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Java

Q1. Implement a Shape class with method area(), and override it in Circle, Rectangle

Ans:

Code:

```
class Shape {
void area() {
System.out.println("Calculating area...");
}
}
class Circle extends Shape {
double radius;

Circle(double radius) {
this.radius = radius;
}
void area() {
```

```
 double result = 3.14 * radius * radius;
 System.out.println("Area of Circle: " + result);
 }
}
 class Rectangle extends Shape {
 double length, width;

 Rectangle(double length, double width) {
 this.length = length;
 this.width = width;
 }
 void area() {
 double result = length * width;
 System.out.println("Area of Rectangle: " + result);
 }
}
 public class Main {
 public static void main(String[] args) {
 Circle c = new Circle(5);
 Rectangle r = new Rectangle(4, 6);
```

```
 c.area(); // Calls Circle's area()
 r.area(); // Calls Rectangle's area()
 }
}
```

Output:

```
 Area of Circle: 78.5
Area of Rectangle: 24.0
```

Q2. Create one parent class Vehicle, and two child classes Car and Bike.

Ans:

Code:

```
class Vehicle {
 void start() {
 System.out.println("Vehicle is starting...");
 }
}
 class Car extends Vehicle {
 void carFeature() {
 System.out.println("Car has 4 wheels and a music system.");
```

```
 }
}
 class Bike extends Vehicle {
 void bikeFeature() {
 System.out.println("Bike has 2 wheels and is fuel efficient.");
 }
}

public class Main {
 public static void main(String[] args) {
 Car myCar = new Car();
 myCar.start();
 myCar.carFeature();

 Bike myBike = new Bike();
 myBike.start();
 myBike.bikeFeature();
 }
}
```

Output:

Vehicle is starting...

Car has 4 wheels and a music system.

Vehicle is starting...

Bike has 2 wheels and is fuel efficient.

Q3. Create a class Employee with fields id, name, and salary. Write a method to display employee information. Create multiple employee objects and call the method.

Ans:

Code:class Employee {

```
int id;
String name;
double salary;

Employee(int id, String name, double salary) {
this.id = id;
this.name = name;
this.salary = salary;
}
```

```
 void displayInfo() {
 System.out.println("ID: " + id);
 System.out.println("Name: " + name);
 System.out.println("Salary: ₹" + salary);
 System.out.println("--------------------");
 }
}

public class Main {
 public static void main(String[] args) {
 Employee emp1 = new Employee(101, "Anushka",
50000);
 Employee emp2 = new Employee(102, "Rohan", 60000);
 Employee emp3 = new Employee(103, "Priya", 55000);

 emp1.displayInfo();
 emp2.displayInfo();
 emp3.displayInfo();
 }
```

}

Output:

ID: 101

Name: Rajesh

Salary: ₹50000.0

ID: 102

Name: Ramesh

Salary: ₹60000.0

ID: 103

Name: Rahul

Salary: ₹55000.0

Q4. Write a program to create a class Calculator with methods to perform addition, subtraction, multiplication, and division. Create an object and perform all operations.

Ans:

Code:

```
class Calculator {
 void add(double a, double b) {
 double result = a + b;
 System.out.println("Addition: " + result);
 }

 void subtract(double a, double b) {
 double result = a - b;
 System.out.println("Subtraction: " + result);
 }

 void multiply(double a, double b) {
 double result = a * b;
 System.out.println("Multiplication: " + result);
 }

 void divide(double a, double b) {
 if (b != 0) {
 double result = a / b;
```

```
 System.out.println("Division: " + result);
 } else {
 System.out.println("Division by zero is not allowed.");
 }
 }
}

public class Main {
 public static void main(String[] args) {
 Calculator calc = new Calculator();

 double num1 = 10;
 double num2 = 5;

 calc.add(num1, num2);
 calc.subtract(num1, num2);
 calc.multiply(num1, num2);
 calc.divide(num1, num2);
 }
```

```
}
```

Output:

Addition: 15.0

Subtraction: 5.0

Multiplication: 50.0

Division: 2.0