# DOM and Events – More Exercises

Problems for in-class lab for the ["JS Front-End" course @ SoftUni](https://softuni.bg/trainings/3976/js-front-end-february-2023). Submit your solutions in the SoftUni judge system at <https://judge.softuni.org/Contests/3796/DOM-and-Events-More-Exercises>

**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.

## Edit Element

Create function **edit()** that takes **three** parameters.

### Input/Output

**The first** parameter is a **reference** to an **HTML** element, the other two parameters are string–**match** and **replacer.**

You have to **replace** all occurrences of the **match** inside the **text content** of the given element with a **replacer.**

### Examples

Text

Description automatically generated with medium confidence

**↓**

A picture containing text

Description automatically generated

## Extract Parenthesis

Write a JS function that when **executed**, extracts all parenthesized text from a target paragraph by given element ID. The result is a string, joined by "; " (semicolon, space).

### Input

Your function will receive a **string parameter**, representing the target element ID, from which text must be extracted. The text should be extracted from the DOM.

### Output

**Return a string** with all matched text, separated by "; " (semicolon, space).

### Examples

Text

Description automatically generated

|  |
| --- |
| **Sample call** |
| **let text = extract("content");** |
| **Result (stored in variable text)** |
| **Bulgaria; Kazanlak; Rosa demascena Mill** |

## Mouse Gradient

Write a program that **detects** and **displays** how far along a gradient the user has **moved** their **mouse**. The result should be **rounded down** and displayed as a **percentage** inside the **<div>** with id "**result**".

Submit **only** the **attachGradientEvents()** function in Judge.

### Input/Output

There will be no input/output, your program should instead **modify** the DOM of the given HTML document.

### Examples

Screenshot_2.png

## Dynamic Validation

Write a **function** that **dynamically validates** an **email** input field when it is **changed**. If the input is **invalid**, apply the class "**error**". Do **not** validate on every keystroke, as it is annoying for the user, consider only **change** events.

A valid email is considered to be in the format: **<name>@<domain>.<extension>**

Only **lowercase Latin characters** are allowed for any of the parts of the email. If the input is valid, **clear** the style. Submit **only** the **validate()** function in Judge.

### Input/Output

There will be no input/output, your program should instead **modify** the DOM of the given HTML document.

### Example

A picture containing graphical user interface

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Description automatically generated with medium confidence

## Shopping Cart

You will be given some products that you should be able to add to your cart. Each product will have a name**,** picture,and price.

When the **"Add"** button is clicked, append the current product to the textarea in the following format: **"Added {name} for {money} to the cart.\n"**. The price must be fixed to the second digit.

When the button **"Checkout"** is clicked, calculate the **total money** that you need to pay for the products that are currently in your cart. Append the result to the textarea in the following format:

**"You bought {list} for {totalPrice}."**

The list should contain only the **unique products**, separated by **", "**. The total price should be rounded to the second decimal point.

Also, after clicking over "**Checkout**" and every from above is done you should **disable** **all** **buttons**. (You **can't** add products or checkout again if once the checkout button is clicked).

### Examples

A picture containing calendar

Description automatically generated

## 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!**"**

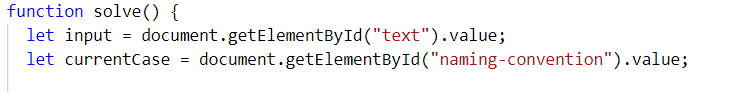
When the button is clicked the function should convert the first string to either of the cases. The **output** should consist of only **one word** - the string you have modified. Once your **output** is done, you should set it as HTML to the **<span>** **element**. For more information, see the examples 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**

Graphical user interface, application

Description automatically generated

## Search in List

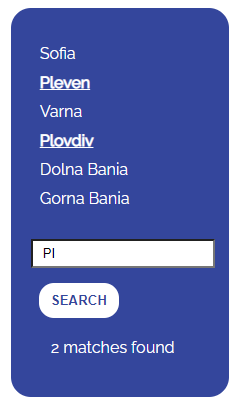
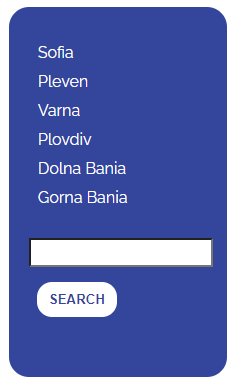
An HTML page holds a **list** of towns, a **search** box, and a [Search] button. Implement the search function to **bold** and **underline** the items from the list which include the text from the **search** box. Also, print the number of items the current search **matches** in the format **`${matches}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



## Hell's Kitchen

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

Graphical user interface

Description automatically generated

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.

Graphical user interface

Description automatically generated

### 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"]**

Graphical user interface, text, application

Description automatically generated

Graphical user interface

Description automatically generated

### Output

* The output contains **two strings**
  + 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.**

* + 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:

Name: Bob With Salary: 1300, Name: Joe With Salary: 780, Name: Jane With Salary: 660'

Name: Bob With Salary: 1300 Name: Joe With Salary: 780 Name: Jane With Salary: 660'

'Name: Bob With Salary: 1300, Name: Joe With Salary: 780, Name: Jane With Salary: 660' to equal 'Name: Bob With Salary: 1300 Name: Joe With Salary: 780 Name: Jane With Salary: 660'Text

Description automatically generated

### Constraints

* The workers will be always **unique**

### Examples

|  |  |  |
| --- | --- | --- |
| ****Input**** | ****Output**** | ****Comment**** |
| **["PizzaHut - Peter 500, George 300, Mark 800",**  **"1111 - Bob 1300, Joe 780, Jane 660",**  **"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** |  |

## Generate Report

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

Table

Description automatically generated

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**.

Logo

Description automatically generated with medium confidence

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.

Graphical user interface, text, application

Description automatically generated

### 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"**.

A picture containing graphical user interface

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### Example

Graphical user interface, application, table

Description automatically generated

## Number Convertor

Write a functionthat **converts** a **decimal** **number** to **binary** and **hexadecimal**.

Graphical user interface, application

Description automatically generated

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.

Graphical user interface, text, application, email

Description automatically generated

Graphical user interface, text, application, email

Description automatically generated

## Time Converter

Create a program that **converts** different time units. Your task is to add a **click** event listener to **all** [**CONVERT**] **buttons**. When a button is **clicked**, read the **corresponding** input field, **convert** the value to the **three other** time units and **display** it in the input fields.

### Example

Chart, funnel chart

Description automatically generated

Chart, funnel chart

Description automatically generated

One day is equal to 24 hours/1440 minutes/86400 seconds. Whichever button we **click,** the input fields should **change** depending on the added value on the left. (For example, if we write 48 hours and click convert the days, the field value should change to 2).

## Encode and Decode Messages

In this problem, you should **create a JS functionality** that **encodes and decodes some messages which travel to**

**the network.**

Graphical user interface, application, Teams

Description automatically generated

This program should contain **two functionalities**.

The first one is to **encode the given message** and **send it** to the **receiver**.

The second one is to **decode the received message** and **read it (display it)**.

When the [**Encode and send it**] **button** is clicked, you should get the given message from the first **textarea**. When you get the current message, you should encode it as follows:

* **Change** the **ASCII CODE** on **every single character** in that message when you **add 1** to the current **ASCII NUMBER**, that represents the current character in that message
* **Clear** the **sender** **textarea** and **add** the encoded message to the **receiver textarea**

Graphical user interface, application, Teams

Description automatically generated

After clicking the [**Encode and send it**] **button** the result should be:

Graphical user interface, text, application, email

Description automatically generated

After that, when the [**Decode and read it**] **button** is clicked. You need to get the **encoded message** from **the receiver textarea** and do the **opposite logic** from encoding:

* **Subtract 1** from the current **ASCII NUMBER**, that represents the current character in that message
* Replace the **encoded message** with the already **decoded message** in the receiver **textarea**, to make it readable

Graphical user interface, text, application, email, Teams

Description automatically generated

xfmdpnfxfmdpnf!gsjfoe

Jwbzmpygneqog"htkgpf

## Distance Converter

Your task is to convert from **one** distance unit to **another** by adding a **click** event listener to a button. When it is clicked, **read** the value from the input field and **get** the **selected** option from the **input** and **output** units dropdowns. Then **calculate** and **display** the converted value in the **disabled** output field.

### Example

Graphical user interface

Description automatically generated

### Hints

* Multiply the incoming distance by the following conversion rates to convert to meter
* Divide to convert from meters to the required output unit
* To see which option is selected, read the properties of its parent: **value** gives you the value of the selected option (as displayed in the HTML), **selectedIndex** gives you the 0-based index of the selected option. For example, if miles are selected, **inputUnits.value** is "**mi**", **inputUnits.selectedIndex** is **4**. Option text is irrelevant
* Use the following table information to do that:

|  |  |
| --- | --- |
| **1 km** | **1000 m** |
| **1 m** | **1 m** |
| **1 cm** | **0.01 m** |
| **1 mm** | **0.001 m** |
| **1 mi** | **1609.34 m** |
| **1 yrd** | **0.9144 m** |
| **1 ft** | **0.3048 m** |
| **1 in** | **0.0254 m** |

## Sudomu

Write a function that implements **SUDOMU** (**Sudoku inside the DOM**).

Table

Description automatically generated

The rules are simple and they are **the same** as the **typical sudoku game** (for more information, click [here](https://sudoku.com/how-to-play/sudoku-rules-for-complete%20beginners/)).

If the table is filled with the **right numbers**, and the ["Quick Check"] button is **clicked**, the expected result should

be:  
Table

Description automatically generated

The table borer should be changed to: "2px solid green**".** The text content of the paragraph

inside the div with an **id** "check" must be "You solve it! Congratulations!"

The text color of that paragraph must be **green.**

Otherwise, when the filled table **does not solve** **the sudomu,** the result should be:

Table

Description automatically generated

The table border should be changed to: "2px solid red". The text content of the paragraphinside the div

with an **id** "check" must be: "NOP! You are not done yet..."

The text color of thatparagraph must be **red!**

The["Clear"]button **clears the whole** **SUDOMU (removes all numbers)** and the **paragraph**

**which contains the messages. It also removes the table border.**

Table

Description automatically generated

## JavaScript Quizz

Write a function that has the functionality of a quiz.

Graphical user interface, application

Description automatically generated

Three sections contain **one question** **and 2 possible answers.**

**The right answer is only one!**

When one of the **list elements is clicked,** the next section **must appear (if any…)**.

After all three questions have been answered, the results ul must **appear,** (Use **'none'** and **'block**' to hide and show the question sections), and the **results** must be added in the **h1**.

If all questions are answered correctly, you should print the following message:   
"You are recognized as top JavaScript fan!"

Otherwise, just print "You have {rightAnswers} right answers".

The right answers are:

* onclick
* JSON.stringify()
* A programming API for HTML and XML documents

Graphical user interface, application

Description automatically generated

Graphical user interface, application, website

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Graphical user interface, application, website

Description automatically generated

Graphical user interface

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Graphical user interface

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