Exploring Weather Trends

Data Analyst Nanodegree program

project #1

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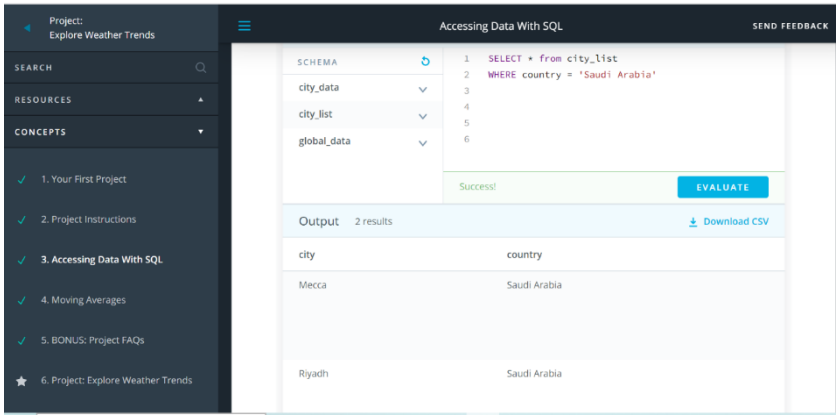
1. Extract Data from Database

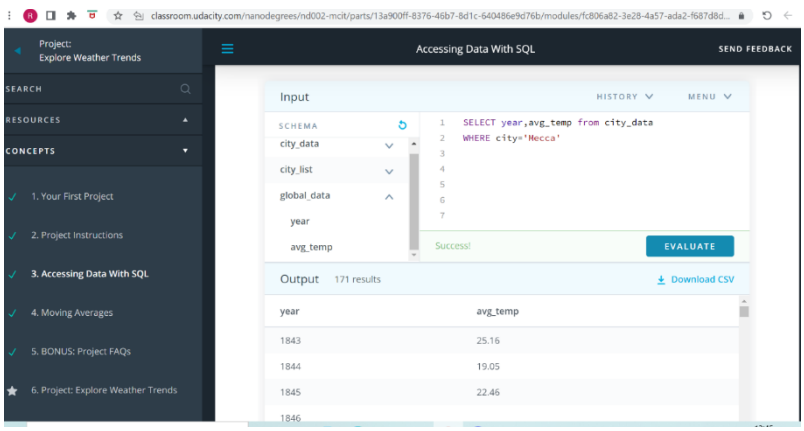
First, I wrote a SQL query to locate the closest city to where I live in Saudi Arabia, Medina.



The query I wrote lists all cities in Saudi Arabia, and the results show two cities, Mecca and Riyadh, and Mecca being the nearest.

1.1 Extract Mecca Data

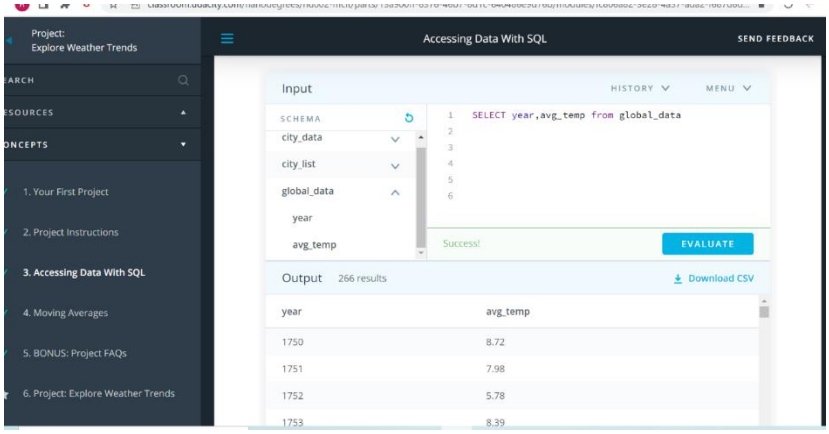
Now it is time to write a query to extract all Mecca temperature data, using a select statement as follows:



This will return 117 rows in total

1.2 Extract Global Data

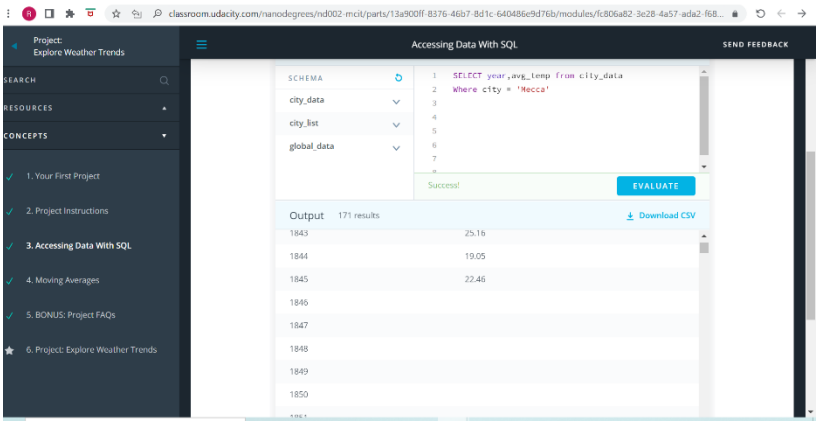
in the same way, we will get global data.



This will return 266 rows in total.

2. Data Selection

All data has been extracted using SQL as CSV file and imported into excel,

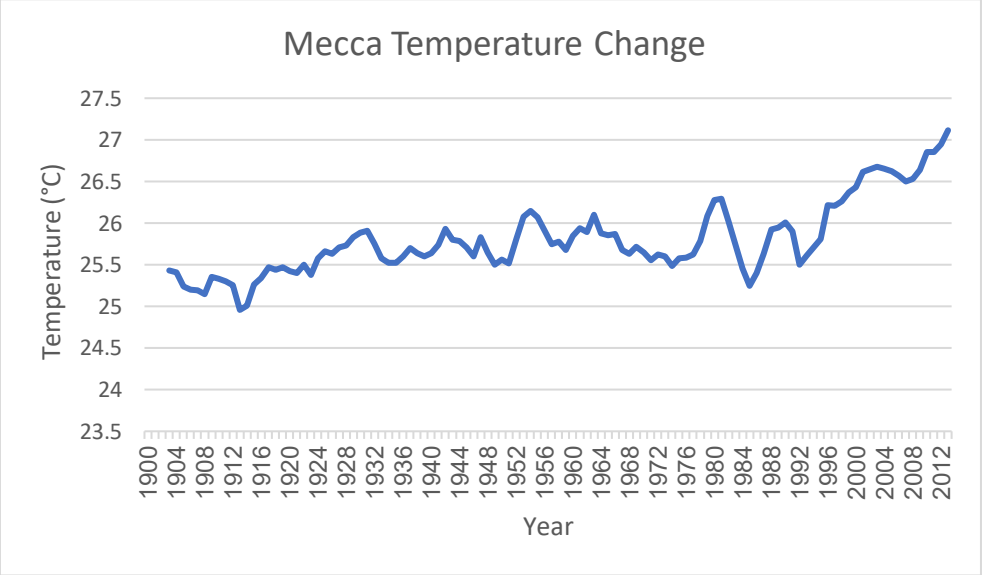


As shown in the picture, there are missing value in the Mecca data, as well as the number of results in each of the two files differs, so to create a more accurate and relevant dataset for comparison, I chose a range of years (1900-2013).

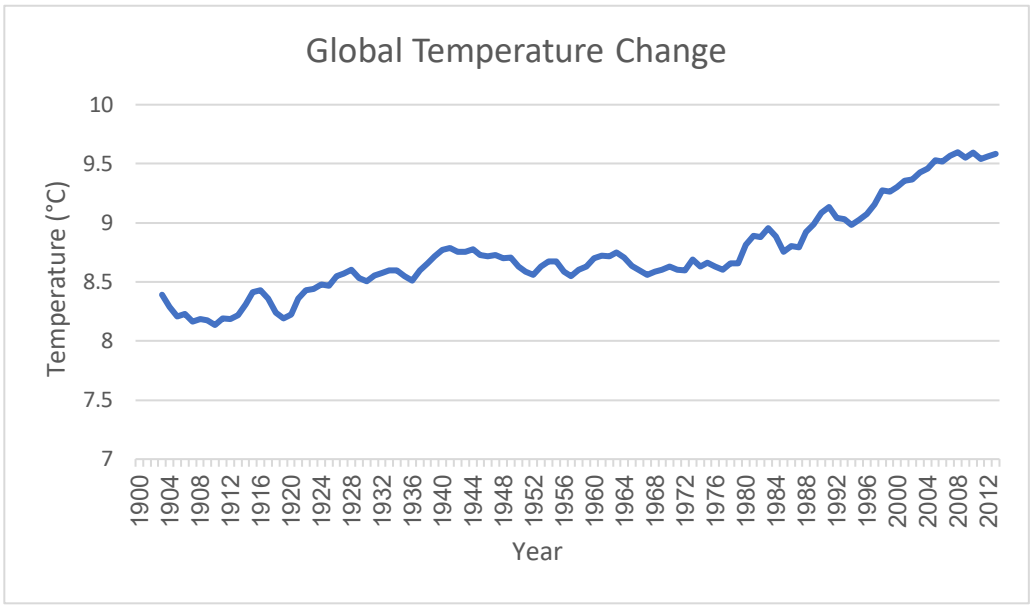
3. Moving Average

Because yearly averages change, it is preferable to study the data using the moving average to achieve smoother results during data visualization. This is performed by calculating the average temperature over the first four years (1900-1904), and then repeating the process from 1904 to the end.

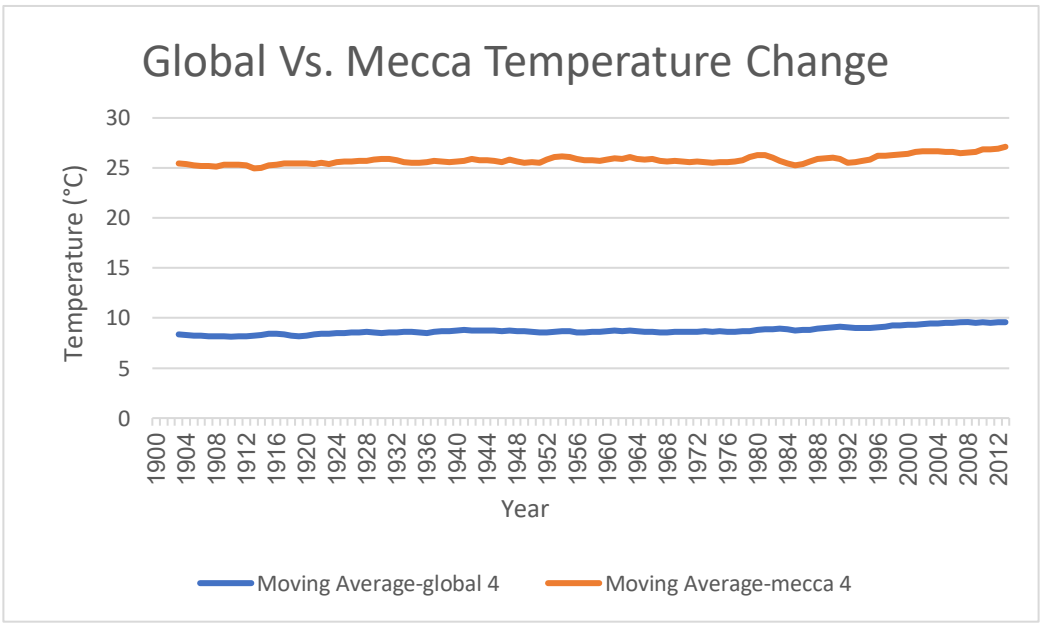
4. Data Visualization



This line chart shows Mecca city's average temperature change over years.



This line chart shows Global average temperature change over years.



The line chart shows a comparison between the Mecca city average temperature and global average temperature.

5. Observations

1- The weather in Mecca is significantly warmer than the global average.

2- In both situations, we can observe that the average temperature progressively rises throughout the duration.

3- We see that the global average temperature is lower than the temperature in Mecca.

4- Mecca's yearly average temperature has risen significantly since the year 2000.