Exercise: Function Context

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/1855/Exercise-Function-Context.

1. Company

```
class Company {
    // TODO: implement this class...
}
```

Your Task

Write a Company Class, Which Supports the Described Functionality Below.

Functionality

Constructor()

Should have these **1** property:

- **departments** - empty array

AddEmployee({username}, {Salary}, {Position}, {Department})

This function should add a new employee to the department with the given name.

- If one of the passed parameters is empty string (""), undefined or null, this function should throw an error with the following message:

  "Invalid input!"

- If salary is less than 0, this function should throw an error with the following message:

  " Invalid input!"

- If the new employee is hired successfully, you should add him into the departments array and return the following message:

  " New employee is hired. Name: {name}. Position: {position}"

bestDepartment()

This **function** should print the department with the highest average salary and its employees sorted by their salary by descending and by name in the following format:

"Best department is: {best department's name}
Average salary: {best department's average salary}
{employee1} {salary} {position}
{employee2} {salary} {position}
{employee3} {salary} {position}
. . ."

Submission

Submit only your **Company class.**

Examples

This is an example how the code is **intended to be used**:

Sample code usage

`let c = new Company();`
`c.addEmployee("Stanimir", 2000, "engineer", "Construction");`
`c.addEmployee("Pesho", 1500, "electrical engineer", "Construction");`
`c.addEmployee("Slavi", 500, "dyer", "Construction");`
`c.addEmployee("Stan", 2000, "architect", "Construction");`
`c.addEmployee("Stanimir", 1200, "digital marketing manager", "Marketing");`
`c.addEmployee("Pesho", 1000, "graphical designer", "Marketing");`
`c.addEmployee("Gosho", 1350, "HR", "Human resources");`
`console.log(c.bestDepartment());`

Corresponding output
Best Department is: Construction **Average salary: 1500.00** **Stan 2000 architect** **Stanimir 2000 engineer** **Pesho 1500 electrical engineer** **Slavi 500 dyer**

2. Fibonacci

Write a JS function that when called, returns the next Fibonacci number, starting at 0, 1. Use a **closure** to keep the current number.

Input

There will be no input.

Output

The **output** must be a Fibonacci number and must be **returned** from the function.

Examples

Sample exectuion

`let fib = getFibonator();`
`console.log(fib()); // 1`
`console.log(fib()); // 1`
`console.log(fib()); // 2`
`console.log(fib()); // 3`

```
console.log(fib()); // 5
console.log(fib()); // 8
console.log(fib()); // 13
```

3. HEX

```
class Hex {
    // TODO: implement this class...
}
```

Your Task

Write a Hex Class, Which Supports the Described Functionality Below.

Functionality

Constructor({value})

Should have these **1** property:

- **value** - number

ValueOf()

This Function Should Return the Value Property of the Hex Class.

ToString()

This **function** will show its hexidecimal value starting with "0x"

Plus({number})

This function should add a number or Hex object and return a new Hex object.

Minus({number})

This function should subtract a number or Hex object and return a new Hex object.

Parse({string})

Create a `parse` class method that can **parse** Hexidecimal numbers and convert them to standard decimal numbers.

Submission

Submit only your **Hex class.**

Examples

This is an example how the code is **intended to be used**:

Sample exectuion
`let FF = new Hex(255);` `console.log(FF.toString());`

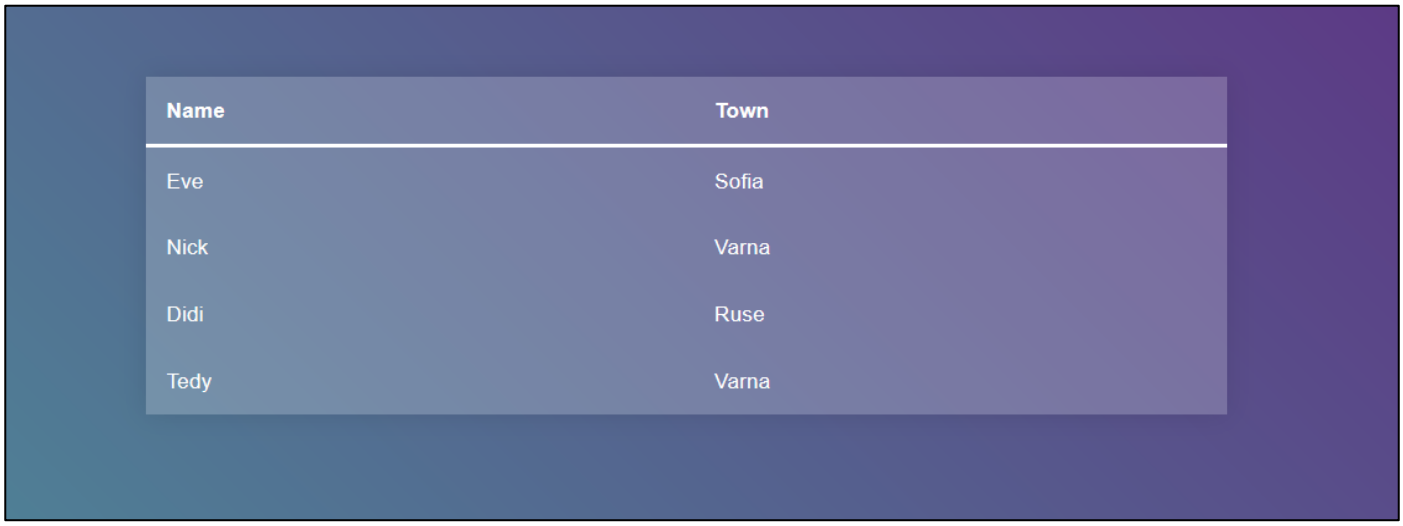
```
FF.valueOf() + 1 == 256;
let a = new Hex(10);
let b = new Hex(5);
console.log(a.plus(b).toString());
console.log(a.plus(b).toString()==='0xF');
```

```
0xFF
0xF
true
```

4. Table

Use the Given Skeleton to Solve This Problem.

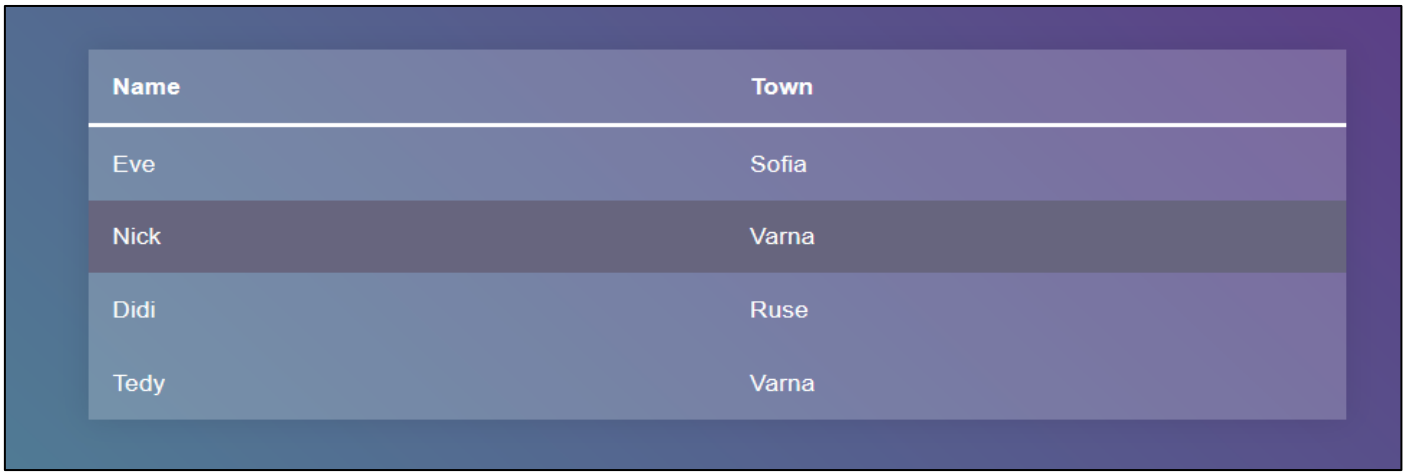
Note: You Have NO Permission to Change Directly the Given HTML (Index.html File).



Your Task

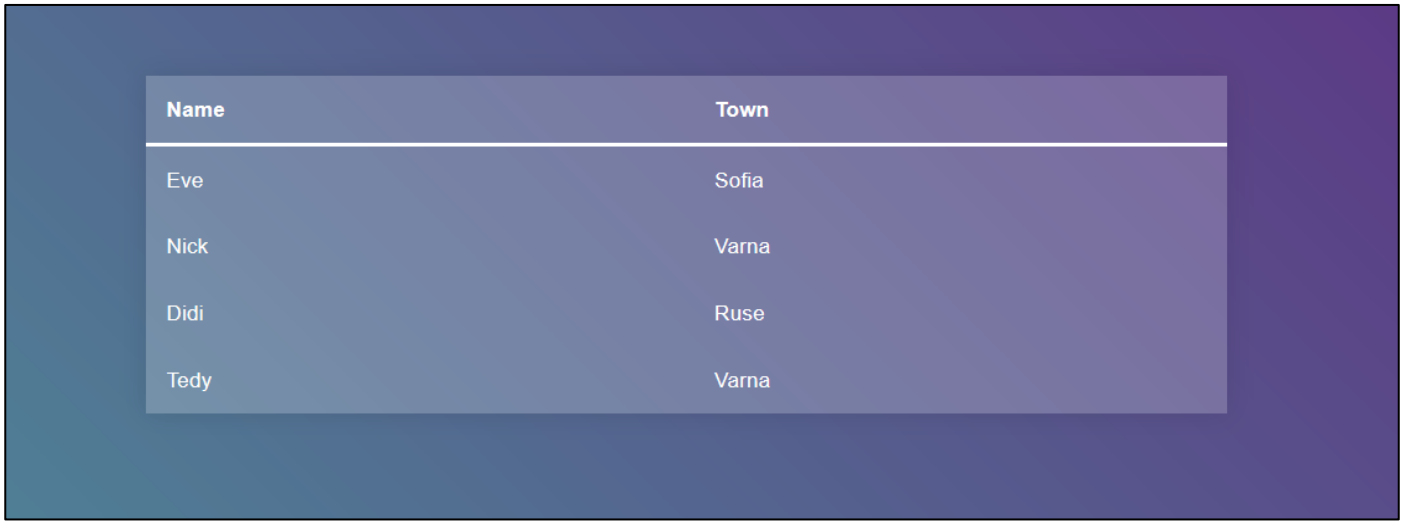
Write the missing JavaScript code to make the **Table** application work as expected.

When you **click** on an item from the table you should change its **background color** to "#413f5e".



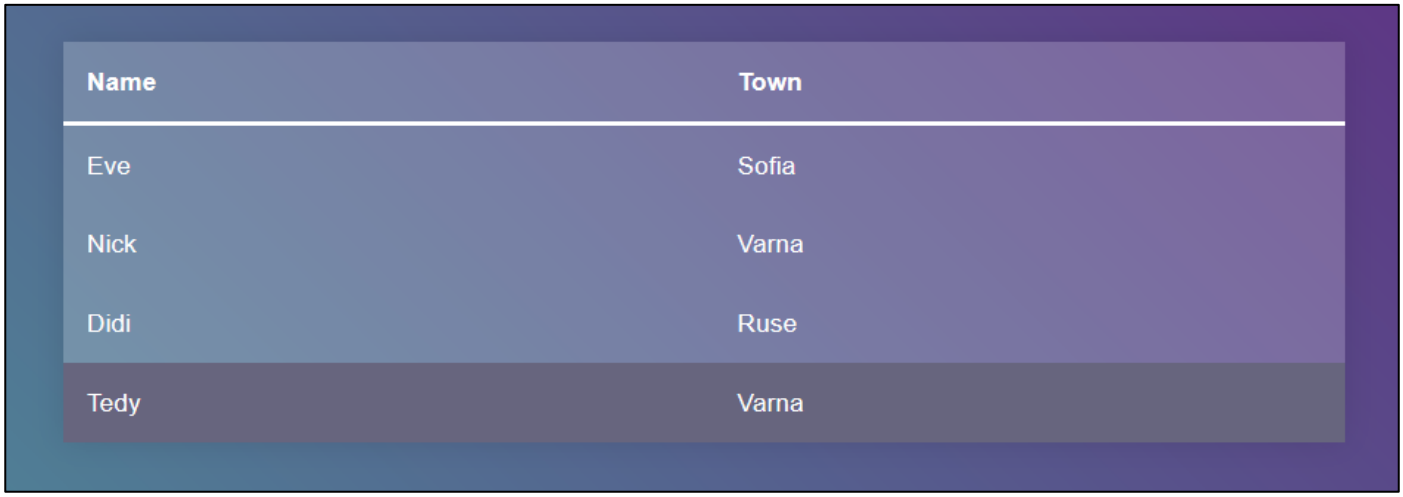
Name	Town
Eve	Sofia
Nick	Varna
Didi	Ruse
Tedy	Varna

If the item you've clicked **already has** a **style** property you should **remove** it.



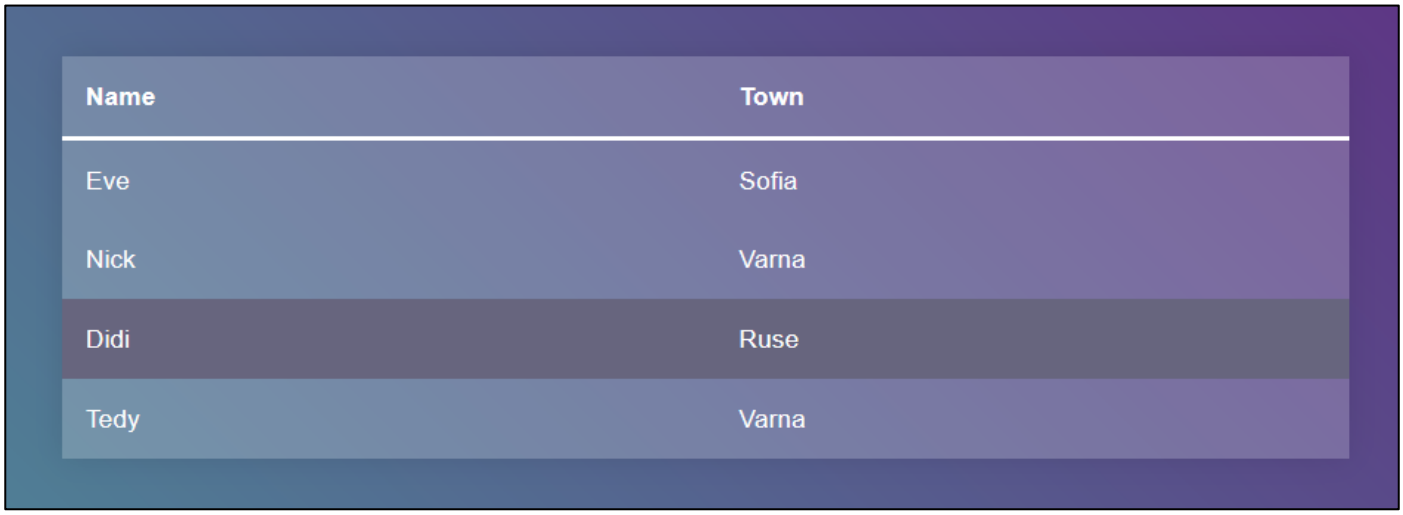
Name	Town
Eve	Sofia
Nick	Varna
Didi	Ruse
Tedy	Varna

If one of the elements is **clicked** and you click **another** the first element's style property should be **removed** and you should **change** the **background color** of the **newly clicked** item.



Name	Town
Eve	Sofia
Nick	Varna
Didi	Ruse
Tedy	Varna

```
<table class="minimalistBlack">
  <thead> ... </thead>
  <tbody> event
    <tr> ... </tr>
    <tr> ... </tr>
    <tr> ... </tr>
    <tr style="background-color: rgb(65, 63, 94);"> ... </tr>
  </tbody>
</table>
```




```
<table class="minimalistBlack">
  <thead> ... </thead>
  <tbody> event
    <tr> ... </tr>
    <tr> ... </tr>
    <tr style="background-color: rgb(65, 63, 94);"> ... </tr>
    <tr> ... </tr>
  </tbody>
</table>
```

Note: You **shouldn't** change the head of the table, even if it is clicked.

5. Next Article

Write a JS program that sequentially **displays articles** on a web page when the user **clicks** a button. You will receive an **array of strings** that will initialize the program. You need to return a function that keeps the initial array in its closure and every time it's called, it takes the first element from the array and displays it on the web page, inside a div with ID "**content**". If there are no more elements left, your function should do nothing.

HTML and JavaScript Code

You are given the following **HTML** code:

article.html

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <title>Next Article</title>
  <style>div{width:600px; text-align: center; font-size: 1.5em} article{border: 2px
solid blue; padding: 2em; margin: 1em}</style>
```

```
  <script src="https://code.jquery.com/jquery-3.1.1.min.js" integrity="sha256-
hVVnYaiADRTO2PzUGmuLJr8BLUSjGIZsDYGmIJLv2b8=" crossorigin="anonymous"></script>
  <script src="next-article.js"></script>
</head>
<body>
<div id="content"></div>
<div><button onclick="showNext()">Show Next Article</button></div>
<script>
  let articles =[
    "Cats are the most popular pet in the United States: There are 88 million pet
cats and 74 million dogs.",
    "A group of cats is called a clowder.",
    "Cats have over 20 muscles that control their ears.",
    "A cat has been mayor of Talkeetna, Alaska, for 15 years. His name is Stubbs.",
    "The world's largest cat measured 48.5 inches long."
  ];
  let showNext = getArticleGenerator(articles);
</script>
</body>
</html>
```

It comes together with the following **JavaScript** code:

next-article.js

```
function getArticleGenerator(articles) {
    // TODO
}
```

Your function will be called automatically, there is **no need** to attach any event listeners.

Input

You will receive and **array** of strings.

Output

Return a **function** that displays the array elements on the web page.

Examples