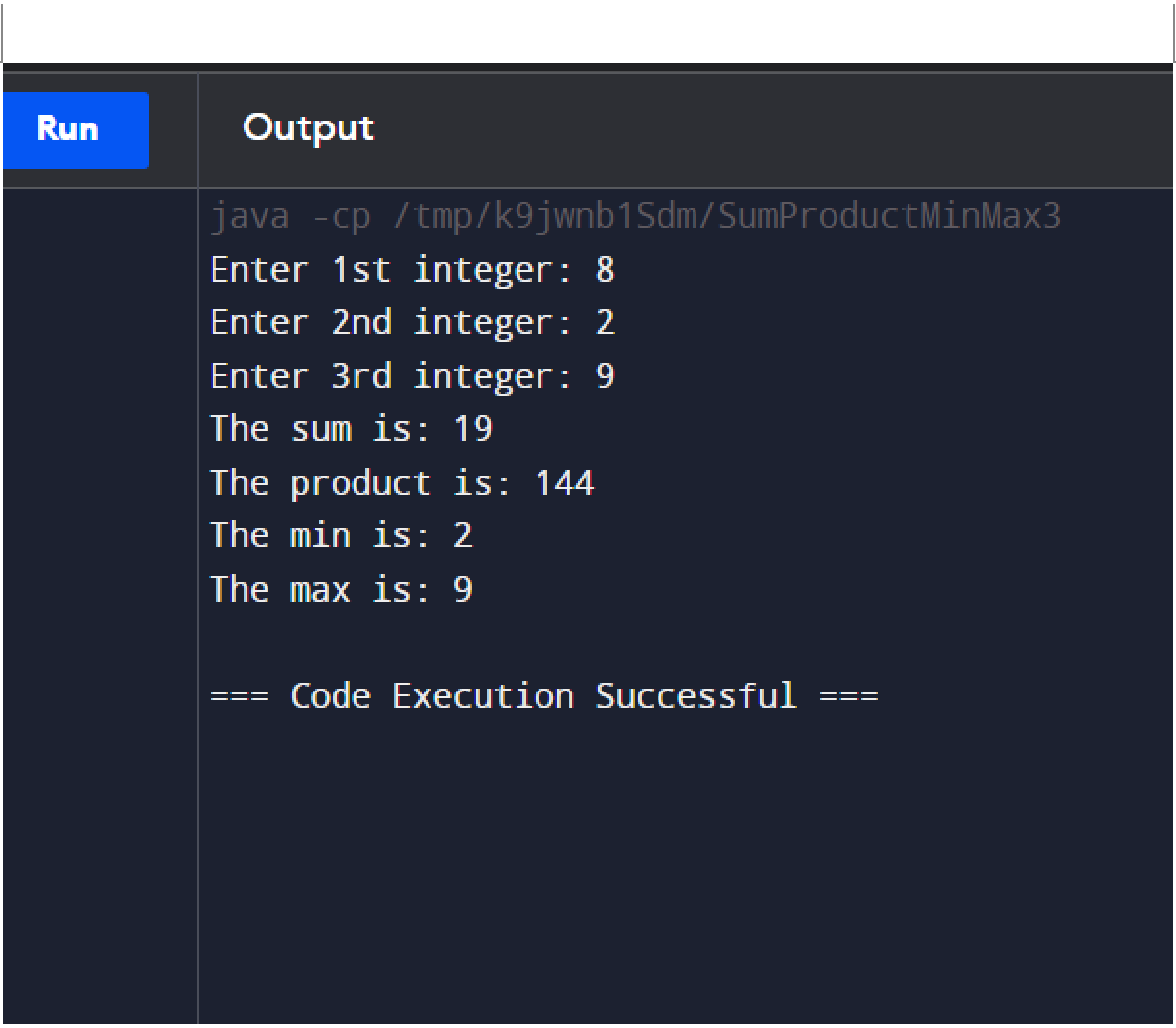
1. Write a program called SumProductMinMax3 that prompts user for three integers. The program shall read the inputs as int; compute the sum, product, minimum and maximum of the three integers; and print the results. For examples,

```
Enter 1st integer: 8
Enter 2nd integer: 2
Enter 3rd integer: 9
The sum is: 19
The product is: 144
The min is: 2
The max is: 9
```

```
import java.util.Scanner;
public class SumProductMinMax3 {
   public static void main(String[] args) {
      Scanner scanner = new Scanner(System.in);
      System.out.print("Enter 1st integer: ");
      int num1 = scanner.nextInt();
      System.out.print("Enter 2nd integer: ");
      int num2 = scanner.nextInt();
      System.out.print("Enter 3rd integer: ");
      int num3 = scanner.nextInt();
      int sum = num1 + num2 + num3;
      int product = num1 * num2 * num3;
      int min = Math.min(num1, Math.min(num2, num3));
      int max = Math.max(num1, Math.max(num2, num3));
      System.out.println("The sum is: " + sum);
      System.out.println("The product is: " + product);
      System.out.println("The min is: " + min);
      System.out.println("The max is: " + max);
      scanner.close();
   }
}
```

OUTPUT:



```
java -cp /tmp/k9jwnb1Sdm/SumProductMinMax3
Enter 1st integer: 8
Enter 2nd integer: 2
Enter 3rd integer: 9
The sum is: 19
The product is: 144
The min is: 2
The max is: 9

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

2. Calculate BMI Using Java
The user enters his height (in inches) and weight (in pounds). The variables passed by the user are assigned to the float type. After calculating the BMI value, the value will be assigned to the appropriate range and the correct message will appear on the console. You can use the if-else-if ladder for printing the message on the console.

Intervals of BMI index:

16.00 or less = starvation
16.00-16.99 = emaciation
17.00-18.49 = underweight
18.50-22.99 = normal, low range
23.00-24.99 = normal high range
25.00-27.49 = overweight low range
27.50-29.99 = overweight high range
30.00-34.99 = 1st degree obesity
35.00-39.99 = 2nd degree obesity
40.00 or above = 3rd degree obesity
PROGRAM:

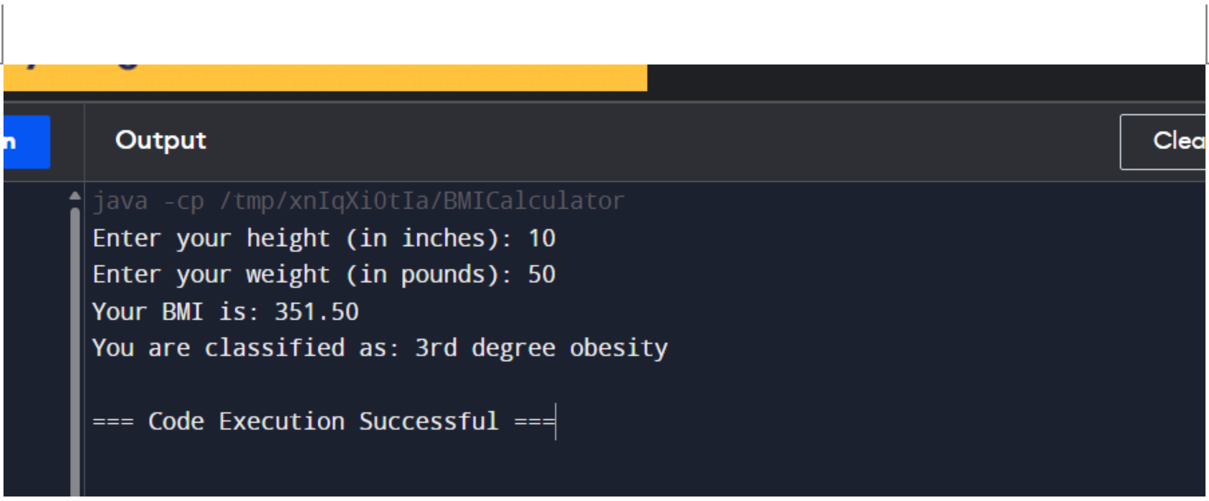
```
import java.util.Scanner;

public class BMICalculator {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);

        // Prompt user for height and weight
        System.out.print("Enter your height (in inches): ");
        float height = scanner.nextFloat();
        System.out.print("Enter your weight (in pounds): ");
        float weight = scanner.nextFloat();
        float bmi = (weight / (height * height)) * 703;
        String category;
        if (bmi <= 16.0) {
            category = "starvation";
        } else if (bmi <= 16.99) {
            category = "emaciation";
        } else if (bmi <= 18.49) {
            category = "underweight";
        } else if (bmi <= 22.99) {
            category = "normal, low range";
        } else if (bmi <= 24.99) {
            category = "normal, high range";
        } else if (bmi <= 27.49) {
            category = "overweight, low range";
        } else if (bmi <= 29.99) {
            category = "overweight, high range";
        } else if (bmi <= 34.99) {
            category = "1st degree obesity";
        } else if (bmi <= 39.99) {
            category = "2nd degree obesity";
        } else {
            category = "3rd degree obesity";
        }
        System.out.printf("Your BMI is: %.2f%n", bmi);
        System.out.println("You are classified as: " + category);

        scanner.close();
    }
}
```

OUTPUT:



```
java -cp /tmp/xnIqXi0tIa/BMICalculator
Enter your height (in inches): 10
Enter your weight (in pounds): 50
Your BMI is: 351.50
You are classified as: 3rd degree obesity

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

3. Write a program that will use the while loop to find the largest and smallest number from the set of 10 randomly drawn integers from 1 to 100. In this task, do not use arrays or other collections.

PROGRAM:

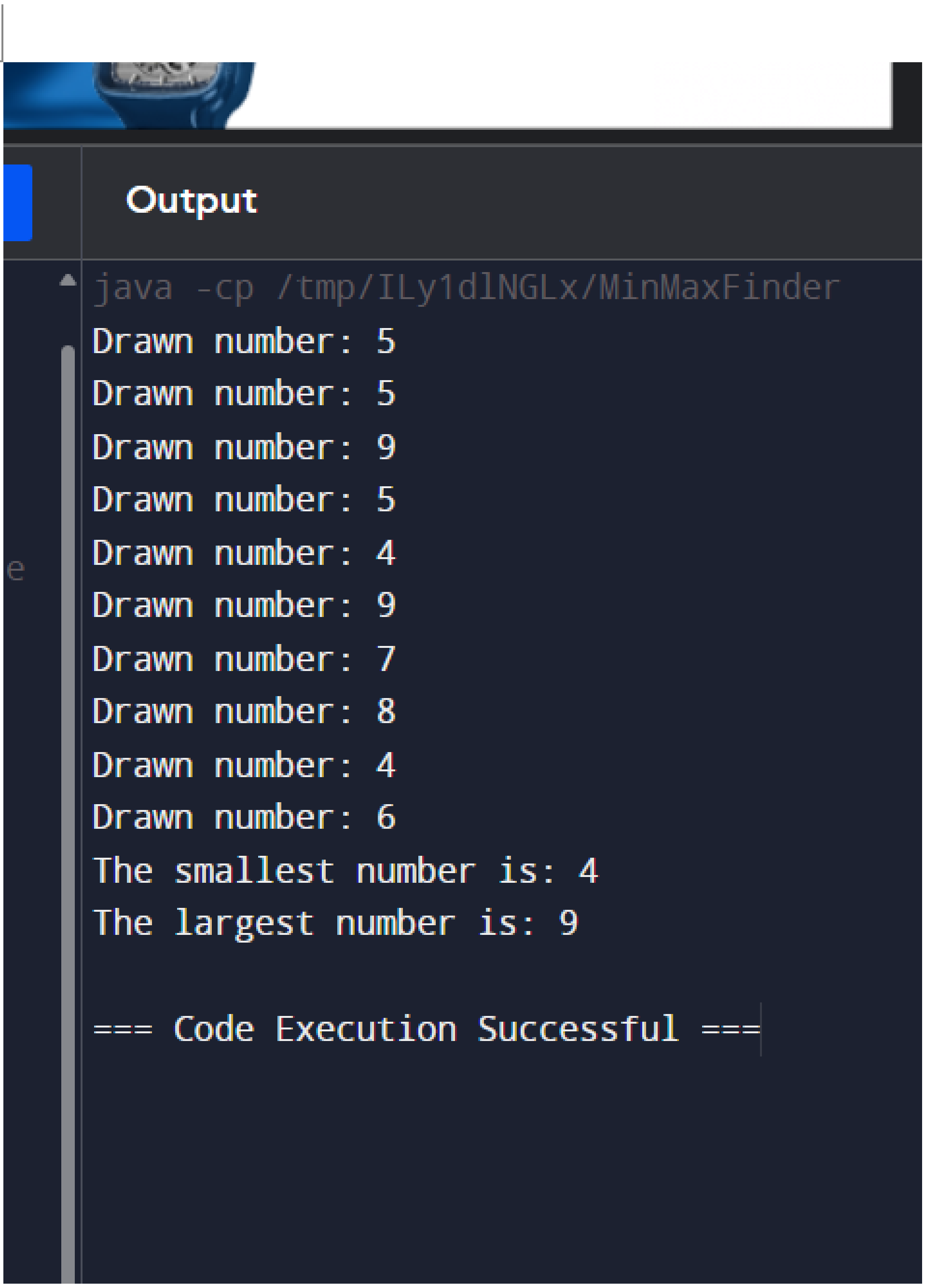
```
import java.util.Random;

public class MinMaxFinder {
    public static void main(String[] args) {
        Random random = new Random();
        int count = 0;
        int min = 10;
        int max = 0;
        while (count < 10) {
            int num = random.nextInt(10) + 1;
            System.out.println("Drawn number: " + num);

            if (num < min) {
                min = num;
            }
            if (num > max) {
                max = num;
            }
            count++;
        }

        System.out.println("The smallest number is: " + min);
        System.out.println("The largest number is: " + max);
    }
}
```

OUTPUT:



```
java -cp /tmp/ILy1dlNGLx/MinMaxFinder
Drawn number: 5
Drawn number: 5
Drawn number: 9
Drawn number: 5
Drawn number: 4
Drawn number: 9
Drawn number: 7
Drawn number: 8
Drawn number: 4
Drawn number: 6
The smallest number is: 4
The largest number is: 9

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