

## Project 1: Exploring weather trends

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### Objective

Analyze global and local temperature trends. Describe the similarities and differences between temperature trends with a visualization and written report.

### Steps

1. *Extract temperature data from the database using SQL queries and export to CSV format.*

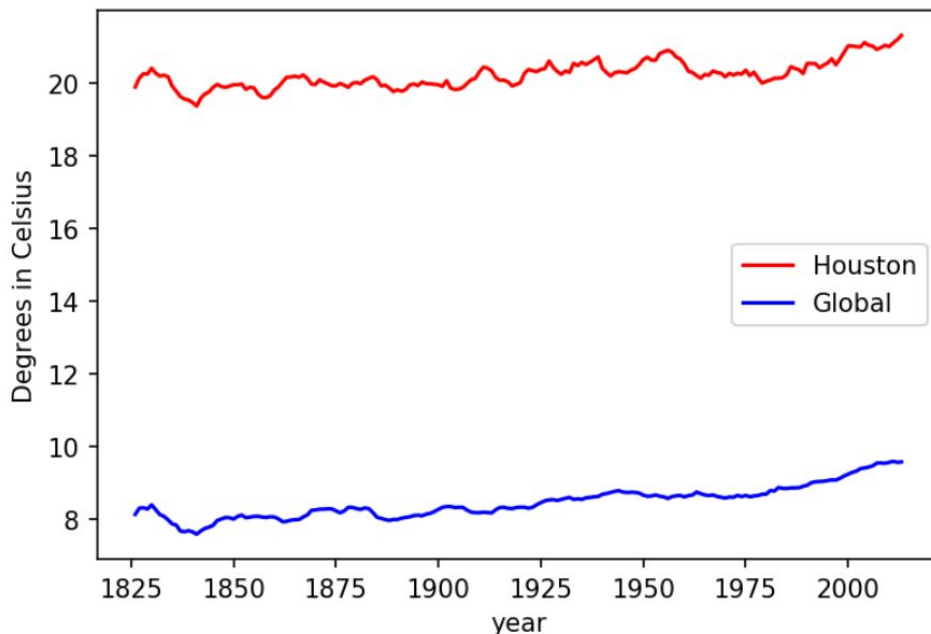
```
SELECT * FROM city_list
SELECT * FROM city_data
SELECT * FROM global_data
```

2. *Analyze data contents and structure in Jupyter python notebook (analysis.ipynb).*

The Pandas library was used to transform the CSV data into a Pandas DataFrame. Houston temperature data was selected to compare against the global temperatures. The disjoint years were removed with built-in Set and DataFrame methods.

3. *Create temperature trend visualization.*

The visualization compares temperature trends between Houston and global conditions.



A moving average of 7 years was implemented to reduce unnecessary volatility in the data, while still maintaining sufficient definition for analysis. The moving average was calculated using the `rolling()` and `mean()` methods from the Pandas library.

### Observations

1. For the last 200 years, Houston temperature has remained warmer than the global average.
2. The temperature trends of Houston change more rapidly than the global average.
3. The temperature trends, with approximately 12 degrees Celsius between them, follow similar trajectories. The dips and spikes in the average Houston temperature are reflected in the global average.
4. Both temperatures are trending upward, which confirms that the earth is becoming hotter over time.