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Batch: 1154
Homework: Polymorphism

Compile time Polymorphism
(Method Overloading):

```
package polymorphism;
class Calculator {

    // Method to add two integers
    public int add(int a, int b) {
        return a + b;
    }
    // Method to add three integers
    public int add(int a, int b, int c) {
        return a + b + c;
    }
    // Method to concatenate two strings
    public String add(String str1, String str2) {
        return str1 + str2;
    }
}

public class Overloading {
    public static void main(String[] args) {
        Calculator calculator = new Calculator();

        System.out.println("Sum of two integers: " + calculator.add(5, 7));
        System.out.println("Sum of three integers: " + calculator.add(3, 8, 2));
        System.out.println("Concatenation of two strings: " + calculator.add("Hello, ", "World!"));
    }
}
```

Run time polymorphism (Method Overriding):

```
package polymorphism;
class Shape {
    // Method to calculate area
    public double calculateArea() {
        return 0.0;
    }
}
class Circle extends Shape {
    private double radius;
    public Circle(double radius) {
        this.radius = radius;
    }
    // Overriding the calculateArea method for Circle
    @Override
    public double calculateArea() {
        return Math.PI * radius * radius;
    }
}
class Rectangle extends Shape {
    private double length;
    private double width;
    public Rectangle(double length, double width) {
        this.length = length;
        this.width = width;
    }
    // Overriding the calculateArea method for Rectangle
    @Override
    public double calculateArea() {
        return length * width;
    }
}
```

```
public class Overriding {  
    public static void main(String[] args) {  
        Shape circle = new Circle(5.0);  
        Shape rectangle = new Rectangle(4.0, 6.0);  
        System.out.println("Area of Circle: " + circle.calculateArea());  
        System.out.println("Area of Rectangle: " +  
rectangle.calculateArea());  
    }  
}
```