**Functions – Exercise**

This document defines the **exercise assignments** for the [**"Technology Fundamentals" course @ Software University**](https://softuni.bg/modules/57/tech-module-4-0)**.**

Please submit your solutions (source code) of all below described problems in [Judge](https://judge.softuni.bg/Contests/1262/Functions-and-Forms-Exercise).

## Smallest of Three Numbers

Write a JS function which receive **three integer** numbers to print the **smallest** of the three integer numbers. Use appropriate name for the function.

### Examples

|  |  |
| --- | --- |
| **Input** | **Output** |
| 2,  5,  3 | 2 |
| 600,  342,  123 | 123 |
| 25,  21,  4 | 4 |

## Add and Subtract

You will receive 3 **integers.** Write a JS function sum to get the sum of the first two integers and subtractfunction that subtracts the third integer from the result from the Sum function.

### Examples

|  |  |
| --- | --- |
| **Input** | **Output** |
| 23,  6,  10 | 19 |
| 1,  17,  30 | -12 |
| 42,  58,  100 | 0 |

## Characters in Range

Write a JS function that receives **two characters** and prints on a single line all the characters in between them according to the **ASCII** code.

### Examples

|  |  |
| --- | --- |
| **Input** | **Output** |
| 'a',  'd' | b c |
| '#',  ':' | $ % & ' ( ) \* + , - . / 0 1 2 3 4 5 6 7 8 9 |
| 'C',  '#' | $ % & ' ( ) \* + , - . / 0 1 2 3 4 5 6 7 8 9 : ; < = > ? @ A B |

## Odd and Even Sum

You will receive a **single number.**

You have to write a JS function, that returns the **sum** of **all even** and **all odds** digits from that number.

### Examples

|  |  |
| --- | --- |
| **Input** | **Output** |
| 1000435 | Odd sum = 9, Even sum = 4 |
| 3495892137259234 | Odd sum = 54, Even sum = 22 |

## Palindrome Integers

A palindrome is a number which reads the same **backward as forward**, such as 323 or 1001. Write a JS function which receives an **array of positive integer** and checks if each integer is a palindrome or not.

### Examples

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Input** | **Output** |  | **Input** | **Output** |
| [123,323,421,121] | false  true  false  true |  | [32,2,232,1010] | false  true  true  false |

## Password Validator

Write a JS function that checks if a given password is valid. Password rules are:

* **6 – 10 characters (inclusive)**
* **Consists only of letters and digits**
* **Have at least 2 digits**

If a password is valid print "Password is valid". If it is not valid, for every unfulfilled rule print a message:

* **"Password must be between 6 and 10 characters"**
* **"Password must consist only of letters and digits"**
* **"Password must have at least 2 digits"**

### Examples

|  |  |
| --- | --- |
| **Input** | **Output** |
| 'logIn' | Password must be between 6 and 10 characters  Password must have at least 2 digits |
| 'MyPass123' | Password is valid |
| 'Pa$s$s' | Password must consist only of letters and digits  Password must have at least 2 digits |

### Hints

Write a function for each rule.

## Shortest and Longest Word

You will receive a **single string.** This string will be a sentence. Your task here is to create JS function to find:

The **longest** and the **shortest** word in that sentence. If two words have **equal length** take the first occurrence.

### Examples

|  |  |
| --- | --- |
| **Input** | **Output** |
| 'Hello people, are you familiar with the terms of application at the software university?' | Longest -> application Shortest -> of |
| **'Lorem Ipsum** is simply dummy text of the printing and typesetting industry.' | Longest -> typesetting Shortest -> is |

## Perfect Number

Write a JS function that receive a **number** and return if this number is perfect or not.

A perfect number is a positive integer that is equal to the **sum of its proper positive divisors**. That is the sum of its positive divisors excluding the number itself (also known as its **aliquot sum**).

Equivalently, a perfect number is a number that is **half the sum** of all of its positive divisors (including itself) => 6 is a perfect number, because it is the sum of 1 + 2 + 3 (all of which are divided without residue).

### Examples

|  |  |
| --- | --- |
| **Input** | **Output** |
| 6 | We have a perfect number!  1 + 2 + 3 |
| 28 | We have a perfect number!  1 + 2 + 4 + 7 + 14 |
| 1236498 | It’s not so perfect. |

## Loading Bar

You will receive a **single number** between 0 and 100 which is divided with 10 without residue (0, 10, 20, 30...).

Your task is to create a JS function that visualize a **loading bar** depending on that number you have received in the input. See examples for more clarity.

### Examples

|  |  |
| --- | --- |
| **Input** | **Output** |
| 30 | 30% [%%%.......]  Still loading... |
| 50 | 50% [%%%%%.....]  Still loading... |
| 100 | 100% Complete!  [%%%%%%%%%%] |

## 10. Factorial Division

Write a JS Function that reaceives **two** integer numbers. Calculate [factorial](https://en.wikipedia.org/wiki/Factorial) of each number. Divide the first result by the second and print the division formatted to the **second decimal** point.

### Examples

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Input** | **Output** |  | **Input** | **Output** |
| 5  2 | 60.00 |  | 6  2 | 360.00 |

### Hints

Try to use [recursion](https://en.wikipedia.org/wiki/Recursion_(computer_science))