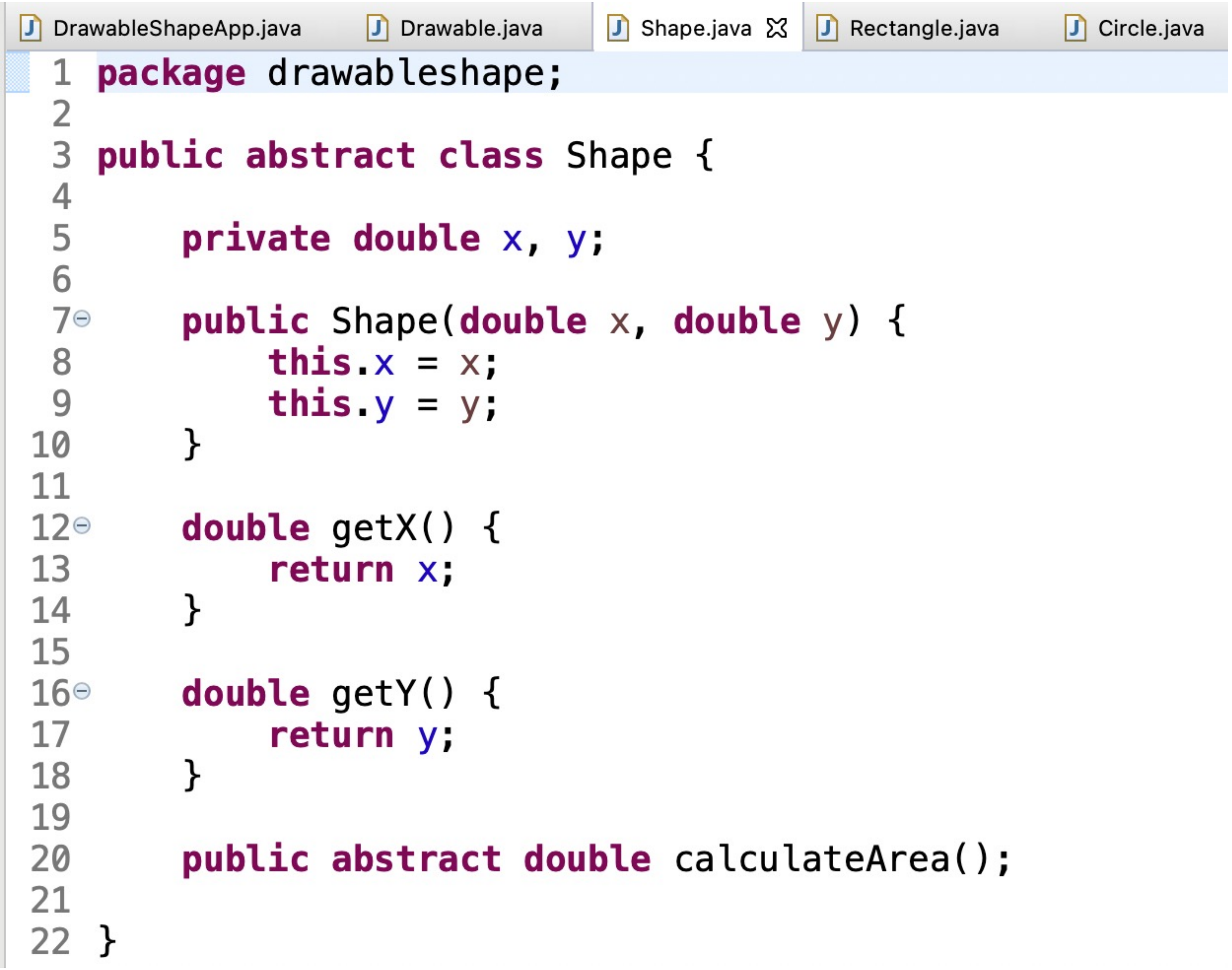
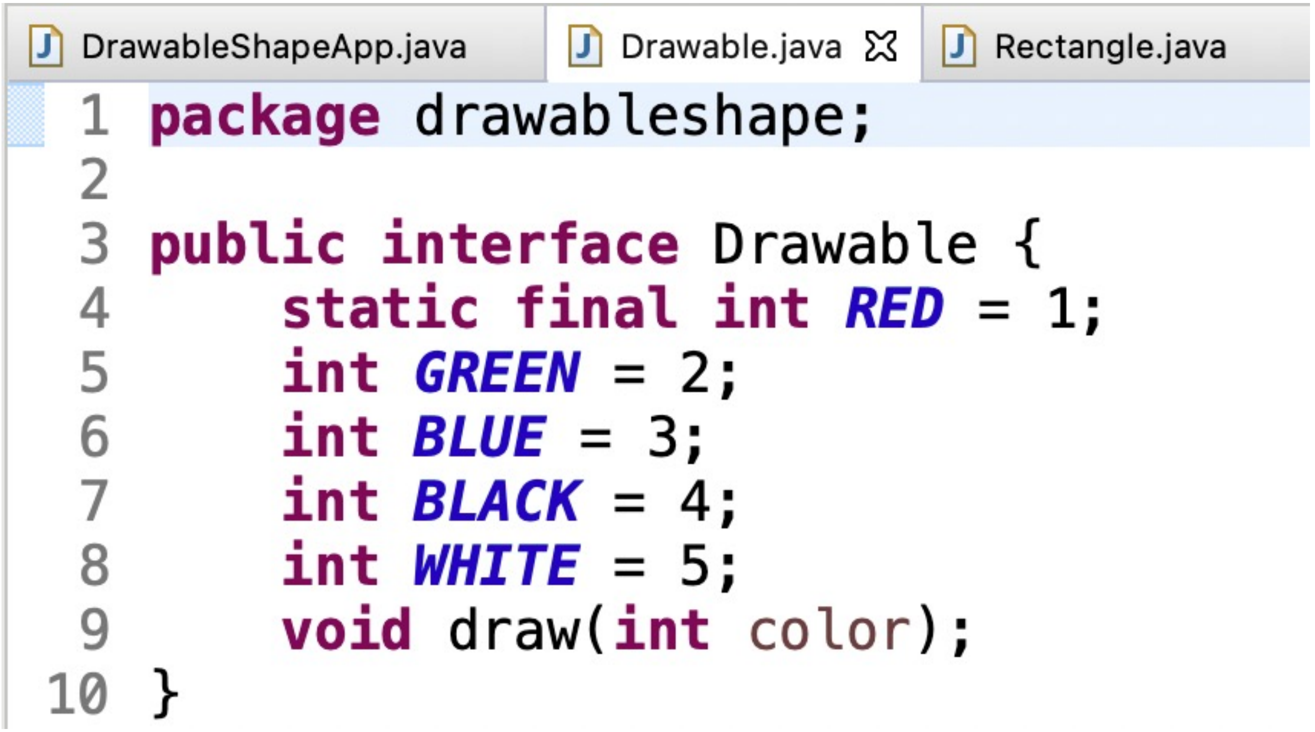
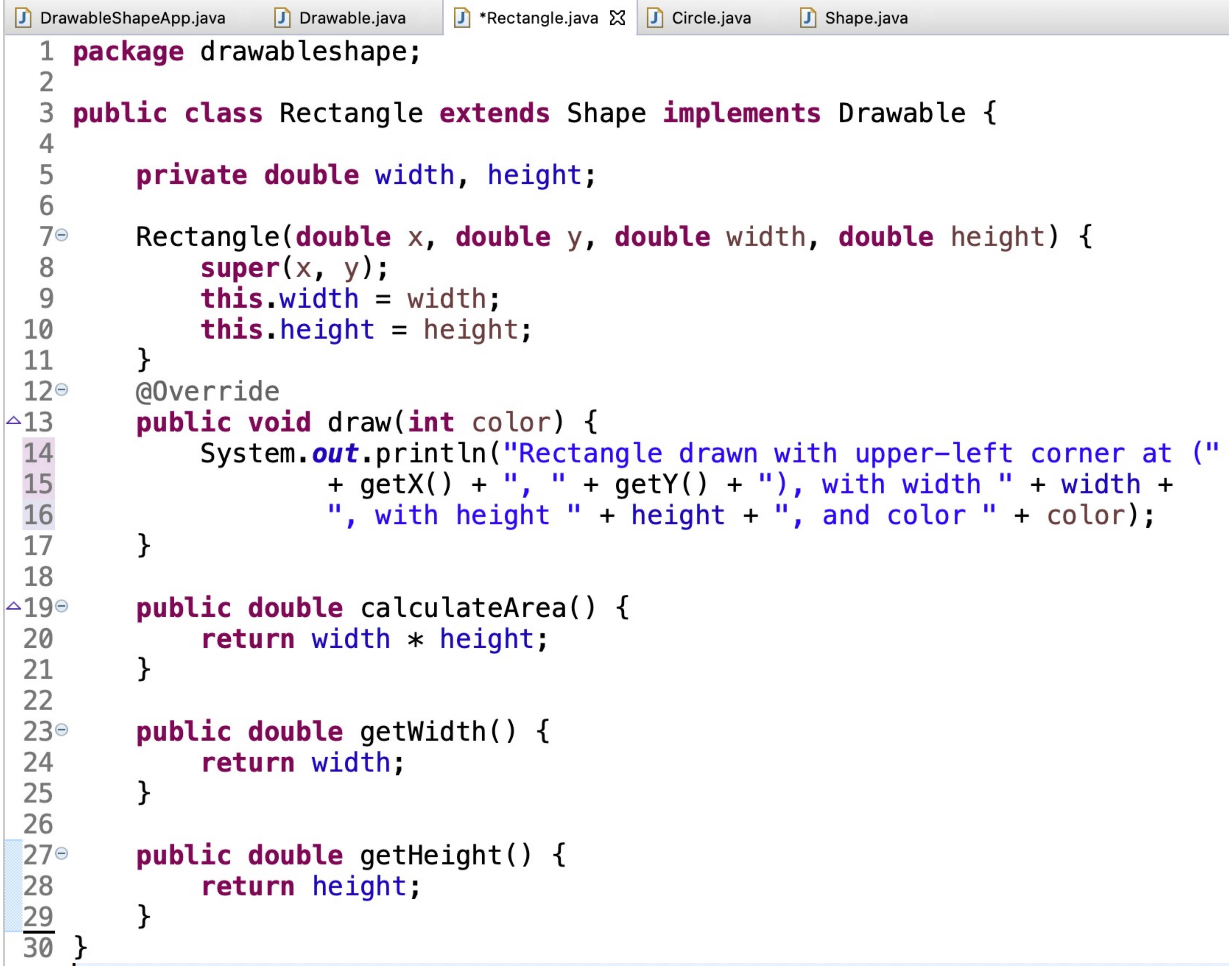
Interface Examples



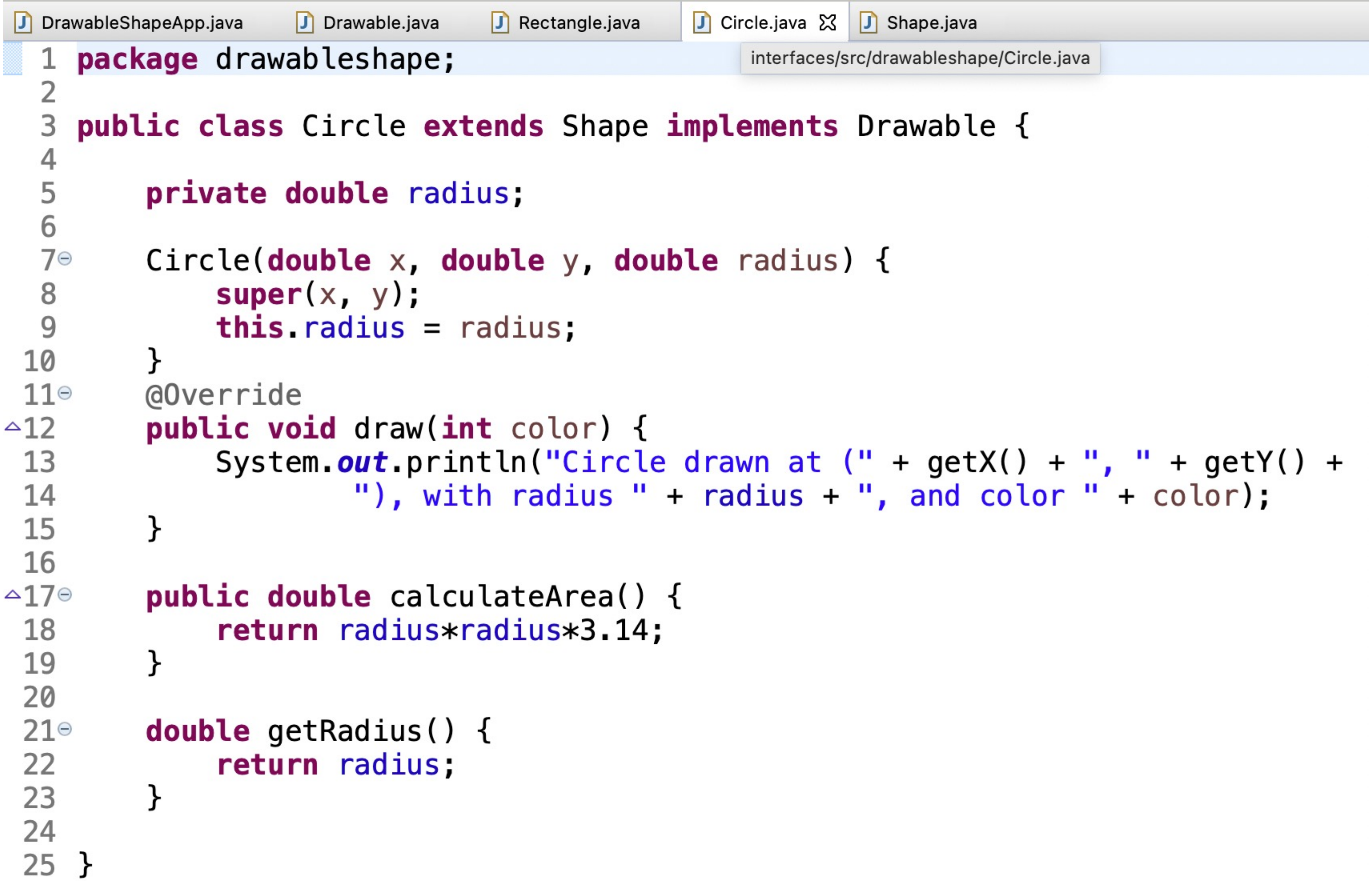
```java
package drawableshape;

public abstract class Shape {

    private double x, y;

    public Shape(double x, double y) {
        this.x = x;
        this.y = y;
    }

    double getX() {
        return x;
    }

    double getY() {
        return y;
    }

    public abstract double calculateArea();

}
```



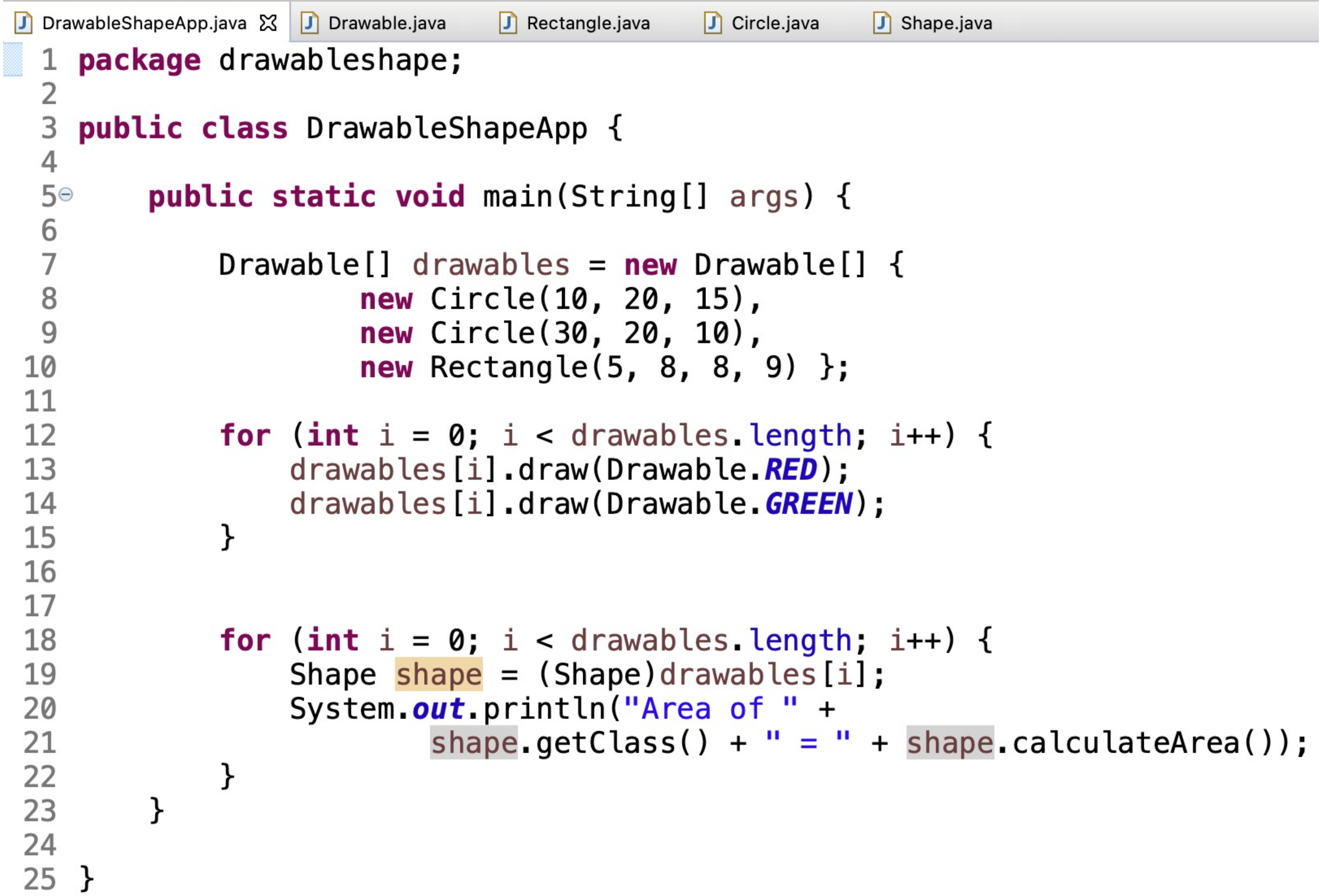
```java
package drawableshape;

public interface Drawable {
    static final int RED = 1;
    int GREEN = 2;
    int BLUE = 3;
    int BLACK = 4;
    int WHITE = 5;
    void draw(int color);
}
```



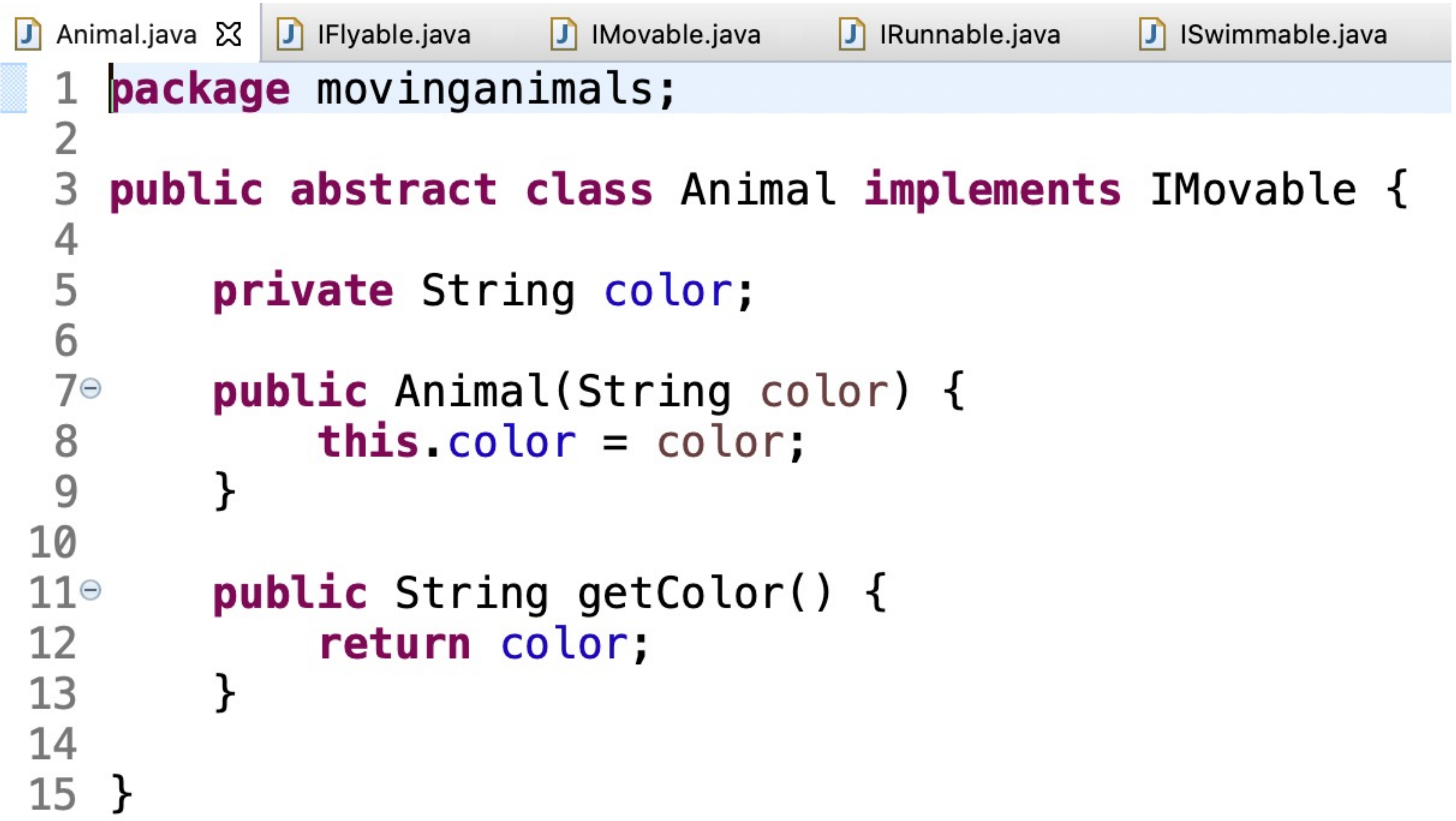
```java
package drawableshape;

public class Rectangle extends Shape implements Drawable {

    private double width, height;

    Rectangle(double x, double y, double width, double height) {
        super(x, y);
        this.width = width;
        this.height = height;
    }
    @Override
    public void draw(int color) {
        System.out.println("Rectangle drawn with upper-left corner at ("
                + getX() + ", " + getY() + "), with width " + width +
                ", with height " + height + ", and color " + color);
    }

    public double calculateArea() {
        return width * height;
    }

    public double getWidth() {
        return width;
    }

    public double getHeight() {
        return height;
    }
}
```



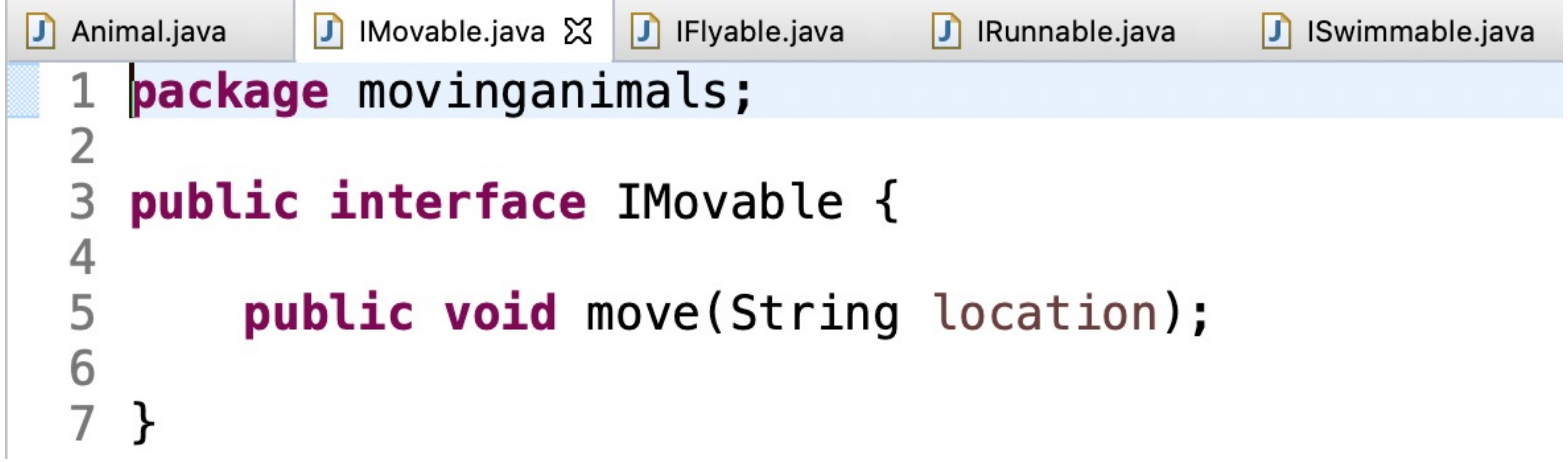
```java
package drawableshape;

public class Circle extends Shape implements Drawable {

    private double radius;

    Circle(double x, double y, double radius) {
        super(x, y);
        this.radius = radius;
    }
    @Override
    public void draw(int color) {
        System.out.println("Circle drawn at (" + getX() + ", " + getY() +
                "), with radius " + radius + ", and color " + color);
    }

    public double calculateArea() {
        return radius*radius*3.14;
    }

    double getRadius() {
        return radius;
    }

}
```



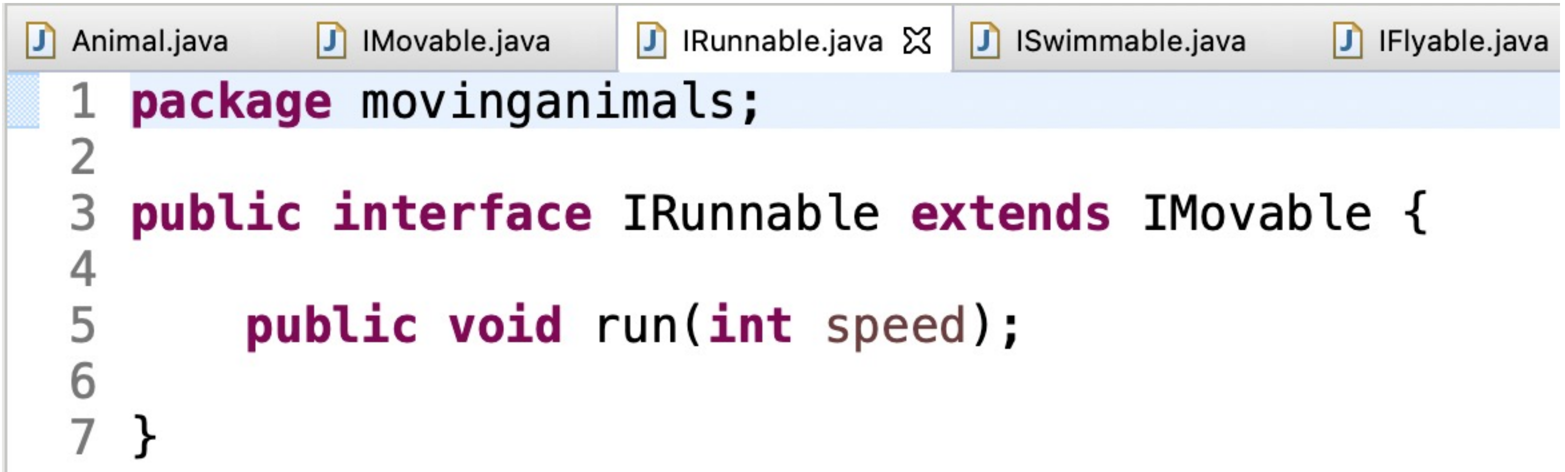
```java
package drawableshape;

public class DrawableShapeApp {

    public static void main(String[] args) {

        Drawable[] drawables = new Drawable[] {
                new Circle(10, 20, 15),
                new Circle(30, 20, 10),
                new Rectangle(5, 8, 8, 9) };

        for (int i = 0; i < drawables.length; i++) {
            drawables[i].draw(Drawable.RED);
            drawables[i].draw(Drawable.GREEN);
        }


        for (int i = 0; i < drawables.length; i++) {
            Shape shape = (Shape)drawables[i];
            System.out.println("Area of " +
                    shape.getClass() + " = " + shape.calculateArea());
        }
    }

}
```



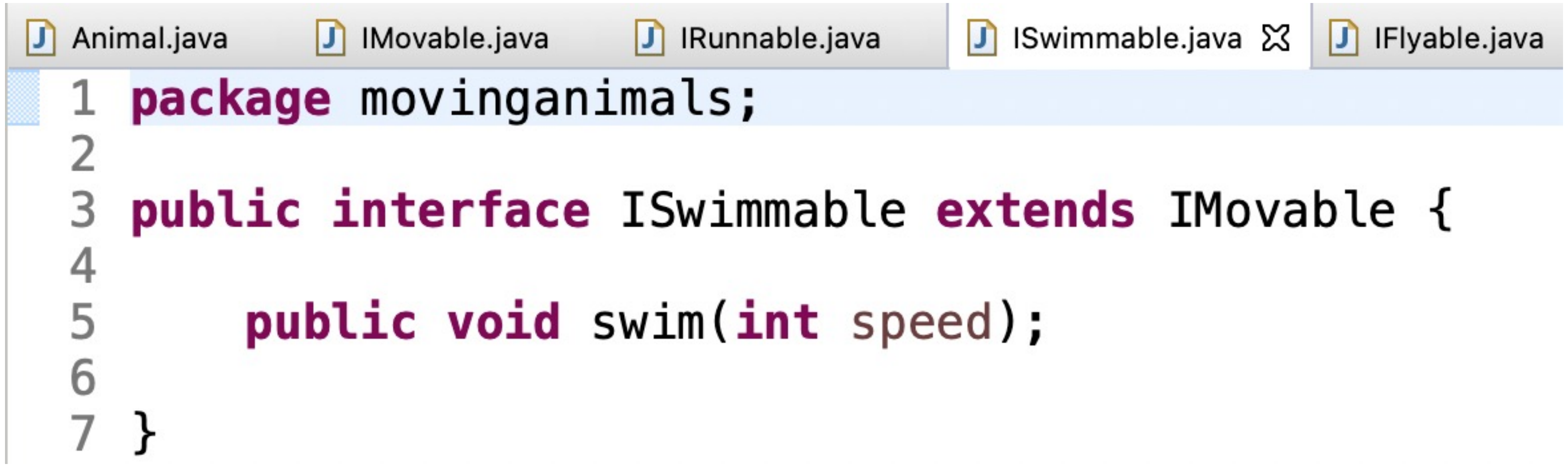
```java
package movinganimals;

public abstract class Animal implements IMovable {

    private String color;

    public Animal(String color) {
        this.color = color;
    }

    public String getColor() {
        return color;
    }

}
```



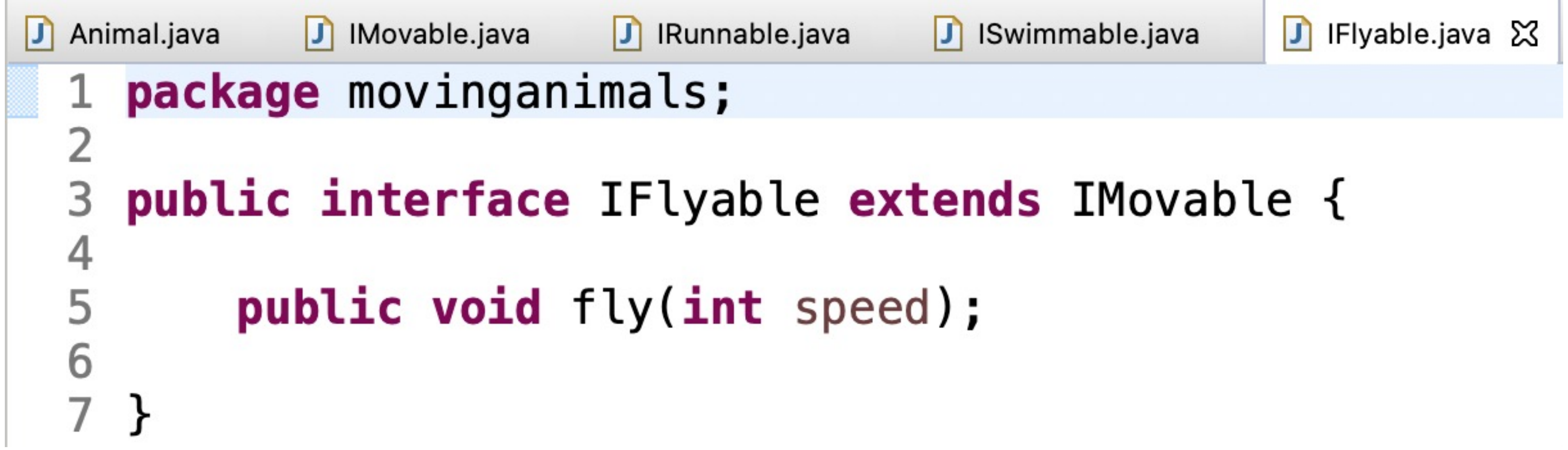
```java
package movinganimals;

public interface IMovable {

    public void move(String location);

}
```



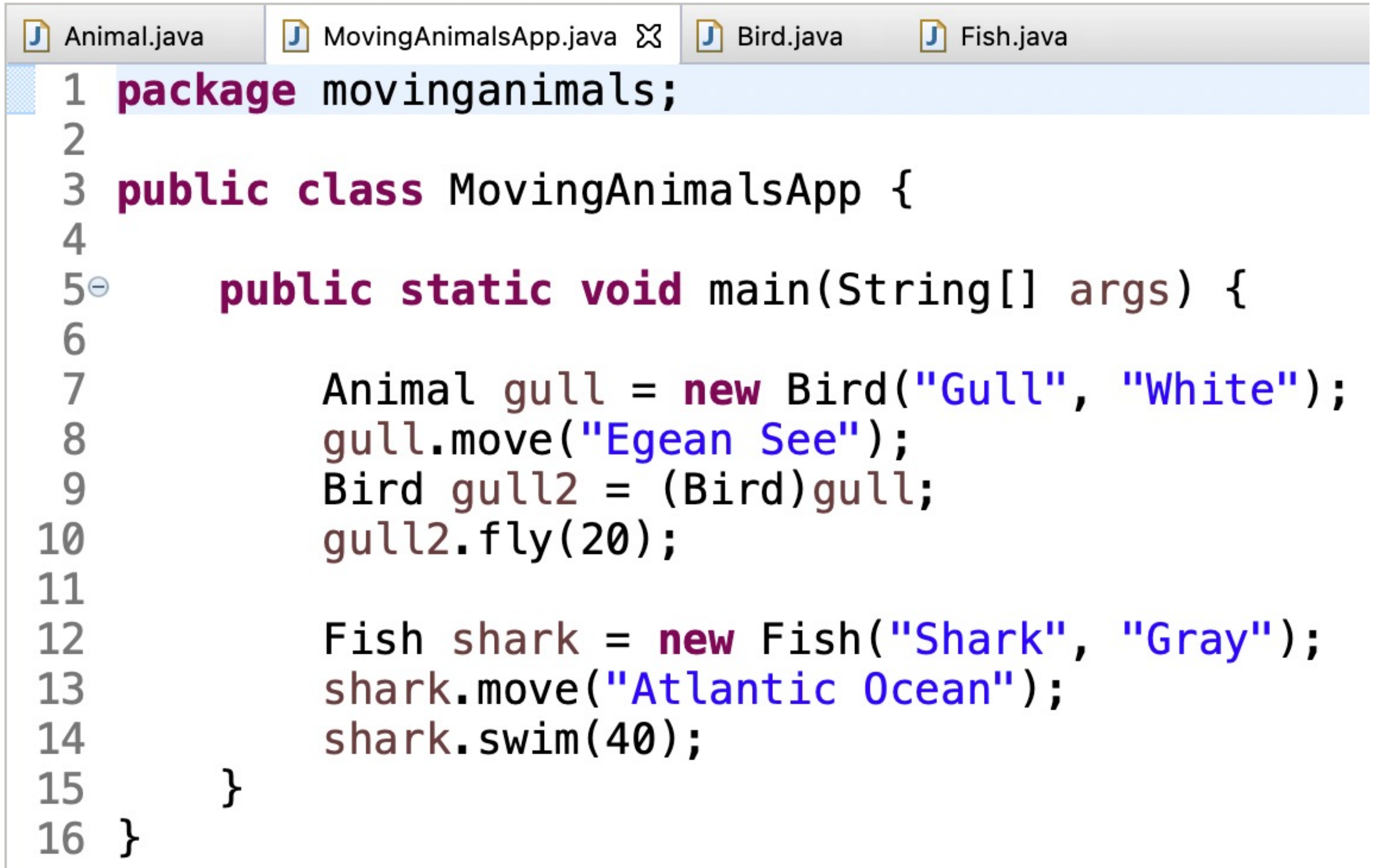
```java
package movinganimals;

public interface IRunnable extends IMovable {

    public void run(int speed);

}
```



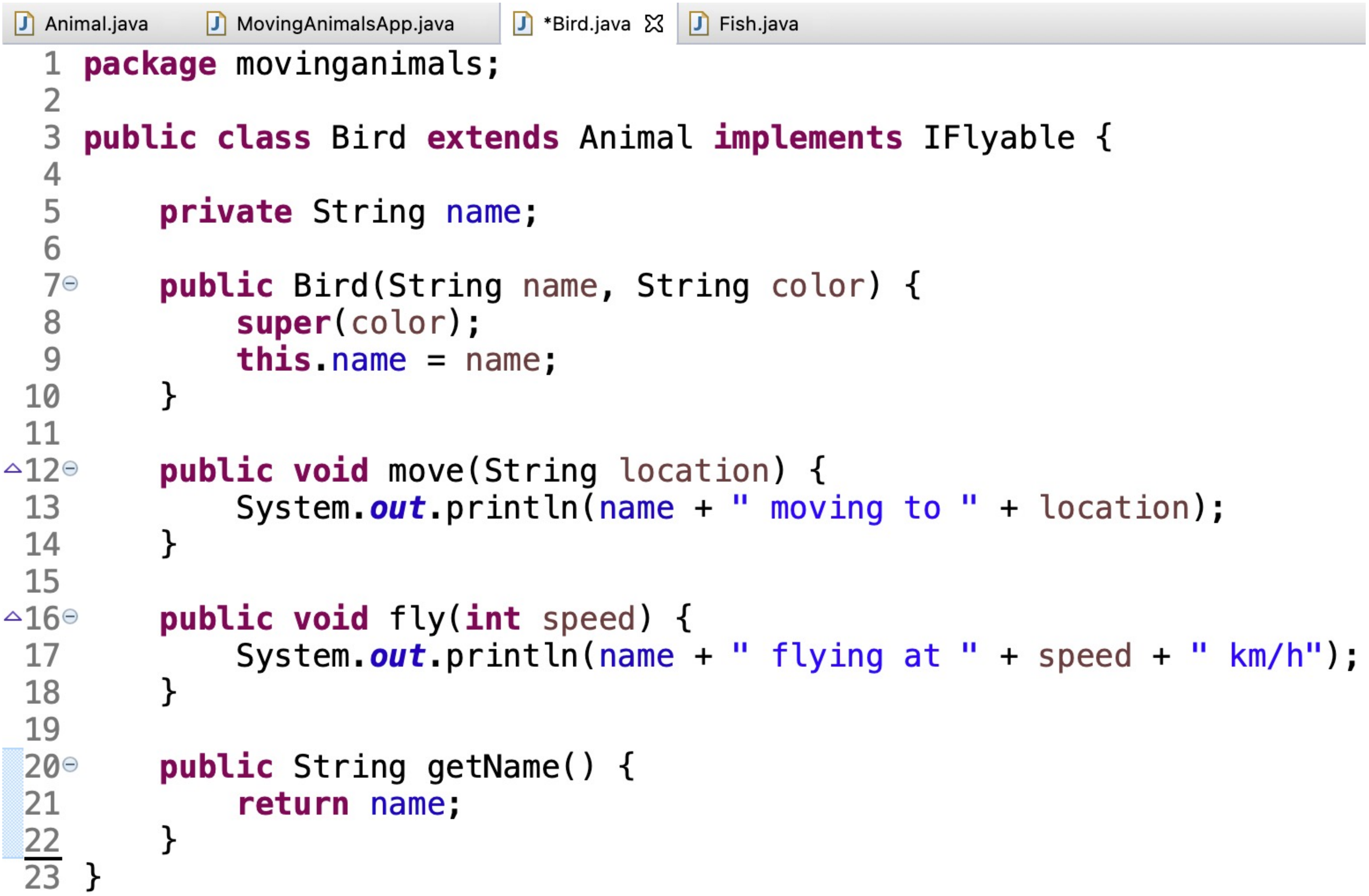
```java
package movinganimals;

public interface ISwimmable extends IMovable {

    public void swim(int speed);

}
```



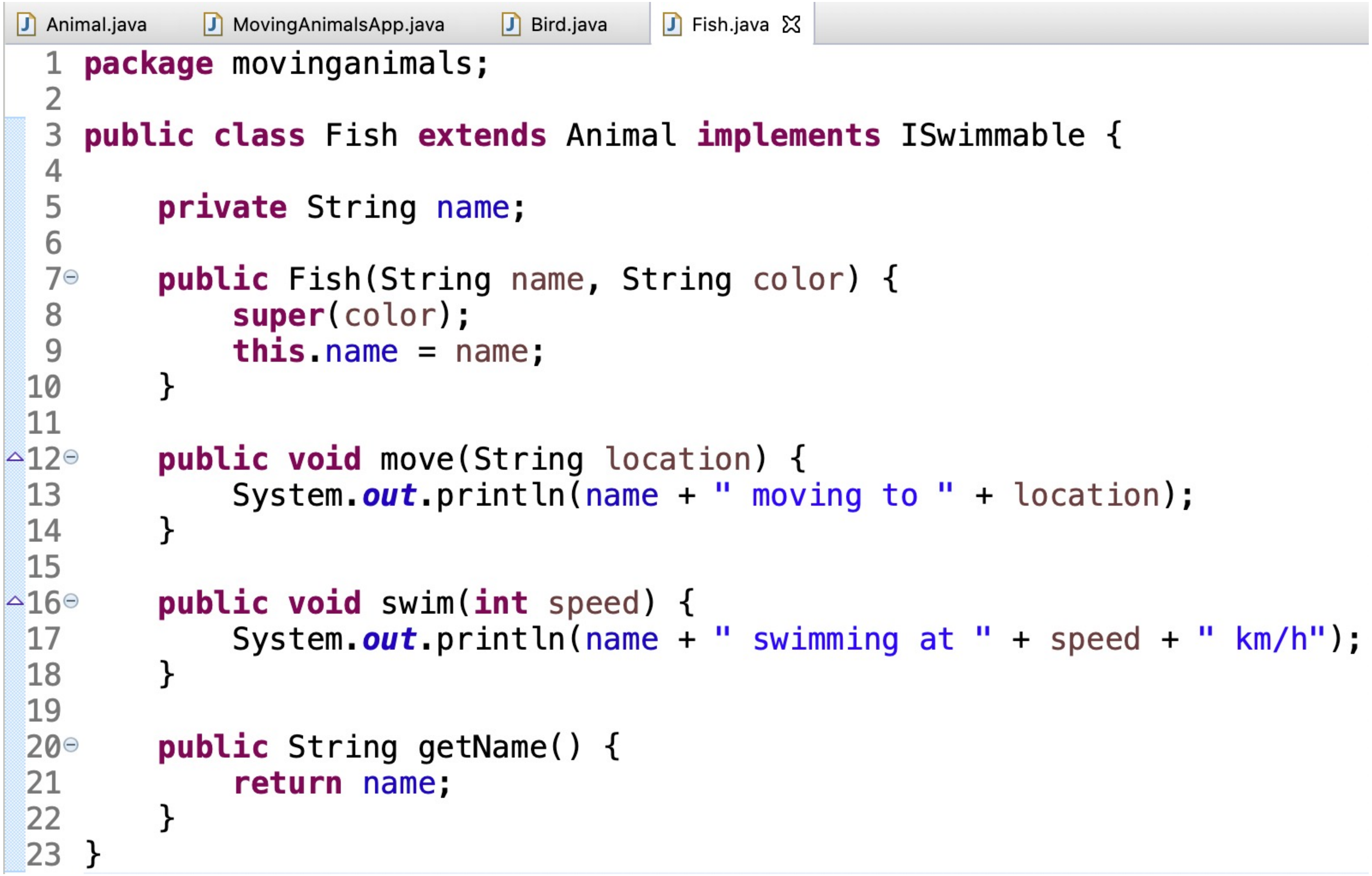
```java
package movinganimals;

public interface IFlyable extends IMovable {

    public void fly(int speed);

}
```



```java
package movinganimals;

public class MovingAnimalsApp {

    public static void main(String[] args) {

        Animal gull = new Bird("Gull", "White");
        gull.move("Egean See");
        Bird gull2 = (Bird)gull;
        gull2.fly(20);

        Fish shark = new Fish("Shark", "Gray");
        shark.move("Atlantic Ocean");
        shark.swim(40);
    }
}
```



```java
package movinganimals;

public class Bird extends Animal implements IFlyable {

	private String name;

	public Bird(String name, String color) {
		super(color);
		this.name = name;
	}

	public void move(String location) {
		System.out.println(name + " moving to " + location);
	}

	public void fly(int speed) {
		System.out.println(name + " flying at " + speed + " km/h");
	}

	public String getName() {
		return name;
	}
}
```



```java
package movinganimals;

public class Fish extends Animal implements ISwimmable {

    private String name;

    public Fish(String name, String color) {
        super(color);
        this.name = name;
    }

    public void move(String location) {
        System.out.println(name + " moving to " + location);
    }

    public void swim(int speed) {
        System.out.println(name + " swimming at " + speed + " km/h");
    }

    public String getName() {
        return name;
    }
}
```