Project 1 - review v1

PROJECT SPECIFICATION

Explore Weather Trends

CRITERIA	MEETS SPECIFICATIONS
Student is able to extract data from a database using SQL.	• The SQL query used to extract the data is included. • The query runs without error and pulls the intended data.
Student is able to manipulate data in a spreadsheet or similar tool.	Moving averages are calculated to be used in the line chart.
Student is able to create a clear data visualization.	• A line chart is included in the submission. • The chart and its axes have titles, and there's a clear legend (if applicable).
Student is able to interpret a data visualization.	• The student includes four observations about their provided data visualization. • The four observations are accurate.

Tools:

- SQLite
- Excel

Extract data:

I downloaded all required data from the dataset in Step 3: Accessing Data with SQL and using SQLite to extract data. After review, I changed code based on the review, used global_data to show global temperature.

```
select * from city_data
select * from city_list
select * from global_data

#extract global temperature data with Hanoi's (local city)
SELECT
gd.year,
max(gd.avg_temp) as global_temp,
max(case when cd.city='Hanoi' then cd.avg_temp else null end) as Hanoi_temp
FROM city_data cd
     JOIN global_data gd ON gd.year = cd.year
WHERE cd.city = 'Hanoi'
GROUP BY gd.year
ORDER BY gd.year
#I'm not sure about the function MAX, I thought we need to use AVERAGE to calculate more accurancy
```

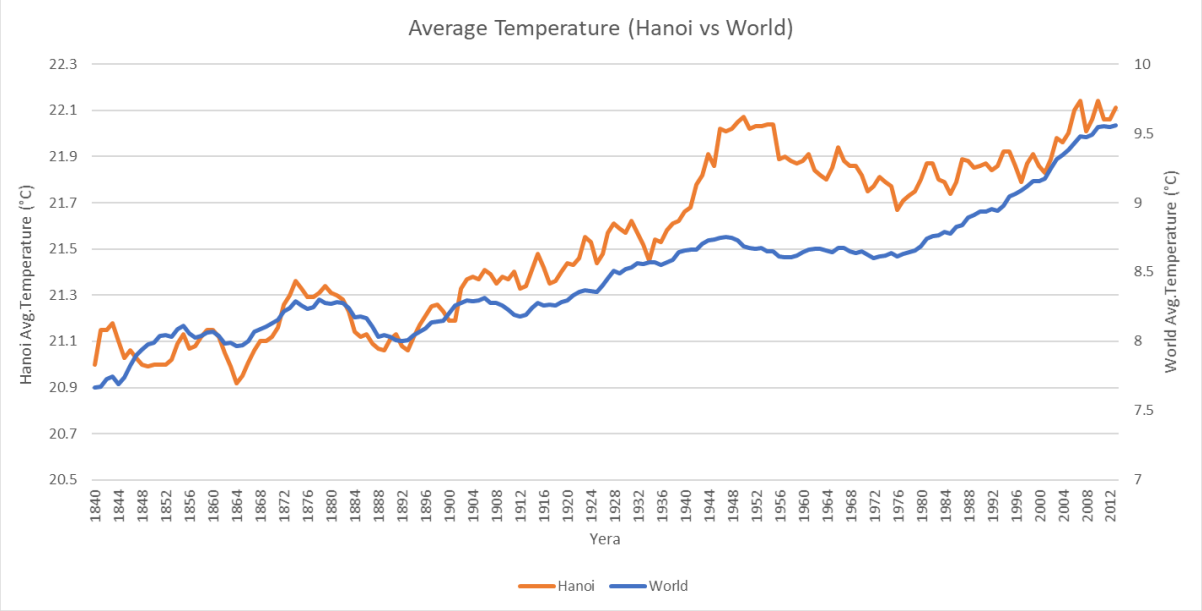
Next, I used Excel to create global temperature moving averages and Hanoi's.

I just want to use your code to calculate the 10-year moving average instead of Excel:

```
With GBMA as
(
select
*,
avg(avg_temp) over (order by year asc ROWS 9 preceding) as GBMA_10
from global_data
order by year asc
),
HNMA as
(
select
*,
round((avg(avg_temp) over (order by year asc ROWS 9 preceding)),2) as Hanoi_MA10
from city_data
where city='Hanoi'
order by year asc
)
SELECT
GBMA.year, GBMA.GBMA_10 Global_MA, HNMA.Hanoi_MA10
from GBMA
  join HNMA on GBMA.year = HNMA.year
order by GBMA.year
#
```

Then, create a line chart using moving averages to compare. I used a line chart because the line chart will be used to track the changes over a long period of time. And the data that we had, is the relation between the number and a time of about 20-30 years.

After review, I created new axis for global temperature, and add the unit in which temperature is measured in the y-axis label to make sure it easier to see the changes.



Find my answer:

- Is your city hotter or cooler on average compared to the global average? Has the difference been consistent over time?

    - Look at the chart, compare both axis from Hanoi and global’s temperature, my city (Hanoi) looks hotter than the global average, and it remains all time. I think this is because Vietnam is a tropical country, and an Asian country, where always hotter than most countries in the world.
- “How do the changes in your city’s temperatures over time compare to the changes in the global average?”
    - Based on new chart, I noticed that the change of both Hanoi and global’s temperature has the same trend; both of them are trending hot over the years
- What does the overall trend look like? Is the world getting hotter or cooler? Has the trend been consistent over the last few hundred years?
    - It is clear that the temperature average in Hanoi will be hotter in comparison with the global. The general trend in temperature averages in Hanoi is to increase over the time period presented, but not significant.
    - Finally, we haven’t any proof that the global will reduce the temperature, suggesting that it, will be hotter and this will significantly affect people's lives in the future.