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Person054.java ⋮

```

1 public class Person054 {
2     private static int nextId = 1;
3     private int id;
4     private String name;
5     private int age;
6
7     public Person054(String name, int age) {
8         this.id = nextId++;
9         this.name = name;
10        this.age = age;
11    }
12
13    public int getId054() {
14        return id;
15    }
16
17    public String getName054() {
18        return name;
19    }
20
21    // Getter method for age
22    public int getAge054() {
23        return age;
24    }
25
26    public static void main(String[] args) {
27
28        Person054 person1 = new Person054("Alice", 25);
29        Person054 person2 = new Person054("Bob", 30);
30
31        System.out.println("Person 1 - ID: " + person1.getId054() + ", Name: " + person1.getName054() + ", Age: " + person1.getAge054());
32    }
33 }

```

```
Person 1 - ID: 1, Name: Alice, Age: 25
Person 2 - ID: 2, Name: Bob, Age: 30
```

```
...Program finished with exit code 0
Press ENTER to exit console.
```

TrafficLight054.java

```

1 public class TrafficLight054 {
2     private String color;
3     private int durationInSeconds;
4     public TrafficLight054(String color, int durationInSeconds) {
5         this.color = color;
6         this.durationInSeconds = durationInSeconds;
7     }
8     public void changeColor054(String newColor) {
9         this.color = newColor;
10    }
11    public boolean isRed054() {
12        return color.equalsIgnoreCase("red");
13    }
14    public boolean isGreen054() {
15        return color.equalsIgnoreCase("green");
16    }
17    public String getColor054() {
18        return color;
19    }
20    public int getDurationInSeconds054() {
21        return durationInSeconds;
22    }
23    public static void main(String[] args) {
24        TrafficLight054 trafficLight = new TrafficLight054("red", 30);
25        System.out.println("Current Color: " + trafficLight.getColor054());
26        System.out.println("Duration: " + trafficLight.getDurationInSeconds054() + " seconds");
27        trafficLight.changeColor054("green");
28        System.out.println("New Color: " + trafficLight.getColor054());
29        if (trafficLight.isRed054()) {
30            System.out.println("The traffic light is red.");
31        } else if (trafficLight.isGreen054()) {
32            System.out.println("The traffic light is green.");
33        }
34    }
35 }

```

input

```

Current Color: red
Duration: 30 seconds
New Color: green
The traffic light is green.

```

```

...Program finished with exit code 0
Press ENTER to exit console.

```

ArithmeticOperations054

```
1 public class ArithmeticOperations054 {
2     public int add054(int a, int b) {
3         return a + b;
4     }
5     public double add054(double a, double b) {
6         return a + b;
7     }
8     public int subtract054(int a, int b) {
9         return a - b;
10    }
11    public double subtract054(double a, double b) {
12        return a - b;
13    }
14    public int multiply054(int a, int b) {
15        return a * b;
16    }
17    public double multiply054(double a, double b) {
18        return a * b;
19    }
20    public int divide054(int a, int b) {
21        if (b == 0) {
22            throw new ArithmeticException("Cannot divide by zero.");
23        }
24        return a / b;
25    }
26    public double divide054(double a, double b) {
27        if (b == 0.0) {
28            throw new ArithmeticException("Cannot divide by zero.");
29        }
30        return a / b;
31    }
32
33    public static void main(String[] args) {
```

input

```
Multiplication (int): 12
Division (int): 4
Addition (double): 8.7
Subtraction (double): 5.5
Multiplication (double): 13.0
Division (double): 3.2
```

```
...Program finished with exit code 0
Press ENTER to exit console.
```



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Language Java ⌵ ⓘ ⚙

Main.java

```
1 class Shape054 {
2     public double getPerimeter054() {
3         return 0.0;
4     }
5     public double getArea054() {
6         return 0.0;
7     }
8 }
9 class Circle054 extends Shape054 {
10     private double radius;
11     public Circle054(double radius) {
12         this.radius = radius;
13     }
14     @Override
15     public double getPerimeter054() {
16         return 2 * Math.PI * radius;
17     }
18     @Override
19     public double getArea054() {
20         return Math.PI * radius * radius;
21     }
22 }
23 public class Main {
24     public static void main(String[] args) {
25         Circle054 circle = new Circle054(5.0);
26         System.out.println("Circle Radius: " + circle.getPerimeter054());
27         System.out.println("Circle Perimeter: " + circle.getPerimeter054());
28         System.out.println("Circle Area: " + circle.getArea054());
29     }
30 }
31
32
33
```

input

```
Circle Radius: 31.41592653589793
Circle Perimeter: 31.41592653589793
Circle Area: 78.53981633974483

...Program finished with exit code 0
Press ENTER to exit console.
```

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Main.java

```

14 public void resizeWidth054(int width) {
15     if (width > 0) {
16         this.width = width;
17     } else {
18         System.out.println("Invalid width value. Width must be greater than 0.");
19     }
20 }
21 @Override
22 public void resizeHeight054(int height) {
23     if (height > 0) {
24         this.height = height;
25     } else {
26         System.out.println("Invalid height value. Height must be greater than 0.");
27     }
28 }
29 public void display054() {
30     System.out.println("Rectangle - Width: " + width + ", Height: " + height);
31 }
32 }
33 public class Main {
34     public static void main(String[] args) {
35         Rectangle054 rectangle = new Rectangle054(5, 8);
36         System.out.println("Initial State:");
37         rectangle.display054();
38         rectangle.resizeWidth054(10);
39         rectangle.resizeHeight054(12);
40         System.out.println("\nResized State:");
41         rectangle.display054();
42     }
43 }
44
45
46

```

input

```

Initial State:
Rectangle - Width: 5, Height: 8

Resized State:
Rectangle - Width: 10, Height: 12

```

```

...Program finished with exit code 0
Press ENTER to exit console.

```

Main.java

```

1 interface Flyable054 {
2     void fly_obj054();
3 }
4 class Spacecraft054 implements Flyable054 {
5     @Override
6     public void fly_obj054() {
7         System.out.println("Spacecraft is flying in space.");
8     }
9 }
10 class Airplane054 implements Flyable054 {
11     @Override
12     public void fly_obj054() {
13         System.out.println("Airplane is flying in the sky.");
14     }
15 }
16 class Helicopter054 implements Flyable054 {
17     @Override
18     public void fly_obj054() {
19         System.out.println("Helicopter is flying in the air.");
20     }
21 }
22 public class Main {
23     public static void main(String[] args) {
24         Flyable054 spacecraft = new Spacecraft054();
25         Flyable054 airplane = new Airplane054();
26         Flyable054 helicopter = new Helicopter054();
27         System.out.println("Flying Objects:");
28         spacecraft.fly_obj054();
29         airplane.fly_obj054();
30         helicopter.fly_obj054();
31     }
32 }
33

```

input

```

Flying Objects:
Spacecraft is flying in space.
Airplane is flying in the sky.
Helicopter is flying in the air.

```

```

...Program finished with exit code 0
Press ENTER to exit console.

```

Main.java

```

1 interface Resizable054 {
2     void resizeWidth054(int width);
3     void resizeHeight054(int height);
4 }
5 class Rectangle054 implements Resizable054 {
6     private int width;
7     private int height;
8
9     public Rectangle054(int width, int height) {
10         this.width = width;
11         this.height = height;
12     }
13     @Override
14     public void resizeWidth054(int width) {
15         this.width = width;
16     }
17     @Override
18     public void resizeHeight054(int height) {
19         this.height = height;
20     }
21     public void display054() {
22         System.out.println("Width: " + width + ", Height: " + height);
23     }
24 }
25 public class Main {
26     public static void main(String[] args) {
27         Rectangle054 rectangle = new Rectangle054(5, 7);
28         System.out.println("Original Dimensions:");
29         rectangle.display054();
30         rectangle.resizeWidth054(8);
31         rectangle.resizeHeight054(10);
32         System.out.println("\nDimensions after resizing:");
33         rectangle.display054();

```

input

```

Original Dimensions:
Width: 5, Height: 7

```

```

Dimensions after resizing:
Width: 8, Height: 10

```

```

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```



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Language Java

ArithmeticOperatio...

```
1 package arithmetic;
2
3 public class ArithmeticOperations054 {
4     public static int add054(int a, int b) {
5         return a + b;
6     }
7
8     public static int subtract054(int a, int b) {
9         return a - b;
10    }
11
12    public static int multiply054(int a, int b) {
13        return a * b;
14    }
15
16    public static int divide054(int a, int b) {
17        return a / b;
18    }
19 }
20
21
22
```

Input

```
Error: Could not find or load main class ArithmeticOperations054
Caused by: java.lang.NoClassDefFoundError: arithmetic/ArithmeticOperations054 (wrong name: ArithmeticOperations054)

...Program finished with exit code 1
Press ENTER to exit console.
```

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Main.java

```
1 package sorting;
2 public class BubbleSort054 {
3     public static void sort(int[] arr) {
4     }
5 }
6 package sorting;
7 public class SelectionSort054 {
8     public static void sort(int[] arr) {
9     }
10 }
11 import sorting.BubbleSort054;
12 import sorting.SelectionSort054;
13 public class Main {
14     public static void main(String[] args) {
15         int[] arr = {64, 34, 25, 12, 22, 11, 90};
16         System.out.println("\nOriginal Array:");
17         printArray054(arr);
18         BubbleSort054.sort(arr);
19         System.out.println("\nSorted using BubbleSort:");
20         printArray054(arr);
21         int[] arr2 = {64, 34, 25, 12, 22, 11, 90};
22         SelectionSort054.sort(arr2);
23         System.out.println("\nSorted using SelectionSort:");
24         printArray054(arr2);
25     }
26     private static void printArray054(int[] arr) {
27         for (int value : arr) {
28             System.out.print(value + " ");
29         }
30         System.out.println();
31     }
32 }
33
```