OUTLINE

I used three SQL queries to explore the data available in the three available tables: ‘city_list’, ‘city_data’ and ‘global_data’.

The first query allowed me to identify all the cities of my country, Pakistan, available in the table: ‘city_list’.

```
SELECT *
FROM city_list
WHERE country = 'Pakistan';
```

I was able to identify the name of my city, Islamabad, within the result of my first query. I used the second SQL query to explore all the data available for Islamabad in the table: ‘city_data’.

```
SELECT *
FROM city_data
WHERE city = 'Islamabad';
```

The third SQL query was used to explore the available global data in the table: ‘global_data’.

```
SELECT *
FROM global_data;
```

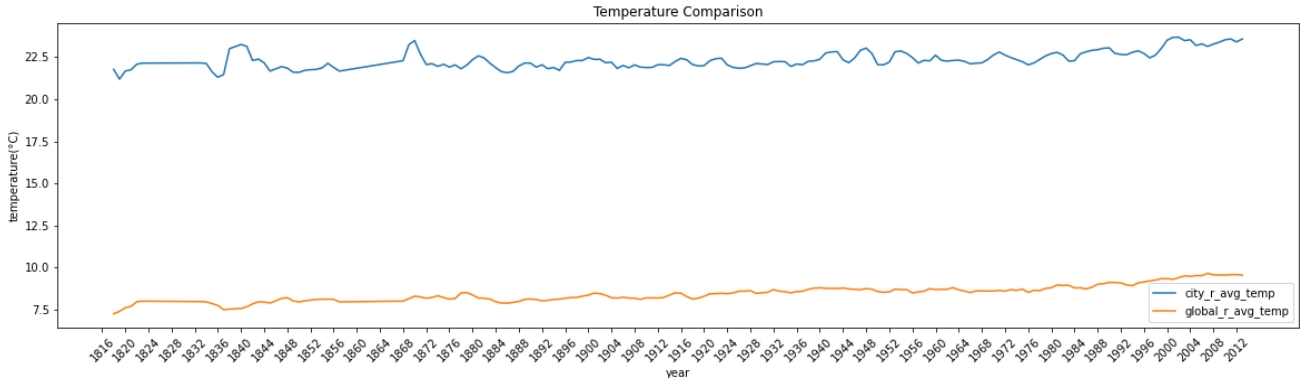
I used another SQL query to join the desired data from these two tables ‘city_data’ and ‘global_data’ into one dataset which was then saved in the form of a csv file.

```
SELECT c.year
, c.city
, c.country
, c.avg_temp AS city_avg_temp
, g.avg_temp AS global_avg_temp
FROM city_data AS c
INNER JOIN global_data AS g
USING (year)
WHERE c.city = 'Islamabad';
```

I, then, used python for data analysis. I found out that there were 20 null values in the dataset. I decided to drop these null values. Instead of using the original data, I calculated the rolling mean by making use of an inbuilt pandas library series function called ‘rolling’, where I set the ‘windows’ parameter to ‘3’. I, then, called the mean function to get the moving average for both ‘my city temperature’ and ‘global temperature’. I choose the matplotlib to visualise the data in the form of a line chart. The y-axis was informed from the calculated moving averages while the x-axis was informed by a time measure in terms of years. In

order to make the chart more readable I titled the chart, scaled up the figure size, labeled the y-axis, set the range for xticks and finally rotated the xticks.

LINE CHART



FINDINGS

- My city (Islamabad) has a much higher yearly average temperature than the yearly global temperature with an approximate difference of 15°C. This trend has stayed consistent throughout the tenure of this data.
- The yearly average temperature of Islamabad has observed a gradual increase over the years. The yearly average global temperature follows a very similar trend.
- The slope representing the yearly average global temperature is overall more steaped than compared to the yearly average temperature of Islamabad with an increase of 2.67°C and 1.52°C respectively.
- We can observe more fluctuations in the slope for the year average temperature of Islamabad while the slope representing the yearly average temperature is much smoother.
- The max, mean and the difference between them of the yearly moving average temperature of Islamabad is 25.64°C and 20.91°C , 4.73°C respectively.
- The max, mean and the difference between them of the yearly moving average global temperature is 9.73°C , 6.94°C and 2.79°C respectively.
- The mean for the yearly global moving average temperature for Islamabad is 22.34685393258427°C .
- The mean for the yearly global moving average global temperature is 8.48011235955056°C .
- The correlation between these two was found to be +0.7, this is also visible in the graph. When Islamabad's yearly moving average temperature increased so did the global and vice versa.