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ASSIGNMENT - 7

Question 1:

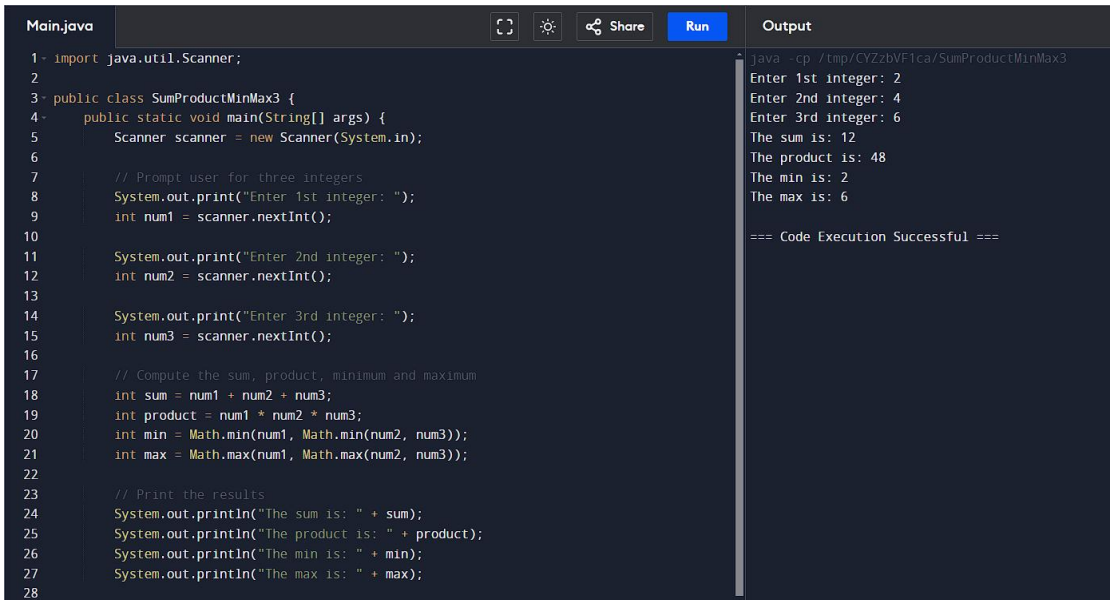
Write a program called SumProductMinMax3 that prompts user for three integers. The program shall read the inputs as int; compute the sum, product, minimum and maximum of the three integers; and print the results. For examples,

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

Code :

```
import java.util.Scanner;

public class SumProductMinMax3 {
   public static void main(String[] args) {
      Scanner scanner = new Scanner(System.in);

      // Prompt user for three integers
      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();

      // Compute the sum, product, minimum and maximum
      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));
```

```
        // Print the results
        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);

        // Close the scanner
        scanner.close();
    }
}
```



Question 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:

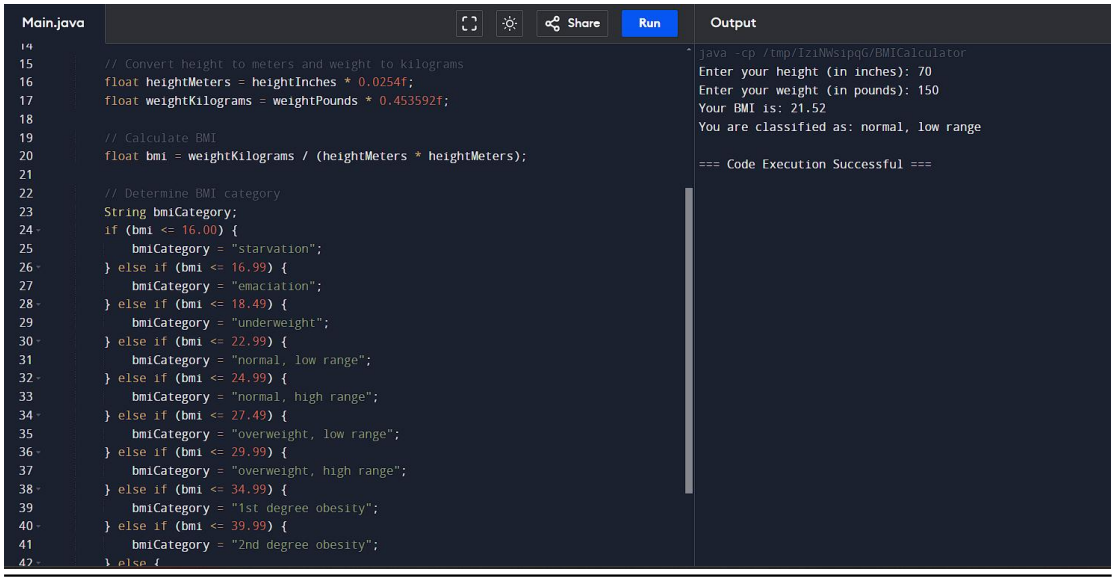
16.00 or less = starvation
16.00-16.99 = emaciation
17.00-18.49 = underweight
18.50-22.99 = normal, low range
23.00-24.99 = normal high range

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

Code:

```
import java.util.Scanner;

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

      // Prompt user for height in inches
      System.out.print("Enter your height (in inches): ");
      float heightInches = scanner.nextFloat();

      // Prompt user for weight in pounds
      System.out.print("Enter your weight (in pounds): ");
      float weightPounds = scanner.nextFloat();

      // Convert height to meters and weight to kilograms
      float heightMeters = heightInches * 0.0254f;
      float weightKilograms = weightPounds * 0.453592f;

      // Calculate BMI
      float bmi = weightKilograms / (heightMeters * heightMeters);

      // Determine BMI category
      String bmiCategory;
      if (bmi <= 16.00) {
         bmiCategory = "starvation";
      } else if (bmi <= 16.99) {
         bmiCategory = "emaciation";
      } else if (bmi <= 18.49) {
         bmiCategory = "underweight";
      } else if (bmi <= 22.99) {
         bmiCategory = "normal, low range";
      } else if (bmi <= 24.99) {
         bmiCategory = "normal, high range";
      } else if (bmi <= 27.49) {
         bmiCategory = "overweight, low range";
```

```
        } else if (bmi <= 29.99) {
            bmiCategory = "overweight, high range";
        } else if (bmi <= 34.99) {
            bmiCategory = "1st degree obesity";
        } else if (bmi <= 39.99) {
            bmiCategory = "2nd degree obesity";
        } else {
            bmiCategory = "3rd degree obesity";
        }

        // Print the BMI value and category
        System.out.printf("Your BMI is: %.2f\n", bmi);
        System.out.println("You are classified as: " + bmiCategory);

        // Close the scanner
        scanner.close();
    }
}
```



Question 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.

Code:

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

```
public class FindLargestAndSmallest {
   public static void main(String[] args) {
      Random random = new Random();

      // Initialize variables to store the largest and smallest numbers
      int largest = Integer.MIN_VALUE;
      int smallest = Integer.MAX_VALUE;

      int count = 0; // Counter for the number of random integers

      // Generate and process 10 random integers
      while (count < 10) {
         int number = random.nextInt(100) + 1; // Generate a
random integer between 1 and 100

         // Update largest and smallest numbers
         if (number > largest) {
            largest = number;
         }
         if (number < smallest) {
            smallest = number;
         }

         count++; // Increment the counter
      }

      // Print the results
      System.out.println("The largest number is: " + largest);
      System.out.println("The smallest number is: " + smallest);
   }
}
```