CSE3026: Web Application Development

Lab 9: JavaScript & DOM

Software Engineering Lab

Lab 9: JavaScript & DOM

Lab 9: JavaSrcript & DOM - create JavaScript Calculator!

- The JavaScript Calculator page has very simple functions of a calculator. This page has already been written with the basic HTML and CSS.
- The JavaScript Calculator page has a linked javascript (calculator.js) that will make calculator work.

Lab 9 exercises

Download the calculater-wed.zip and complete the following exercises.

1. Event handler
2. Operand buttons
3. Decimal point button and All clear button
4. Operator buttons
5. Factorial function
6. Equal(=) button
7. Exception Handling

Ex 1: Event handler function

Modify anonymous function

- Create if-else statements to check that the button contains **number**, **AC**, **decimal point**, or **else**
- Put the following line of code after the end of else statement

```
document.getElementByid('result').innerHTML = displayVal;
```

Note :

- **$$('button')** is the selector which selects all button tags as an array. We will cover this style selectors in the next lecture, Prototype.
- **value** variable contains the string in the button elements
- **displayVal** variable contains the string which will display on the **result** division.
- **stack** array contains the operators and operands which are used in the **calculator** function

Ex 2: Operand buttons

Let’s write the code for operand(number) buttons

- When operand button is clicked, it should display the number appropriately within the **result** division
  - Hint : create if-else statement in **if** statement for **number** to check that **displayVal** starts with “**0**” or not

Ex 3: Decimal point & All clear button

Let’s write the code for decimal point and all clear button

- The calculator should correctly handle decimal point
  - For example, there should be only one decimal point in a number
  - Hint : create if statement in your decimal point condition to check that **displayVal** doesn’t contain a decimal point

- All clear button is “AC” button. Write code in your all clear condition
  - Both expression and result value should be cleared
  - Hint : think about stack variable as well

Ex 4: Operator buttons

Let’s write code for operator buttons

- Write your code in your else statement
  - When an operator button is clicked, number already displayed in the **result** division and the operator should be displayed in the **expression** division where result division should **reset to 0**

  - Create if-else statement to check the last operator has a high priority or not. **(*, /, ^ have a high priority)**
    - if the last operator has a high priority, call highPriorityCalculator. Else, push converted **displayVal** using **parseFloat** to **stack**.
  - Push **clicked operator** to **stack** after the **calculated result** or converted **displayVal** is pushed.

- Fill **highPriorityCalculator** function
  - This function calculates the **last pushed number** and **displayVal** using the **last pushed operator**
  - Push the **calculated result** to the **stack**

Ex 5: Factorial Function

Let’s write code for factorial button

- Fill **factorial** function that returns factorial of the variable x
- Modify the code in your operator condition
  - If **value variable** is “!”, push the result of **factorial using parsed displayVal**. Else, push **parsed displayVal.**

Ex 6: Equal(=) button

Let’s write code for equal button

- Fill **calculator** function which **add or subtract all values** in the stack.
- Create if-else statement in your operator condition to check that value is “=“
    - Assign **displayVal** to the result of **calculator** function

Ex 7: Exception Handling

Let’s write code for exception handling

- Reset **stack**, **expression** division, and **displayVal** after calculation ends.
- Ignore **“!”** and **numbers** right after **“!”** operator.

Note :

- The error can be happened in the decimal point calculation. You don’t have to care about that.
- You don’t have to consider radical number factorial

Test value : 9!-3*5*3+2^5-4 = 362863
9/3-5!+9^8= 43046604

If you finish them all···

If you finish all the exercises:

1. you can add any other content you like to your page
2. check in with a TA to get credit for your work
3. you may be able to be dismissed

If you don’t finish all the exercises on time:

1. **upload your files to gitHub** at least 16:55
2. you can get some marks from your uploaded files
3. you **can’t get any marks** if you submit result after 17:00 Wednesday

Great Work!