```java
abstract class Shape {
    public abstract double area();
    public void display() {
        System.out.println("Calculating area...");
    }
}

class Circle extends Shape {
    private double radius;

    public Circle(double radius) {
        this.radius = radius;
    }

    @Override
    public double area() {
        return Math.PI * radius * radius;
    }
}

class Rectangle extends Shape {
    private double length, width;

    public Rectangle(double length, double width) {
        this.length = length;
        this.width = width;
    }

    @Override
    public double area() {
        return length * width;
    }
}

public class ShapeMaster {
    public static void main(String[] args) {
        Shape s1 = new Circle(5);
        s1.display();
        System.out.println("Circle area: " + s1.area());
```

```
        Shape s2 = new Rectangle(4, 6);
        s2.display();
        System.out.println("Rectangle area: " + s2.area());
    }
}
```

```
PS E:\JAVA PROGRAMS\steparyansingh\year2\oops\week8\practice> javac ShapeMaster.java
PS E:\JAVA PROGRAMS\steparyansingh\year2\oops\week8\practice> java ShapeMaster
Calculating area...
Circle area: 78.53981633974483
Calculating area...
Rectangle area: 24.0
```

```
abstract class BankAccount {
    protected double balance;

    public BankAccount(double balance) {
        this.balance = balance;
    }

    public abstract void calculateInterest();

    public void displayBalance() {
        System.out.println("Balance: ₹" + balance);
    }
}

class SavingsAccount extends BankAccount {
    public SavingsAccount(double balance) {
        super(balance);
```

```
    }

    @Override
    public void calculateInterest() {
        double interest = balance * 0.04;
        System.out.println("Savings Account Interest: ₹" + interest);
    }
}

class CurrentAccount extends BankAccount {
    public CurrentAccount(double balance) {
        super(balance);
    }

    @Override
    public void calculateInterest() {
        double interest = balance * 0.02;
        System.out.println("Current Account Interest: ₹" + interest);
    }
}

public class BankApp {
    public static void main(String[] args) {
        BankAccount acc1 = new SavingsAccount(10000);
        acc1.displayBalance();
        acc1.calculateInterest();

        BankAccount acc2 = new CurrentAccount(15000);
        acc2.displayBalance();
        acc2.calculateInterest();
    }
}
```

```
PS E:\JAVA PROGRAMS\steparyansingh\year2\oops\week8\practice> javac BankApp.java
PS E:\JAVA PROGRAMS\steparyansingh\year2\oops\week8\practice> java BankApp
Balance: ?10000.0
Savings Account Interest: ?400.0
Balance: ?15000.0
Current Account Interest: ?300.0
```

```java
interface PaymentGateway {
    void pay(double amount);
    void refund(double amount);
}

class CreditCardPayment implements PaymentGateway {
    @Override
    public void pay(double amount) {
        System.out.println("Paid ₹" + amount + " via Credit Card");
    }

    @Override
    public void refund(double amount) {
        System.out.println("Refunded ₹" + amount + " to Credit Card");
    }
}

class UPIPayment implements PaymentGateway {
    @Override
    public void pay(double amount) {
        System.out.println("Paid ₹" + amount + " via UPI");
    }

    @Override
    public void refund(double amount) {
        System.out.println("Refunded ₹" + amount + " to UPI");
    }
}

public class PaymentApp {
    public static void main(String[] args) {
        PaymentGateway pg1 = new CreditCardPayment();
        pg1.pay(2500);
        pg1.refund(500);
```

```
        PaymentGateway pg2 = new UPIPayment();
        pg2.pay(1200);
        pg2.refund(200);
    }
}
```

```
PS E:\JAVA PROGRAMS\steparyansingh\year2\oops\week8\practice> javac PaymentApp.java
PS E:\JAVA PROGRAMS\steparyansingh\year2\oops\week8\practice> java PaymentApp
Paid ?2500.0 via Credit Card
Refunded ?500.0 to Credit Card
Paid ?1200.0 via UPI
Refunded ?200.0 to UPI
```