

# Assignment 8

Total Marks=10

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Q. Write a Java program to design a **dynamic billing system** using **runtime polymorphism**, **abstract classes**, and **interfaces**.

## Specifications:

1. **Abstract Class:** Create an abstract class Customer with:
  - Data members (String name, double purchaseAmount)
  - Constructor to initialize these fields.
  - Abstract method (public abstract double calculateBill())
2. **Interface:** Create an interface Taxable with:
  - double TAX\_RATE = 0.05
  - double addTax(double amount)
3. **Subclasses:** Create three subclasses that extend Customer and implement Taxable:
  - RegularCustomer
  - PremiumCustomer
  - CorporateCustomer

Each class should:

- Override calculateBill() to apply its discount.
- Implement addTax(double amount) to add 5% tax on the final bill.

Customer Type	Discount Rule
RegularCustomer	5% discount on total amount
PremiumCustomer	10% discount on total amount
CorporateCustomer	15% discount if total > ₹10,000, else 5%

#### 4. Main Method:

- Create an array of Customer references.
- Ask the user for the number of customers.
- For each customer, take input: name, type (regular, premium, or corporate), and purchase amount.
- Dynamically create the appropriate subclass object and store it in the array.
- For each customer, calculate the **final bill (after discount and tax)** and display it.