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Lab 5: Web Programming - CSci130

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Goals: The goal of this lab is to create a calculator that can compute different expressions by pressing different buttons on the graphical user interface (GUI) of the calculator. Each function will be represented by a button. The calculator has other elements related to the representation of matrices.

Learning outcomes: Javascript syntax, Form in HTML5, Document Object Model (DOM)

You have to complete Exercise 1 **and** Exercise 2

1. **Exercise 1**
    a. You have a layout with the 10 digits [0 to 9], you have the point for decimal values (.), buttons for the addition (+), subtraction (-), multiplication (*), division (/), square root (sqrt), inverse the sign (+/-), and reset (CE). You have also a button "=" to evaluate the current expression. In this project, the expressions will be evaluated by pairs.
        - You don't need to create a particular data structure to contain the whole expression and to take into account the priorities of the operators.
    b. You have a textbox that contains the value of the current number that is written with the buttons, or the current results.
    c. You have a textbox that contains the complete sequence of the different numbers and operators that are entered on the calculator.

2. **Exercise 2**

    a. We consider 4 inputs that can allow you to determine the size of 2 matrices A and B of size (n1 x m1) and (n2 x m2), respectively.
    b. With a button to validate the 4 inputs, the script will create automatically 2 tables where it is possible to fill the cells of the matrices A and B.
    c. You will have presented in the page between the 2 matrices A and B, a combo box that allows you to select an operation: addition (+), subtraction (-), or multiplication (*).
    d. Warning: You will have to control that the size of the matrix is appropriate for the selected operations. Finally, you will display the result of the operation (matrix C) on the right side of the screen. Example: A * B = C.
        - A is a table dynamically created in relation to its specified size.
        - The operator (a combo box)
        - B is a table dynamically created in relation to its specified size.
        - = is just a paragraph
        - A is a table dynamically created in relation to A and B
    e. Under each matrix, you have a button to create the transpose of the matrix
    f. Under each matrix, you have a button to compute the trace of the matrix.