# **⛽ Problem Statement: Petrol Pump Billing System**

Write a Python program to simulate a **petrol pump billing system**.

## **✅ Requirements**

1. **Display Fuel Types**
   1. Show available fuel types and prices:
      1. Petrol → ₹110 per litre
      2. Diesel → ₹95 per litre
2. **User Input**
   1. Ask user to select fuel type.
   2. Ask for **number of litres** to fill.
3. **Calculate Bill**
   1. Multiply litres × price per litre to get the subtotal.
   2. Apply discount rules if applicable.
   3. Print a **detailed receipt** showing fuel type, litres, price per litre, subtotal, discount, and final bill.

## **💰 Fueling Rules**

1. Maximum **100 litres** per transaction.
2. If entered litres ≤ 0 → show **“Invalid input.”** and reject transaction.
3. If litres > 50 → apply a **flat ₹200 discount**.
4. Print a receipt with:
   1. Fuel type
   2. Litres purchased
   3. Price per litre
   4. Subtotal
   5. Discount applied (if any)
   6. **Total payable amount**

## **🔹 Concepts to Use**

* **Functions**
  + show\_fuels() → Display fuel types and prices.
  + calculate\_bill(fuel\_type, litres) → Compute subtotal, discount, final amount.
  + petrol\_pump\_system() → Main function to control the flow.
* **Loops**
  + Optional: Allow repeated transactions until user chooses to exit.
* **Conditions**
  + Check for valid fuel type selection.
  + Check litres > 0 and ≤ 100.
  + Apply discount if litres > 50.
* **Data Structures**
  + Use a **dictionary** to store fuel types and prices:

fuels = {  
 "Petrol": 110,  
 "Diesel": 95  
}

* **Arithmetic Operations**
  + Subtotal = litres × price
  + Discount = 200 if litres > 50
  + Final total = subtotal − discount
* **String Formatting**
  + Display a clean **receipt** with all details aligned for easy reading.

## **🚀 Implementation Strategy**

1. **Step 1: Setup Data**
   1. Create a dictionary of fuel types and prices.
2. **Step 2: Display Fuel Options**
   1. Show fuel type and price per litre.
3. **Step 3: Take User Input**
   1. Ask for fuel type and litres to fill.
4. **Step 4: Validate Input**
   1. Fuel type must exist in the dictionary.
   2. Litres must be > 0 and ≤ 100.
5. **Step 5: Calculate Bill**
   1. Subtotal = litres × price per litre
   2. If litres > 50 → subtract ₹200 discount
   3. Total payable = subtotal − discount
6. **Step 6: Print Receipt**
   1. Show fuel type, litres, price per litre, subtotal, discount, and total payable.
7. **Step 7: Loop Option (Optional)**
   1. Ask if the user wants to perform another transaction.