

# weather\_trends

July 1, 2020

## 1 Udacity Data Analysis Project-01

### 1.1 Introduction

SQL query was used to extract/download CSV file that contains the info about the yearly average temperature of city and global temperature

- The first step in this process to look-up the city\_list table and then for desired city to process further
- once the desired city is spotted, filter out the city\_data, and then global weather data for further processing

#### 1.1.1 extracted (global data) CSV file by using the query underneath:-

```
SELECT * FROM global_data;
```

The city that has the info about data and the name of the country and city By Using the query Underneath:

```
SELECT * FROM city_data WHERE city = 'Delhi' AND country = 'India';
```

### 1.2 Importing the necessary libraries-

```
[24]: import numpy as np
import pandas as pd
from matplotlib import pyplot as plt
```

### 1.3 Data

```
[25]: global_temp = pd.read_csv('global_data.csv')
city_temp = pd.read_csv('city_data.csv')
```

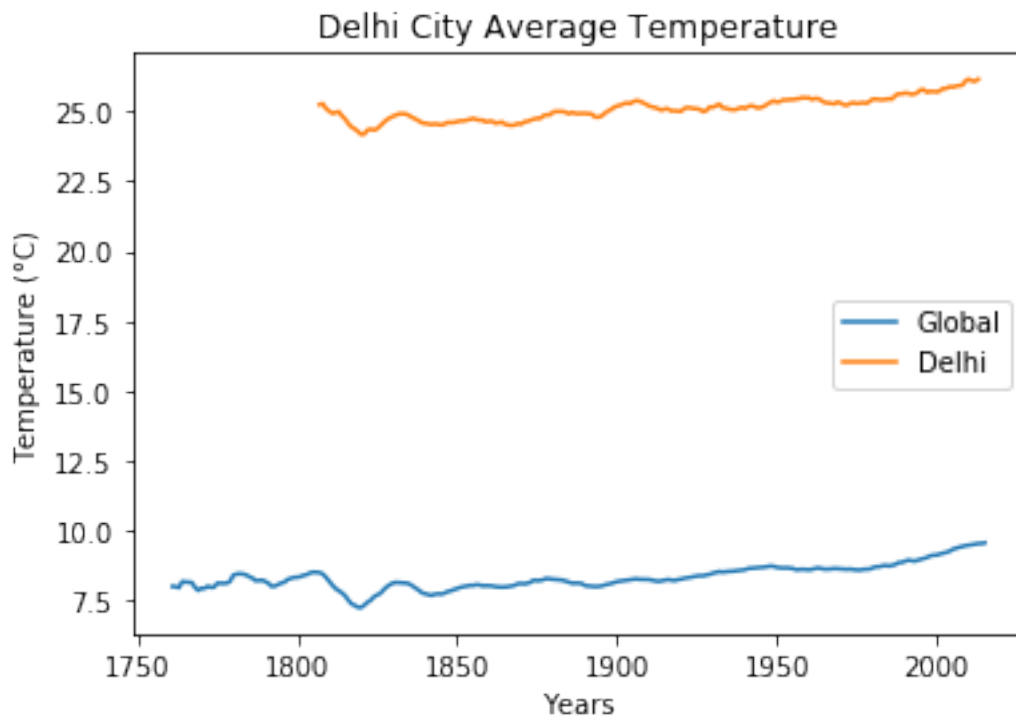
#### 1.3.1 Moving Averages:

- Rolling Average has been calculated to smooth out data and to make this data easier to observe
- Rolling Averages has been calculated for every 10 years
- for calculating the Moving Averages by using python's built-in function (i.e.- 'rolling' 'mean')

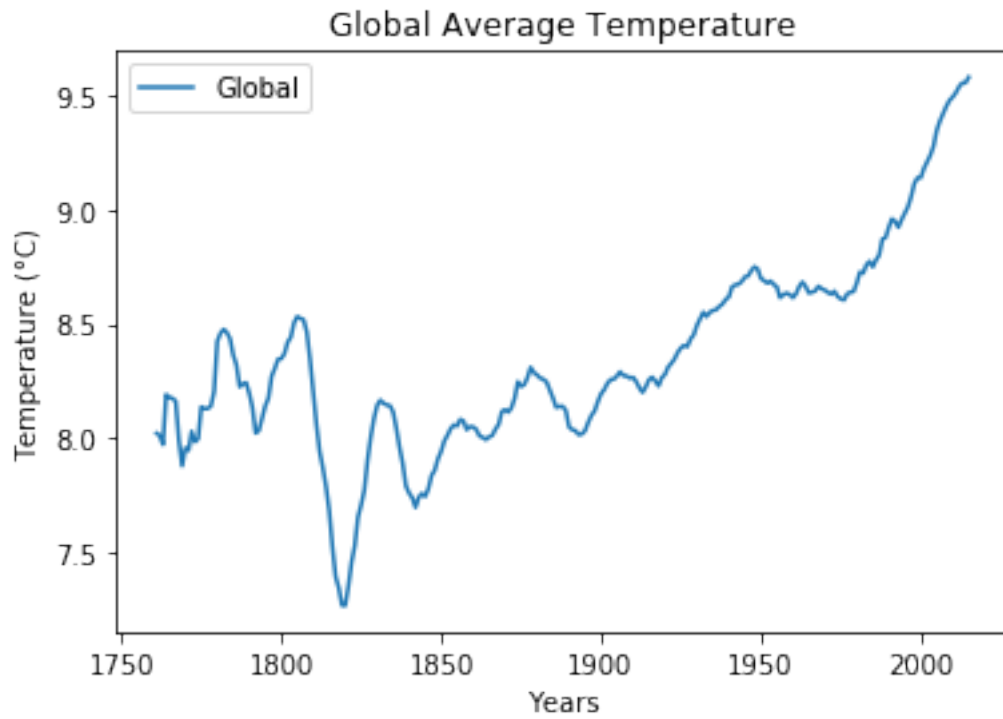
```
[26]: glb_mv_avg = global_temp['avg_temp'].rolling(10).mean()
      local_mv_avg = city_temp['avg_temp'].rolling(10).mean()
```

## 1.4 Line-Chart

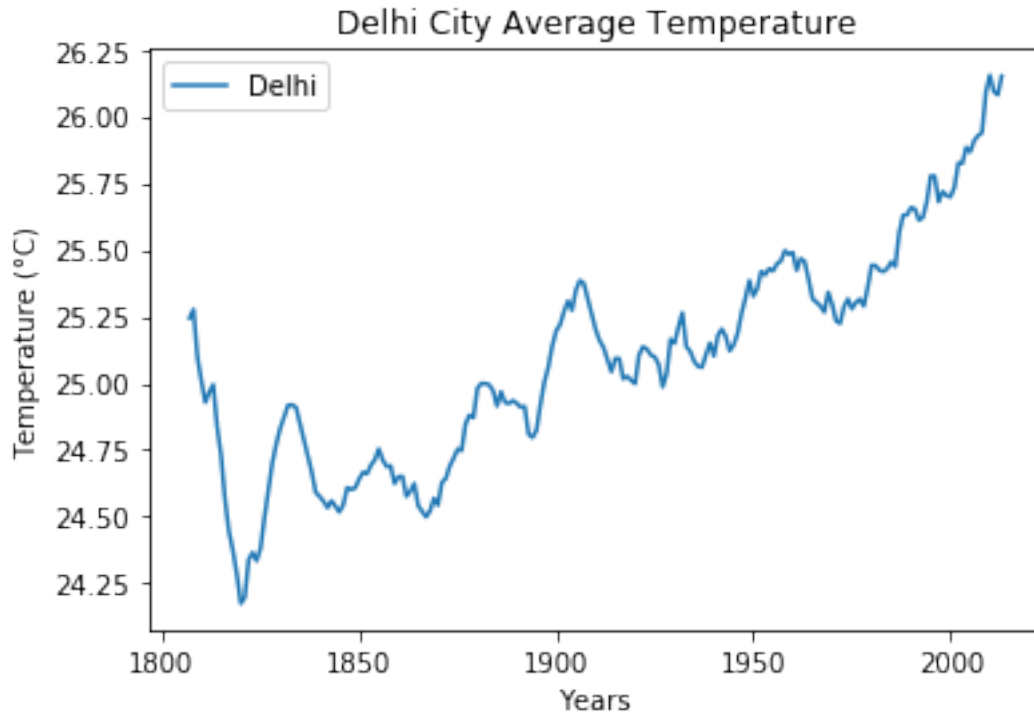
```
[34]: plt.plot(global_temp['year'],glb_mv_avg,label='Global')
      plt.plot(city_temp['year'],local_mv_avg,label='Delhi')
      plt.legend()
      plt.xlabel("Years")
      plt.ylabel("Temperature (°C)")
      plt.title("Delhi City Average Temperature")
      plt.show()
```



```
[35]: plt.plot(global_temp['year'],glb_mv_avg,label='Global')
      plt.xlabel("Years")
      plt.ylabel("Temperature (°C)")
      plt.title("Global Average Temperature")
      plt.legend()
      plt.show()
```



```
[36]: plt.plot(city_temp['year'],local_mv_avg,label='Delhi')
plt.xlabel("Years")
plt.ylabel("Temperature (°C)")
plt.legend()
plt.title("Delhi City Average Temperature")
plt.show()
```



## 1.5 Observations

- According to the chart temperature is raising over the years.
- From 1975 temperature is raising very rapidly
- Global Average temperature has increased from 8.27 degree celsius (1796) to 9.61 degree celsius (2013).
- Similarly Delhi's average temperature has also increased overtime from 25.03(1796) to 26.71(2013) degree celcius
- Comparing from global Delhi's average temprature is much hotter than the Global average.
- I have separately plotted both the graph of global and city data
  - and according to that global temperature is increasing quite constantly over the time and Delhi's temperature is much greater than the global average
- This is because of that delhi is the capital of the India and many other factor like- Population boom, industrial Area
  - and this region is lie between the tropic of capricorn and the tropic of cancer, will have greater temperatures as compared to the global

[ ]: