8.129               | 24.79              |
| 30 | 1871 | 8.12            | 24.73          | 8.156               | 24.85              |
| 31 | 1872 | 8.19            | 24.87          | 8.219               | 24.96              |
| 32 | 1873 | 8.35            | 25.24          | 8.243               | 25.056             |
| 33 | 1874 | 8.43            | 24.98          | 8.288               | 25.051             |
| 34 | 1875 | 7.86            | 24.43          | 8.256               | 24.971             |
| 35 | 1876 | 8.08            | 24.89          | 8.235               | 24.968             |
| 36 | 1877 | 8.54            | 25.47          | 8.245               | 24.993             |
| 37 | 1878 | 8.83            | 25.51          | 8.303               | 25.044             |

- **Create a line chart to visualize the data (MS Excel)**

I created two new line charts, the first without the moving average and the other with the moving average.



### **Observations (Similarities and differences)**

- From the line charts, it shows that the local moving average temperature for my city (Riyadh) is hotter compared with the global average temperature, based on the Celsius degrees.
- The global and local temperature average is consistent and tends to a few increase over time.
- The overall temperature trend is increasing with the passage of years, which indicates that it is possible that the temperature will be high in the future.
- The local temperature is very high compared with the global temperature average; this means that my city is classified as a hot temperature city in the world.