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Udacity Data Analyst Nanodegree Program

Project 1: To Explore Weather Trends

Introduction:

In this project we are going to compare the global and local average temperature on the basis of historical data provided to us.

To download the data we will use SQL queries.

To analyse the trends we will use Python Programming Language and it's libraries in Jupyter Notebook.

Outline:

SQL queries used to download CSV files.

1. To download global data we will use:

```
Select * From global_data;
```

2. To download data of local city nearest to me:

```
Select * From city_data Where city='Agra' and   country='India';
```

Moving Averages:

In python we calculate moving averages using rolling function.

1. It is calculated to make the data smooth and easier to observe the trends and to avoid fluctuations.

2. It is calculated for every 25 years to single data.

3. Python functions such as rolling() and mean() are used to calculate the moving averages.

4. Python code is given below:

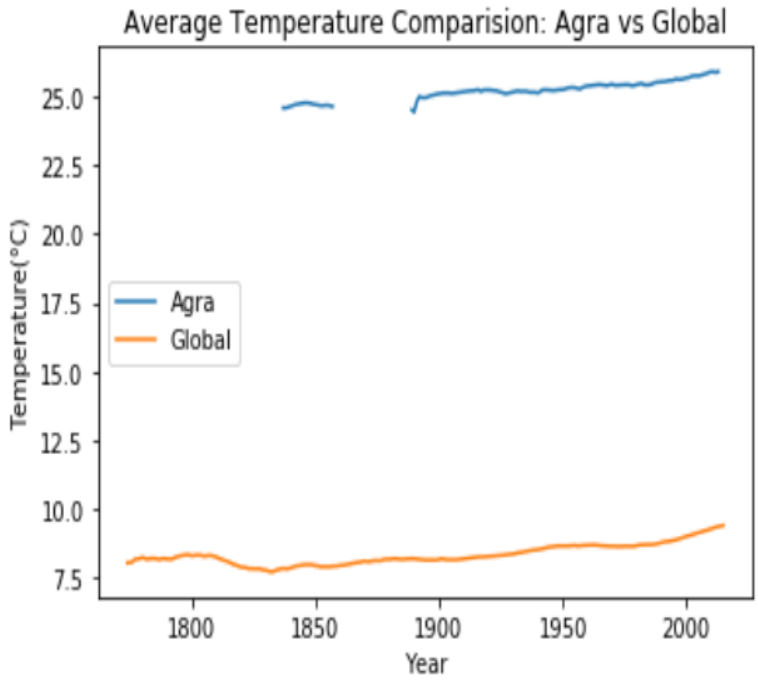
For global:

```
gb_temp['mov_temp']=gb_temp.avg_temp.rolling(25).mean()
```

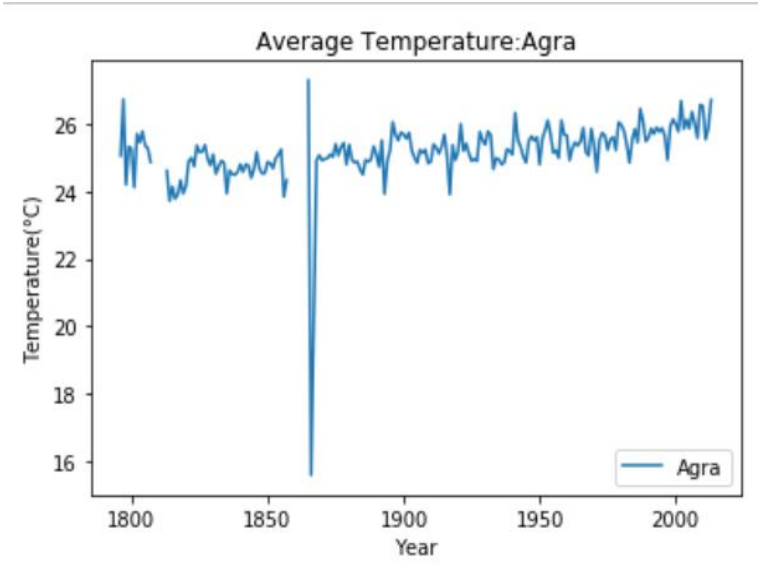
For local city:

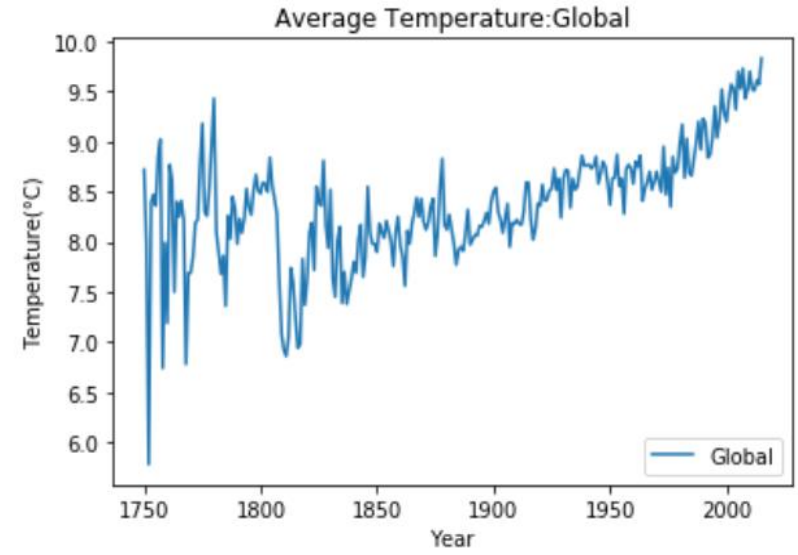
```
ct_temp['mov_temp_ct']=ct_temp.avg_temp.rolling(25).mean()
```

Line Chart:


Average Temperature Comparision: Agra vs Global
Temperature(°C)
25.0
22.5
20.0
17.5
15.0
12.5
10.0
7.5
Agra
Global
1800
1850
1900
1950
2000
Year

Other Graphs :





Observations:

1. By plotting the line chart we can conclude that the temperature is raising over the years.

2. The global temperature seems to be increasing till today after 1970s.

3. Globally the temperature difference from 1900 to 2000 is around 2°C.

4. The world is getting hotter with passage of time.

5. The average temperature of Agra city is around 25.5 °C and it is increasing.

6. The difference between average temperature of world and Agra city is huge.

Conclusion:

The increase in temperature around the world is due to climate change.