

## Source code:

```
package GeometricProject;

import java.util.ArrayList;

class Shape {
    public void displayArea() {
        System.out.println("This is the parent class.");
    }
}

class Rectangle extends Shape {
    private double length;
    private double width;
    public Rectangle(double length, double width) {
        this.length = length;
        this.width = width;
    }
    public void calculateArea() {
        double area = length * width;
        System.out.println("Area of Rectangle: " + area);
    }
}

class Circle extends Shape {
    private double radius;
    public Circle(double radius) {
        this.radius = radius;
    }

    public void calculateArea() {
        double area = Math.PI * radius * radius;
        System.out.println("Area of Circle: " + area);
    }
}

public class PracticeProject {
    public static void main(String[] args) {
        ArrayList<Shape> shapes = new ArrayList<>();
        Rectangle rectangle = new Rectangle(4, 6);
        shapes.add(rectangle);
        Circle circle = new Circle(5);
        shapes.add(circle);
        for (Shape shape : shapes) {
            try {
```

```

        shape.displayArea();
        if (shape instanceof Rectangle) {
            Rectangle rect = (Rectangle) shape;
            rect.calculateArea();
        } else if (shape instanceof Circle) {
            Circle cir = (Circle) shape;
            cir.calculateArea();
        }
    } catch (Exception e) {
        System.out.println("An error occurred:
"+e.getMessage());
    } finally {
        System.out.println("Area calculation completed
");
    }
}
}
}
}

```