

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);
        System.out.print("Enter 1st integer: ");
        int first = scanner.nextInt();
        System.out.print("Enter 2nd integer: ");
        int second = scanner.nextInt();
        System.out.print("Enter 3rd integer: ");
        int third = scanner.nextInt();
        int sum = first + second + third;
        int product = first * second * third;
        int min = first;
        if (second < min) {
            min = second;
        }
        if (third < min) {
            min = third;
        }
        int max = first;
        if (second > max) {
            max = second;
        }
        if (third > max) {
            max = third;
        }
        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:

```
Output Clear
java -cp /tmp/PZEftTsE0x/SumProductMinMax3
Enter 1st integer: 34
Enter 2nd integer: 42
Enter 3rd integer: 56
The sum is: 132
The product is: 79968
The min is: 34
The max is: 56

=== 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

CODE:

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

```

        System.out.print("Enter your height (in inches): ");
        float heightInInches = scanner.nextFloat();
        System.out.print("Enter your weight (in pounds): ");
        float weightInPounds = scanner.nextFloat();
        float bmi = calculateBMI(heightInInches, weightInPounds);
        System.out.printf("Your BMI is: %.2f\n", bmi);
        determineBMICategory(bmi);
        scanner.close();
    }

    public static float calculateBMI(float heightInInches, float weightInPounds) {
        float heightInMeters = heightInInches * 0.0254f;
        float weightInKilograms = weightInPounds * 0.453592f;
        return weightInKilograms / (heightInMeters * heightInMeters);
    }

    public static void determineBMICategory(float bmi) {
        if (bmi <= 16.0) {
            System.out.println("BMI Category: Starvation");
        } else if (bmi <= 16.99) {
            System.out.println("BMI Category: Emaciation");
        } else if (bmi <= 18.49) {
            System.out.println("BMI Category: Underweight");
        } else if (bmi <= 22.99) {
            System.out.println("BMI Category: Normal, low range");
        } else if (bmi <= 24.99) {
            System.out.println("BMI Category: Normal, high range");
        } else if (bmi <= 27.49) {
            System.out.println("BMI Category: Overweight, low range");
        } else if (bmi <= 29.99) {
            System.out.println("BMI Category: Overweight, high range");
        } else if (bmi <= 34.99) {
            System.out.println("BMI Category: 1st degree obesity");
        } else if (bmi <= 39.99) {
            System.out.println("BMI Category: 2nd degree obesity");
        } else {
            System.out.println("BMI Category: 3rd degree obesity");
        }
    }
}

```

OUTPUT:

Output

Clear

```
java -cp /tmp/JenQkVL0i2/BMICALculator
Enter your height (in inches): 66
Enter your weight (in pounds): 39
Your BMI is: 6.29
BMI Category: Starvation

=== 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.

CODE:

```
import java.util.Random;
public class LargestAndSmallest {
    public static void main(String[] args) {
        Random random = new Random();
        int count = 0;
        int largest = Integer.MIN_VALUE;
        int smallest = Integer.MAX_VALUE;
        while (count < 10) {
            int number = random.nextInt(100) + 1;
            System.out.println("Generated number: " + number);
            if (number > largest) {
                largest = number;
            }
            if (number < smallest) {
                smallest = number;
            }
            count++;
        }
        System.out.println("The largest number is: " + largest);
        System.out.println("The smallest number is: " + smallest);
    }
}
```

OUTPUT:

Output

Clear

```
java -cp /tmp/Wgyn17Hppu/LargestAndSmallest
```

```
Generated number: 46
```

```
Generated number: 38
```

```
Generated number: 75
```

```
Generated number: 54
```

```
Generated number: 86
```

```
Generated number: 37
```

```
Generated number: 81
```

```
Generated number: 15
```

```
Generated number: 85
```

```
Generated number: 96
```

```
The largest number is: 96
```

```
The smallest number is: 15
```

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