

Dataset

<https://www.kaggle.com/datasets/samxsam/household-energyconsumption?resource=download>

Business Problem

A utilities analytics company wants to understand patterns in household energy consumption to support more efficient energy usage, reduce peak hour strain, and promote smarter energy management. With growing concerns around energy costs and sustainability, analyzing consumption behaviors across different household sizes, temperature conditions, and appliance usage (e.g., air conditioning) can provide actionable insights. The goal is to identify consumption trends, improve efficiency, and assist in targeted energy-saving initiatives.

Objectives

1. **Track overall energy consumption** by calculating total and average energy usage across all households.
2. **Analyze dailyconsumption trends** to identify high-usage periods and seasonal variations.
3. **Compare energy usage across households** to determine which homes consume more energy.
4. **Evaluate the relationship between average temperature and energy consumption** to understand environmental impacts on usage patterns.
5. **Assess the effect of air conditioning (AC) ownership** on total and peak-hour energy consumption.
6. **Analyze peak hour energy usage** as a percentage of total daily consumption to identify households with high peak demand.