Lab: Arrays

Problems for in-class lab for the "JavaScript Advanced" course @ SoftUni. Submit your solutions in the SoftUni judge system at https://judge.softuni.bg/Contests/2752/Arrays-and-Nested-Arrays-Lab.

Arrays

• Even Position Element

Write a function that finds the elements at even positions in an array.

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

The **output** is printed on the console. Collect all elements in a string, separated by space.

Examples

Input	Output		Input	Output
`['20', '30', '40', '50', '60']`	`20 40 60`		`['5', '10']`	`5`

• Last K Numbers Sequence

You are given two integers **n** and **k**. Write a JS function that generates and **return** the following sequence:

- The first element is 1
- Every following element equals the **sum** of the previous **k** elements
- The length of the sequence is **n** elements

The **input** comes as **two number arguments**. The first element represents the number **n**, and the second – the number **k**.

The **output** is the **return** value of your function and should be an **array of numbers**.

Example

Input	Output		Input	Output
`6, 3`	`[1, 1, 2, 4, 7, 13]`		`8, 2`	`[1, 1, 2, 3, 5, 8, 13, 21]`

Explanation

The 2nd element (1) is the sum of the 3 elements before it, but there is only 1, so we take that. The third element is the sum of the first 2 (1 and 1) and the 4th – the sum of 1, 1, and 2. The 5th element is the sum of the 2nd, 3rd, and 4th (1, 2, and 4) and so on.

• Sum First Last

Write a function that calculates and returns the sum of the first and the last elements in an array.

The **input** comes **as an array of string elements** holding numbers.

The **output** is the **return** value of your function and should be a **number**.

Example

Input	Output		Input	Output
`['20', '30', '40']`	`60`		`['5', '10']`	`15`

• Negative / Positive Numbers

Write a JS function that processes the elements in an array one by one and produces a new array. If the current element is a **negative** number you must add it to the **front** of the array (**as** the **first element** of the array). Otherwise, if the current element is a **positive** number (**or 0**), you must add it to the **end** of the array (as the **last element** of the array).

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

The **output** is printed on the console, each element on a new line.

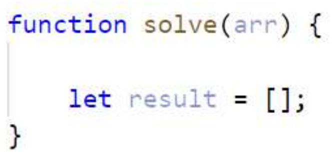
Example

Input	Output		Input	Output

`[7, -2, 8, 9]`	`-2`
	`7`
	`8`
	`9`
			`[3, -2, 0, -1]`	`-1`
				`-2`
				`3`
				`0`

Hints

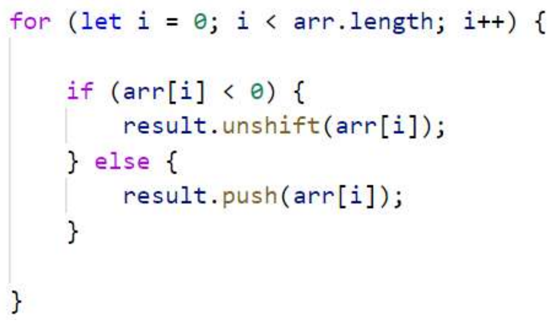
- Write a function that receives an array as an argument.
- Declare variable named **`result`** that will keep the array.



```
function solve(arr) {

    let result = [];
}
```

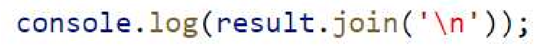
- You can use **for** loop to go around the items one by one.



```
for (let i = 0; i < arr.length; i++) {

    if (arr[i] < 0) {
        result.unshift(arr[i]);
    } else {
        result.push(arr[i]);
    }

}
```

- If the current element is a **negative number,** you can use the **unshift** method to add the number at the **beginning** of the array.
- Otherwise, if the current element is a **positive** number (**or 0**), use a **push** method to add the number to the **end** of the array.
- 

```
console.log(result.join('\n'));
```

  Print on the console, each element of the array on a new line.

• Smallest Two Numbers

Write a function that prints the two smallest elements from an array of numbers.

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

The **output** is printed on the console on a single line, separated by space.

Example

Input	Output		Input	Output
[30, 15, 50, 5]	5 15		[3, 0, 10, 4, 7, 3]	0 3

• Bigger Half

You are given an array of numbers. Write a JS function that **sorts** the array in **ascending order** and returns a new array, containing only the **second half** of the input. If there is an odd number of elements in the input, always take the bigger half. For example, if the input array contains 4 elements, the output should be 2, and if the input is 5 – the output is 3.

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

The **output** is the **return** value of the function and should be an **array of numbers**.

Example

Input	Output
`[4, 7, 2, 5]`	`[5, 7]`
`[3, 19, 14, 7, 2, 19, 6]`	`[7, 14, 19, 19]`

• Piece of Pie

Write a function that receives **three parameters** – an **array** of pie flavors as **strings,** two target flavors as **strings**. The result of the function should be a **new array**, containing a section of the original array, **starting** at the first flavor parameter, and **ending** at (and **including**) the second flavor parameter.

The **input** comes as **three arguments**:

- An **array of strings**, representing pie flavors
- **Two more strings**, representing the start and end of the section, respectively

The **output** is the **return** value of the function and should be an **array of strings**.

Example

Input	Output

`['Pumpkin Pie',`
` 'Key Lime Pie',`
` 'Cherry Pie',`
` 'Lemon Meringue Pie',`
` 'Sugar Cream Pie'],`
`'Key Lime Pie',`
`'Lemon Meringue Pie'`
	`['Key Lime Pie',`
	` 'Cherry Pie',`
	` 'Lemon Meringue Pie']`

`['Apple Crisp',`
` 'Mississippi Mud Pie',`
` 'Pot Pie',`
` 'Steak and Cheese Pie',`
` 'Butter Chicken Pie',`
` 'Smoked Fish Pie'],`
`'Pot Pie',`
`'Smoked Fish Pie'`
	`['Pot Pie',`
	` 'Steak and Cheese Pie',`
	` 'Butter Chicken Pie',`
	` 'Smoked Fish Pie']`

• Process Odd Positions

You are given an array of numbers. Write a JS function that **returns** the elements at **odd positions** from the array, **doubled** and in **reverse** order.

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

The **output** is the **return** on the console on a single line, separated by space.

Example

Input	Output		Input	Output
`[10, 15, 20, 25]`	`50 30`		`[3, 0, 10, 4, 7, 3]`	`6 8 0`

Nested Arrays

• Biggest Element

Write a function that finds the biggest element inside a matrix.

The **input** comes as an **array of arrays**, containing number elements (2D matrix of numbers).

The **output** is the **return** value of your function. Find the biggest element and return it.

Examples

Input	Output		Input	Output

`[[20, 50, 10],`
` [8, 33, 145]]`
	`145`		`[[3, 5, 7, 12],`
			` [-1, 4, 33, 2],`
			` [8, 3, 0, 4]]`
				`33`

• Diagonal Sums

A square matrix of numbers comes as an array of **arrays**, each array holding numbers. Write a function that finds the sum at the main and the secondary diagonals.

The **input** comes as an **array of arrays**, containing number elements (2D matrix of numbers).

The **output** is **printed** on the console, on a single line separated by space. First print the sum at the main diagonal, then the sum at the secondary diagonal.

Example

Input	Output		Input	Output

`[[20, 40],`
` [10, 60]]`
	`80 50`		`[[3, 5, 17],`
			` [-1, 7, 14],`
			` [1, -8, 89]]`
				`99 25`

• Equal Neighbors

Write a function that finds the number of **equal neighbor** pairs inside a **matrix** of variable size and type (numbers or strings).

The **input** comes as an **array of arrays**, containing string elements (2D matrix of strings).

The **output** is the **return** value of your function. Save the number of equal pairs you find and return it.

Example

Input	Output		Input

`[['2', '3', '4', '7', '0'],`
` ['4', '0', '5', '3', '4'],`
` ['2', '3', '5', '4', '2'],`
` ['9', '8', '7', '5', '4']]`
	`1`		`[['test', 'yes', 'yo', 'ho']`
			` ['well', 'done', 'yo', '6']`
			` ['not', 'done', 'yet', '5']`