# Lab: Methods

Test your tasks in the Judge system: <https://alpha.judge.softuni.org/contests/methods-lab/4417>

## Sign of Integer Number

Write a program that:

* Reads an **integer number** **N** from the console
* Create a method that prints the **sign** of an entered number **N**:
* Print**:**
* If the number is positive **(N > 0)**: "**The number {number} is positive.**"
* If the number is negative **(N < 0)**: "**The number {number} is negative.**"
* If the number is zero (**N = 0)**: "**The number {number} is zero.**"

### **Example**

|  |  |
| --- | --- |
| **Input** | **Output** |
| 2 | The number 2 is positive. |

|  |  |
| --- | --- |
| **Input** | **Output** |
| -5 | The number -5 is negative. |

|  |  |
| --- | --- |
| **Input** | **Output** |
| 0 | The number 0 is zero. |

## Grades

Write a program that:

* Reads a **grade** (floating-point number) from the console
* Create a **method** that receives a **grade** between **2.00** and **6.00**
* Prints the corresponding **grade in words**
* "**Fail**" - If the grade is in range **2.00 – 2.99** (inclusively)
* "**Average**" - If the grade is in range **3.00 – 3.49** (inclusively)
* "**Good**" - If the grade is in range **3.50 – 4.49** (inclusively)
* "**Very** **good**" - If the grade is in range **4.50 – 5.49** (inclusively)
* "**Excellent**" - If the grade is in range **5.50 – 6.00** (inclusively)

### **Example**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Input** | **Output** |  | **Input** | **Output** |  | **Input** | **Output** |
| 3.33 | Average | 4.50 | Very good | 2.99 | Fail |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Input** | **Output** |  | **Input** | **Output** |  | **Input** | **Output** |
| 5.70 | Excellent | 3.70 | Good | 2.00 | Fail |

## Printing Triangle

Write a program that:

* Reads an **integer number N** from the console
* Create a method for printing triangle depending on value of the number N

### **Example**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Input** | **Output** |  | **Input** | **Output** |  | **Input** | **Output** |
| 3 | 1  1 2  1 2 3  1 2  1 | 4 | 1  1 2  1 2 3  1 2 3 4  1 2 3  1 2  1 | 2 | 1  1 2  1 |

## Calculate Rectangle Area

Write a program that:

* Reads **two integer** numbers from the console**: width** and **length**
* Create a method which returns **rectangle area** with given **width** and **length**

**Hint:** Rectangle area can be calculated when you multiply width and length of the rectangle.

### **Example**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Input** | **Output** |  | **Input** | **Output** |  | **Input** | **Output** |
| 3  4 | 12 | 6  8 | 48 | 5  10 | 50 |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Input** | **Output** |  | **Input** | **Output** |  | **Input** | **Output** |
| 8  7 | 56 | 3  7 | 21 | 2  8 | 16 |

## Repeat String

Write a program that:

* Reads a **text (string)** and **repeat** **count (integer number)** from the console
* Write a method that receives a string and a repeat count
* The method should return a new string, containing the initial one, repeated **count** times without space

### **Example**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Input** | **Output** |  | **Input** | **Output** |  | **Input** | **Output** |
| abc  3 | abcabcabc | String  2 | StringString | Re  3 | ReReRe |

## Math Power

Write a program that:

* Reads **two integer numbers** from the console: **base numbe**r and **power**
* Create a method, which receives two numbers as parameters:
* The first number – the **base**
* The second number – the **power**
* The method should return the **base** raised to the given **power**

### **Example**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Input** | **Output** |  | **Input** | **Output** |  | **Input** | **Output** |
| 3  4 | 81 | 2  8 | 256 | 4  2 | 16 |

## Greater of Two Values

Write a program that:

* Reads a **type (string)** and **two values** of this type from the console
* Entered type can be one of the following values: "**int**", "**char**" or "**string**"
* Create methods **which can compare int, char or string**
* Return the **biggest of the two values**

### **Example**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Input** | **Output** |  | **Input** | **Output** |  | **Input** | **Output** |
| int  2  16 | 16 | char  a  z | z | string  aaa  bbb | bbb |