

Javascript, DOM and events

This assignment requires you to make changes to the HTML document, and write Javascript code to add interactivity to it. You will create a web-based calculator. Attention will be paid to the quality of your code - try to avoid repeating code by using functions.

Add form elements in the HTML

- Create two `input` elements in the `form`. Each input allows the user to type in text.

Add interactivity to the form

Make changes to the HTML and Javascript files. When the "Show result" button is clicked:

- the values of the two input elements are collected. They must be converted to **INTEGERS**.
- the operation defined by the checked radio button must be applied: $\text{num1} + \text{num2}$, $\text{num1} - \text{num2}$, $\text{num1} * \text{num2}$, or $\text{num1} / \text{num2}$
- the operation and its result are displayed **at the top** of the `div` with id `results`
 - the most recent operation will be on top
 - the operation is displayed in a `p` element
 - if the operation is impossible or invalid (0 divided by 0, the values provided by the user are invalid, etc), the page should display an informative message (see screenshot)
 - when the operation is valid, the relevant message should have a 1 pixel border
 - green if the result is positive or 0
 - red if the result is strictly negative

The counters above the result messages must keep track of:

- how many operations have been made since the page was loaded
- how many operations failed since the page was loaded
- the counters reset to 0 when the page is reloaded

In the example below, the operations have been performed in the following order:

1. no values provided, no operation selected
2. one operator selected, no values provided
3. operator `/` selected, first number = 1, second number = 0
4. operator `+` selected, first number = 2, second number = 3
5. operator `/` selected, first number = 0, second number = 0
6. operator `-` selected, first number = 9, second number = 4
7. operator `*` selected, first number = 3, second number = -2
8. operator `-` selected, first number = -4, second number = -4
9. operator `*` selected, first number = 0.5, second number = 2
10. operator `+` selected, first number = 1.5, second number = 0.5

☒ + (add)
 ☐ - (subtract)
 ☐ * (multiply)
 ☐ / (divide)

You used the calculator 10 times. 3 operations were invalid or did not return a numeric value.

1 plus 0 = 1

0 times 2 = 0

-4 minus -4 = 0

3 times -2 = -6

9 minus 4 = 5

Invalid operation.

2 plus 3 = 5

1 dividedBy 0 = Infinity

Invalid values provided.

No operation selected.

HINTS:

- Javascript uses `NaN` for the result of invalid arithmetic operations.
- You may want to use a *CSS attribute selector*. For instance, `input[name="example"]` will select input elements whose attribute `name` is `example`.
- You may want to use *CSS pseudo-classes* too (`:hover`, `:checked`, etc).
- Remember - you can combine CSS selectors.
- You use `.appendChild` to add a child to an existing element, but you can also use `.insertBefore` to add an element before an existing one.
- `.firstChild` is the first child of an element.
- `parent.insertBefore(myNewThing, parent.firstChild)` will insert `myNewThing` before the first child of `parent` (`myNewThing` will become the first child of `parent`).
- You may add CSS styling instead or if needed. Don't forget to submit your CSS file if you use one!

Answer the questions at the top of the Javascript file (in the comments)

Grading rubric

Item	Marks
Form elements	0.5

Item	Marks
Collection, conversion and error checking of form values	1
Correct operation and result	1
Update the results div	1
Counters	1
Styling	1
Questions in the comments	1.5
Code quality and use of functions	1