Guide to Dataset Values:

Dataset 1: Residential Energy Consumption (residentialElectricity.csv)

This dataset contains information about residential electricity consumption in New Jersey over time. It tracks the number of customers and the amount of electricity consumed in million kilowatt hours (kWh). Below are the details for each column:

- **period:** The time period (month and year) the data represents, formatted as YYYY-MM.
    - *Example value:* 2024-07 (July 2024)
- **stateid:** A state identifier, which is an abbreviation for the state being analyzed. For this dataset, it will always be NJ for New Jersey.
    - *Example value:* NJ
- **stateDescription:** A more detailed description of the state, which in this dataset is always New Jersey.
    - *Example value:* New Jersey
- **sectorid:** This column identifies the sector the data pertains to. In this dataset, it is always RES representing the residential sector.
    - *Example value:* RES
- **sectorName:** A more descriptive name for the sector represented. Here, it always shows residential, referring to household energy consumption.
    - *Example value:* residential
- **customers:** The number of residential customers in New Jersey during that period. This shows how many households were consuming electricity in a given month.
    - *Example value:* 3726178 (3,726,178 households)
- **sales:** The total amount of electricity sold to residential customers during the period, measured in million kilowatt hours (M kWh).
    - *Example value:* 4281.43278 (4,281.43 M kWh)
- **customers-units:** A label clarifying that the customers column represents the "number of customers."
    - *Example value:* number of customers
- **sales-units:** A label clarifying that the sales column represents "million kilowatt hours."

- *Example value:* million kilowatt hours

Dataset 2: Weather Data (SM_betweenmonths.csv)

This dataset contains historical weather data including temperature and precipitation readings for New Jersey over a range of months and years. The dataset tracks average maximum and minimum temperatures, as well as total precipitation levels per month. Here are the details for each column:

- **Date:** The month the data represents, formatted as Mmm.
  - *Example value:* 1-Jan (January of the first year of data collection)
- **Precipitation:** The total precipitation (rain, snow, etc.) measured in inches during the month.
  - *Example value:* 3.03 (3.03 inches of total precipitation)
- **Avg. Max Temp:** The average maximum temperature recorded during the month, measured in degrees Fahrenheit.
  - *Example value:* 37.6 (37.6°F)
- **Avg. Min Temp:** The average minimum temperature recorded during the month, measured in degrees Fahrenheit.
  - *Example value:* 16.4 (16.4°F)
- **Avg. Mean Temp:** The overall average temperature during the month, calculated as the midpoint between the average max and min temperatures, measured in degrees Fahrenheit.
  - *Example value:* 27 (27°F)

Data Sources:

- **Residential Energy Consumption Data:** This data was sourced from the **U.S. Energy Information Administration (EIA)**. The data includes monthly electricity consumption for residential customers in New Jersey. We extracted this data using the EIA API, which provides detailed electricity sales information across different sectors.
- **Weather Data:** The weather data was sourced from the **Midwestern Regional Climate Center (MRCC)** using their cli-MATE tool. The data includes historical temperature and precipitation levels, with key metrics such as average maximum and minimum temperatures, as well as total precipitation for each month.