UDACITY

Return to Classroom

DISCUSS ON STUDENT HUB

Explore Weather Trends

REVIEW

HISTORY

Meets Specifications

Congratulations

You've made it! 🎉
You did an excellent job of *data exploration about the temperatures of your local city, **Lahore**, and the global ones*, producing an interesting and detailed **report**. Every single step taken to complete the project is accurately documented. I particularly appreciated that you have documented each part, explaining why it's useful to use **moving averages** to show temperature trends. Plus, it's great that you have enriched even more the report by creating *multiple charts* to show the comparison between the temperature trends. Always believe in your talent, you definitely have the potential and skills to make great things!

I wish you all the best with your Nanodegree and your career!

EXTRA RESOURCES

Another tool that could be used to carry out this project and which is widely used in data science projects is **Excel**, in this regard, I suggest two interesting extra resources that illustrate how to create amazing charts using this tool:

- Build a Better, Cleaner, More Professional Line Chart
- 10 Design Tips to Create Beautiful Excel Charts and Graphs in 2017

Analysis

- **The SQL query used to extract the data is included.**
- **The query runs without error and pulls the intended data.**

Well done on creating a neat **report**, documenting each step taken to complete the project. The **SQL queries** used to extract the data work without producing errors.

Tips for further improvements

To know how to get the data that you want for both your local city, ***Lahore***, and global *while excluding the* ***empty years*** *directly in* ***one table output*** , you can take a look at this example:

```
SELECT
  city_data.year,
  city_data.avg_temp as city_temp,
  global_data.avg_temp as global_temp
FROM
  city_data,
  global_data
WHERE
  city_data.year = global_data.year
  AND NOT city_data.avg_temp is NULL
  AND city_data.city = 'Lahore'
```

EXTRA RESOURCES

For a refresh about using **SQL**, you can refer to Extracurricular 3. Prerequisite: SQL in which there are lessons *from basic concept to advanced JOINS & Performance Tuning.* For more example and practice increasingly difficult questions to learn how to interact with **multiple tables** at once: Introduction to SQL

Moving averages are calculated to be used in the line chart.

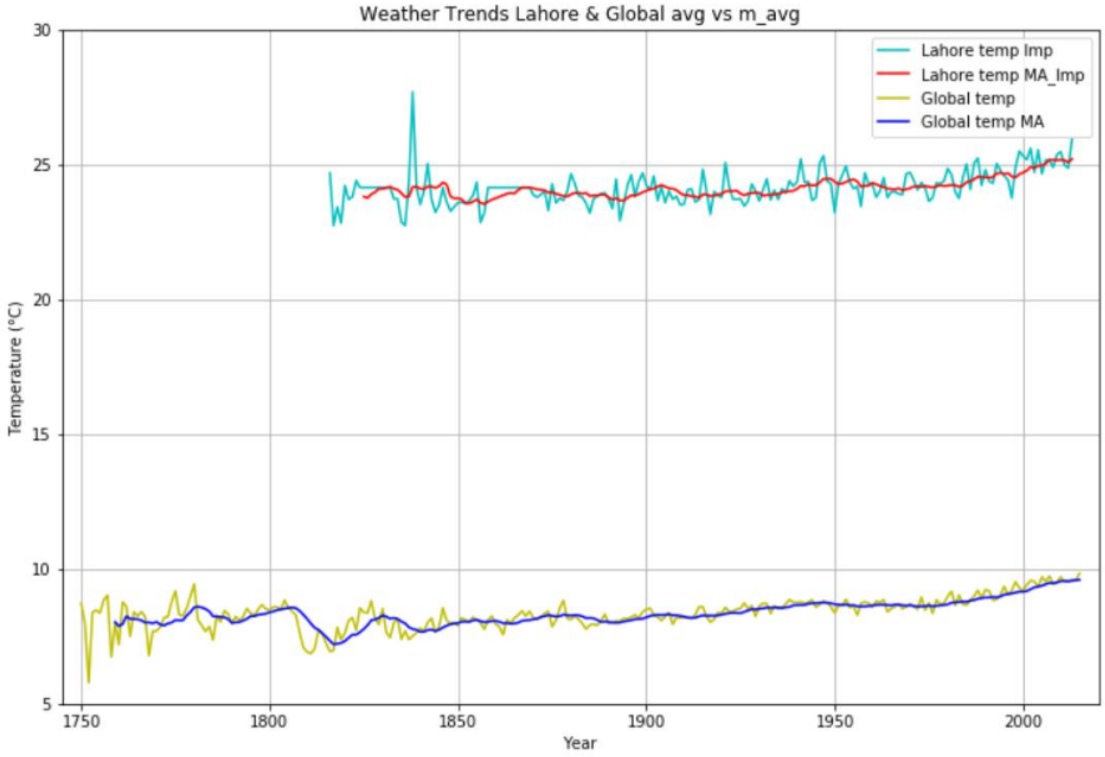
Well done on calculating the **moving averages** using the pandas.Series.rolling function specifying a *range of* `10` *years*. Plus, it's great that you have included the code used in the final report, and argued why this step is useful in order to make the line chart smoother.

EXTRA RESOURCES

In **Python** is possible to use different methods to calculate the different types of moving averages, the easiest way is using the ***pandas.Series.rolling function*** as you have done in your project. This and other methods are illustrated with examples and code snippets in this interesting article: Moving averages with Python

- **A line chart is included in the submission.**
- **The chart and its axes have titles, and there's a clear legend (if applicable).**

Great job on producing a detailed **line chart** using *Matplotlib* to show the temperature trend of your local city, compared to global. The line chart ***contains an appropriate title, labeled axes with measurement unit, as well as, a clear legend***, meeting all the project's specifications.



Plus, it's great that you have enriched the report furthermore *producing **additional charts** to show the raw data before calculating the **moving averages***. This makes the difference that emerges from the main graph even more evident and further facilitates the reader's understanding. 👏🏽

Tips for further improvements

To further improve the graph I also recommend *specifying the range of years used for calculating the MAs* in the **legend** or directly in the **title**.

EXTRA RESOURCES.

For *more examples and tips* about how to produce always better charts using **Python** you can take a look at these useful extra resources:

- How to make beautiful data visualizations in Python with Matplot
- 5 quick and easy data visualizations in Python

- **The student includes four observations about their provided data visualization.**
- **The four observations are accurate**

- The four observations are accurate.

Nice work by including six interesting and detailed **observations** in the final report. Each observation is accurate and can be detected from the data shown in the report. As you wrote correctly, the fact that *"over few decades, global temperatures (°C) are increasing consistently"* is alarming and should make us reflect on

how important the problem of *global warming* is, and on how important it is to plan interventions that can slow this trend. Great job on using data science to raise awareness on this important topic! 👏🏽

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