DATA ANALYST NANODEGREE

Project # 1

Explore Weather Trends

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Overview:

I have been provided the temperature database from the portal from where I have extracted the data related to global temperature and my city temperature. I analyzed the temperature around the global with the city I live by extracting the data from the database.

Goals :

1. Selecting city and country from the database “city_list”.

2. Extracting the City level data from the database “city_data” and export to CSV file.

3. Extracting the global temperature from the database “global_data” and export to CSV file.

Tools Used :

1. **SQL** : To extract the data from the database

2. **Jupiter Nootbook (Python) :**

> To calculate Moving Averages of global and city temperatures

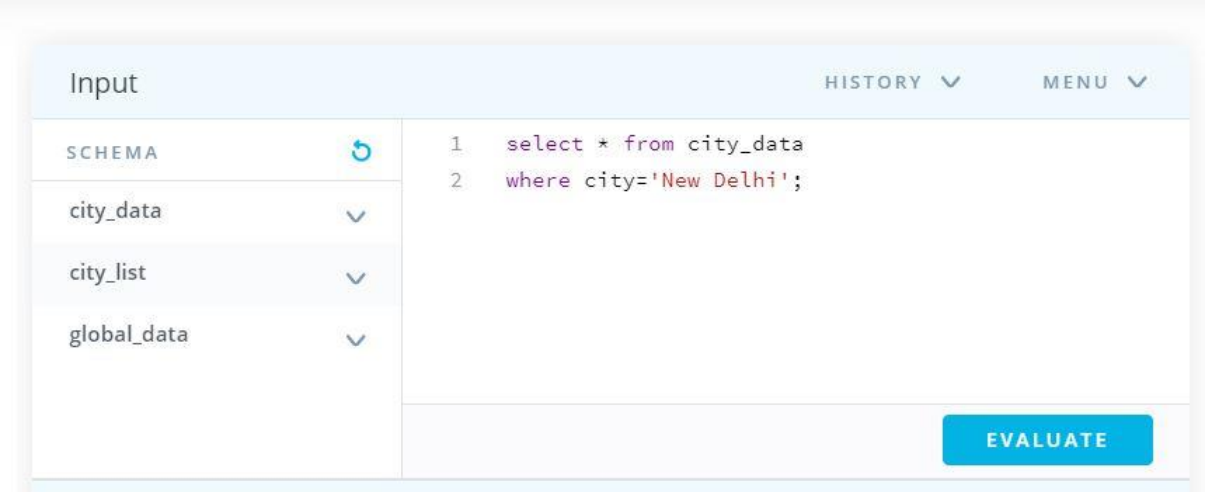
> To plot Line Chart

STEP : 1 Extraction of data from the database:

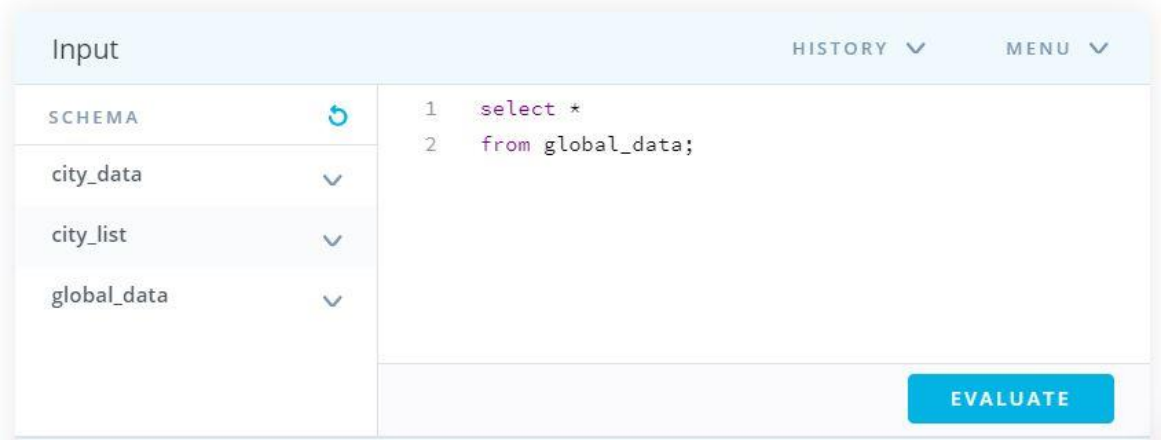
1. To start, I first need to find the city which is closest to where I live. In order to do that, I wrote an SQL query to retrieve the cities in the India.

Accordingly, one city appears for the country of the India which is New Delhi. Coincidentally, this is the city which I currently reside in and hence will be chosen as the local city to be compared with global data

2. Now it is time to extract all the temperature data for the city of New Delhi using SQL Query as follows:



3. Similarly, we use SQL Query to extract global data as follows:

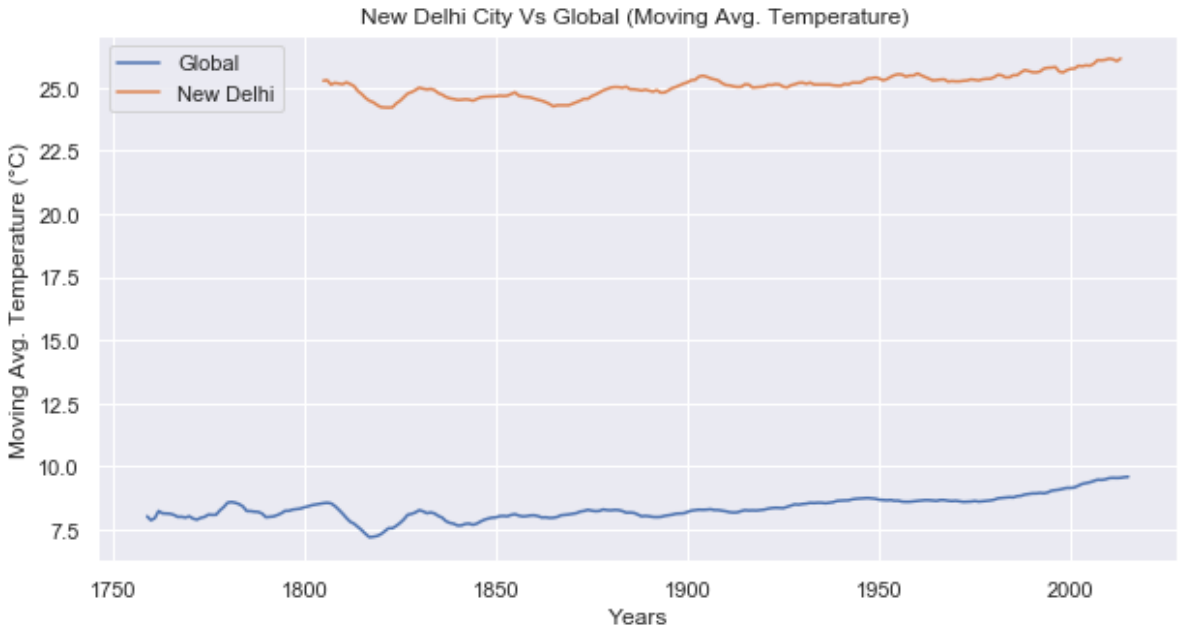


STEP : 2 Moving Averages :

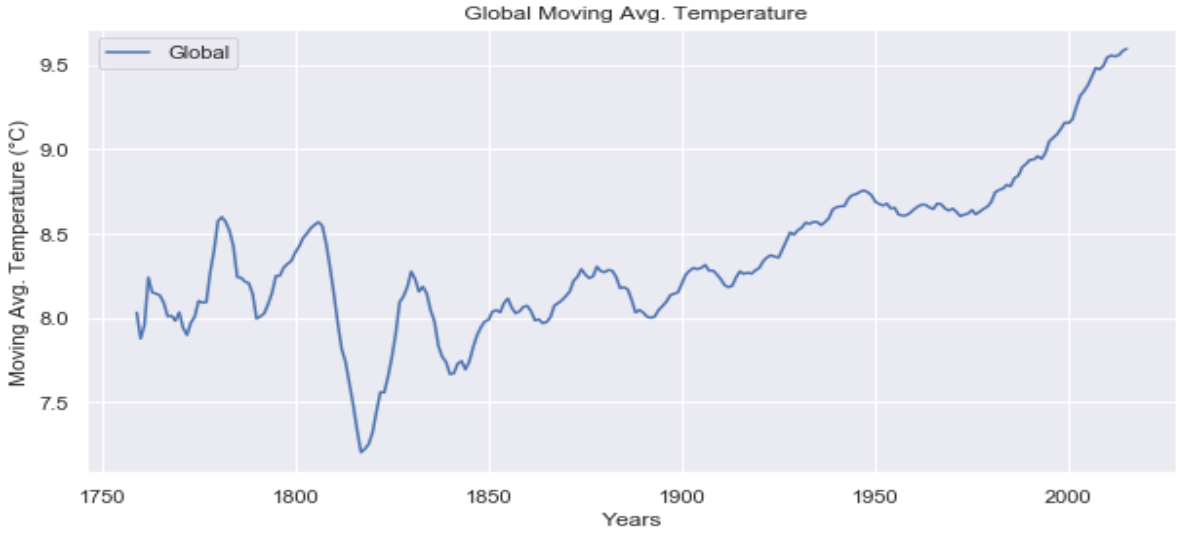
1. To smooth the data and to observe trends in the temperature.
2. I have done 10 year Moving Average to get the smooth line chart.

STEP : 3 Data Visualization :

I am now able to plot a line chart to show a comparison between the local city average temperature and global average temperature. This is done by plotting the moving average temperatures on the y-axis and the year range on the x-axis. After inputting the corresponding values on excel, the following line chart is generate



Another chart is plotted to show the global average temperature range across all years as shown in figure below. This elaborates a clearer trend in the global average temperature over a wide-spread range.



OBSERVATIONS :

1. Global Average Temperature for 10 yr MA varies between 8.5°C to 9.5°C

2. New Delhi city Average Temperature for 10 yr MA varies between 23.5°C to 26.7°C

3. The Chart of New Delhi Vs Global has very big difference in the temperatures.

4. If comparison is made between Global and New Delhi Average Temperatures Bangalore is hotter than global average temperature .

5. The final conclusion of this project is New Delhi is hotter than global temperature and temperature is increasing day by day due to changes in the climate.