

Rajalakshmi Engineering College

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2024_28_III_OOPS Using Java Lab

2028_REC_OOPS using Java_Week 7_Q2

Attempt : 1
Total Mark : 10
Marks Obtained : 0

Section 1 : Coding

1. Problem Statement

Jaheer is working on a health monitoring system to help individuals calculate their Body Mass Index (BMI). He has implemented a basic BMI calculator and an interface called HealthCalculator. It should have a method called calculateBMI.

You are tasked with creating a program that takes weight and height as input, calculates the BMI using the BMI Calculator class, and displays the result. If the height or weight is less than or equal to zero, then return -1.

Formula: $BMI = \text{weight} / (\text{height} * \text{height})$

Input Format

The first line of input consists of a double value W, the person's weight in kilograms.

The second line consists of a double value H, the height of the person in meters.

Output Format

The output displays "BMI: " followed by a double value, representing the calculated BMI, rounded off to two decimal places.

Refer to the sample output for formatting specifications.

Sample Test Case

Input: 70.0

175

Output: BMI: 22.86

Answer

```
import java.util.Scanner;
```

```
// You are using Java
```

```
import java.util.*;
```

```
// Step 1: Define the Interface
```

```
interface HealthCalculator {
```

```
    double calculateBMI(double weight, double height);
```

```
}
```

```
// Step 2: Implement the Interface in BMICalculator class
```

```
class BMICalculator implements HealthCalculator {
```

```
    public double calculateBMI(double weight, double height) {
```

```
        if (weight <= 0 || height <= 0) {
```

```
            return -1; // Invalid input
```

```
        }
```

```
        double bmi = weight / (height * height);
```

```
        return bmi;
```

```
    }
```

```
}
```

```
// Step 3: Main class (handles input/output)
```

```
public class BMICalculatorApp {
```

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

```

Scanner sc = new Scanner(System.in);

// Input weight and height
double weight = sc.nextDouble();
double height = sc.nextDouble();

// Create BMICalculator object
BMICalculator calculator = new BMICalculator();
double result = calculator.calculateBMI(weight, height);

// Output
System.out.printf("BMI: %.2f%n", result);

sc.close();
}
}

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

        double weight = scanner.nextDouble();
        double height = scanner.nextDouble();

        BMICalculator bmiCalculator = new BMICalculator();

        double bmi = bmiCalculator.calculateBMI(weight, height);

        System.out.printf("BMI: %.2f\n", bmi);

        scanner.close();
    }
}

```

Status : Wrong

Marks : 0/10