

Write a Java program to create an abstract class Shape2D with abstract methods draw() and resize(). Create subclasses Rectangle and Circle that extend the Shape2D class and implement the respective methods to draw and resize each shape.

### Sample Solution:

#### Java Code:

```
//Shape2D.java
// Define an abstract class named Shape2D
abstract class Shape2D {
    // Declare an abstract method draw
    public abstract void draw();

    // Declare an abstract method resize
    public abstract void resize();
}
```

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```
// Rectangle.java
// Define a class named Rectangle that extends Shape2D
class Rectangle extends Shape2D {

    // Override the draw method from Shape2D
    @Override
    // Implementation of the draw method that prints a message
    public void draw() {
        System.out.println("Rectangle: Drawing a rectangle.");
    }

    // Override the resize method from Shape2D
    @Override
    // Implementation of the resize method that prints a message
    public void resize() {
        System.out.println("Rectangle: Resizing the rectangle.");
    }
}
```

```
// Circle.java
// Define a class named Circle that extends Shape2D
class Circle extends Shape2D {
```

```
// Override the draw method from Shape2D
@Override
// Implementation of the draw method that prints a message
public void draw() {
    System.out.println("Circle: Drawing a circle.");
}


// Override the resize method from Shape2D
@Override
// Implementation of the resize method that prints a message
public void resize() {
    System.out.println("Circle: Resizing the circle.");
}
}
```

```
// Main.java
// Define a public class named Main
public class Main {
    // Define the main method, which is the entry point of the program
    public static void main(String[] args) {
        // Create an instance of Rectangle and assign it to a Shape2D reference
        Shape2D rectangle = new Rectangle();
        // Create an instance of Circle and assign it to a Shape2D reference
        Shape2D circle = new Circle();

        // Call the draw method on the rectangle object
        rectangle.draw();
        // Call the resize method on the rectangle object
        rectangle.resize();

        // Call the draw method on the circle object
        circle.draw();
        // Call the resize method on the circle object
        circle.resize();
    }
}
```

Output:



Rectangle: Drawing a rectangle.  
Rectangle: Resizing the rectangle.  
Circle: Drawing a circle.  
Circle: Resizing the circle.

**Explanation:**