Explore Weather Trends

REVIEW | HISTORY

Meets Specifications

Congratulations!

EXCELLENT JOB ON THIS PROJECT! YOU HAVE MET ALL THE REQUIREMENTS OF THE RUBRIC.

You demonstrated your ability to retrieve data from a SQL Database and derive interesting, accurate results from the output of your query. You were further able to manipulate this data using external software and create a meaningful visualization to demonstrate your observed results. This is a tremendously important skill and will prove useful throughout your career in data analytics.

Before you move on to your next lessons, take pride in the effort you've put into this project. I hope you found this exercise both challenging and rewarding. Keep up the exceptional work and effort here, and I look forward to seeing you rock those future submissions!

Analysis

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

Great work here in extracting the data for Copenhagen and comparing that to global temperatures. Your queries were spot on!

If you're interested in bolstering your SQL mastery with more questions and puzzles, here are a couple websites I often enjoy to looking for extra coding practice for SQL (not affiliated with Udacity):

- https://www.hackerrank.com/domains/sql/select
- https://leetcode.com/problemset/database/
- https://lagunita.stanford.edu/courses/DB/SQL/SelfPaced/courseware/ch-sql/seq-vid-introduction_to_sql/

You'll get a chance to practice increasingly difficult questions and learn how to interact with multiple tables at once. As an example, here is another way to get the data that you want for both Copenhagen and Global temperatures while excluding the empty years in one table output!

```
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 = 'Copenhagen'
```

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

Excellent work here in calculating the 10 year moving average for both Copenhagen and Global temperatures. There's no specific rule of thumb when trying to find the correct number for moving averages, although something like 2 and 3 years would be too short to succinctly smooth out the data and something like 50 years would certainly be too large given the context of our dataset. From that perspective your choice of moving

average works well given what we are trying to achieve with the output. The gap between these two lines is very

apparent here.

I noticed that that there were some missing data from Copenhagen. Here's a link to a blog that details a number of techniques we can use when dealing with missing data. I encourage you to check it out in your free time!

https://www.iriseekhout.com/missing-data/missing-data-methods/

✓

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

The line chart included in your submission looks fantastic! The chart contains a clearly represented title that explains the details of the presented line graph. It also includes a well place legend, intuitive axis labels and clear tick labels. I especially appreciate that you rotated the year values on the x-axis so that they don't overlap one another. This attention to detail really goes a long way to help communicate your results to an audience.

Here is a handy link describing some best practices when creating graphs!

https://www.fusioncharts.com/charting-best-practices/

✓

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

Great work in looking at the output of your graph and making four observations from them. Your observations are accurate, and can be clearly reflected from the output of your visualization. Well done! Global temperatures are indeed getting warmer, but hopefully with your new skills in data wrangling, you can help better inform and advise others on the importance of climate change and conservation!

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