DATA ANALYST NANODEGREE

Explore Weather Trends

Udacity : Data Analyst Nanodegree
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Project - 1 , Explore Weather Trends
Ahmedabad, India

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. Excel :
   - To calculate Moving Averages of global and city temperatures.
   - To plot line Chart.

Extraction of data from the database.

1. To check which countries and cities are available in the database.

```
SELECT *
        FROM city_list WHERE Country='India'
        AND city='Ahmadabad';
```

2. To select data from the City database

```
SELECT avg_temp,year,city,country FROM
        city_data
            WHERE city='Ahmadabad';
```

3. I observed there is a column called avg_temp which is same in both city_data and global_data. I want to change the schema so I joined both the tables and changed the column names in both the databases.

```
ALTER TABLE city_data
        RENAME COLUMN avg_temp to CAT; ALTER
TABLE global_data
        RENAME COLUMN avg_temp to GAT;
```

4. I have joined the two tables using JOIN also called as INNER JOIN as avg_temp is same in both the tables.

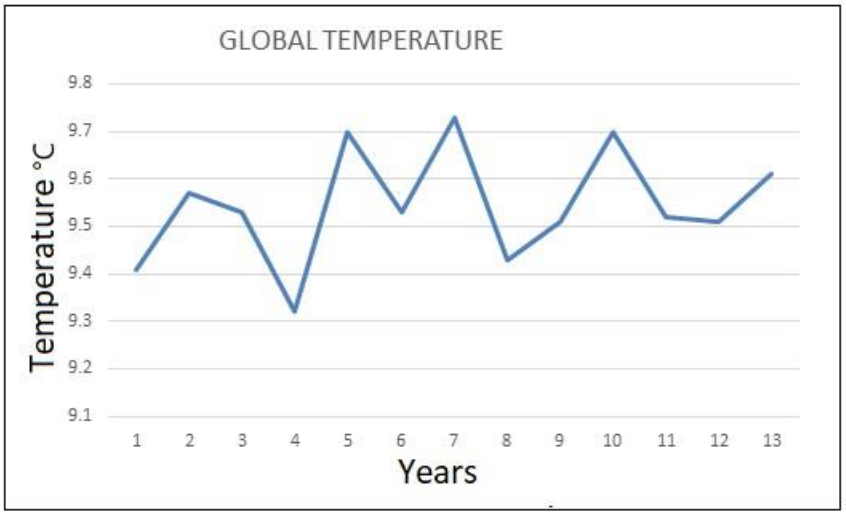
```
SELECT city_data.CAT, global_data.GAT,global_data.year
  FROM global_data
     JOIN city_data
        ON global_data.year = City_data.year WHERE
          city='Ahmadabad' Country='India';
```

Now, I have got an option to download a CSV file . I downloaded file as "results.csv".

Moving Averages :

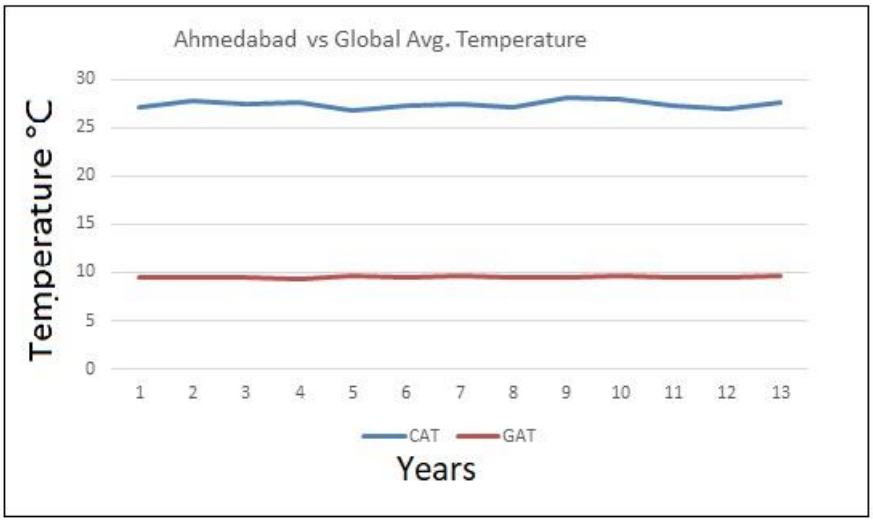
1. To smooth the data and to observe trends in the temperature.
2. I have done 13 year Moving Average to get the smooth line chart.
3. I used a command =AVERAGE(B207:B219) to see the Moving Average Value for 13 years.

GLOBAL TEMPERATURE



I have plotted Line chart for global data separately to observe difference between Global Average Temperature and the city Ahmedabad.

Now I have combined both Global Average Temperature and Ahmedabad with 13 year. Here is a Line Chart of GAT and Ahmedabad Average Temperatures for 13 Year.



OBSERVATIONS :

1. Global Average Temperature for 13 yr varies between 9.41°C to 9.61°C.

2. Ahmedabad city Average Temperature for 13 yr varies between 27.2°C to 27.61°C.

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

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

5. From the first Graph, I observed global temperature is increasing from 9.41 to 9.61. From the second graph I observed the temperature of both global and Ahmedabad average temperatures are ups and downs during the early years, later during 2001 to 2013 both the temperatures increased due to increase in temperature.

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

1. Further I have also checked with the other cities in India and also plotted charts for 50 Year.

2. I observed that for 50 MA chart is smoother when compared to 13 year or 5 year.

References:

https://www.youtube.com/watch?v=-LLpQcVSeo

http://www.statisticshowto.com/moving-average/