# Lab: Functions and Arrow Functions

Problems for in-class lab for the [“JavaScript Fundamentals” course @ SoftUni](https://softuni.bg/courses/javascript-fundamentals). Submit your solutions in the SoftUni judge system at <https://judge.softuni.bg/Contests/306>.

## Triangle of Stars +

Write a JS function that outputs a triangle made of stars with variable size, depending on an input parameter. Look at the examples to get an idea.

The **input** comes as a single number argument.

The **output** is a series of lines printed on the console, forming a triangle of variable size.

### Examples

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Input** | **Output** |  | **Input** | **Output** |  | **Input** | **Output** |
| 1 | \* |  | 2 | \*  \*\*  \* | 5 | \*  \*\*  \*\*\*  \*\*\*\*  \*\*\*\*\*  \*\*\*\*  \*\*\*  \*\*  \* |

## Rectangle of Stars +

Write a JS function that outputs a rectangle made of stars with variable size, depending on an input parameter. If there is no parameter specified, the rectangle should always be of size 5. Look at the examples to get an idea.

The **input** comes as a single number argument.

The **output** is a series of lines printed on the console, forming a rectangle of variable size

### Examples

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Input** | **Output** |  | **Input** | **Output** |  | **Input** | **Output** |  | **Input** | **Output** |
| 1 | \* | 2 | \*\*  \*\* | 5 | \*\*\*\*\*  \*\*\*\*\*  \*\*\*\*\*  \*\*\*\*\*  \*\*\*\*\* |  | \*\*\*\*\*  \*\*\*\*\*  \*\*\*\*\*  \*\*\*\*\*  \*\*\*\*\* |

## Palindrome +

Write a JS function that checks if an input string is a [palindrome](https://en.wikipedia.org/wiki/Palindrome).

The **input** comes as a single string argument.

The **output** is the return value of your function. It should be true if the string is a palindrome and false if it’s not.

### Examples

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Input** | **Output** |  | **Input** | **Output** |  | **Input** | **Output** |
| haha | false |  | racecar | true | unitinu | true |

## Day of the Week +

Write a JS function that prints a number between 1 and 7 when a day of the week is passed to it as a string and an error message if the string is not recognized.

The **input** comes as a single string argument.

The **output** should be returned as a result of your program.

### Examples

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Input** | **Output** |  | **Input** | **Output** |  | **Input** | **Output** |
| Monday | 1 | Friday | 5 | Frabjoyousday | error |

## Functional Calculator -28%

Write a JS program that receives two variables and an operator and performs a calculation between the variables, using the operator. Store the different functions in variables and pass them to your calculator.

The **input** comes as three arguments – two numbers, and a string, representing the operator.

The **output** should be printed on the console.

### Examples

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Input** | **Output** |  | **Input** | **Output** |  | **Input** | **Output** |
| 2, 4, '+' | 6 | 3, 3, '/' | 1 | 18, -1, '\*' | -18 |

## Aggregate Elements +

Write a JS program that performs and outputs different operations on an array of elements. Implement the following operations:

* **Sum(ai)** - calculates the sum all elements from the input array
* **Sum(1/ai)** - calculates the sum of the inverse values (1/ai) of all elements from the array
* **Concat(ai)** - concatenates the string representations of all elements from the array

The **input** comes as an array of number elements.

The **output** should be printed on the console on a new line for each of the operations.

### Examples

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Input** | **Output** |  | **Input** | **Output** |
| [1, 2, 3] | 6  1.8333  123 | [2, 4, 8, 16] | 30  0.9375  24816 |

## \*Words Uppercase +

Write a JS program that **extracts all words** from a passed in string and converts them to **upper case**. The extracted words in upper case must be printed back on a single line concatenated by **“, “**.

The **input** comes as a single string argument - the text from which to extract and convert the words.

The **output** should be a single line containing the converted string.

### Examples

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Input** | **Output** |  | **Input** | **Output** |
| 'Hi, how are you?' | HI, HOW, ARE, YOU | 'hello' | HELLO |

### Hints

* You may need to use a [Regular Expression](https://developer.mozilla.org/en-US/docs/Web/JavaScript/Guide/Regular_Expressions) or alternatively check for all delimiters that can be found in a sentence (ex. “,”, “ “, “!”, “?” and so on).