

Exercise: DOM

Problems for in-class lab for the ["JS Advanced" Course @SoftUni](https://judge.softuni.org/Contests/1802/Exercise-DOM). Submit your solutions in the SoftUni judge system at <https://judge.softuni.org/Contests/1802/Exercise-DOM>

1. Subtraction

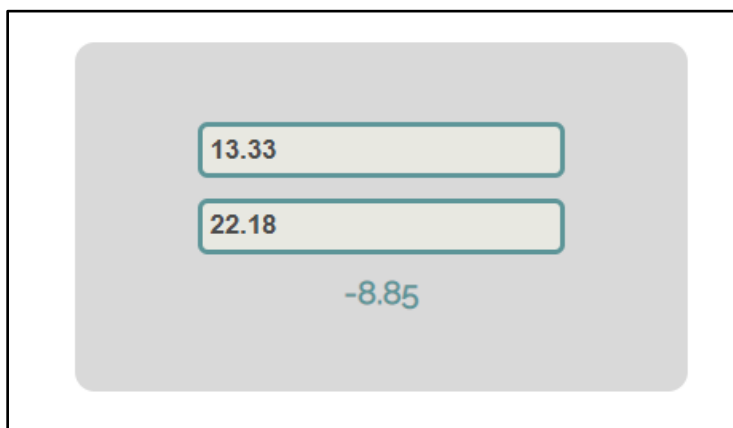
An HTML page holds **two text fields** with ids **"firstNumber"** and **"secondNumber"**. Write a function to **subtract** the values from these text fields and display the result in the **div** named **"result"**.

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 second number from the first 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.

```
<div id="wrapper">
  <input type="text" id="firstNumber" value="13.33" disabled>
  <input type="text" id="secondNumber" value="22.18" disabled>
  <div id="result"></div>
</div>
```

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**, the value of a textbox, as one would expect, is **text**. In order to get a **number**, we need to use a function to **parse them**.

```
let num1 = document.getElementById('firstNumber').value;  
let num2 = document.getElementById('secondNumber').value;
```

All that's left now is to append the result to the **div**. We use the same function to get the **result** element by id and change its **text content** to the result of the **subtraction**.

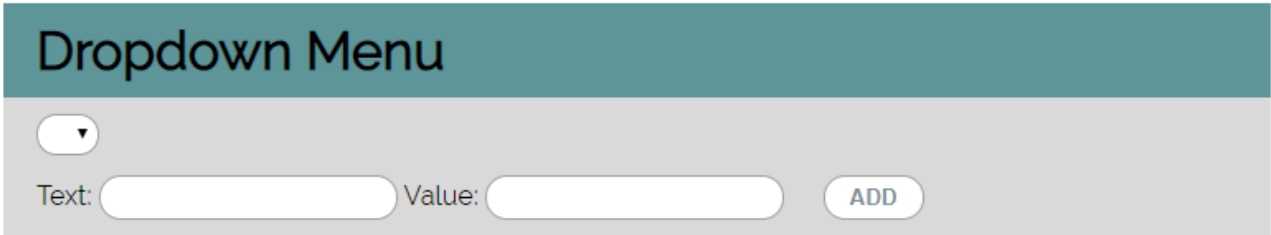
```
function subtract() {  
  let num1 = Number(document.getElementById('firstNumber').value);  
  let num2 = Number(document.getElementById('secondNumber').value);  
  document.getElementById('result').textContent = num1 - num2;  
}
```

Our code is ready now. Submit only the **subtract()** function in judge.

2. Fill Dropdown

Your task is to take values from **input** fields with ids **"newItemText"** and **"newItemValue"**. Then you should create and append an **<option>** to the **<select>** with id **"menu"**.

Example



The screenshot shows a web interface with a teal header bar containing the text "Dropdown Menu". Below the header is a light gray container. Inside this container, there is a dropdown menu with a downward arrow, followed by two input fields. The first input field is preceded by the label "Text:" and the second by "Value:". To the right of these input fields is a rounded rectangular button with the text "ADD".

Hints

- Your function should take the values of **newItemText** and **newItemValue**. After that you should create a new **option** element and set its **textContent** and its **value** to the newly taken ones.
- Once you have done all of that, you should **append** the newly created **option** as a **child** to the **select** item with id **"menu"**.
- Finally, you should **clear** the value of the two **input** fields.

3. Accordion

An **html** file is given and your task is to show **more/less** information by clicking a **[ADD] button** (it is not an actual button, but a **span** that has an **onclick** event attached to it). When **[More] button** is clicked, it **reveals** 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 infinite amount of times).

Example

DOM Manipulations Exercise

MORE

DOM Manipulations Exercise

LESS

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

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]`.

4. Order the names

Write a **function** that orders names alphabetically.

ADD

SoftUni Database

A	
B	
C	
D	
E	
F	
G	
H	
I	
J	
K	
L	
M	
N	Nixon
O	
P	Peterson
Q	
R	
S	
T	
U	
V	
W	

You will receive a **name of a student as an input**. When the "Register" button is **clicked**, you should add the given student name in the SoftUni Database, while **keeping** the **alphabetial order**.

For instance, if we register **David**, his name should appear in the **D** column.

ADD

SoftUni Database

A	
B	
C	
D	
E	
F	
G	
H	
I	
J	
K	
L	
M	
N	Nixon
O	
P	Peterson
Q	
R	
S	
T	
U	
V	
W	

SoftUni Database

A.	
B.	
C.	
D.	David
E.	
F.	
G.	
H.	
I.	
J.	
K.	
L.	
M.	
N.	Nixon
O.	
P.	Peterson

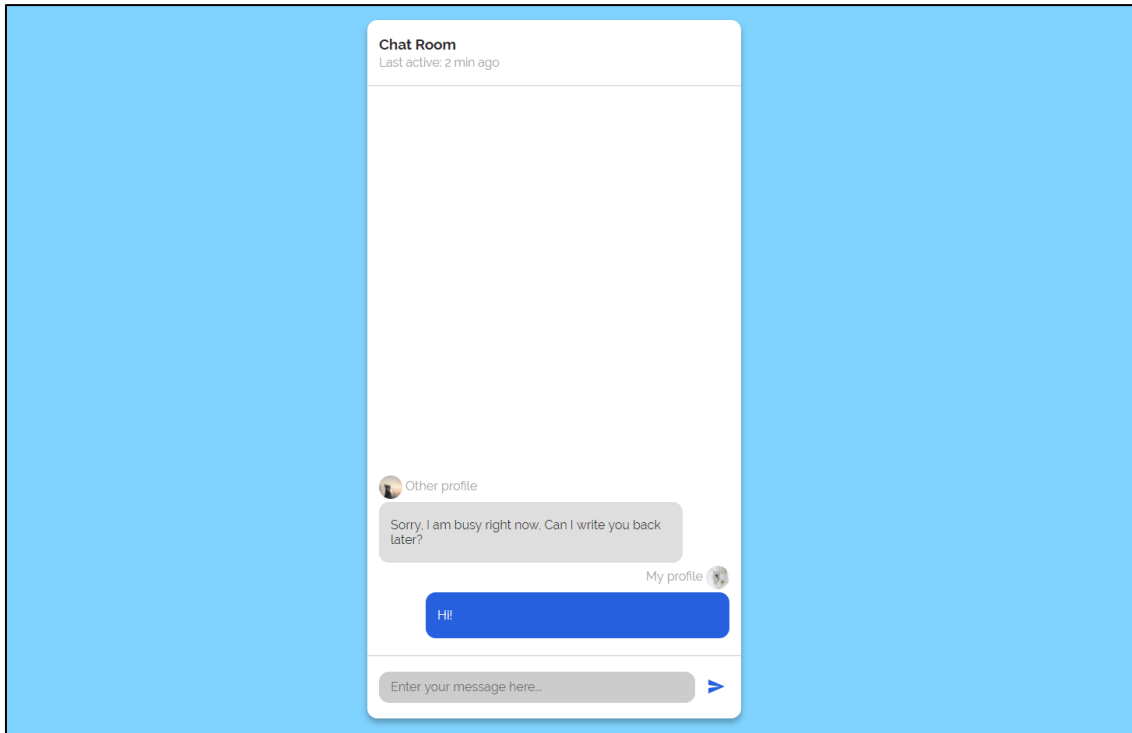
If you **receive more than one name with the same starting letter**, you should **join all names** by a comma and a space (", ").

SoftUni Database

A.	
B.	Bond
C.	Cyborg, Crafter, Cika
D.	David, Drake, Dino
E.	
F.	
G.	
H.	
I.	
J.	
K.	

5. Chat Room

Write a **function** to create the functionality of a **chat room**.

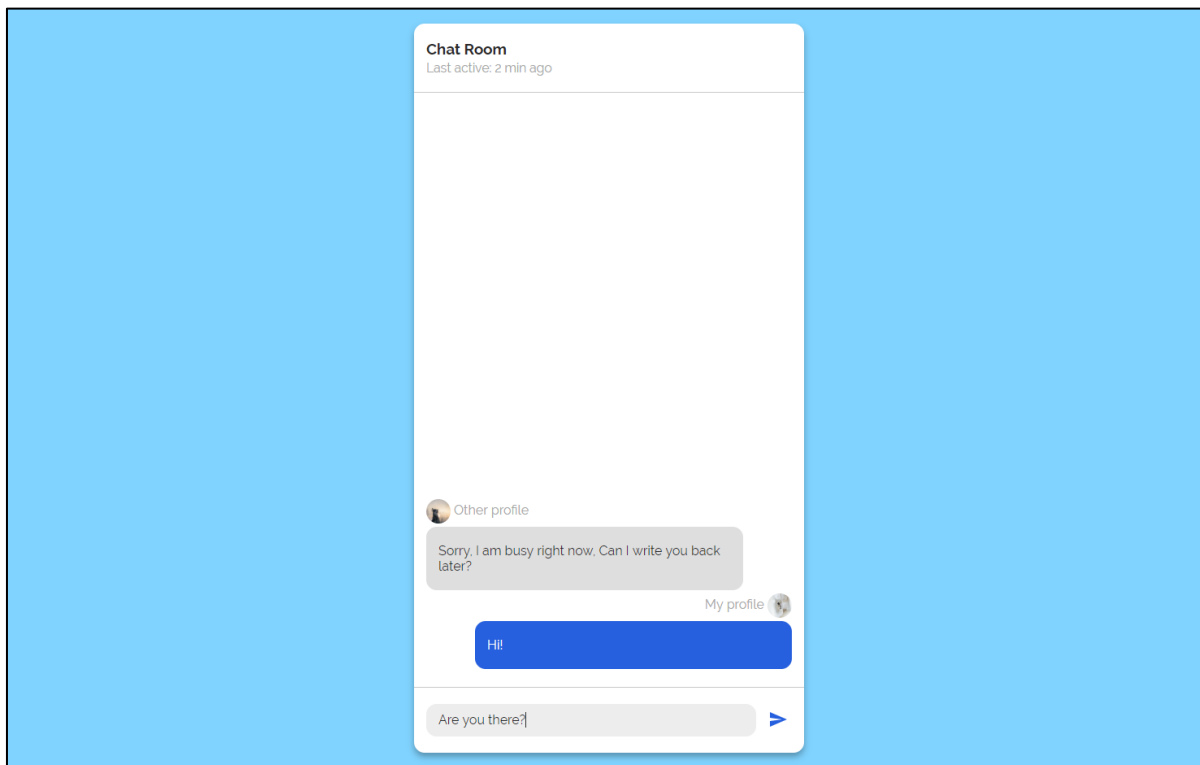


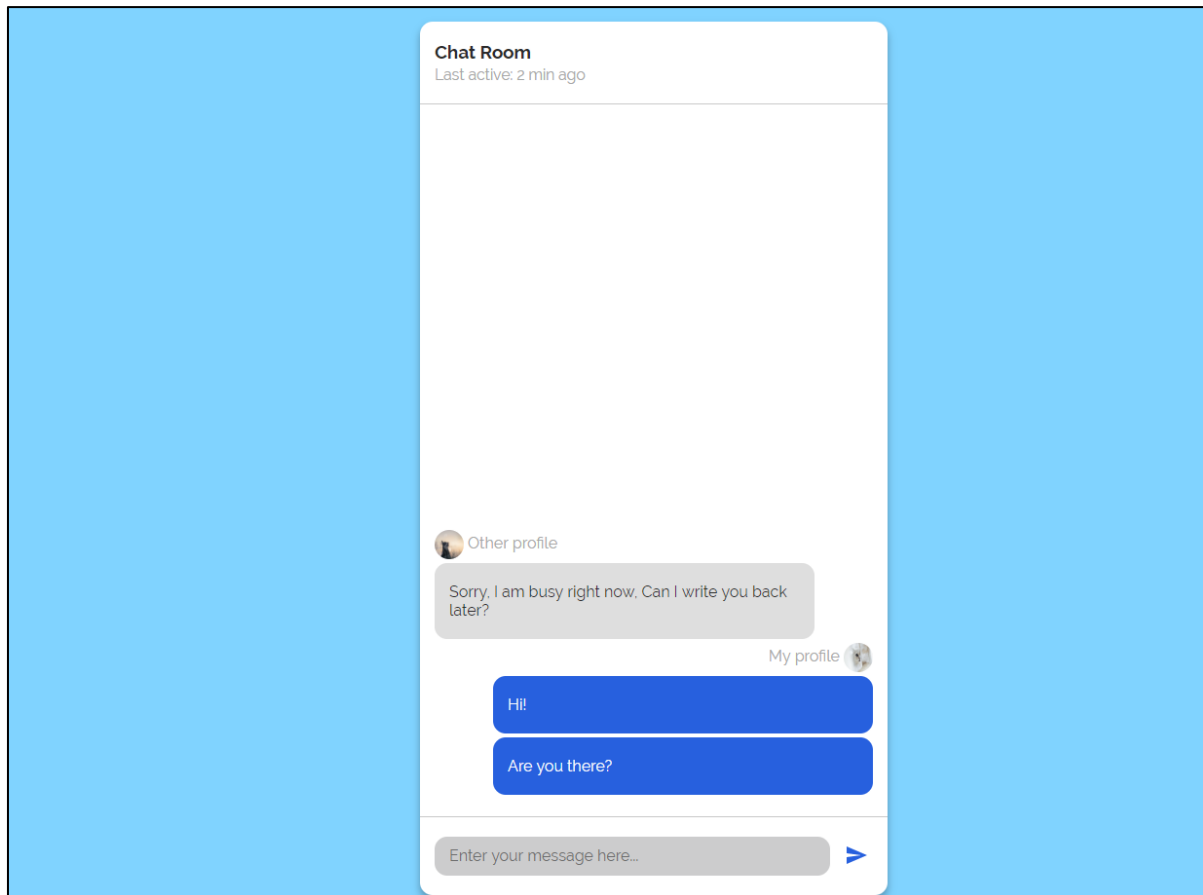
Note: Do not forget to add event listener to the send button!

The new div element with class message my-message should contain the current message that is about to be send.

The current div should be appended to the div with an id="chat_messages".

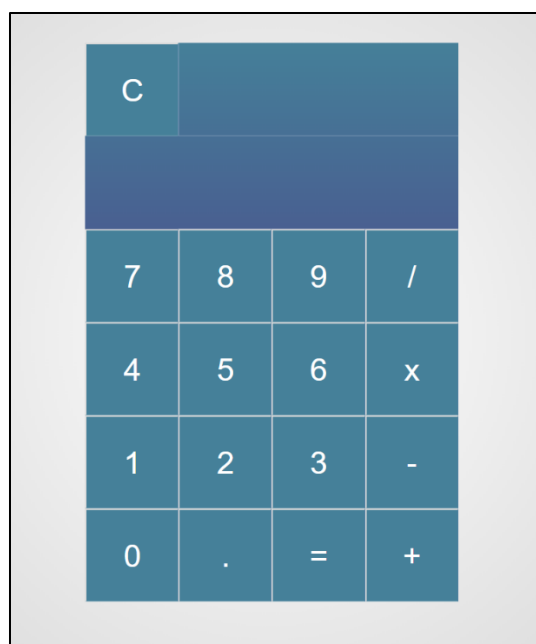
The input should be cleared on each click of the send button.





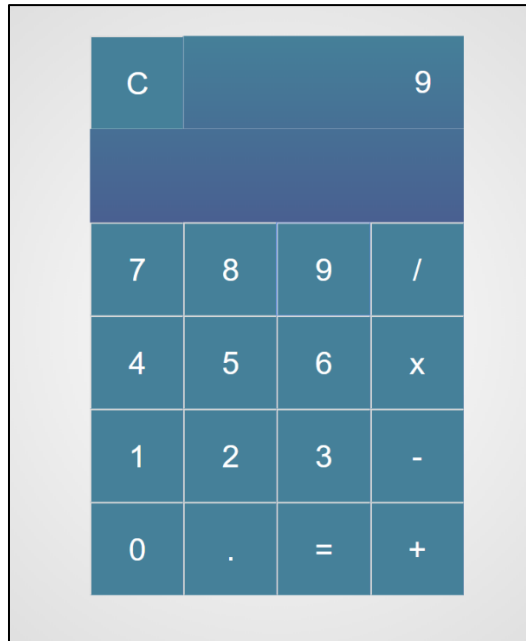
6. Numpad Calculator

Write a function that implements a calculator that has the following functionalities:



When one of **the buttons is clicked**, its **value** should be shown in the "**Expression**" field (`#expressionOutput`).

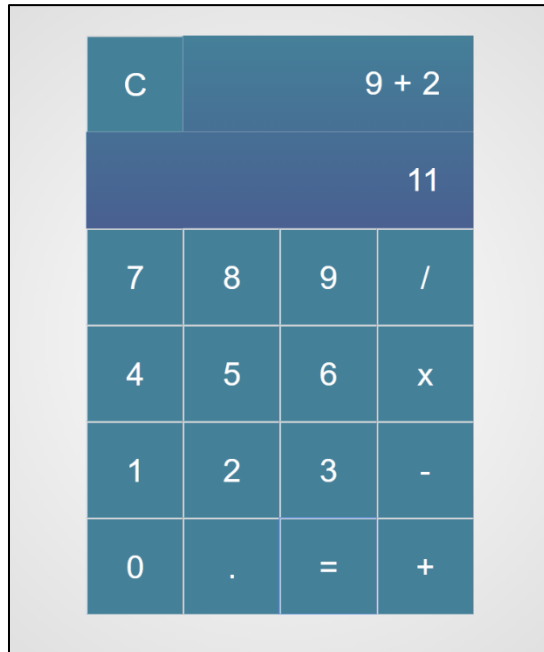
For instance, if we click on the button with value **9**, the expected result should be:



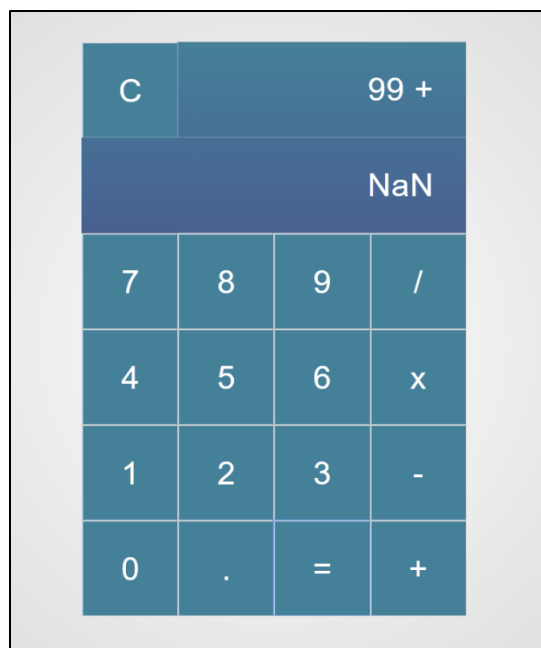
If the **current Expression** field (**#expressionOutput**) contains the whole math expression (**left operand, operator and right operand**: **Example: 9 + 2**), the expected result should be:



When the **equal sign "="** is pressed, the **result of that expression** should appear in the **Result** field (**#resultOutput**)

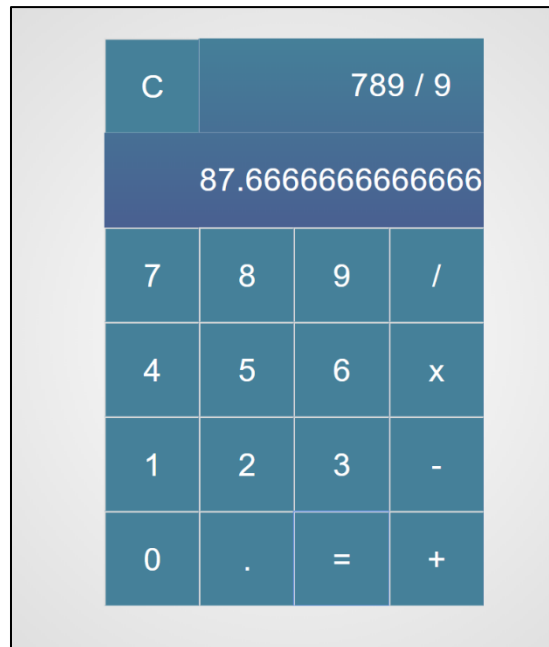


Otherwise, if we create an invalid expression such as "99 +" (without second/right operand) and we hit the equal sign "=", the expected result should be:



The "Clear" button should clear both Expression and Result fields (#expressionOutput and #resultOutput)

For instance, if we have the following expression:



And we press "**Clear**", the expected result should be:



7. Number Convertor

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

Number

From
 Decimal

To

CONVERT IT

Result

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**.

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

Number
 9

From
 Decimal

To
 Binary

CONVERT IT

Result
 1001

Number
 219

From
 Decimal

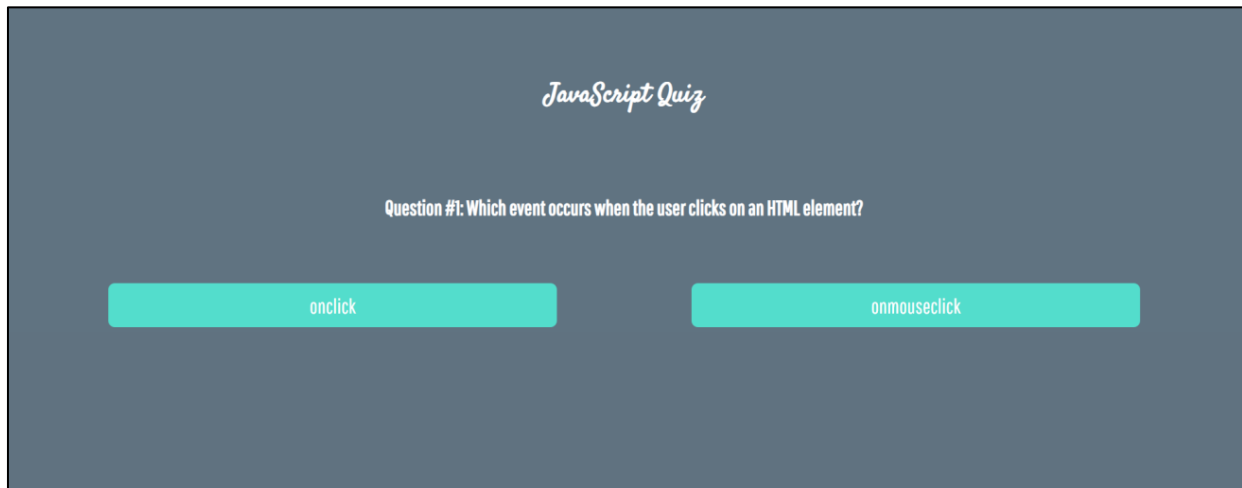
To
 Hexadecimal

CONVERT IT

Result
 DB

8. * JavaScript Quizz

Write a function that has the functionality of a quiz.



There are three **sections** that 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...)**.

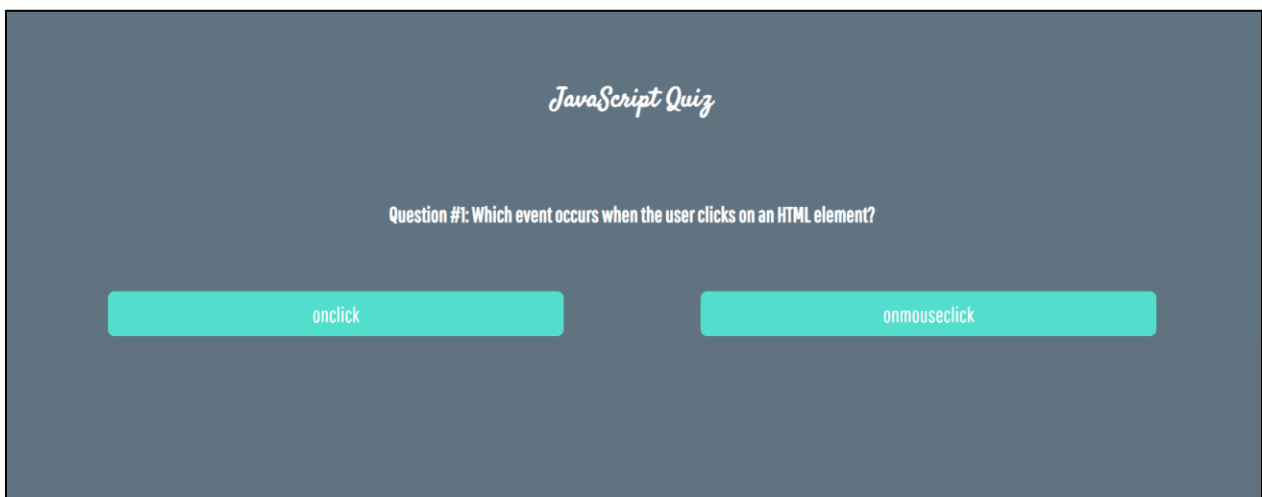
After all three questions have been answered, the **result div** must **appear**. (Use **'none'** and **'block'** to hide and show the question sections)

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



JavaScript Quiz

Question #2: Which function converting JSON to string?

JSON.toString()

JSON.stringify()

JavaScript Quiz

Question #3: What is DOM?

A programming API for HTML and XML documents

The DOM is your source HTML

JavaScript Quiz

You are recognized as top JavaScript fan!

JavaScript Quiz

You have 2 right answers

9. * 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 a **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"**.

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 checkout button is clicked)

Examples

Shopping Cart

		Price
	Bread Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.	<div>Add</div> \$0.80
	Milk Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.	<div>Add</div> \$1.09
	Tomatoes Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.	<div>Add</div> \$0.99

Added Tomatoes for 0.99 to the cart.
Added Bread for 0.80 to the cart.
Added Bread for 0.80 to the cart.
You bought Tomatoes, Bread for 2.59.

Checkout