Java Programming

MCA-272

Assignment – 06

BY

HIMANSHU HEDA (24225013)

SUBMITTED TO

Dr. Manjula Shannhog

SCHOOL OF SCIENCES

2024-25

INTERFACE : --

```java
package Interface;

interface Shape{
    int calculateArea();
    int calculatePerimeter();
}

class Rectangle implements Shape {
    int length;
    int width;

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

    @Override
    public int calculateArea(){
        return length * width;
    }

    @Override
    public int calculatePerimeter(){
        return 2 * (length + width);
    }
}
public class inter {
    public static void main(String[] args) {
        Rectangle rectangle = new Rectangle(5, 6);
        System.out.println("Area of Rectangle: " + rectangle.calculateArea());
        System.out.println("Perimeter of Rectangle: " +
rectangle.calculatePerimeter());

        Shape rect = new Rectangle(10, 20);
        System.out.println("Area of Rectangle: " + rect.calculateArea());
        System.out.println("Perimeter of Rectangle: " +
rect.calculatePerimeter());
    }
}
```

OUTPUT : --

```
Area of Rectangle: 30
Perimeter of Rectangle: 22
Area of Rectangle: 200
Perimeter of Rectangle: 60
PS D:\2MCA\JAVA>
```

MULTIPLE INTERFACE

```java
package Interface;

interface animal{
    void eat();
    default void make_sound(){
        System.out.println("Animal makes a sound");
    }
}

interface bird{
    void fly();
    default void make_sound(){
        System.out.println("Bird makes a sound");
    }
}

class Sparrow implements animal, bird {
    public void eat() {
        System.out.println("Sparrow is eating");
    }
    public void fly() {
        System.out.println("Sparrow is flying");
    }

    public void make_sound() {
        animal.super.make_sound();      // Calling Animal's default method
        bird.super.make_sound();        // Calling Bird's default method
        System.out.println("Sparrow chirps");
    }
}

public class multiple_interface {
    public static void main(String[] args) {
        Sparrow sp = new Sparrow();
        sp.eat();
        sp.fly();
        sp.make_sound();
    }
```

```
}
```

OUTPUT : --

```
Sparrow is eating
Sparrow is flying
Animal makes a sound
Bird makes a sound
Sparrow chirps
PS D:\2MCA\JAVA>
```

CALCULATOR : --

```java
package Interface;

// Define the interfaces
interface Basic {
    void add(int a, int b);
    void sub(int a, int b);
}

interface Advanced {
    void mul(int a, int b);
    void div(int a, int b);
}

// Implement the Advanced interface
class Calculator implements Advanced {
    // Implementing methods from the Advanced interface
    public void mul(int a, int b) {
        System.out.println("Multiplication: " + (a * b));
    }

    public void div(int a, int b) {
        if (b != 0) {
            System.out.println("Division: " + (a / b));
        } else {
            System.out.println("Division by zero is not allowed.");
        }
    }

    // Implementing methods from the Basic interface
    public void add(int a, int b) {
```

```java
        System.out.println("Addition: " + (a + b));
    }

    public void sub(int a, int b) {
        System.out.println("Subtraction: " + (a - b));
    }
}

// Main class with the main function
public class Main {
    public static void main(String[] args) {
        // Create an instance of the Calculator class
        Calculator calc = new Calculator();

        // Perform operations
        calc.add(10, 15);
        calc.sub(20, 5);
        calc.mul(30, 10);
        calc.div(100, 2);
    }
}
```

OUTPUT : --

```
Addition: 25
Subtraction: 15
Multiplication: 300
Division: 50
PS D:\2MCA\JAVA>
```