**📘 Problem Statement: Simple Telecom Billing System**

**🎯 Objective:**

Design and implement a **console-based Telecom Billing System** using **Object-Oriented Programming (OOP)** principles and **Exception Handling** in Java. The system should allow adding customer details, accepting telecom usage (calls, SMS, data), and generating a bill based on the customer's selected plan (prepaid or postpaid).

**📋 Functional Requirements:**

1. **Add New Customer**
   * Input: Name, mobile number, and plan type (Prepaid or Postpaid).
   * Each plan has different rates for calls, SMS, and data usage.
   * Store customer details in memory using a collection (e.g., HashMap).
2. **Generate Bill for a Customer**
   * Input: Mobile number, number of calls made, number of SMS sent, and data used (in GB).
   * Lookup the customer by mobile number.
   * Calculate bill based on their plan and rates.
   * Display a detailed bill summary including:
     + Charges for calls, SMS, and data.
     + Total amount to be paid.
3. **Error Handling (Exception Management)**
   * Throw and handle exceptions for the following cases:
     + **CustomerNotFoundException**: If the mobile number doesn't exist in the system.
     + **InvalidUsageException**: If input usage values are negative.
     + **InputMismatchException**: If input type is incorrect (e.g., string instead of number).
4. **Menu-Based Console Application**
   * Display options to:
     + Add a new customer.
     + Generate a bill.
     + Exit the application.

**🧱 Technical Constraints:**

* Use **OOP principles**:
  + **Encapsulation**: Private fields with public getters/setters.
  + **Inheritance**: PrepaidPlan and PostpaidPlan inherit from a base abstract class Plan.
  + **Polymorphism**: Billing calculation uses dynamic method dispatch based on the plan type.
* Implement at least two **custom exceptions**.
* Ensure **graceful failure** with clear messages for invalid input scenarios.
* Use collections (like HashMap) to store customer data in memory.

**📊 Sample Plan Rates:**

| **Plan Type** | **Call Rate (/call)** | **SMS Rate (/SMS)** | **Data Rate (/GB)** |
| --- | --- | --- | --- |
| Prepaid | ₹0.50 | ₹0.25 | ₹10.00 |
| Postpaid | ₹0.40 | ₹0.20 | ₹8.00 |

**💡 Expected Output Example:**

--- TELECOM BILLING SYSTEM ---

1. Add Customer

2. Generate Bill

3. Exit

Enter choice: 1

Enter Name: Ravi

Enter Mobile Number: 9876543210

Enter Plan Type (Prepaid/Postpaid): Postpaid

Customer added successfully.

Enter choice: 2

Enter Mobile Number: 9876543210

Enter No. of Calls: 60

Enter No. of SMS: 20

Enter Data Used (in GB): 3.5

--- BILL DETAILS ---

Customer: Ravi

Plan Type: Postpaid

Calls: 60 x ₹0.4 = ₹24.0

SMS: 20 x ₹0.2 = ₹4.0

Data: 3.5 GB x ₹8.0 = ₹28.0

Total Bill: ₹56.0