Weather Temperature Trends

SQL Query

The data has been disentangled from a database using SQL.
According to Database Schema there three tables :

- city_list - This contains a list of cities and countries in the database. Look through them to find the city nearest to you.
- city_data - This contains the average temperatures for each city by year (°C).
- global_data - This contains the average global temperatures by year (°C).

Using the SQL Query, I picked Hyderabad from the city_list table and global_data table from a database.

```
select year,city,avg_temp from city_data
        WHERE city='Hyderabad'

select*from global_data
```

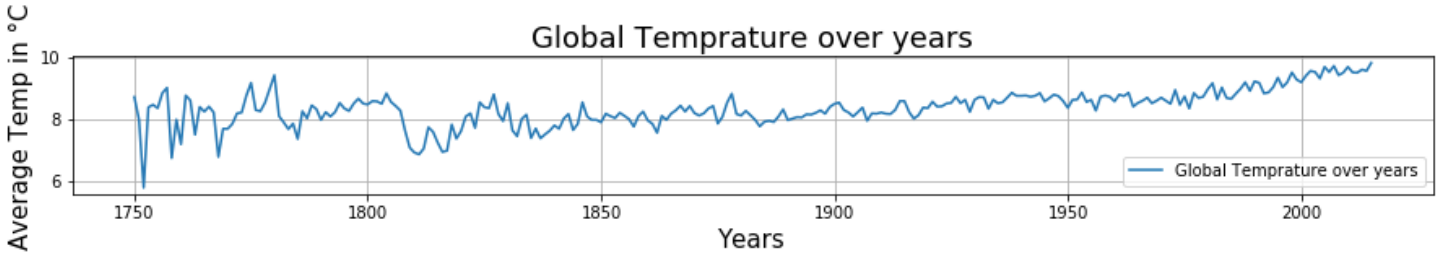
Data Manipulating

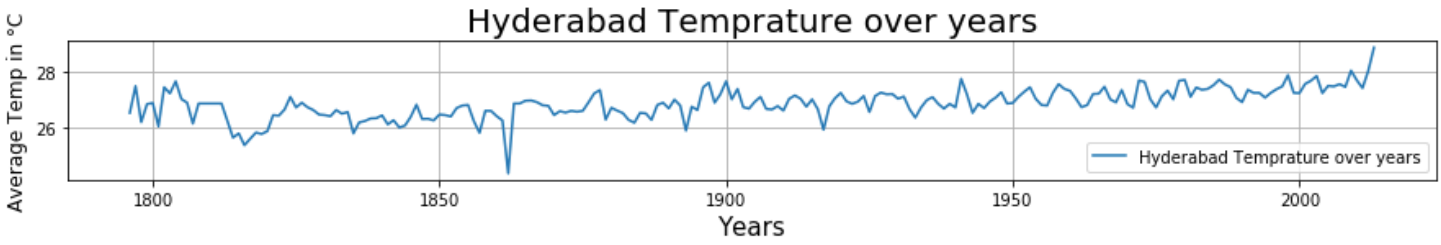
From SQL I have converted it to CSV file later using, Python scripting language I have created a data frame for Hyderabad
and Global Data in Pandas.
I've started investigating if there are missing values in both data frames grasped that in the

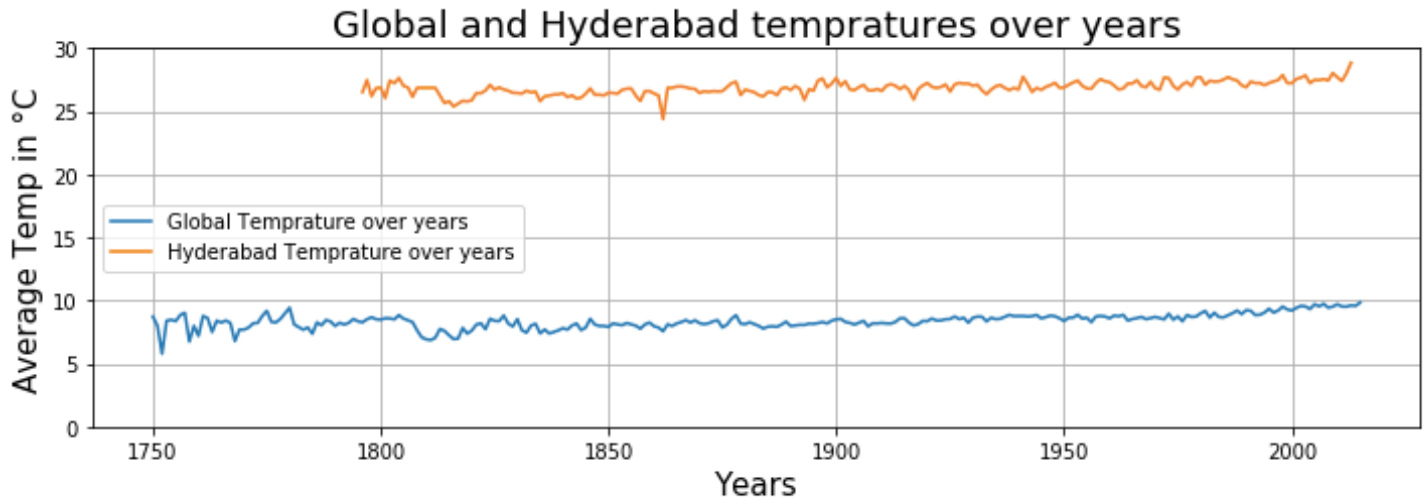
Hyderabad data frame there 7 missing values so I took the mean of the avg_temp column and filled it with missing values, followed by the global data frame I perceived there are no missing values in it.

Data Visualisation

After Data Manipulation using matplotlib, I have plotted both the data frames separately for a real correlation I have plotted both data frames in one plot.



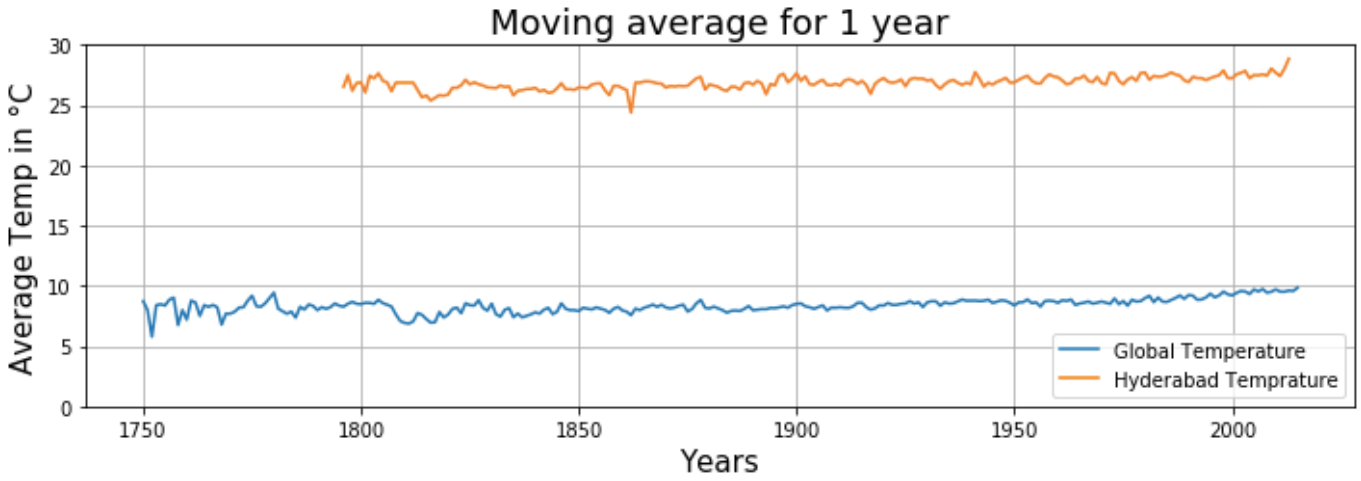




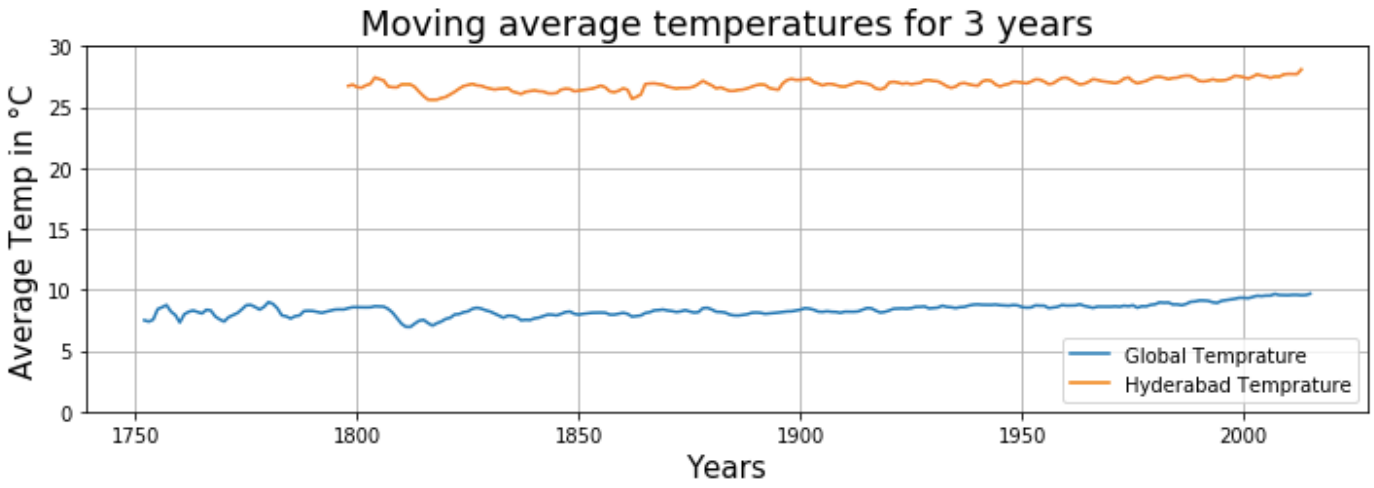
Observation

To perceive the similarities and differences between the global average temperatures and Hyderabad's average temperature, as well as overall trends, I have used moving averages.

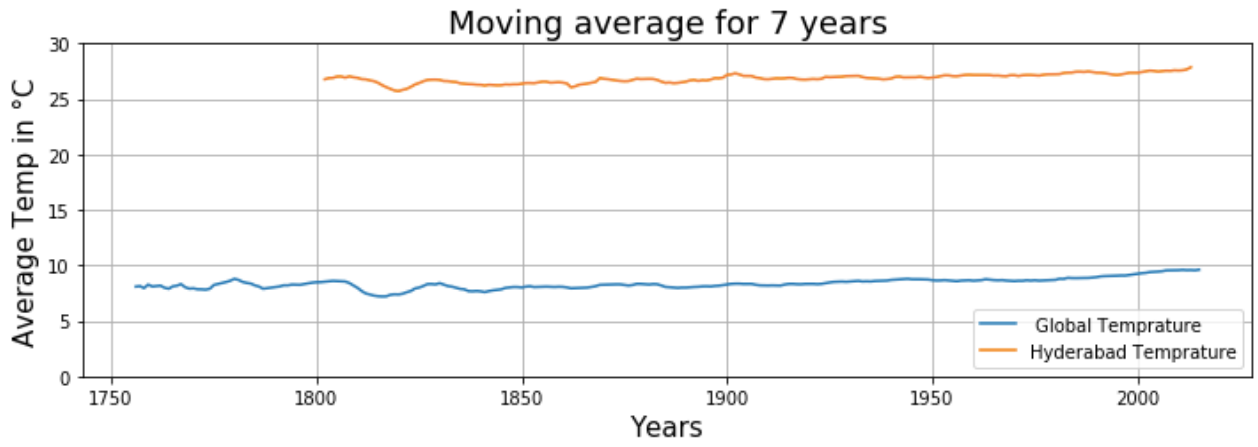
Moving Average for 1 year



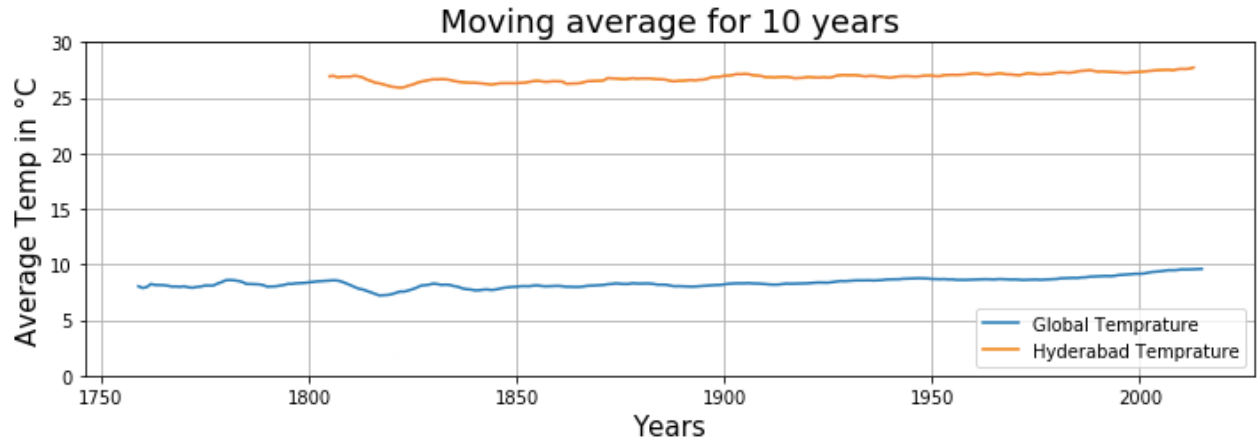
Moving Average for 3 years



Moving Average for 7 years



Moving Average for 10 years



- Hyderabad is hotter on average compared to the global average the difference has been consistent over time.
- The changes in Hyderabad are consistently flowing with the global average.
- The averages of Hyderabad and Global averages are consistently over the last few hundred years.

Conclusion

In this investigation, I have interpreted that Hyderabad and Global temperatures are rising at around comparable measures.
As I have reviewed by four moving averages for both Hyderabad and global temperatures I grasped that for the first moving average(1 year) the graphs are moving likewise with others followed over the second(3 years), third(7 years), fourth(10 years) moving averages through this, I can presume that temperatures are rising at around comparable measures.
Assuredly from 1796 to 2013, Hyderabad's minimum temperatures are 24.38, and the maximum temperature is 28.35 whereas the global minimum temperatures are 5.78, and the maximum temperature is 9.83,
The average temperature contrast between Global and Hyderabad is 18.49.