

## Part 1: SDG Selection and Problem Definition

**SDG Selection:** Choose an SDG that interests you. For this example, let's go with **SDG 7: Affordable and Clean Energy**.

**Problem Definition:** Define a specific problem within SDG 7. For instance, you might address the issue of **inefficient energy consumption** in residential areas. The goal could be to analyze energy usage patterns to identify ways to improve efficiency and reduce costs.

## Part 2: Database Design

**ERD (Entity-Relationship Diagram):**

### 1. Entities:

- **Household:** Information about residential units.
- **EnergyConsumption:** Records of energy usage.
- **Appliance:** Details of appliances used in households.
- **EnergySource:** Types of energy sources used (e.g., electricity, gas, solar).

### 2. Relationships:

- **Household to EnergyConsumption:** One-to-Many (one household can have multiple records of energy consumption).
- **Household to Appliance:** One-to-Many (one household can have multiple appliances).
- **Appliance to EnergySource:** Many-to-One (multiple appliances might use the same energy source).