# Exercise: DOM Introduction

Problems for in-class lab for the ["JS Advanced" Course @SoftUni"](https://softuni.bg/trainings/3588/js-advanced-january-2022). Submit your solutions in the SoftUni judge system at <https://judge.softuni.bg/Contests/2761/DOM-Introduction-Exercise>

**Environment Specifics**

Please, be aware that every JS environment may **behave differently** when executing code. Certain things that work in the browser are not supported in **Node.js**, which is the environment used by **Judge**.

The following actions are **NOT** supported:

* **.forEach()** with **NodeList** (returned by **querySelector()** and **querySelectorAll()**)
* **.forEach()** with **HTMLCollection** (returned by **getElementsByClassName()** and **element.children**)
* Using the **spread-operator** (**...**) to convert a **NodeList** into an array
* **append()** in Judge (use only **appendChild()**)
* **prepend()**
* **replaceWith()**
* **replaceAll()**
* **closest()**
* **replaceChildren()**
* Always turn the collection into a **JS array** (forEach, forOf, et.)

If you want to perform these operations, you may use **Array.from()** to first convert the collection into an array.

## Subtraction

An HTML page holds **two text fields** with ids "**firstNumber**" and "**secondNumber**". Write a function to **subtract** the values from these text fields and display the result in the **div** named "**result**".

**HTML and JavaScript Code**

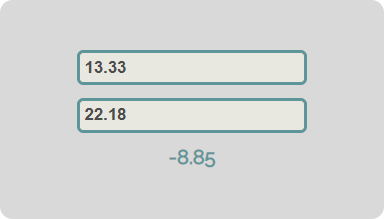
Implement the above to provide the following functionality:

* + Your function should take the values of "**firstNumber**" and "**secondNumber**", **convert** them to numbers,

**subtract** the first number from the second one and then append the result to the **<div>** with **id="result"**.

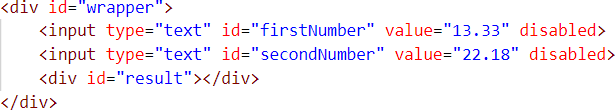
* + Your function should be able to work with **any 2 numbers** in the inputs, not only the ones given in the example.

**Example**



**Hints**

We see that the **textboxes** and the **div** have **id** attributes on them.



We can take the numbers directly from the input field by using the **getElementById()** function. After we have taken the elements from the DOM, it’s time to do the actual work. We get the values of the two **textboxes**, as one would expect, the type is **text**. To get a **number**, we need to use a function to **parse them**.



All that’s left for you to do is append the result to the **div**.

## Pascal or Camel Case

An **HTML** file is given and your task is to write a function that takes **two string parameters** as an input and transforms the **first parameter** to the type required by the **second parameter**.

* + **The first parameter** will be the text that you need to modify depending on the second parameter. The words in it will **always** be **separated by space**.
  + **The second parameter** will be either "**Camel Case**" or "**Pascal Case**". In case of different input, your

**output** should be **"Error!"**

When the button is clicked the function should convert the first string to either of the cases. The **output** should consist of only **one word** - the string you have modified. Once your **output** is done, you should set it as HTML to the

**<span> element**. For more information, see the examples below:

**Example**

|  |  |
| --- | --- |
| **Input** | **Output** |
| **"this is an example", "Camel Case"** | **thisIsAnExample** |
| **"secOND eXamPLE", "Pascal Case"** | **SecondExample** |
| **"Invalid Input", "Another Case"** | **Error!** |

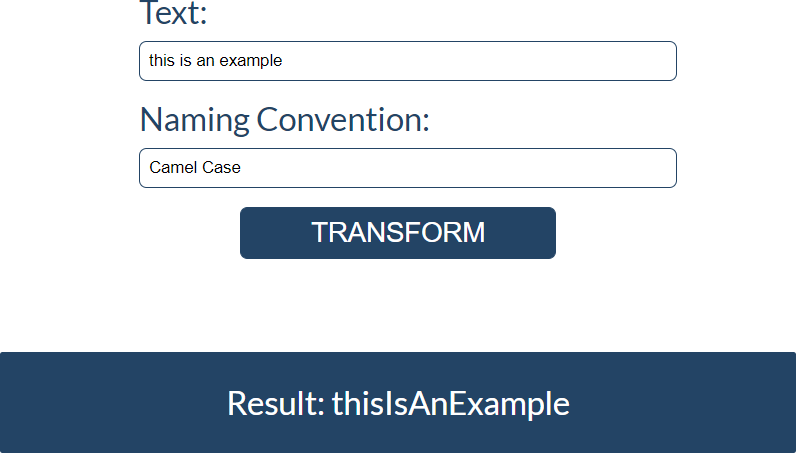
**Hints**

First, take the two values from the input fields:



Then, write a function that generates the result:

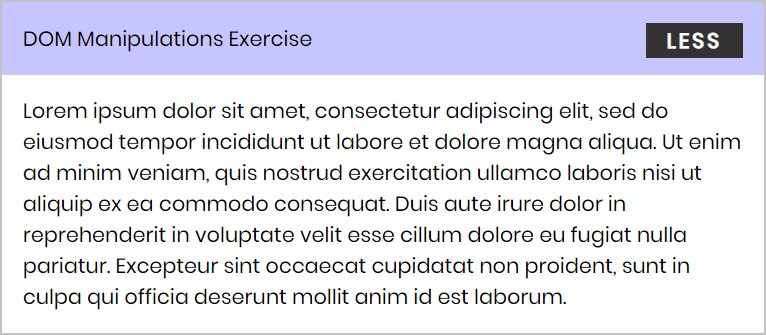
* + First, convert all the **letters to lowercase**
  + Depending on the command, make the input either **Pascal Case** or **Camel Case**



## Accordion

An **HTML** file is given and your task is to show **more**/**less** information. By clicking the **[More] button**, it should **reveal** the content of a **hidden** div and **changes** the text of the button to **[Less]**. When the same link is clicked **again** (now reading **Less**), **hide** the div and **change** the text of the link to **More**. Link action should be **toggleable** (you should be able to click the button an infinite amount of times).

**Example**



**Hints**

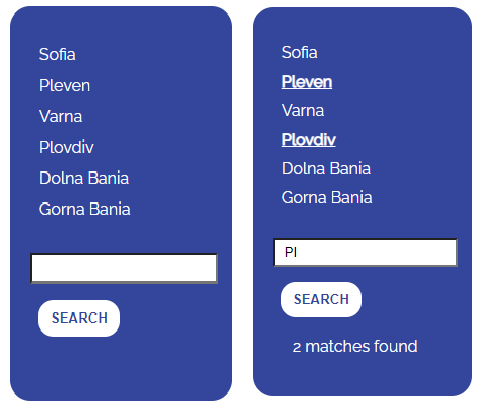
* + To **change** the text content of a button, you could use **getElementsByClassName**. However, that returns a **collection** and we need only **one** element from it, so the correct way is to **use getElementsByClassName("button")[0]** as it will return the needed span element.
  + After that, we should change the **display style** of the div with an **id** "**extra**". If the display style is "**none**", we should **change** it to "**block**" and the **opposite**.
  + Along with all of this, we should **change** the text content of the **button** to **[Less]**/[**More]**.

## Search in List

An HTML page holds a **list** of towns, a **search** box, and a **[Search]** button. Implement the **search** function to **bold** and **underline** the items from the list which include the text from the **search** box. Also, print the number of items the current search **matches** in the format **`${matches} matches found`**.

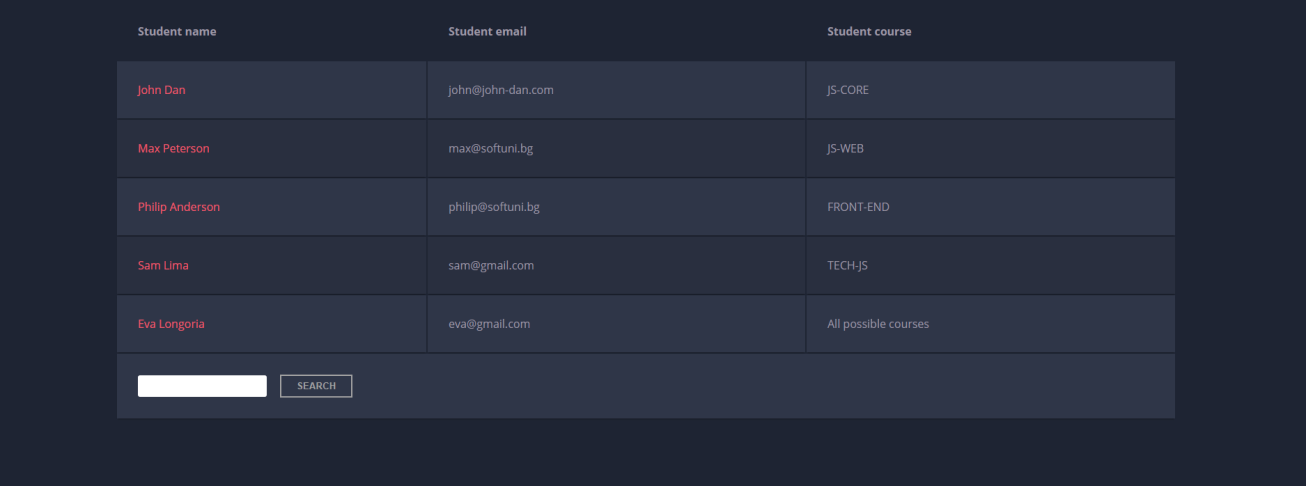
***Note:*** It is necessary to clear the results of the previous search. Write your **JavaScript** code in this file:

|  |
| --- |
| **search.js** |
| **function** *search*() {  *//* ***TODO***  } |

**Screenshots**

## Table - Search Engine

Write a function that **searches** in a **table** by given input.



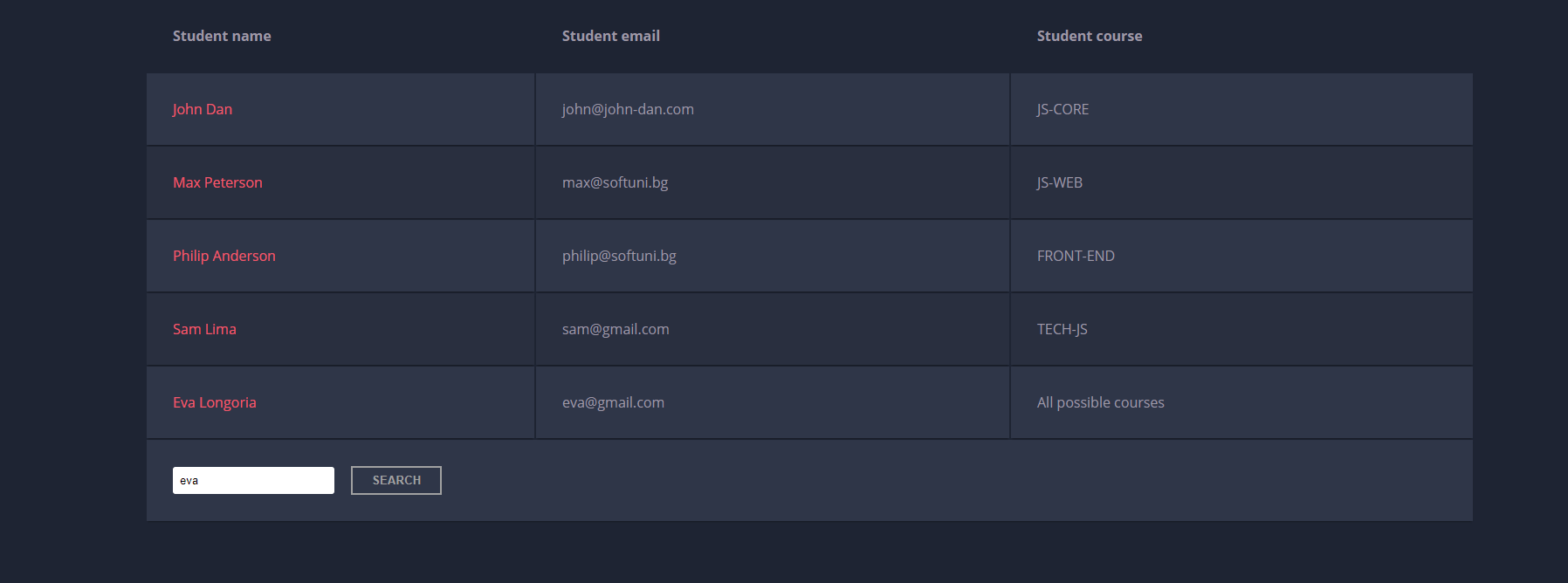
When the "**Search**" **button** is **clicked**, go through all cells in the table except for the first row (Student name, Student email, and Student course) and check if the given input has a match (check for both **full words** and **single letters**).

If any of the rows contain the submitted string, add a **class select** to that row. Note that more than one row may contain the given string.

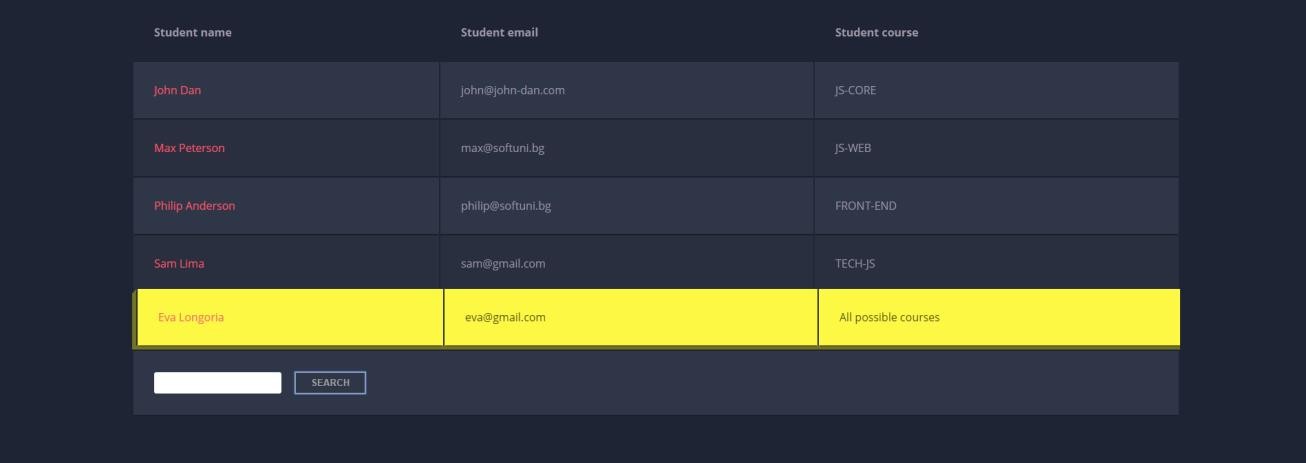
Оtherwise, if there is no match, **nothing should happen**.

**Note:** After every search ("**Search**" button is clicked), **clear the input field** and **remove all already selected classes**

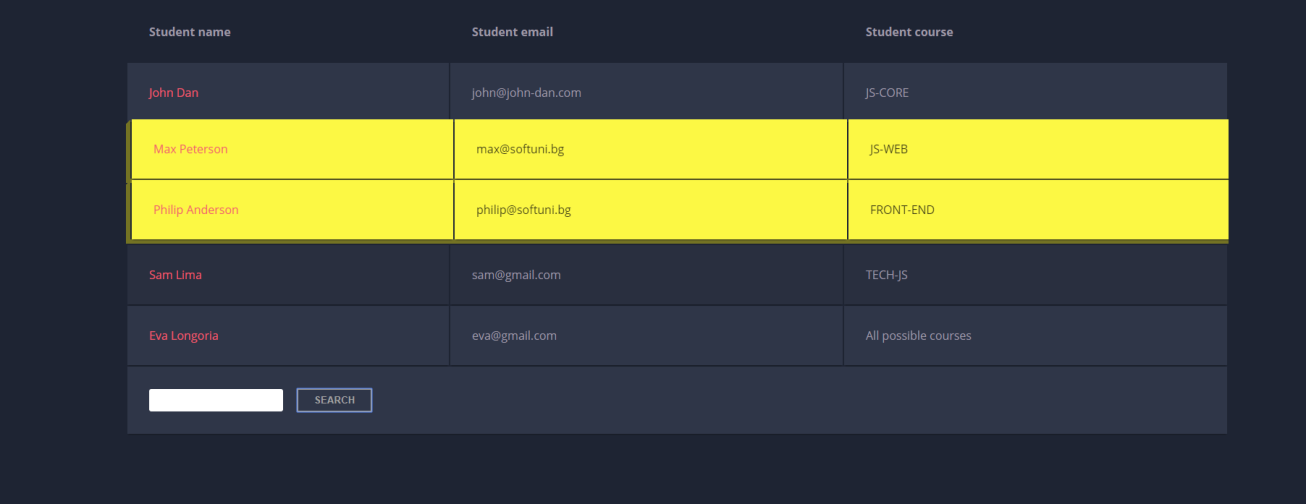
(if any) from the previous search, for the **new search** to contain only the **new result**. For instance, if we try to find **eva:**



The result should be:



If we try to find all students who have email addresses in **softuni** domain, the expected result should be:

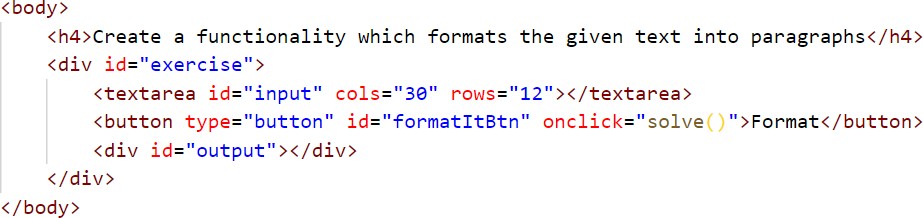


## Format the Text

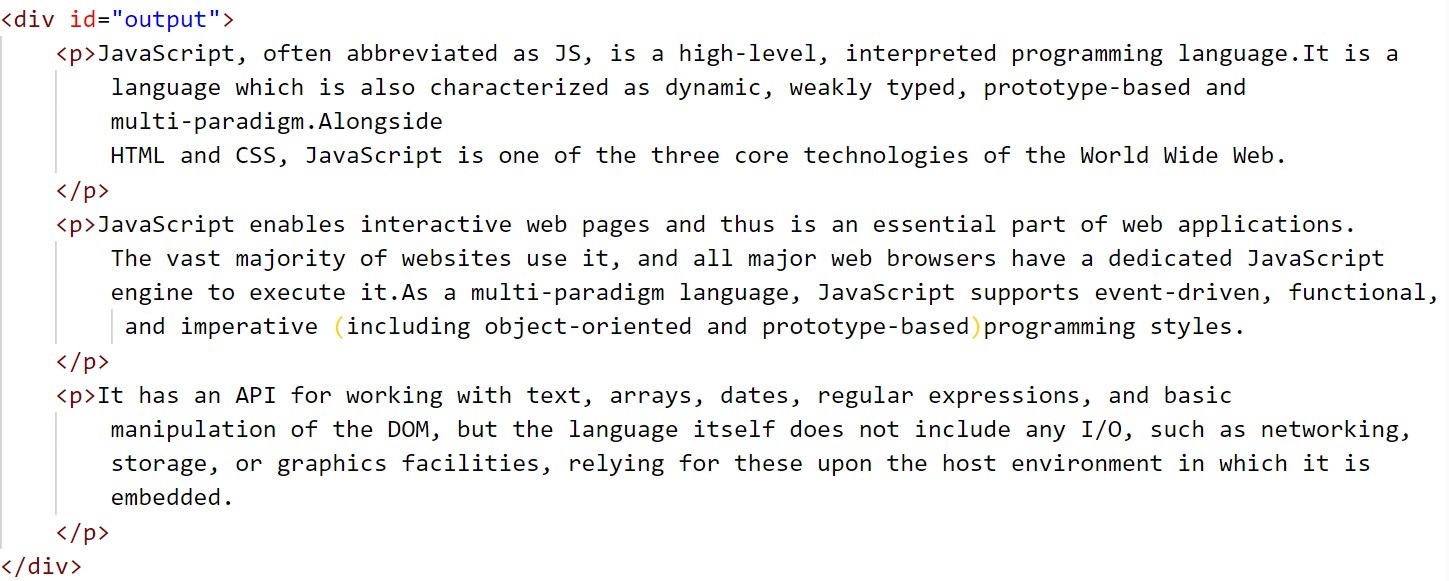
**Create a functionality** that gets a text from **textarea**, formats the given **text** - you need to find out how many

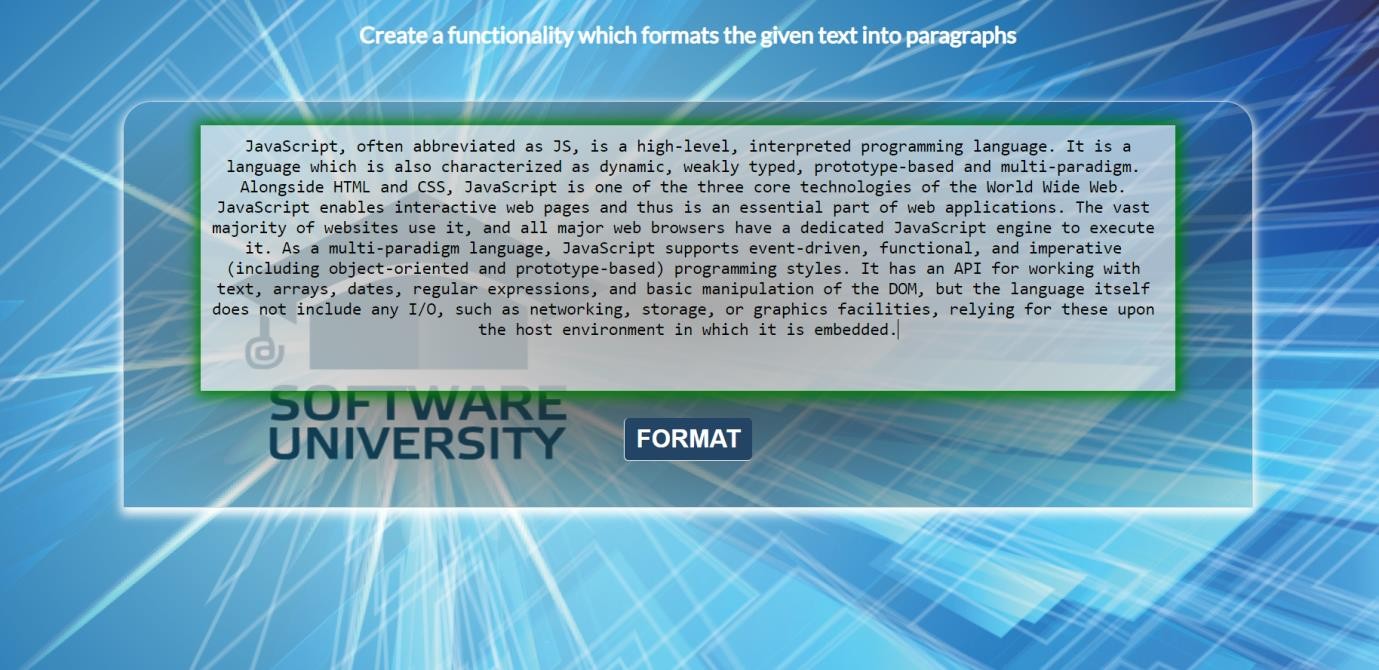
**sentences** there are in the text, simply **split** the whole text by **'.'**

Also, every sentence must have at **least 1 character**.



Generate HTML paragraphs as a string (Use interpolation **string** to create paragraph element: **`<p> {text} </p>`**) and append it to the div with an **id = "output"**.





When the [**Format**] button is **clicked**, get the text inside the **textarea** with an **id**="**input**" and **format it**. The formatting is **done** as **follows:**

* + Create a **new paragraph element** that holds no more than **3 sentences** from the given input**.**

### Hint: Use interpolation string to create paragraph element. (`<p> {text} </p>`)

* + If the given input contains **less** or **3 sentences**, you need to create only 1 paragraph, fill it with these sentences and append this paragraph to the div with an **id=**"**output**".

Otherwise, when you have more than 3 sentences**,** create enough paragraphs to get all sentences from the **textarea.**

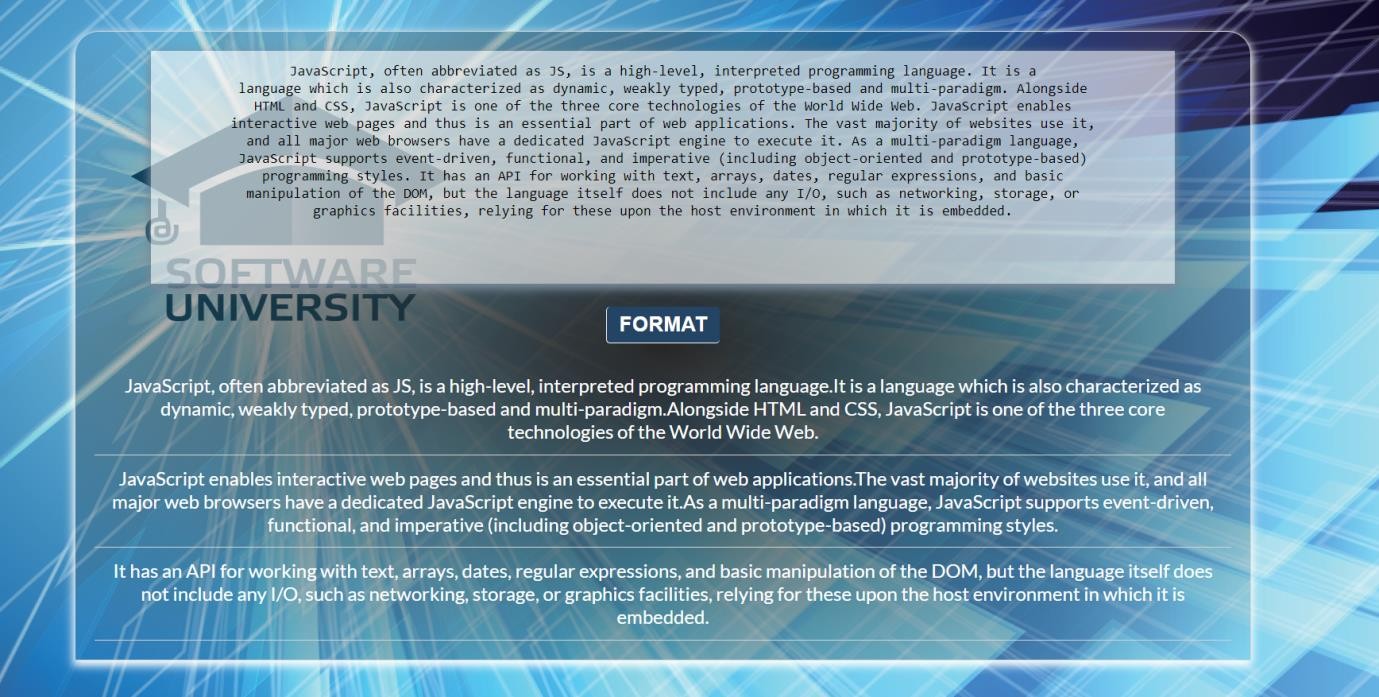
Just remember to **restrict** the **sentences** in **each paragraph to 3.**

**Example:**

* + If the input textarea **contains 2 sentences**, create only **1 paragraph** with these 2 sentences



* + If the input textarea **contains 7 sentences,** create **3 paragraphs**
    - The **first paragraph** must contain **the first 3 sentences**
    - The **second paragraph** must contain **the other three sentences** of the whole text
    - The **third paragraph** will contain **only the last sentence**



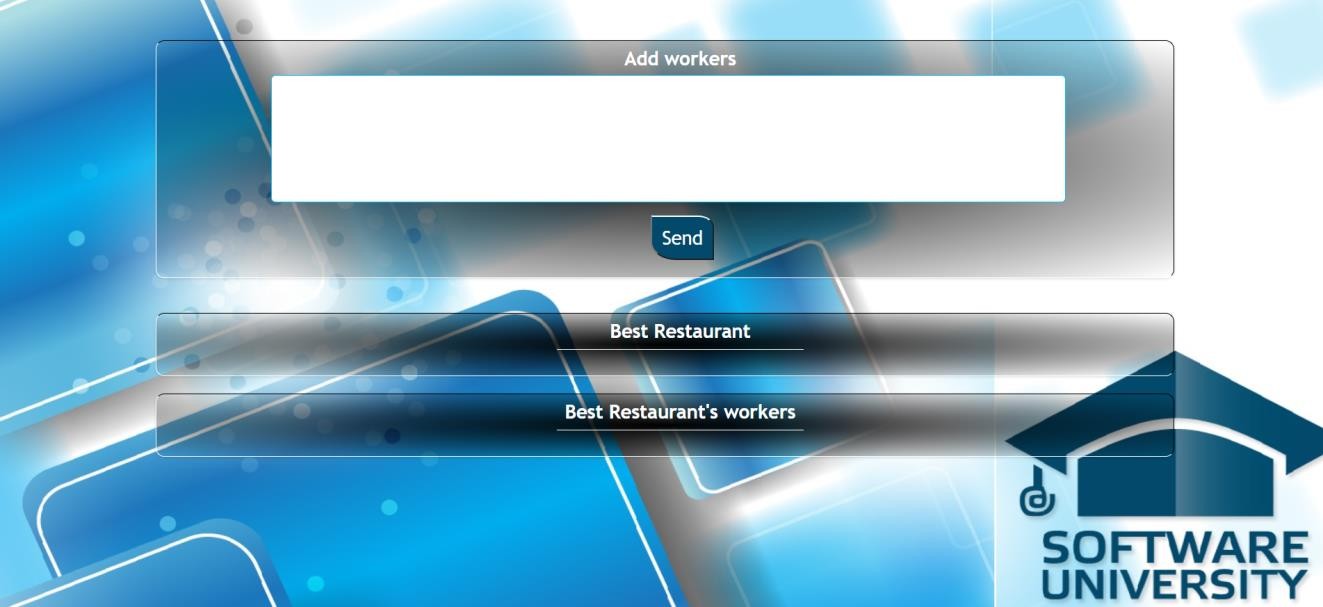
**Output**

|  |  |
| --- | --- |
| **Input** | **Output** |
| JavaScript, often abbreviated as JS, is a high-level, interpreted programming language. It is a language which is also characterized as dynamic, weakly typed, prototype-based and multi-paradigm. | <p>JavaScript, often abbreviated as JS, is a high-level, interpreted programming language. It is a language which is also characterized as dynamic, weakly typed, prototype-based and multi-paradigm.</p> |

|  |  |
| --- | --- |
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# Hell's Kitchen

You will be given an **array of strings**, which represents a **list** of **all** the **restaurants** with their workers.



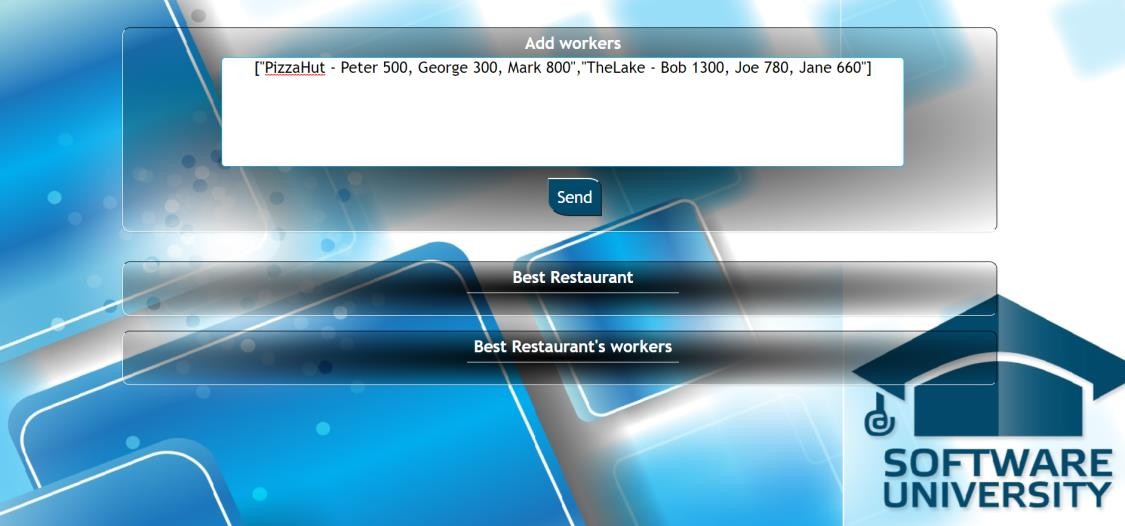
When the [**Send**] button is clicked:

* + Display the **best restaurant** of all the **added restaurants** with its **average salary** and **best salary**.
  + If there is a restaurant in the input array that is added more than once, you need to add new workers to the old ones and **update** the values of the **average salary** and the **best salary**.
  + The best restaurant is the restaurant with the **highest average** salary. If two restaurants have the **same**

average salary the best restaurant is the **first** one added.

* + Display **all** workers in the **best restaurant** with their **salaries**.

The best restaurant's workers should be **sorted** by their **salaries** in **descending** order.

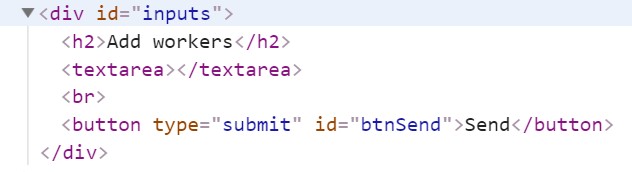


**Input**

The input will be received from the given **textarea** in the form of an **array** of **strings**. Each string represents a

**restaurant** with its **workers**: **["Mikes - Steve 1000, Ivan 200, Paul 800", "Fleet - Maria 850, Janet 650"]**





**Output**

* + The output contains **two strings**

o The first one is **the best restaurant** in the format:

### `Name: {restaurant name} Average Salary: {restaurant avgSalary} Best Salary:

**{restaurant bestSalary}`**

**avgSalary** and **bestSalary** must be formatted to the **second decimal point.**

o The second one is all the workers in that restaurant in the following format:

### `Name: {worker name} With Salary: {worker salary} Name: {worker2 name} With Salary: {worker2 salary} Name: {worker3 name} With Salary: {worker3 salary}…`

Output strings must be set like **text content** in the following elements:



**Constraints**

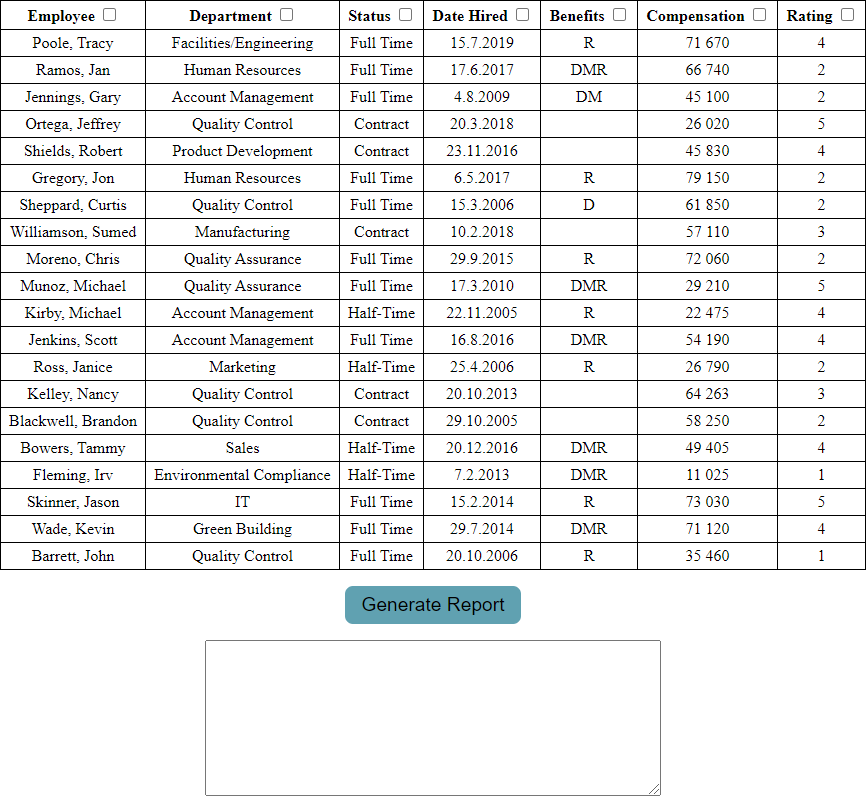
* + The workers will be always **unique**

**Examples**

|  |  |  |
| --- | --- | --- |
| **Input** | **Output** | **Comment** |
| **["PizzaHut - Peter 500, George 300, Mark**  **800",**  **"TheLake - Bob 1300, Joe 780, Jane 660"]** | **Name: TheLake Average Salary:**  **913.33 Best Salary: 1300.00 Name: Bob With Salary: 1300 Name: Joe With Salary: 780 Name: Jane With Salary: 660** | **The added restaurants are: TheLake and PizzaHut.**  **TheLake has average salary: (1300+780+660)/3= 913.33,**  **and PizzaHub has average salary: (500+300+800)/2=533.33.**  **So the best restaurant is TheLake.** |
| **["Mikes - Steve 1000, Ivan 200, Paul 800","Fleet - Maria 850, Janet 650"]** | **Name: Fleet Average Salary:**  **750.00 Best Salary: 850.00 Name: Maria With Salary: 850 Name: Janet With Salary: 650** |  |

1. **Generate Report**

You will be given a **web page**, containing a **table** and **output area**.

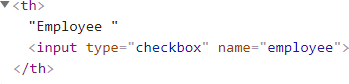


When the **"Generate Report"** button is **pressed**:

* + You must generate a **JSON report** from the data inside the table, by **only taking the columns**, which are

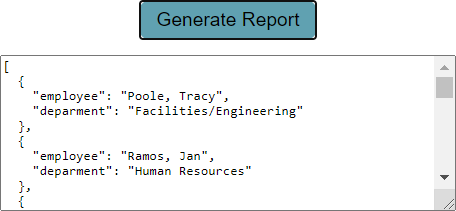
### selected.

Each table header has a **checkbox**. If the checkbox is **checked**, then the data from this column must be included in the **report**. **Unchecked** columns must be **omitted**.



For **every row** (excluding the header):

* + Create an **object** with **properties for each** of its columns.
  + The name of each property is the name attribute of the column’s header, and the value is the text content of the cell.
  + Store the result in an array and output it as a JSON string display it inside the **<textarea>** with **id** "**output**". See the example for details.

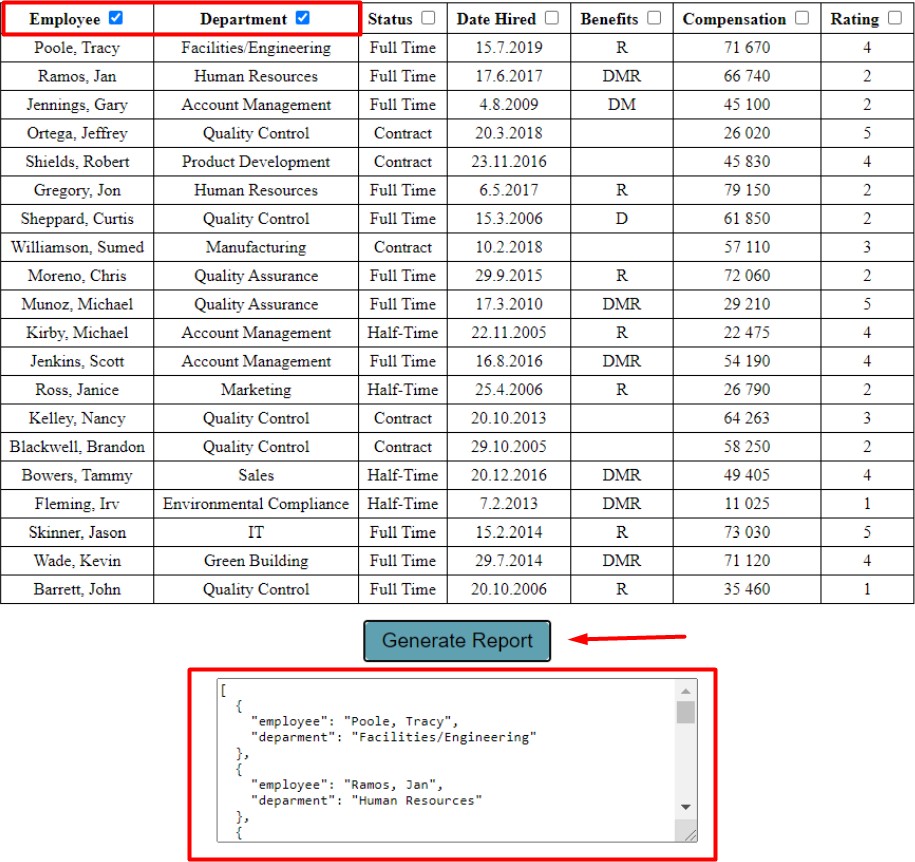


**Input/Output**

There will be input, your program must execute based on the page content. The output must be a **JSON string**, displayed in the **<textarea>** with **id** "**output**".

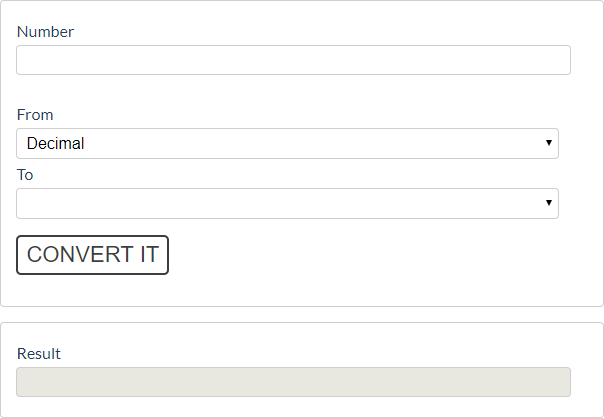


**Example**



## \*Number Convertor

Write a function that **converts** a **decimal number** to **binary** and **hexadecimal**.



The given number will always be in **decimal format.** The "**From**" select menu will only have a **Decimal** option, but the "**To"** select menu will have **two options**: **Binary** and **Hexadecimal**.

This means that our program should have the functionality to **convert decimal** to **binary** and **decimal** to

**hexadecimal**. When you convert to **hexadecimal** it must be **upper case**.

Note that the "**To" select menu** by default is empty. You have to insert the two options (**'Binary'** and

**'Hexadecimal'**) inside before continuing. Also, they should have **values** ('**binary**' and '**hexadecimal**').

* When the [**Convert it**] button is **clicked**, the expected result should appear in the [**Result**] input field.

