Lab: Arrays Advanced

Problems for exercise and homework for the "JS Fundamentals" Course @ SoftUni.

Submit your solutions in the SoftUni judge system at: https://judge.softuni.org/Contests/1254

1. Sum First and Last

Write a function that calculates and prints 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 printed on the console.

Examples

Input	Output
`['20', '30', '40']`	`60`

Input	Output
`['5', '10']`	`15`

2. Negative or Positive Numbers

Write a function that processes the elements in an **array** one by one and produces a **new** array. **Prepend** each **negative** element at the front of the array (**as** the **first element**) and **append** each **positive** (or **0**) element at the end of the array.

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

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

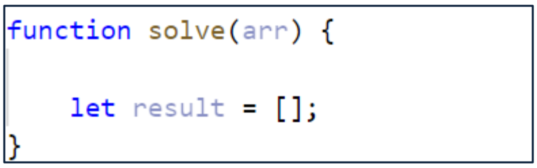
Examples

Input	Output
`['7', '-2', '8', '9']`	-2 7 8 9

Input	Output
`['3', '-2', '0', '-1']`	-1 -2 3 0

Hints

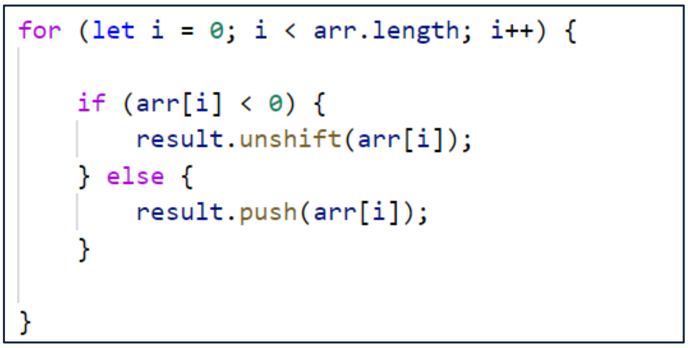
- Write a function that receives an array as an argument.
- Declare variable named **`result`** that will keep the array.



```
function solve(arr) {

    let result = [];
}
```

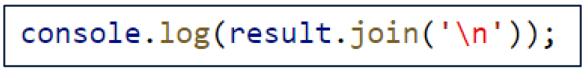
- You can use **`for`** loop to go around the items one by one.

- If the current element is a **negative number,** you can use the **`unshift()`** method to add the number at the **beginning** of the array.



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

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

}
```

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



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

3. First and Last K Numbers

Write a function that prints the first **k** and the last **k** elements from an **array of numbers**.

The **input** comes as an **array of number** elements. The first element represents the number **k**, all other elements are from the array that needs to be processed.

The **output** is printed on the console on two lines. On the first line, print the **first k** elements, separated by space. On the second line, print the **last k** elements, separated by space.

Examples

Input	Output
[2, 7, 8, 9]	7 8 8 9

Input	Output
[3, 6, 7, 8, 9]	6 7 8 7 8 9

Hints

- Use **`slice()`** to split the array into two parts

4. Last K Numbers Sequence

You are given two integers **n** and **k**. Write a function that generates and prints 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 printed on the console on a single line, separated by space.

Examples

Input	Output
6, 3	1 1 2 4 7 13

Input	Output
8, 2	1 1 2 3 5 8 13 21

Hints

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.

5. Process Odd Numbers

You are given an **array of numbers**. Write a function that prints 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 printed on the console on a single line, separated by space.

Examples

Input	Output
[10, 15, 20, 25]	50 30

Input	Output
[3, 0, 10, 4, 7, 3]	6 8 0

Hints

- Counting in arrays starts from 0
- For example –we receive 10, 15, 20, 25
- The elements at odd positions are 15 (index 1) and 25 (index 3)
- We need to take these two elements and multiply them * 2
- Finally, we print them on the console in reversed order

6. 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.

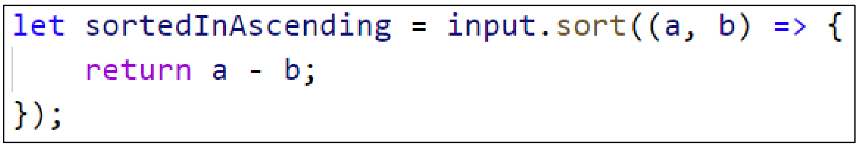
Examples

Input	Output
[30, 15, 50, 5]	5 15

Input	Output
[3, 0, 10, 4, 7, 3]	0 3

Hints

- You can use the following function to sort the numbers in the array:



```
let sortedInAscending = input.sort((a, b) => {
    return a - b;
});
```

- Afterward the **first two** elements in the array are the **smallest**
- You can use **`slice()`** to take the first two numbers

7. List of Products

You will receive an **array of products**. Print a **numbered array** of all the products **ordered by name**.

Example

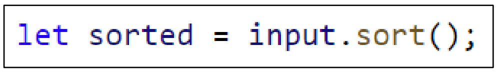
Input	Output

`['Potatoes', 'Tomatoes', 'Onions', 'Apples']`	`1.Apples`
	`2.Onions`
	`3.Potatoes`
	`4.Tomatoes`

`['Watermelon', 'Banana', 'Apples']`	`1.Apples`
	`2.Banana`
	`3.Watermelon`

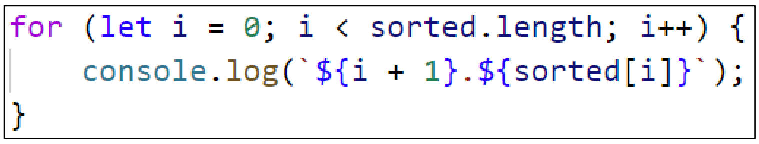
Hints

- The **`sort function`** rearranges the array in ascending order



```
let sorted = input.sort();
```

- Finally, we have to **print our sorted** array. To do that we **loop through the array**



```
for (let i = 0; i < sorted.length; i++) {
    console.log(`${i + 1}.${sorted[i]}`);
}
```

- We use **`i + 1`**, because we want to **start counting from 1**

8. Array Manipulations

Write a function that manipulates an **array of numbers**.

- **`Add {number}:`** add a number to the **end** of the array
- **`Remove {number}:`** remove **all occurrences** of a particular **number** from the array
- **`RemoveAt {index}:`** removes number at a **given index**
- **`Insert {number} {index}:`** inserts a number at a **given index**

Note: All the indices will be valid!

The **input** comes as an **array of strings**. The first element will be a string containing the **array to manipulate**. Every other **command** you receive will also be a string.

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

Example

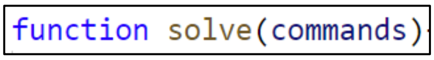
Input	Output

`['4 19 2 53 6 43',`
`'Add 3',`
`'Remove 2',`
`'RemoveAt 1',`
`'Insert 8 3']`
	`4 53 6 8 43 3`

`['6 12 2 65 6 42',`
`'Add 8',`
`'Remove 12',`
`'RemoveAt 3',`
`'Insert 6 2']`
	`6 2 6 65 42 8`

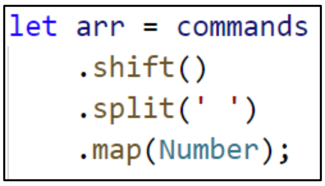
Hints

First, we receive the whole input:



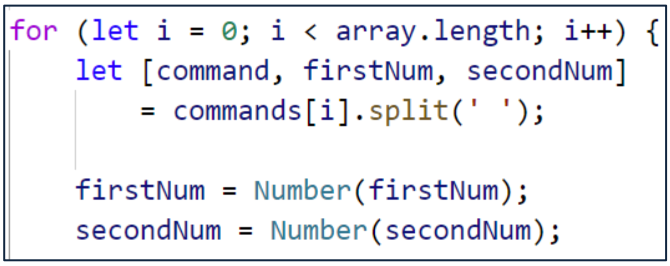
```
function solve(commands)
```

- After that we take the **first** element from the commands and **convert** it to an **array of numbers**:



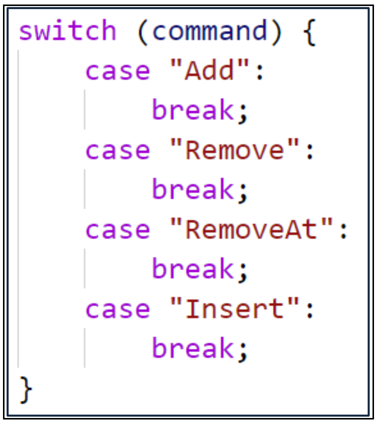
```
let arr = commands
    .shift()
    .split(' ')
    .map(Number);
```

- Then we loop through the commands array, obtain each element from the command, and cast both numbers. This event is called destructuring:



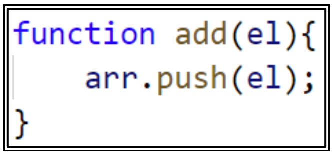
```
for (let i = 0; i < array.length; i++) {
    let [command, firstNum, secondNum]
        = commands[i].split(' ');

    firstNum = Number(firstNum);
    secondNum = Number(secondNum);
```

- We check if the command is equal to one of the given: "**Add**", "**Remove**", etc.



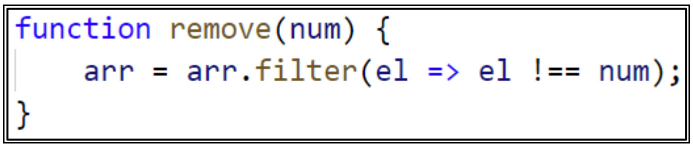
```
switch (command) {
    case "Add":
        break;
    case "Remove":
        break;
    case "RemoveAt":
        break;
    case "Insert":
        break;
}
```

- To add an element at the end, use **`push()`**



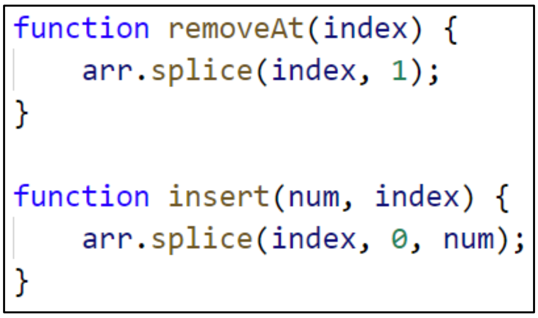
```
function add(el){
    arr.push(el);
}
```

- To remove **all occurrences** of a particular element from the array, you can use **`filter()`**



```
function remove(num) {
    arr = arr.filter(el => el !== num);
}
```

- To remove or insert at an index, you can use **`splice()`**



```
function removeAt(index) {
    arr.splice(index, 1);
}

function insert(num, index) {
    arr.splice(index, 0, num);
}
```

Note: Removing elements with **`splice()`** receives two parameters:

- Start Index
- Count of elements you want to remove

Note: Inserting elements with **`splice()`** receives three parameters:

- Start Index
- Count of elements to remove – if none enter 0
- Elements to insert at that position