

## Java Foundations Practices - Section 4

### Problem 1: Writing methods

In this practice, you will write methods that return values for the following scenarios:

1. Converts given temperature in Fahrenheit to Celsius. Formula:  $C = 5/9 * (F - 32)$

Method:

```
public class TemperatureConverter {  
    public static double fahrenheitToCelsius(double fahrenheit) {  
        return (5.0 / 9.0) * (fahrenheit - 32);  
    }  
  
    public static void main(String[] args) {  
        double fahrenheitTemp = 98.6;  
        System.out.println(fahrenheitTemp + "°F is equal to " +  
fahrenheitToCelsius(fahrenheitTemp) + "°C");  
    }  
}
```

2. Computes the hypotenuse length of a triangle given its side lengths.

Method:

```
import java.lang.Math;  
  
public class HypotenuseCalculator {  
    public static double hypotenuseLength(double a, double b) {  
        return Math.sqrt(a * a + b * b);  
    }  
  
    public static void main(String[] args) {  
        double sideA = 3;  
        double sideB = 4;  
        System.out.println("The hypotenuse of a triangle with sides " + sideA + " and " + sideB  
+ " is " + hypotenuseLength(sideA, sideB));  
    }  
}
```

3. Simulate the rolling of two 6-sided dice and display their sum.

Method:

```
import java.util.Random;
```

```
public class DiceRoller {
```

```
    // Method to roll two 6-sided dice and return their sum
```

```
    public static int rollTwoDice() {
```

```
        Random rand = new Random();
```

```
        int die1 = rand.nextInt(6) + 1;
```

```
        int die2 = rand.nextInt(6) + 1;
```

```
        return die1 + die2;
```

```
    }
```

```
    public static void main(String[] args) {
```

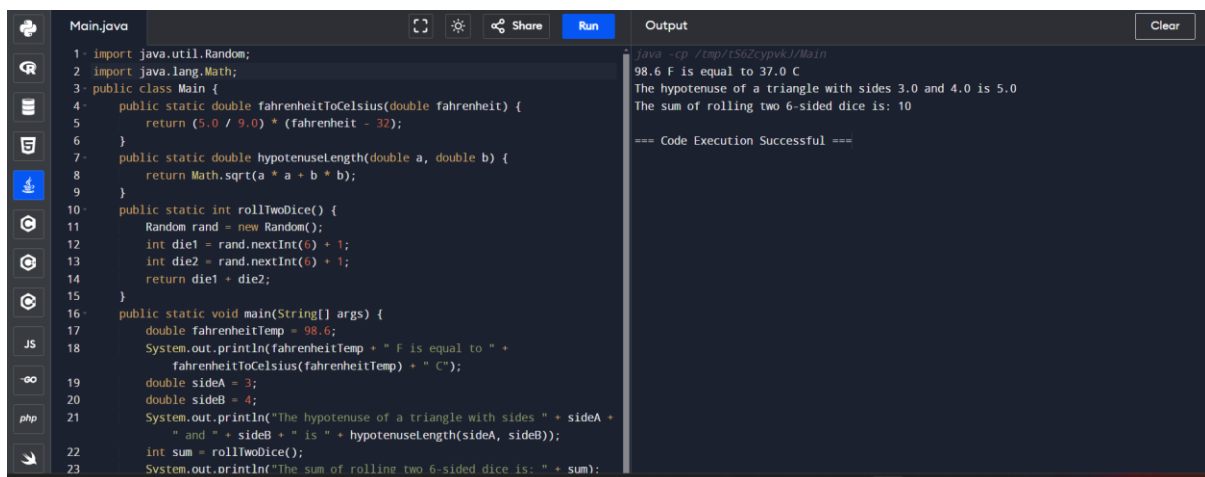
```
        int sum = rollTwoDice();
```

```
        System.out.println("The sum of rolling two 6-sided dice is: " + sum);
```

```
    }
```

```
}
```

Output:



The screenshot shows a Java IDE with a file named 'Main.java'. The code in the editor is as follows:

```
1 import java.util.Random;
2 import java.lang.Math;
3 public class Main {
4     public static double fahrenheitToCelsius(double fahrenheit) {
5         return (5.0 / 9.0) * (fahrenheit - 32);
6     }
7     public static double hypotenuseLength(double a, double b) {
8         return Math.sqrt(a * a + b * b);
9     }
10    public static int rollTwoDice() {
11        Random rand = new Random();
12        int die1 = rand.nextInt(6) + 1;
13        int die2 = rand.nextInt(6) + 1;
14        return die1 + die2;
15    }
16    public static void main(String[] args) {
17        double fahrenheitTemp = 98.6;
18        System.out.println(fahrenheitTemp + " F is equal to " +
19            fahrenheitToCelsius(fahrenheitTemp) + " C");
20        double sideA = 3;
21        double sideB = 4;
22        System.out.println("The hypotenuse of a triangle with sides " + sideA +
23            " and " + sideB + " is " + hypotenuseLength(sideA, sideB));
24        int sum = rollTwoDice();
25        System.out.println("The sum of rolling two 6-sided dice is: " + sum);
26    }
27 }
```

The 'Output' pane on the right shows the following text:

```
java -cp /tmp/t562cypvkJ/Main
98.6 F is equal to 37.0 C
The hypotenuse of a triangle with sides 3.0 and 4.0 is 5.0
The sum of rolling two 6-sided dice is: 10

=== Code Execution Successful ===
```

## Problem 2: Process a name

In this practice, you will develop a java program that processes a name entered by the user. The program does the following: It reads the user's first and last name (read an entire line as a single string), then prints the last name followed by a comma and the first initial. (Assume that the user types a valid name.)

### Code:

```
import java.util.Scanner;

public class NameProcessor {

    public static void main(String[] args) {

        Scanner scanner = new Scanner(System.in);

        System.out.print("Type your name: ");

        String fullName = scanner.nextLine();

        String[] nameParts = fullName.split(" ");

        if (nameParts.length != 2) {

            System.out.println("Invalid input. Please enter a first and last name.");

            return;

        }

        String firstName = nameParts[0];

        String lastName = nameParts[1];

        char firstInitial = firstName.charAt(0);

        String formattedName = lastName + ", " + firstInitial + ".";

        System.out.println("Your name is: " + formattedName);

        scanner.close();

    }

}
```

### Output:

Main.java

ShareRun

1- import java.util.Scanner;

2

3- public class NameProcessor {

4- public static void main(String[] args) {

5- Scanner scanner = new Scanner(System.in);

6- System.out.print("Type your name: ");

7- String fullName = scanner.nextLine();

8- String[] nameParts = fullName.split(" ");

9- if (nameParts.length != 2) {

10- System.out.println("Invalid input. Please enter a first and last name");

11- return;

12- }

13- String firstName = nameParts[0];

14- String lastName = nameParts[1];

15- char firstInitial = firstName.charAt(0);

16- String formattedName = lastName + ", " + firstInitial + ".";

17- System.out.println("Your name is: " + formattedName);

18- scanner.close();

19- }

20- }

21

Output

java -cp /tmp/iQ7UCcRLrL/NameProcessor  
Type your name: Jenny Weaver  
Your name is: Weaver, J.  
  
=== Code Execution Successful ===