**7. Develop a JAVA program to create an interface Resizable with methods resizeWidth(int width) and resizeHeight(int height) that allow an object to be resized. Create a class Rectangle that implements the Resizable interface and implements the resize methods.**

interface Resizable {

    void resizeWidth(int width);

    void resizeHeight(int height);

}

// Rectangle class implementing Resizable interface

class Rectangle implements Resizable {

    private int width;

    private int height;

    public Rectangle(int width, int height) {

        this.width = width;

        this.height = height;

    }

    public void displayDimensions() {

        System.out.println("Rectangle Dimensions: Width = " + width + ", Height = " + height);

    }

    @Override

    public void resizeWidth(int width) {

        this.width = width;

    }

    @Override

    public void resizeHeight(int height) {

        this.height = height;

    }

}

 class program7 {

    public static void main(String[] args) {

        Rectangle rectangle = new Rectangle(5, 10);

        // Displaying initial dimensions

        System.out.println("Before resizing:");

        rectangle.displayDimensions();

        // Resizing the rectangle

        rectangle.resizeWidth(8);

        rectangle.resizeHeight(12);

        // Displaying updated dimensions after resizing

        System.out.println("\nAfter resizing:");

        rectangle.displayDimensions();

    }

}

Output:

Before resizing:

Rectangle Dimensions: Width = 5, Height = 10

After resizing:

Rectangle Dimensions: Width = 8, Height = 12

**8.Develop a JAVA program to create an outer class with a function display. Create another class inside the outer class named inner with a function called display and call the two functions in the main class.** // Outer class

**class** Outer {

**void** display() {

System.***out***.println("Outer display method");

}

// Inner class inside Outer class

**class** Inner {

**void** display() {

System.***out***.println("Inner display method");

}

}

}

**public** **class** Program8 {

**public** **static** **void** main(String[] args) {

Outer outer = **new** Outer();

Outer.Inner inner = outer.**new** Inner();

// Calling display methods from outer and inner classes

outer.display();

inner.display();

}

}

Output:

Outer display method

Inner display method

**9. Develop a JAVA program to raise a custom exception (user defined exception) for DivisionByZero using try, catch, throw and finally.**

// Custom exception class for DivisionByZero

**class** DivisionByZeroException **extends** Exception

{

**public** DivisionByZeroException(String message)

{

**super**(message);

}

}

**public** **class** Program9

{

**public** **static** **void** main(String[] args)

{

**int** dividend = 10;

**int** divisor = 0;

**try** {

**if** (divisor == 0)

{

**throw** **new** DivisionByZeroException("Cannot divide by zero");

}

**int** result = dividend / divisor;

System.***out***.println("Result: " + result);

}

**catch** (DivisionByZeroException e)

{

System.***out***.println("DivisionByZeroException caught: " + e.getMessage());

}

**finally**

{

System.***out***.println("Finally block executed");

}

}

}

Output:

DivisionByZeroException caught: Cannot divide by zero

Finally block executed