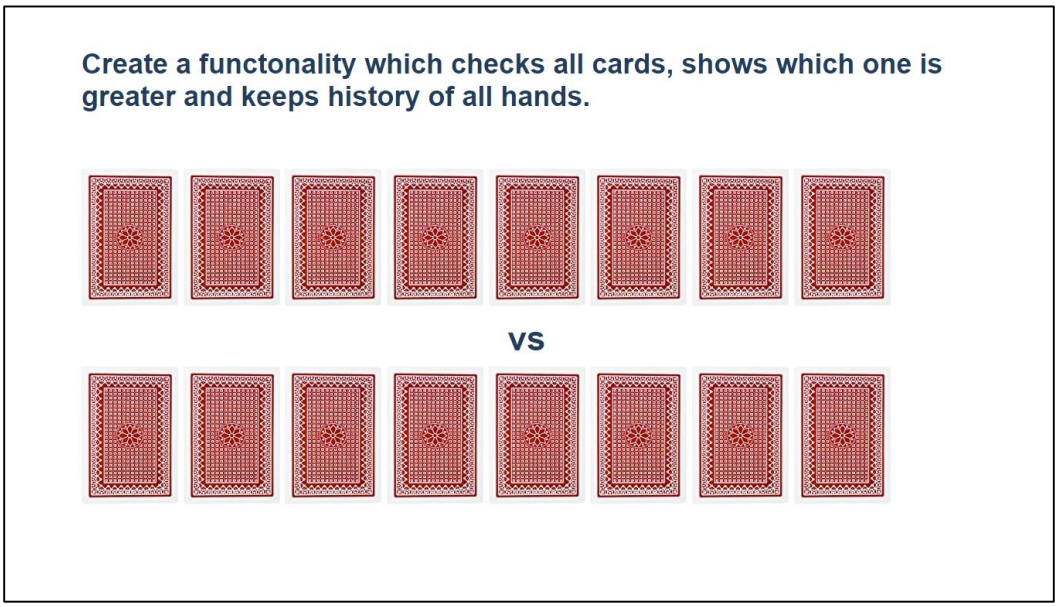
Exercise: Objects and DOM

Problems for in-class lab for the "JS Essentials Course @SoftUni". Submit your solutions in the SoftUni judge system at https://judge.softuni.bg/Contests/1426/Exercise-Objects-and-DOM

1. Cards

Write **a function** which **checks cards**, shows which one **is greater** and **keeps history of all hands**.

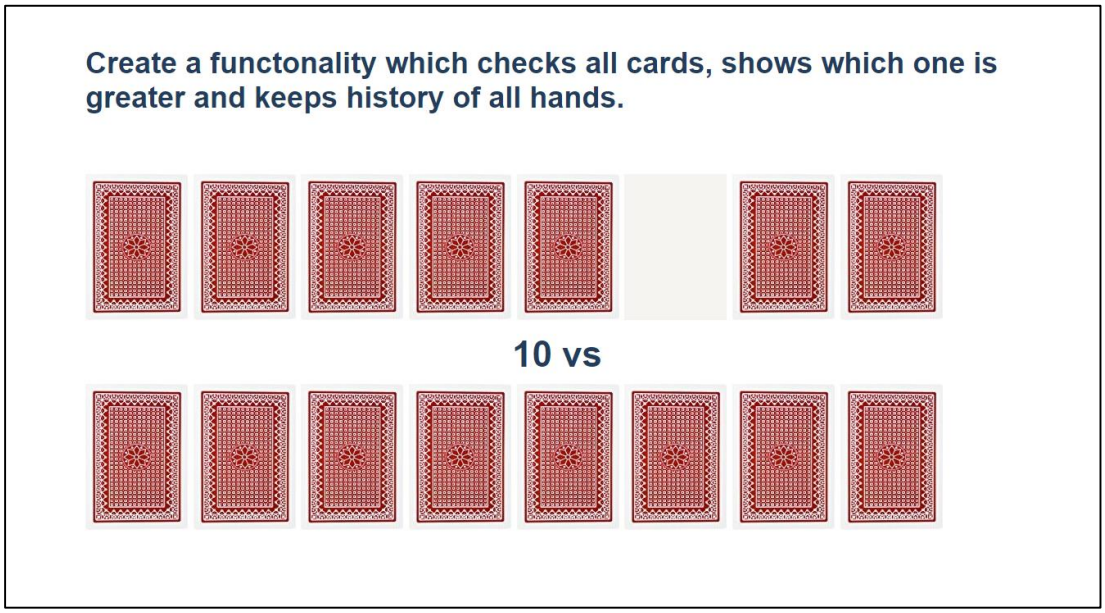


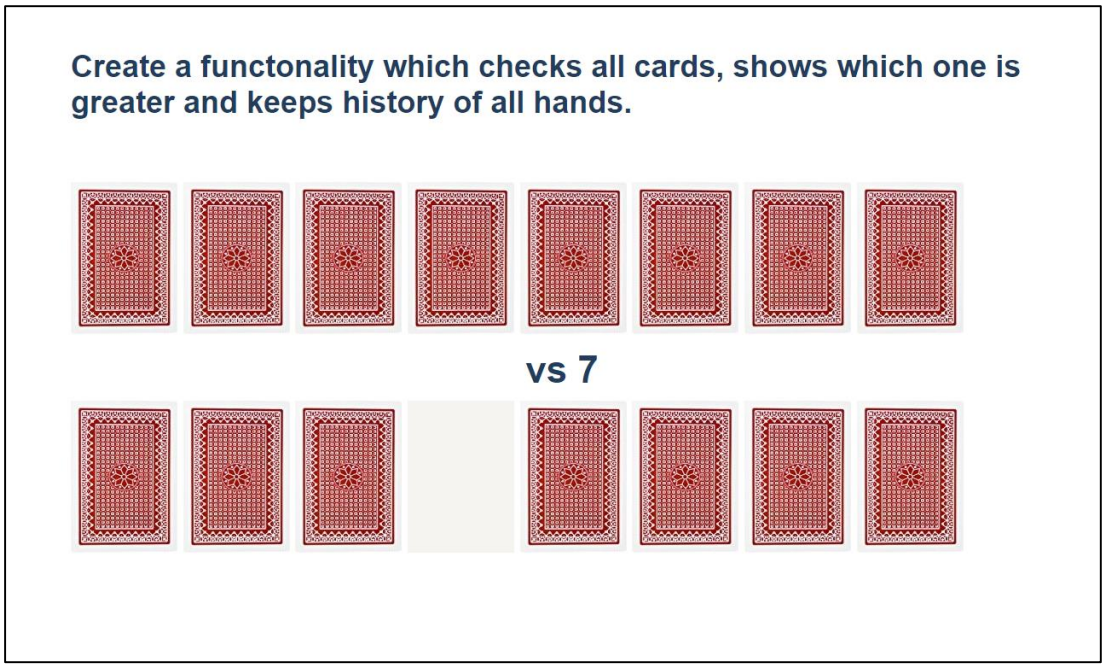

```
<head>…</head> == $0
<body>
  <section class="description">
    <h2>…</h2>
  </section>
  <section class="cards">
    <div id="player1Div">
      <img src="images/card.jpg" name="2">
      <img src="images/card.jpg" name="15">
      <img src="images/card.jpg" name="4">
      <img src="images/card.jpg" name="12">
      <img src="images/card.jpg" name="6">
      <img src="images/card.jpg" name="10">
      <img src="images/card.jpg" name="8">
      <img src="images/card.jpg" name="9">
    </div>
    <div id="result">
      <span></span>
      <span>vs</span>
      <span></span>
    </div>
    <div id="player2Div">
      <img src="images/card.jpg" name="10">
      <img src="images/card.jpg" name="14">
      <img src="images/card.jpg" name="9">
      <img src="images/card.jpg" name="7">
      <img src="images/card.jpg" name="11">
      <img src="images/card.jpg" name="5">
      <img src="images/card.jpg" name="13">
      <img src="images/card.jpg" name="3">
    </div>
    <div id="history">

      </div>
```

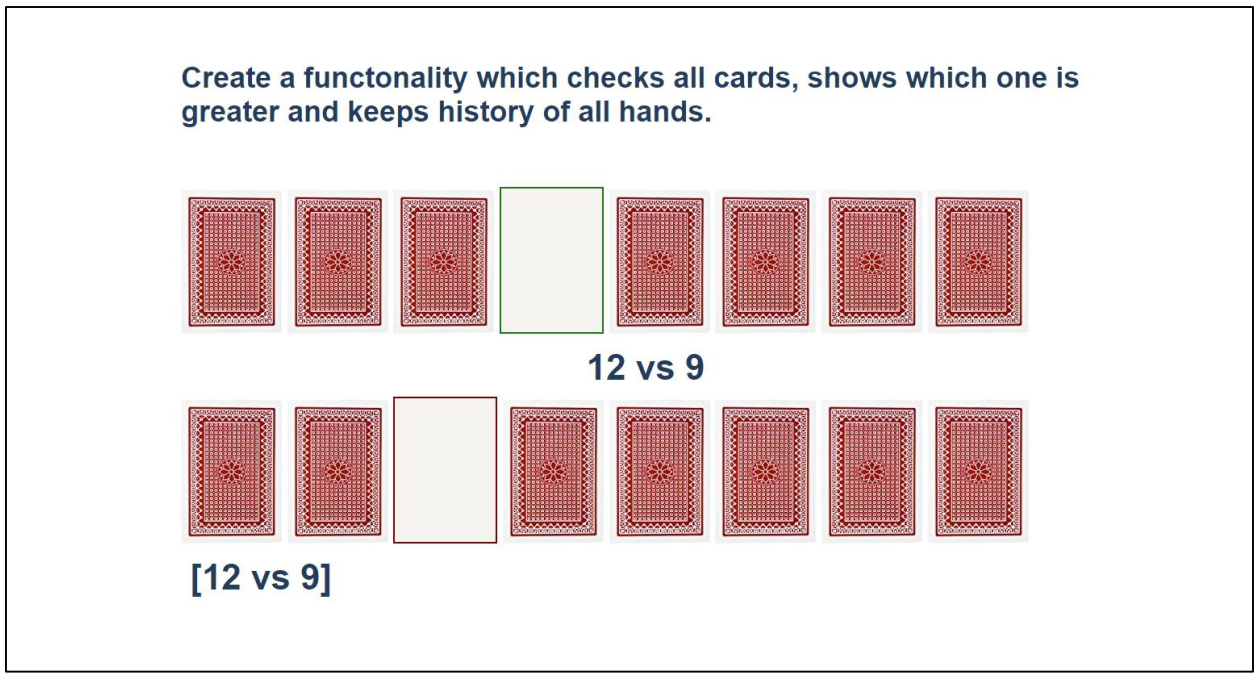
Firstly, add click events to **all cards**. When one of the cards is clicked, the current background card must be changed with the "**`whiteCard.jpg`**" picture (it is given in the skeleton) and the **card name should be appended** to one of the **`span`** elements in the **`div`** with **`id="result".`**

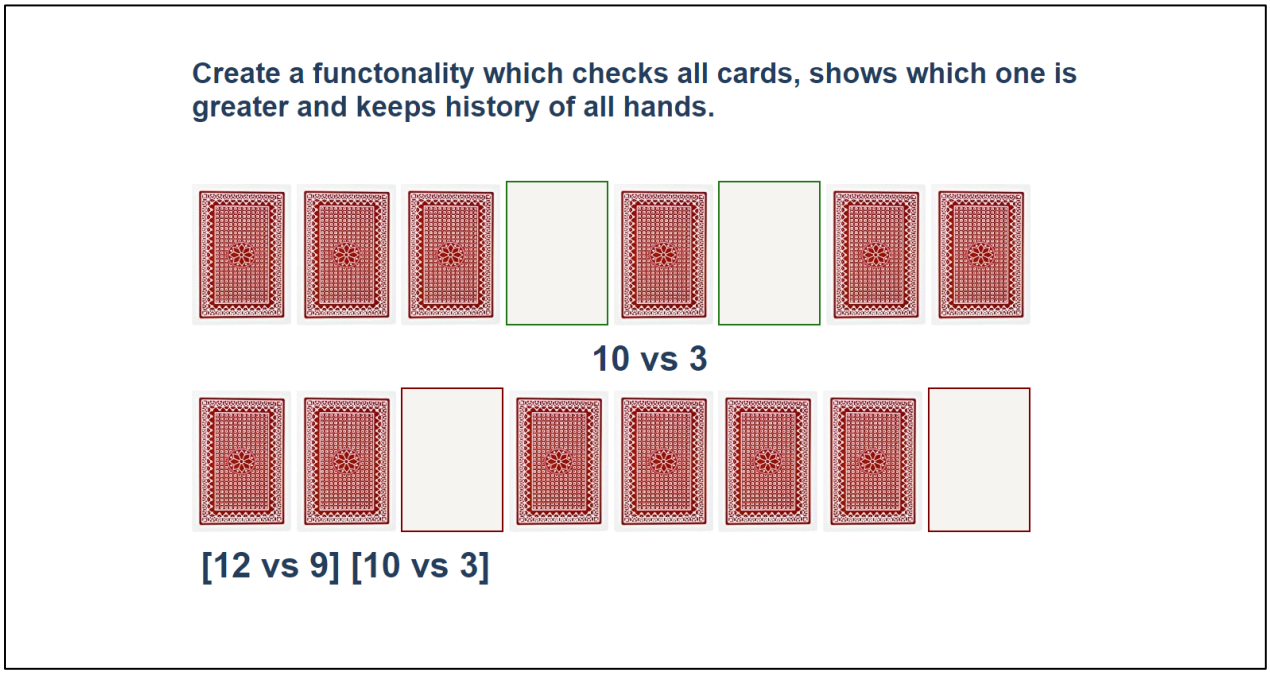
If a card **from the top side** is **clicked**, **append** the **card name** to the **left `span`** (first empty **`span`**), otherwise **append** the card **name** to the **right `span`** (second/last **`span`**).





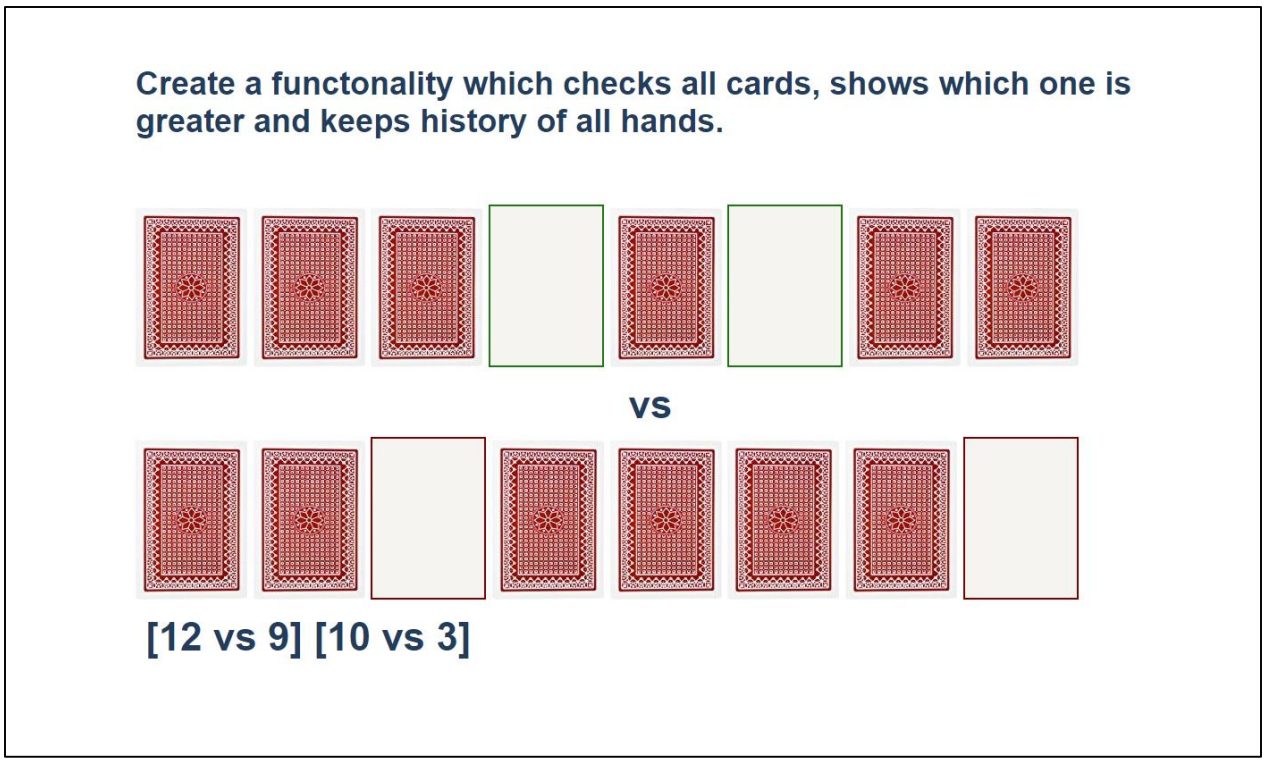
When **cards** from **both sides are selected, check** which one is **greater**. The greater card should have border "**`2px solid green`**" and the lower card - "**`2px solid red`**".





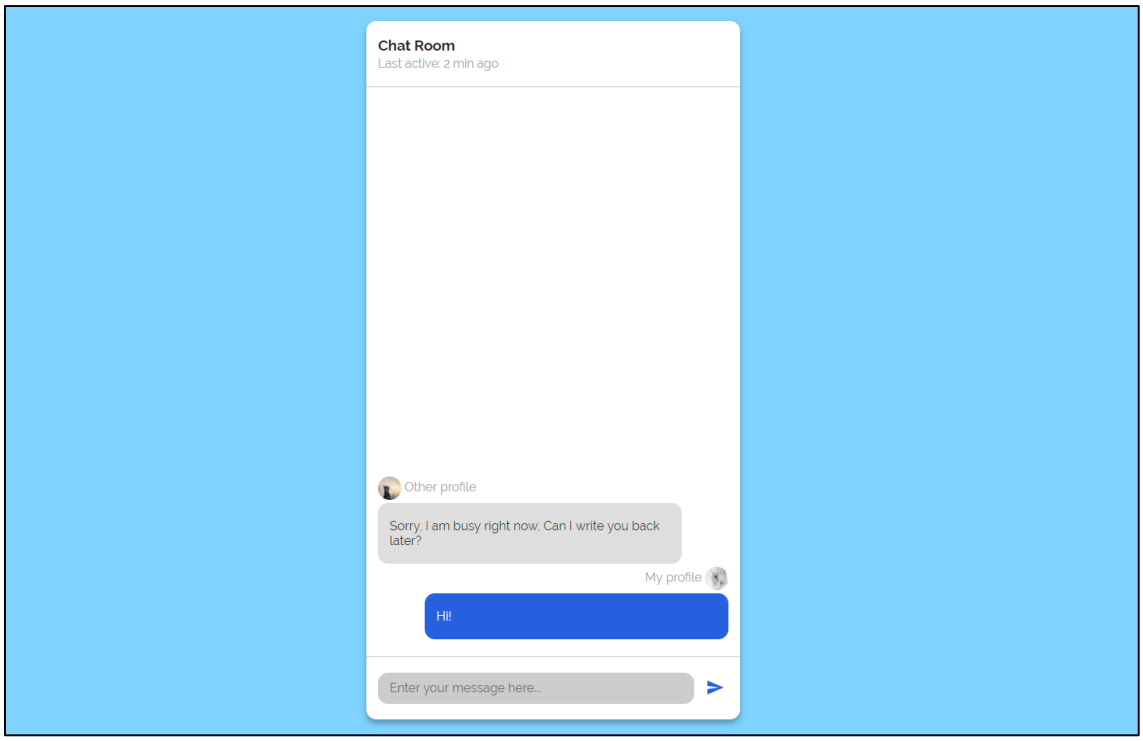
You should **clear** the **span elements** which **hold the current card names** when both are selected, and the winner is selected. **After every hand,** push the current card names in the **`history div`** in the following format:

```
[{top side card name} vs {bottom side card name} ]
```



2. Chat Room

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

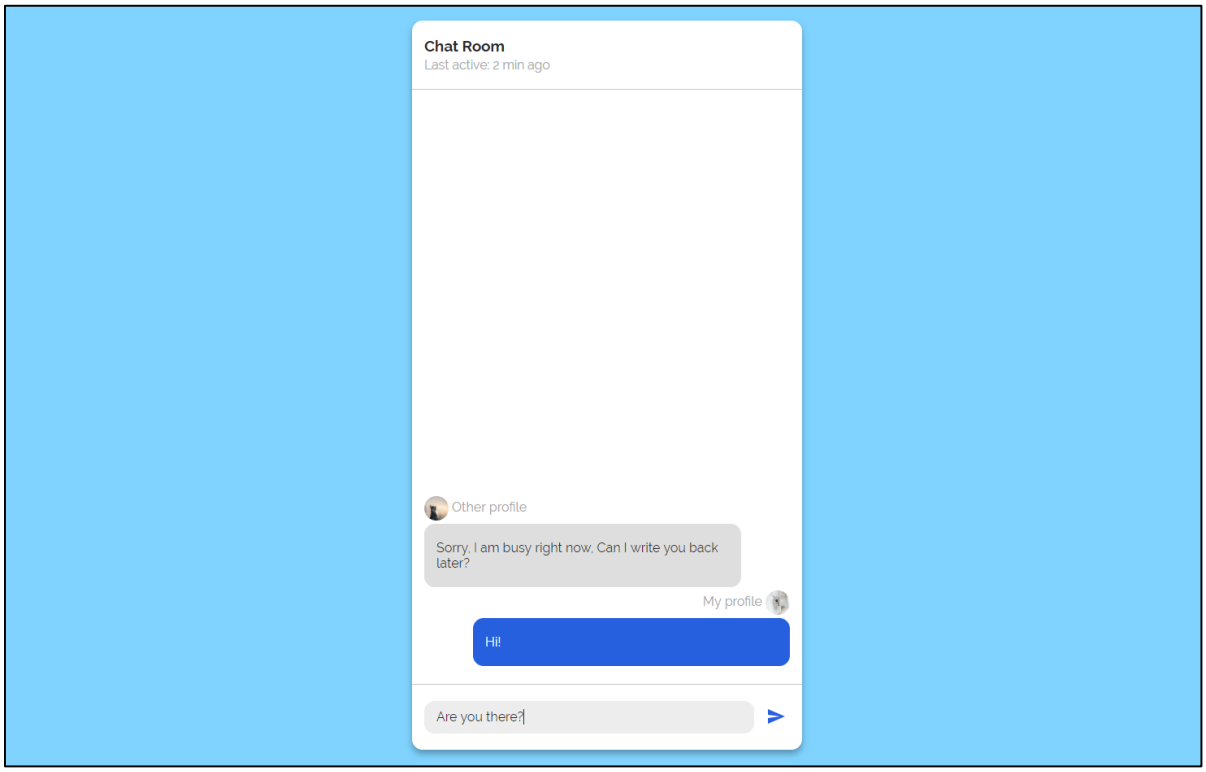


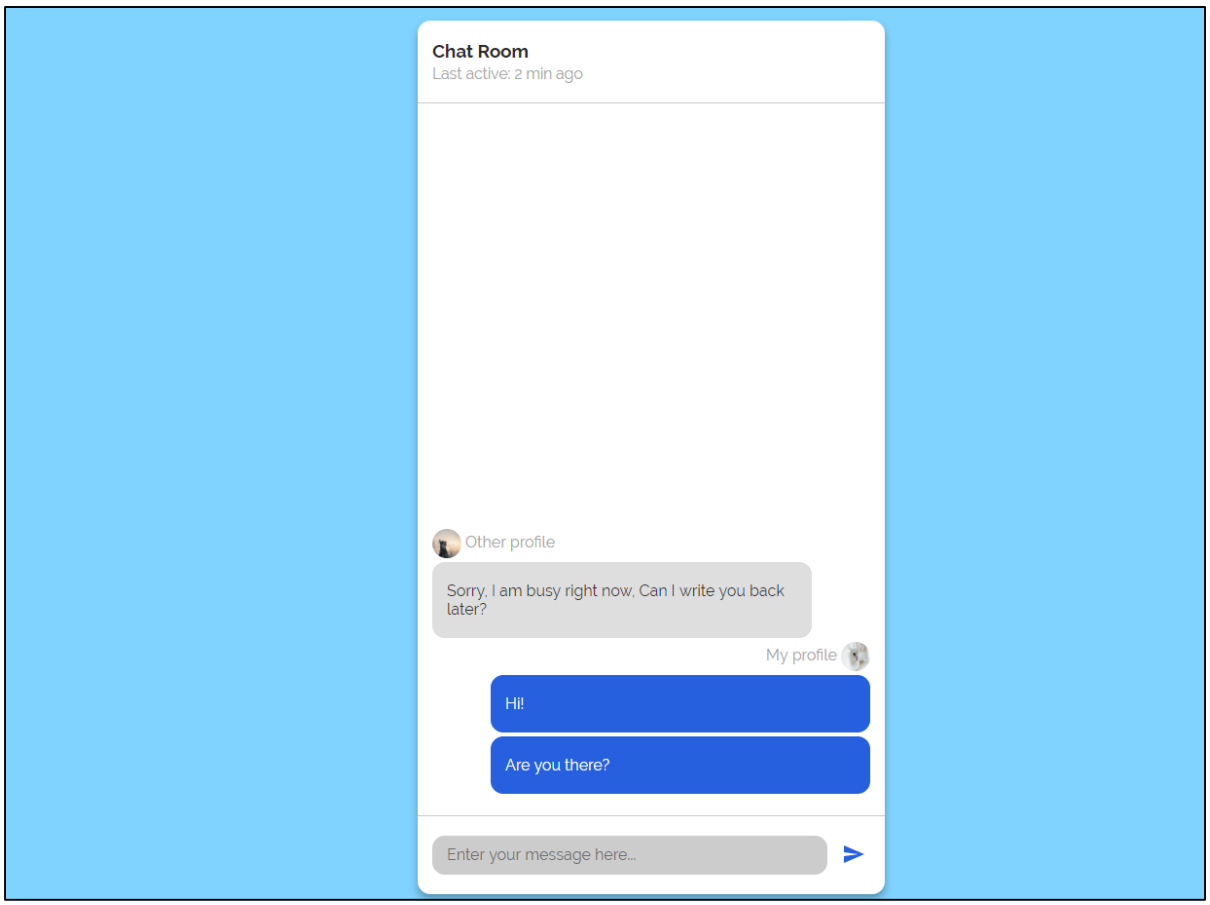
Note: Do not forget to **add event listener** to the **send button!**

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".`**

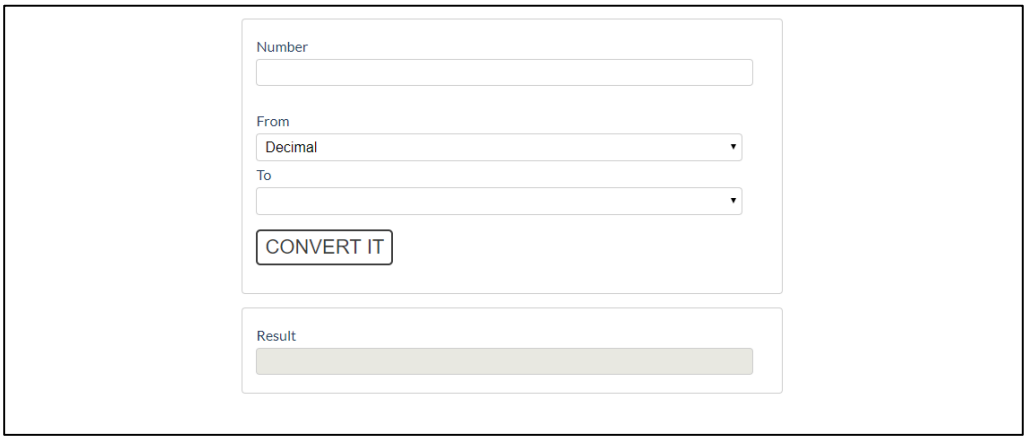
The input should be cleared on each click of the send button.





3. Number Convertor

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

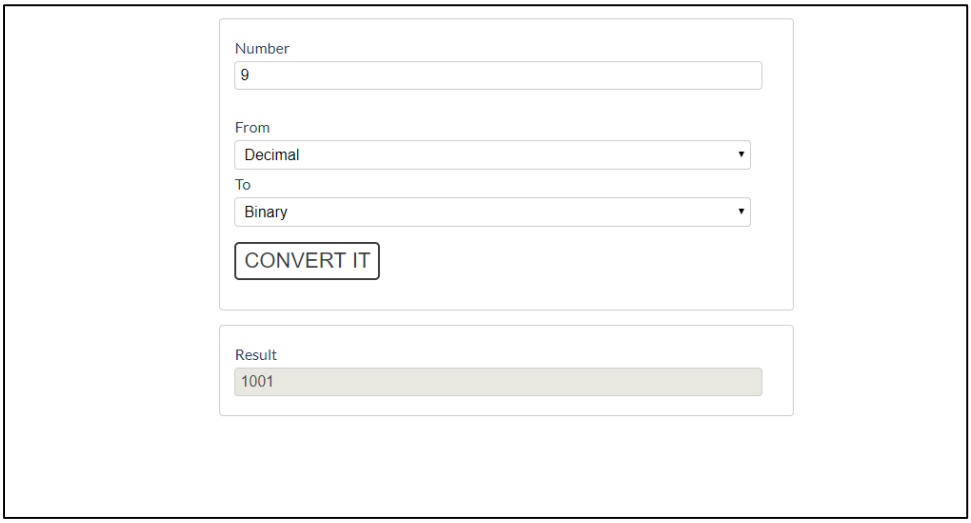


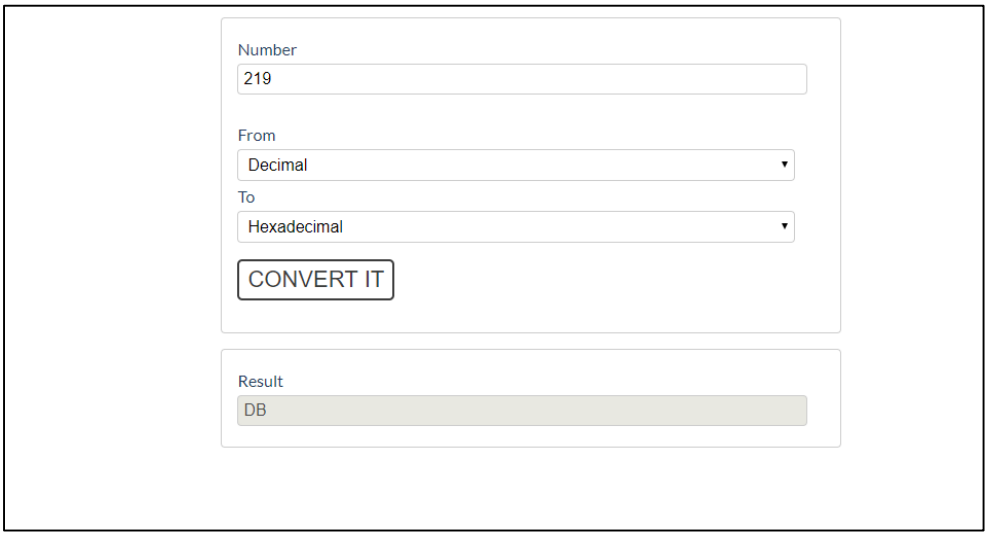
The given number will always be in **decimal format.** The "**`From`**" select menu will only have a **`Decimal`** option, but the "**`To`**" select menu will have **two options**: **`Binary`** and **`Hexadeicmal`**.

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`**').

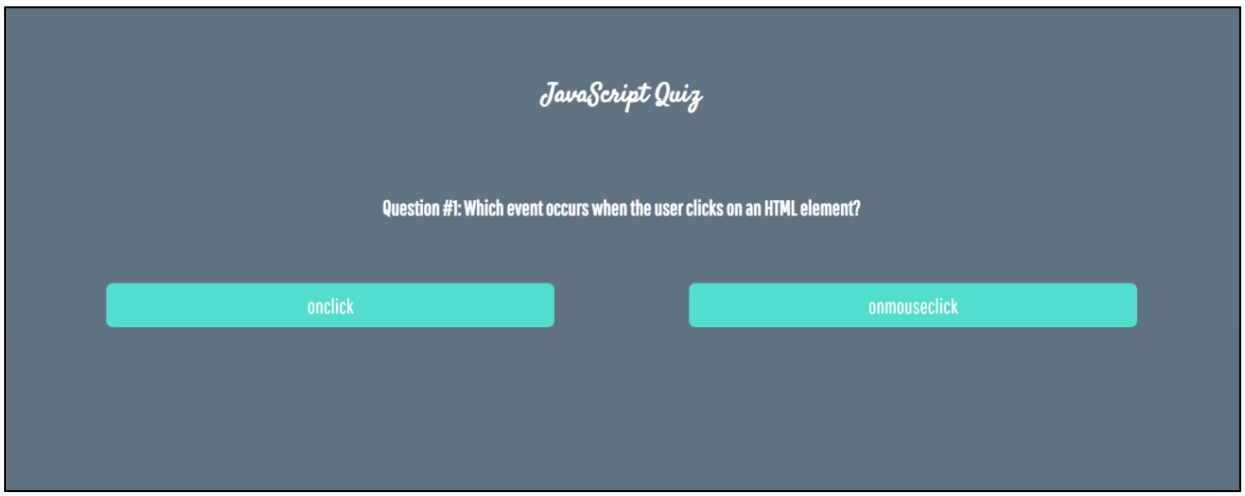
- When the [**`Convert it`**] button is **clicked**, the expected result should appear in the [**`Result`**] input field.





4. 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…)**.

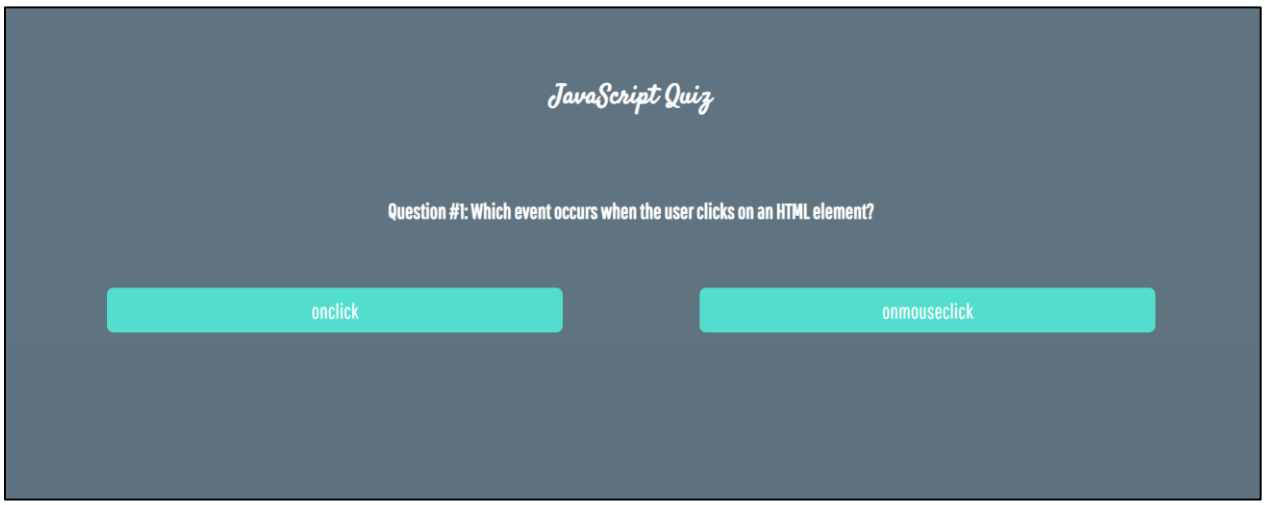
After all three questions have been answered, the **`result div`** must **appear.** (Use **`'none'`** and **`'block'`** to hide and show the question sections)

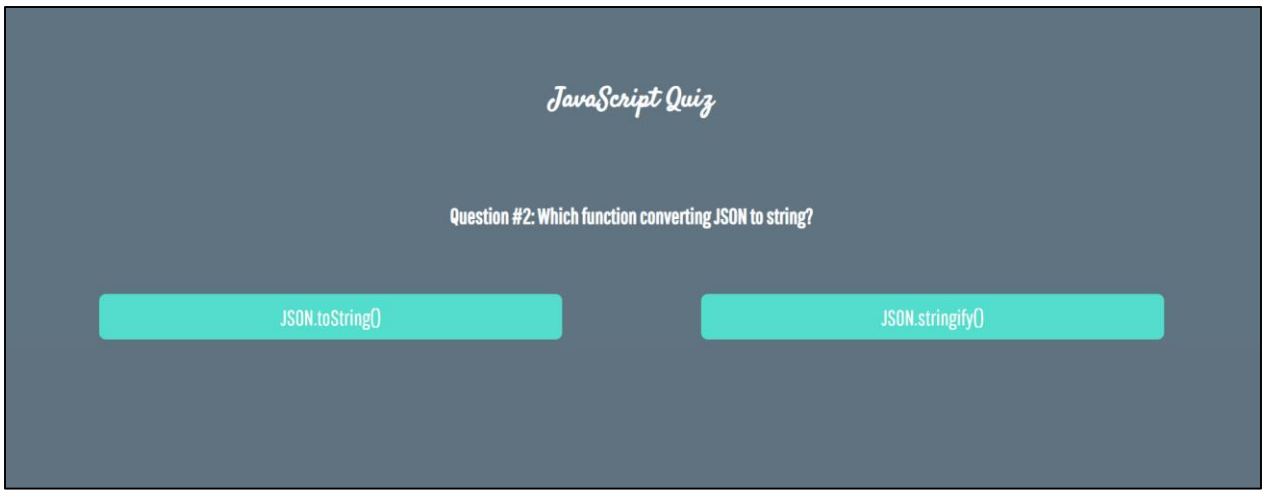
If all questions are answered correctly, you should prin the following message:

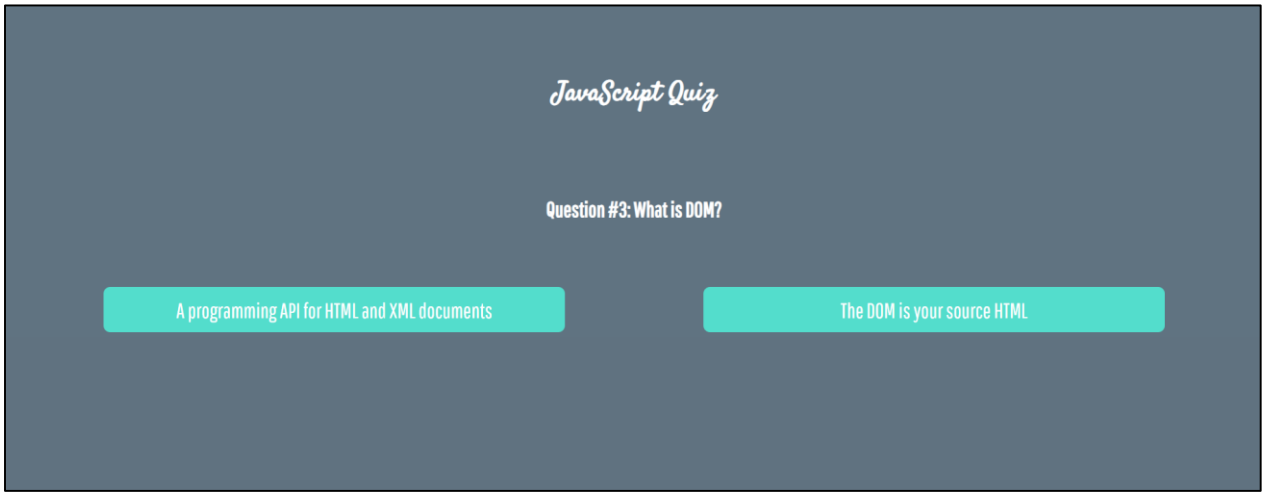
"**`You are recognized as top JavaScript fan!`**"

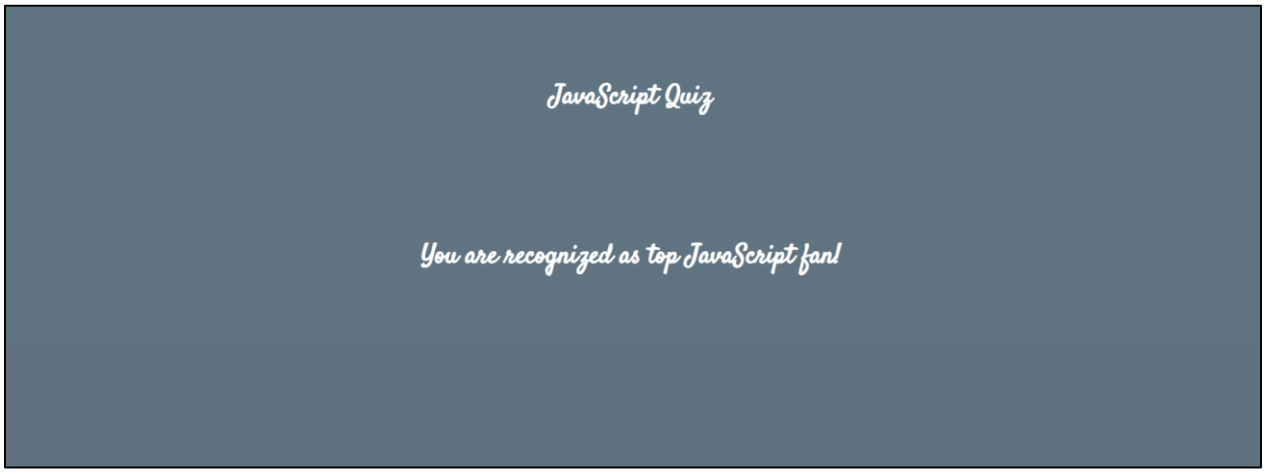
Otherwise, just print "**`You have {rightAnswers} right answers`**".

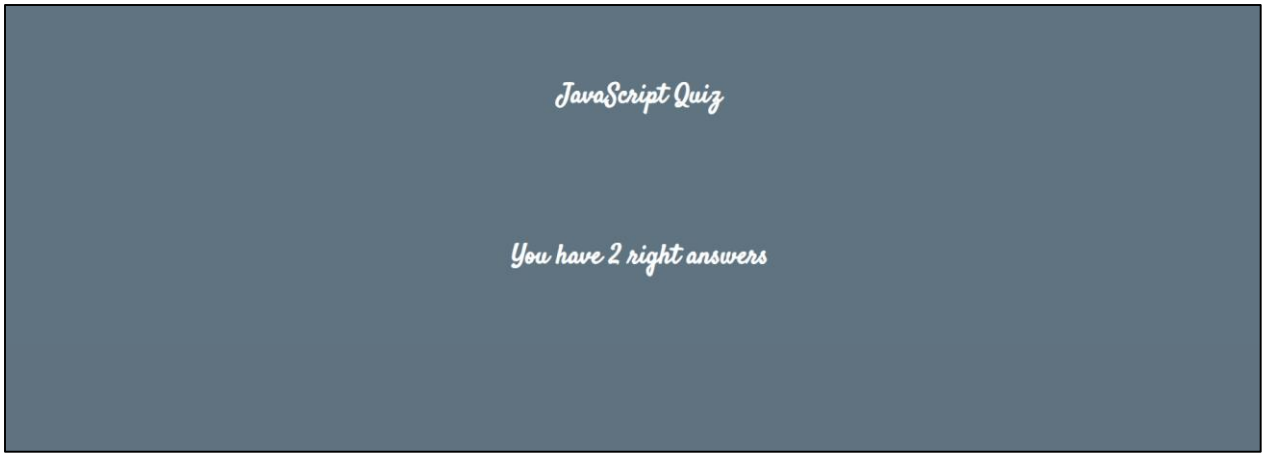
The right answers are (**`onclick`**, **`JSON.stringify()`** and **`A programming API for HTML and XML documents`**).











5. Table - Search Engine

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

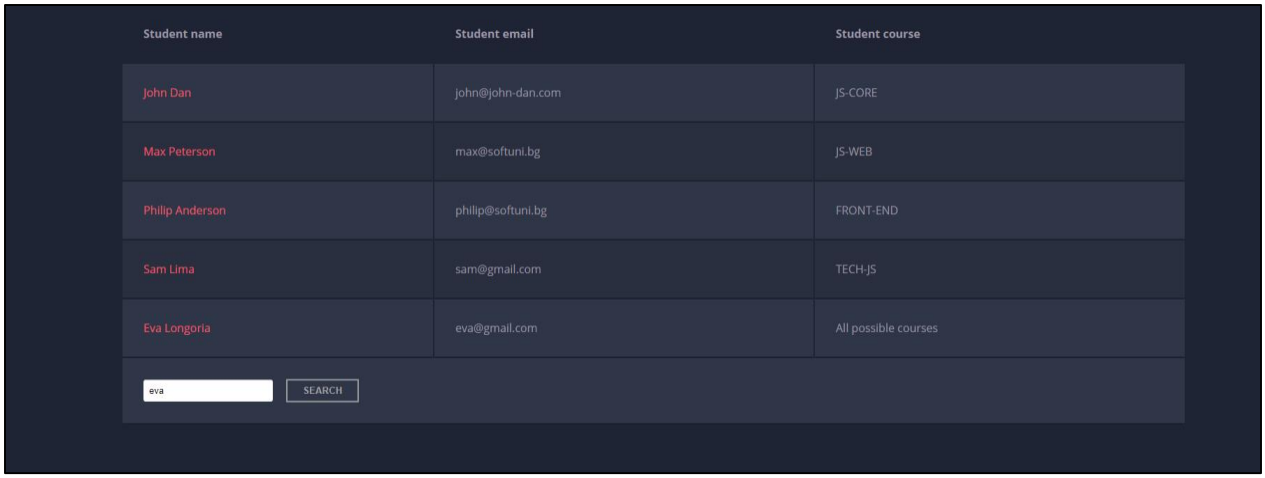
When the "**Search**" **button** is **clicked**, go through all cells in the table except for the first row (Student name, Student email and Student course) and check if the given input has a match (check for both **full words** and **single letters**).

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

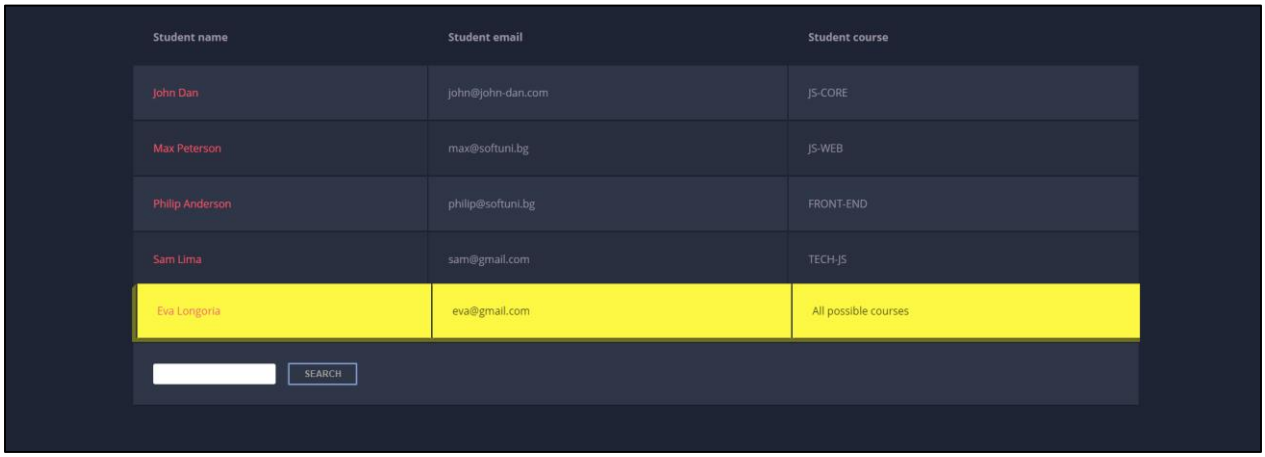
Otherwise, if there is no match, **nothing should happen**.

Note: After every search ("**`Search`**" button is clicked), **clear the input field** and **remove all already selected classes** (if any) from the previous search, in order for the **new search** to contain only the **new result**.

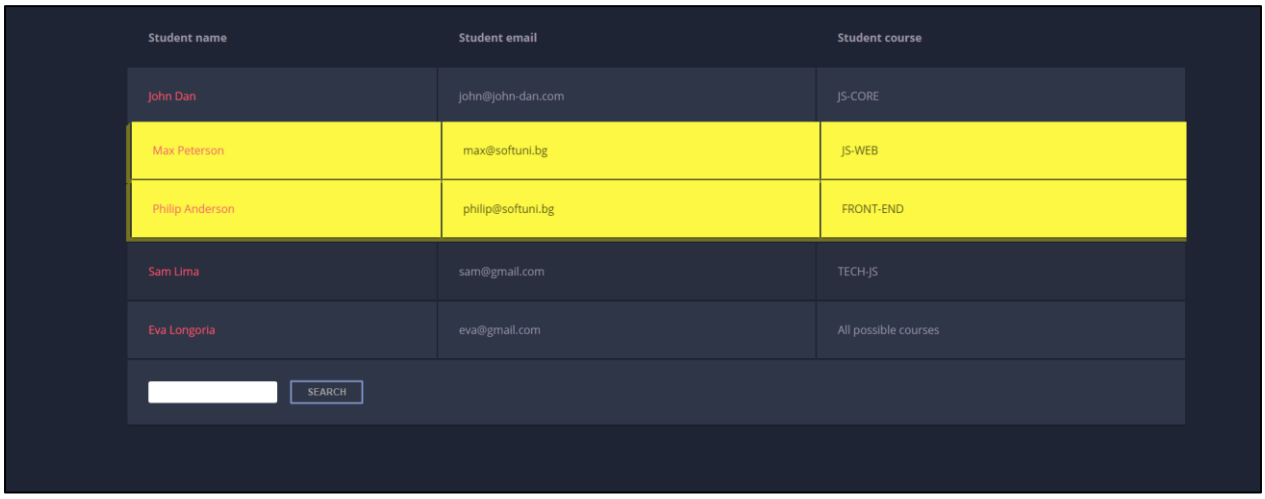
For instance, if we try to find **eva:**



The result should be:



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



6. 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"`**.

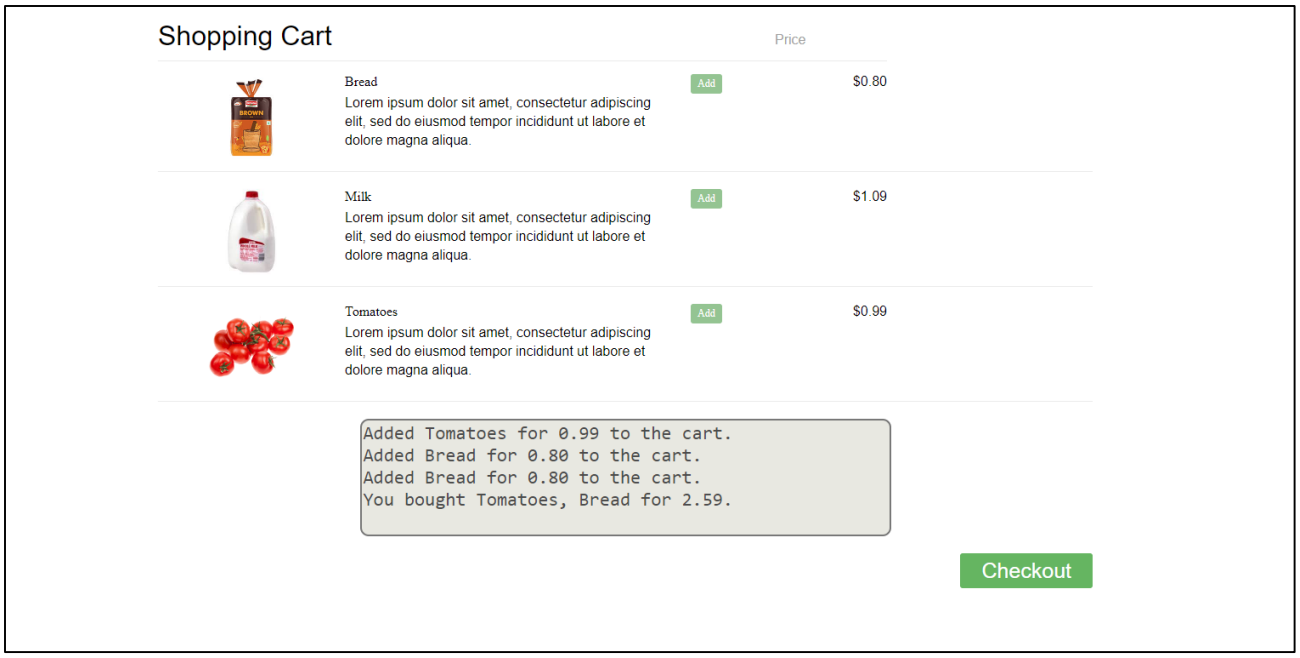
When the button **`"Checkout"`** is clicked, calculate the **total money** that you need to pay for the products that are currently in your cart. Append the result to the **`textarea`** in the following format:

`"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



7. Furniture

You will be given some furniture as an **array of objects**. Each object will have a **`name`**, a **`price`** and a **`decoration factor`**.

When the **`"Generate"` button is clicked**, add a **new row to the table** for each piece of furniture with **`image`, `name`, `price`** and **`decoration factor`** (code example below).

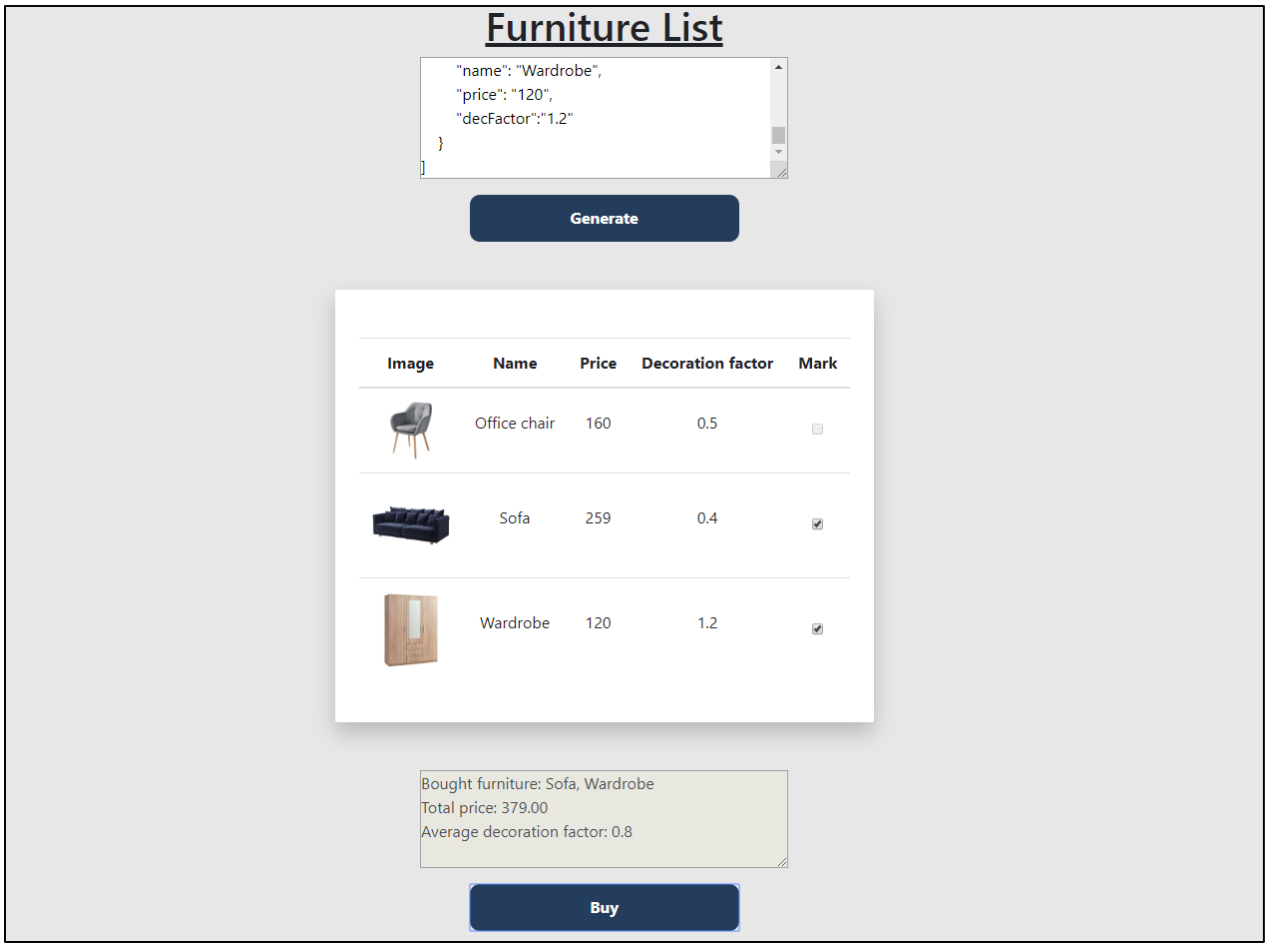
When the **"Buy"** button is clicked, get all **checkboxes that are marked** and show in the **`result textbox`** the **names** of the piece of furniture that **were checked**, separated by a **comma** and **single space** (**`", "`**) in the following format: **`"Bought furniture: {furniture1} {furniture2}…"`**.

On the next line, print the total price in format: **`"Total price: {totalPrice}"`** (formatted to the second decimal point). Finally, print the average decoration factor in the format: **`"Average decoration factor: {decFactor}"`**

Input Example

```
[{"name": "Sofa", "img":
"https://res.cloudinary.com/maisonsdumonde/image/upload/q_auto,f_auto/w
_200/img/grey-3-seater-sofa-bed-200-13-0-175521_9.jpg", "price": 150,
"decFactor": 1.2}]
```

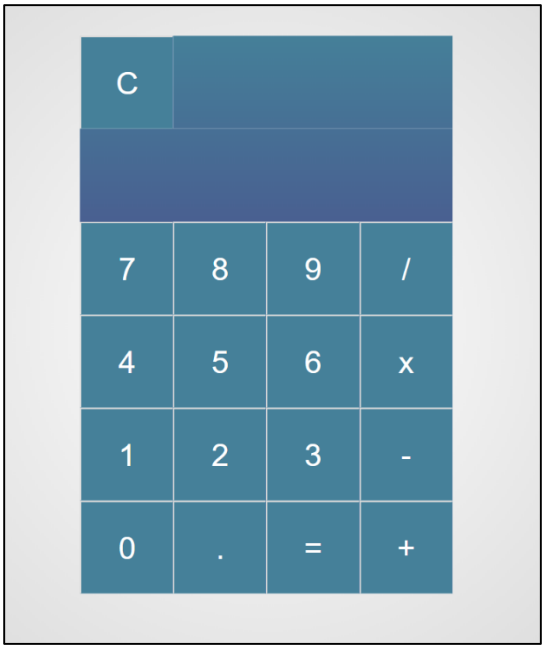
Examples



```
<tr>
  <td>
    <img src="https://www.ikea.com/PIAimages/0447583_PE597395_S5.JPG">
  </td>
  <td>
    <p>Sofa</p>
  </td>
  <td>
    <p>259</p>
  </td>
  <td>
    <p>0.4</p>
  </td>
  <td>
    <input type="checkbox">
  </td>
</tr>
```

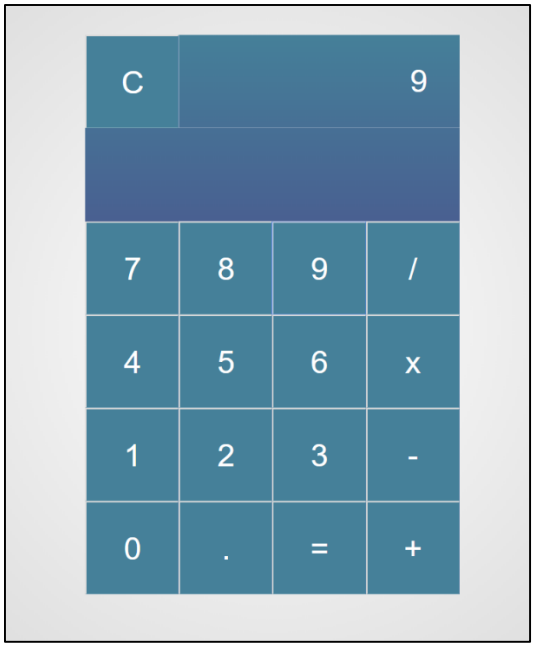
8. Numpad Calculator

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

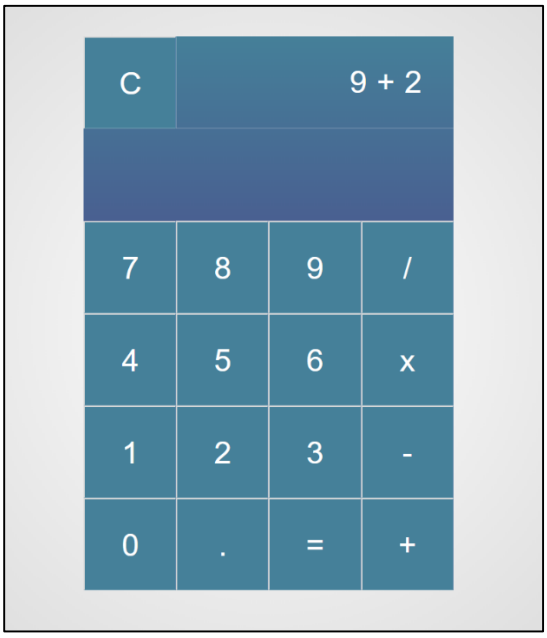


When one of **the buttons is clicked, its value** should be shown in the "**`Expression`**" **field** (**`#expressionOutput`**).

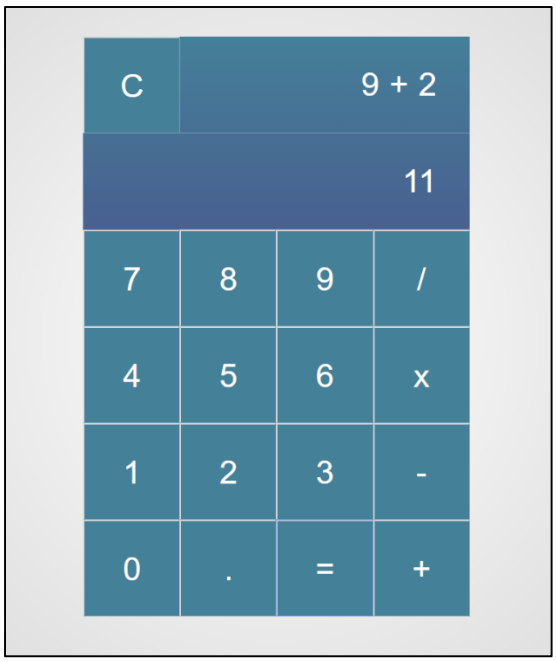
For instance, if we click on the button with value **9**, the expected result should be:



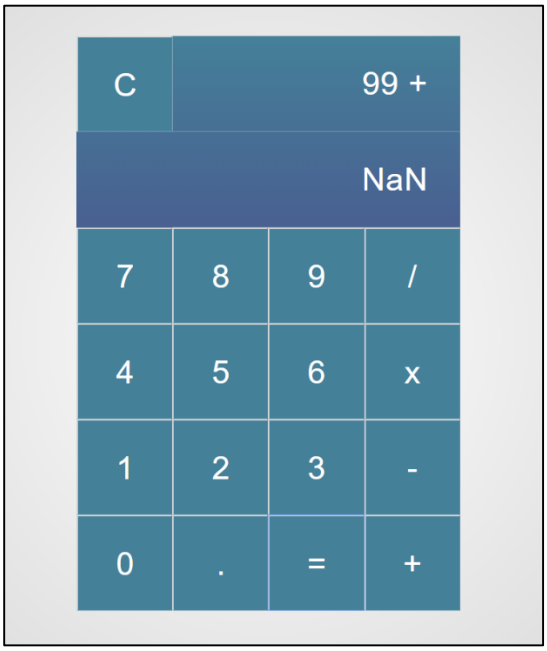
If the **current `Expression`** field (**`#expresisonOutput`**) contains the whole math expression (**left operand**, **operator** and **right operand**: **Example: 9 + 2**), the expected result should be:



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

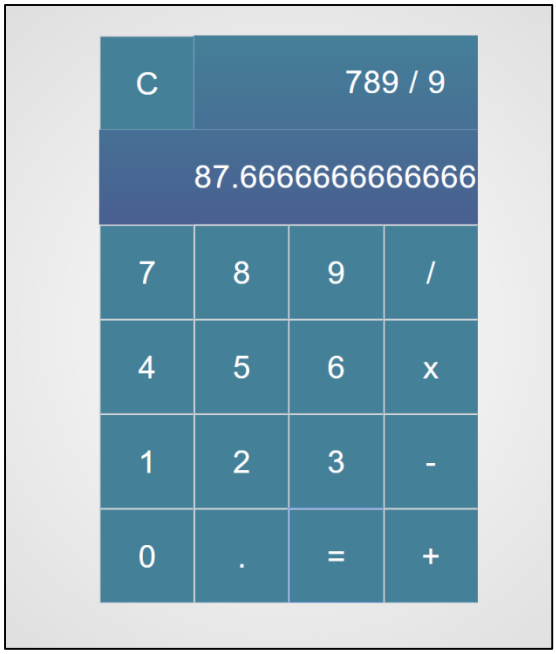


Otherwise, if we create an invalid expression such as "**99 +**" (**without second/right operand**) and we hit the equal sign "**=**", the expected result should be:

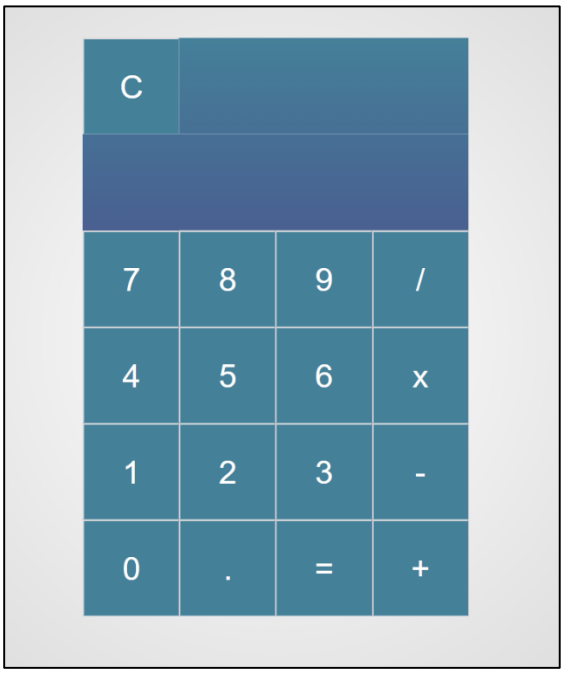


The "**Clear**" button should **clear both Expression and Result fields (#expressionOutput** and **#resultOutput)**

For instance, if we have the following expression:

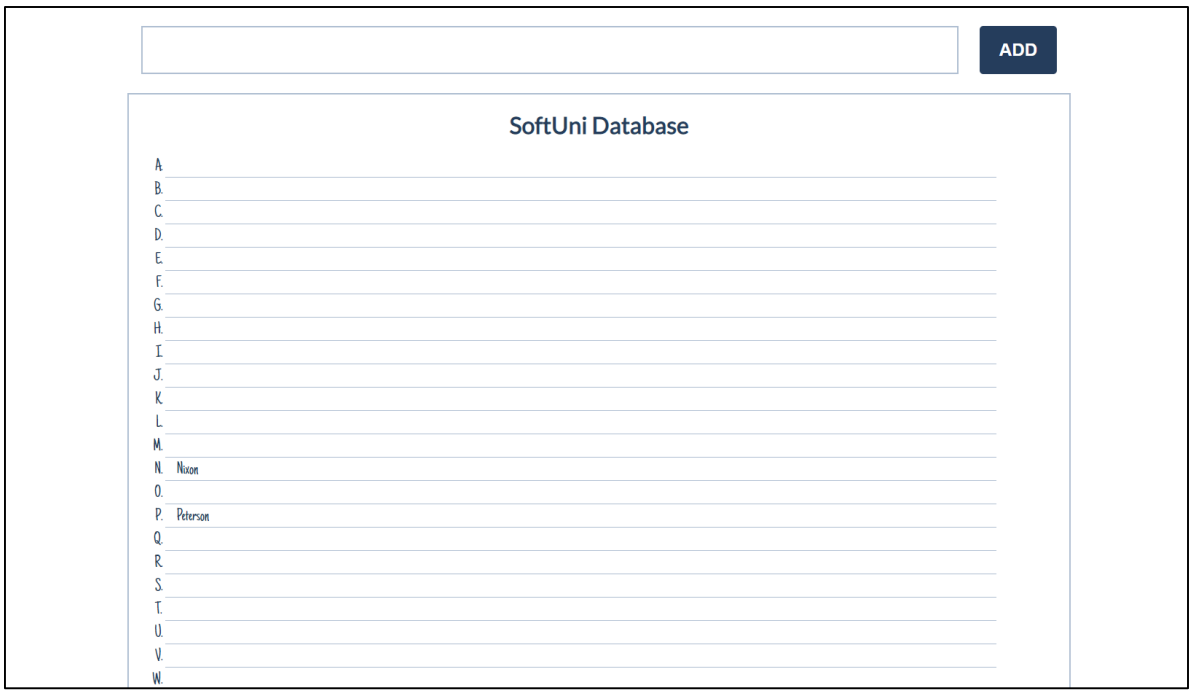


And we press "**`Clear`**", the expected result should be:



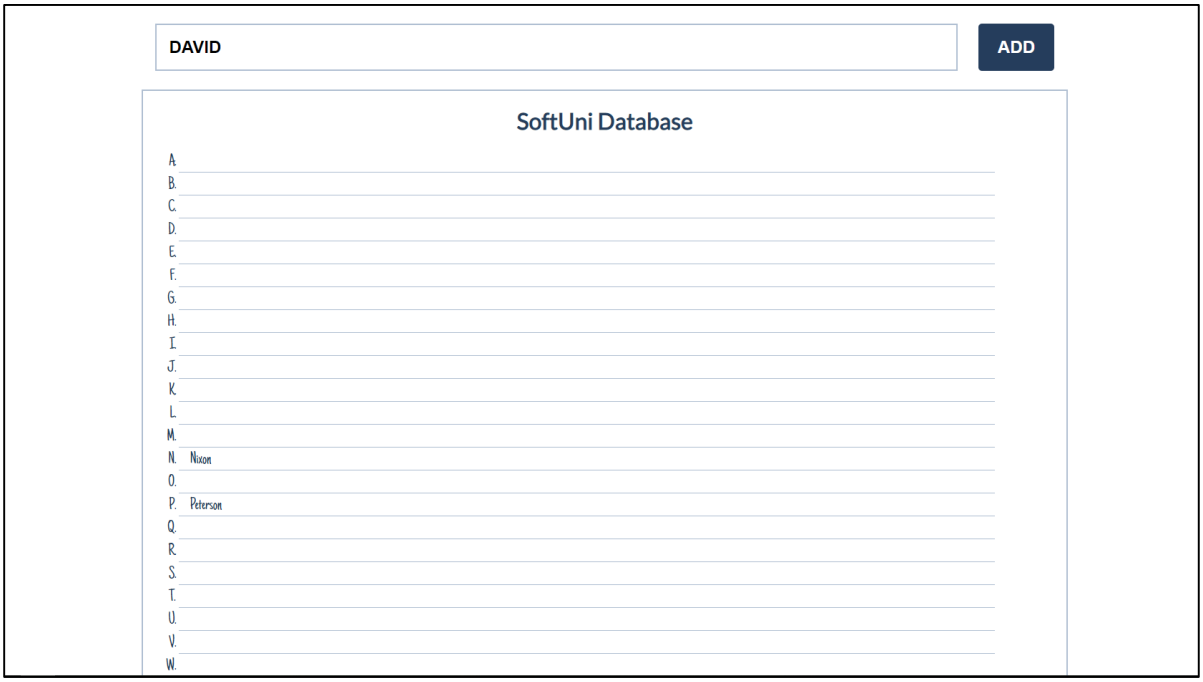
9. Order the names

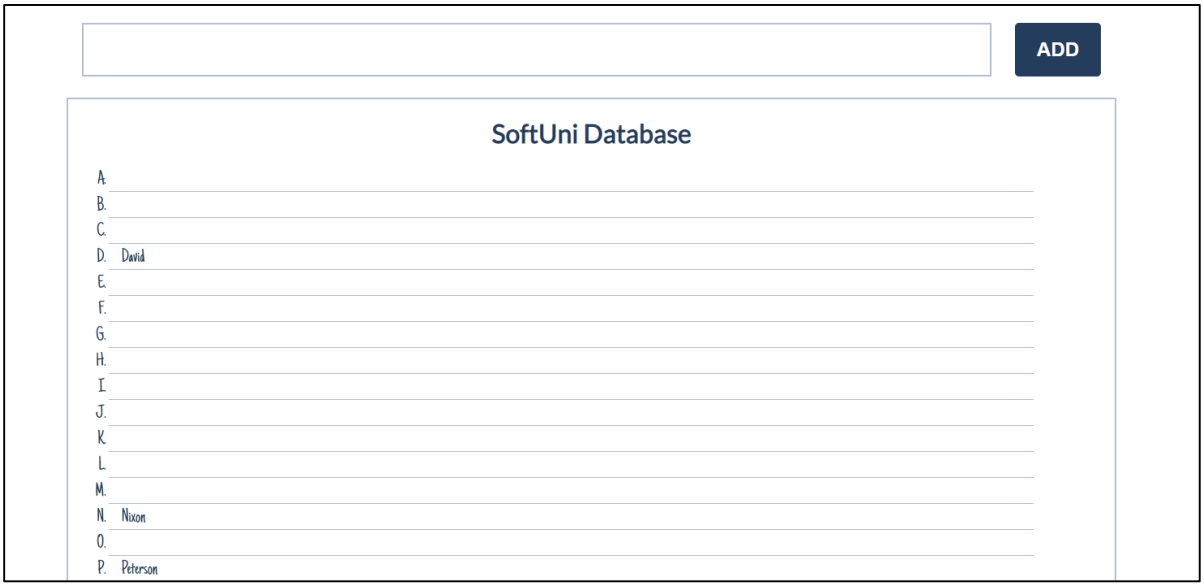
Write a **function that orders names alphabetically**.



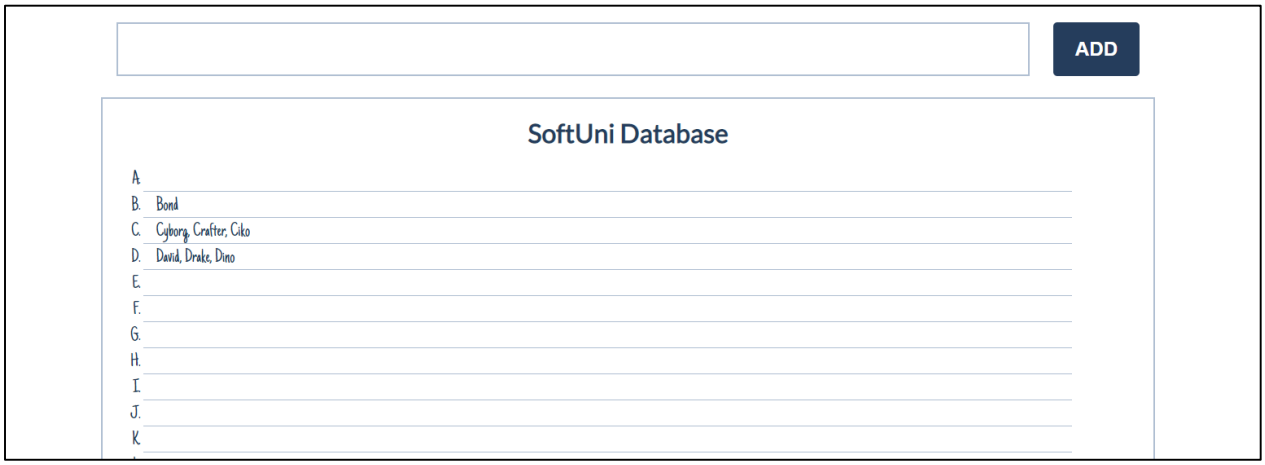
You will receive a **name of a student as an input**. When the "**`Register`**" button is **clicked**, you should add the given student name in the SoftUni Database, while **keeping** the **alphabetial order**.

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



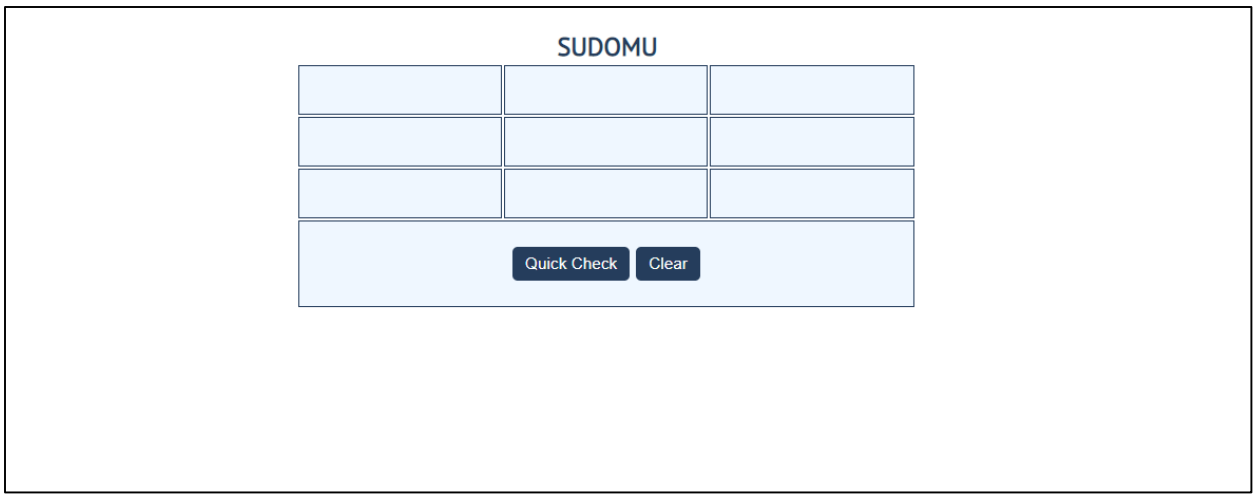


If you **receive more than one name with the same starting letter**, you should **join all names** by a comma and a space (", ").



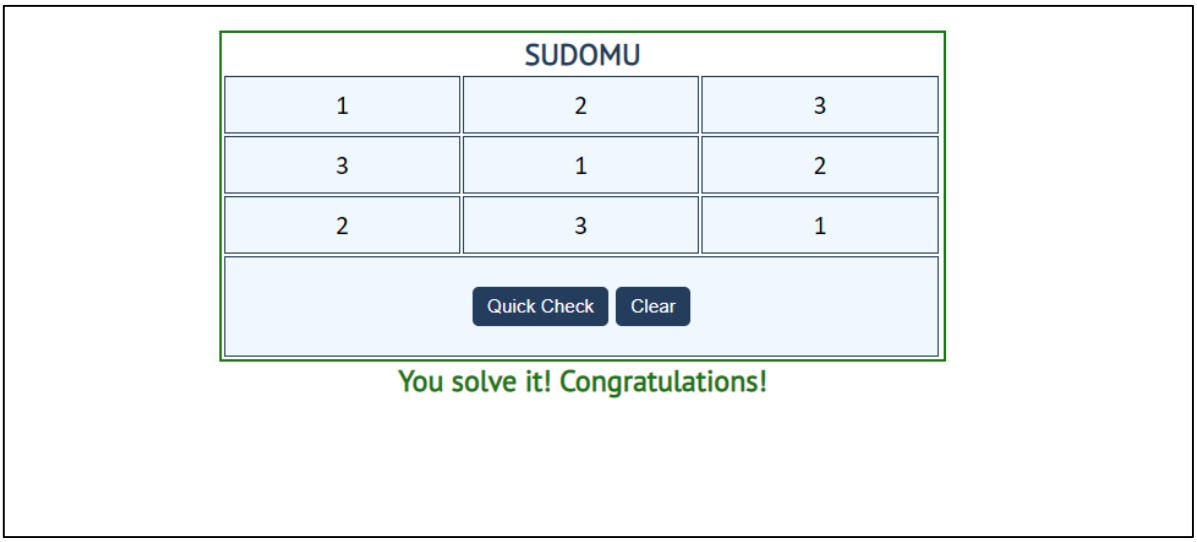
10. * Sudomu

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



The rules are simple and they are **the same** as the **typical sudoku game** (for more information, click here)

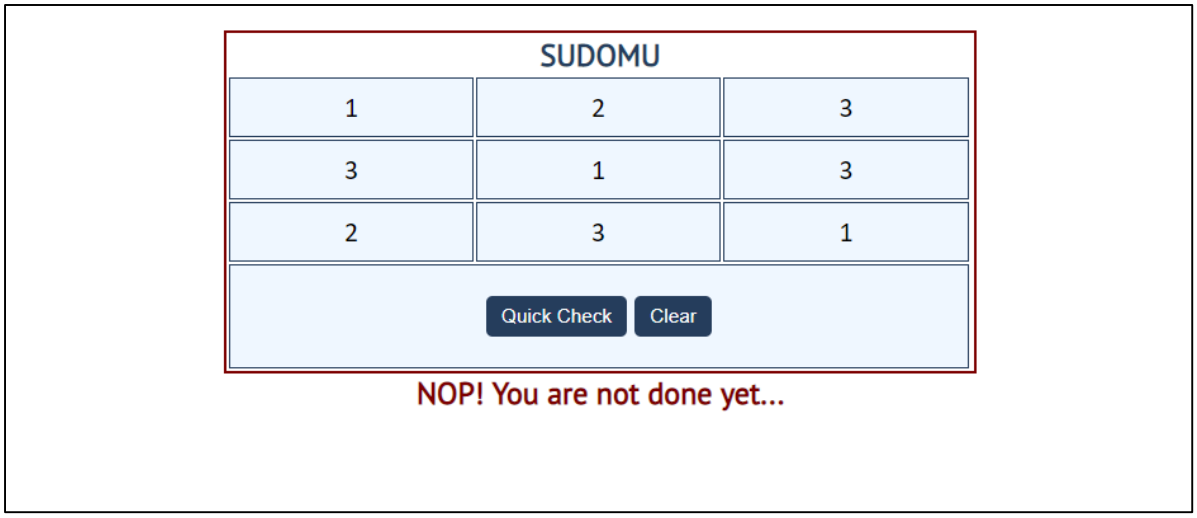
If the table is filled with the **right numbers**, and the "**`Quick Check`**" button is **clicked**, the expected result should be:



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 div must be **green.**

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



The table border should be changed to: "**`2px solid red`**".

The **`text content`** of the **`paragraph`** inside the **`div`** with an **id** "**`check`**" must be:

"**`NOP! You are not done yet…`**"

The text color of that div 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.**