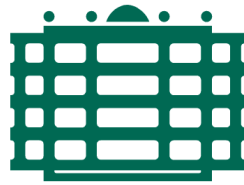


# Software Engineering and Programming Basics - WS2021/22

## Exercise 2: Conditionals, Switch & Loops



TECHNISCHE UNIVERSITÄT  
CHEMNITZ

Professorship of Software Engineering

10 | 2021

## Task 1

The BMI stands for Body Mass Index. It is a measure of health based on height and weight. It can be calculated by taking the weight in kilograms and dividing it by the square of your height in meters. Formula for Calculating BMI in Metric Units,

$$\text{BMI} = (\text{Weight in Kg}) / (\text{Height in Meters} * \text{Height in Meters})$$

For example, weight = 75 kg, height = 1.5 m

$$\text{BMI} = 75 / (1.5 * 1.5) = 33.33$$

Using the range of BMI, individuals are classified as underweight, normal or overweight.

BMI Range	Category
< 18.5	Under Weight
18.5 – 25	Normal
25 – 30	Overweight
> 30	Obese

Here we will write a method **bmiCategory** that receives two numbers for *height* and *weight* to find the BMI range of a person.

**Example:** Enter weight in Kg: 45

Enter height in meters: 1.37

**Expected Output::** *Normal*

## Task 2

Students are given grades as the grading system shown below.

Score in subject	Grade
>=90	A
80-89	B
70-79	C
60-69	D
50-59	E
<50	F

Here we will write a method **findGrade** that receives an integer number *n*.using **switch case** to find out student's grades using switch case statement.

**Example:** Enter score value: 100

**Expected Output::** *Grade = A*

## Task 3

Write a method **findReverse** that receives an integer number *n*. Use a **while loop** to display the reverse of the number.

**Example:** Enter an integer number:: 1234

**Expected Output::** 4321

## Task 4

The series  $1+2+3+4+5+..+N$  is the sum of first  $N$  natural numbers.

We will write a method **sumOfSeries** that receives an integer number  $n$  to find the sum of this series, we have to take the help of **for-loop**.

**Example:** Enter N value: 5

**Expected Output::**  $Sum = 15$