Lab 4: Web Programming - CSci130

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Keep the different documents that you are creating during the lab sessions as they can be asked later as a part of the "attendance and participation" mark.

Goals: To get used with the syntax of Javascript and to program functions with Javascript.

Exercise 0. Basic syntax

Create a page that shows a message "It is my first example with Javascript" by using the alert function, then prompt the user if he wants to consider a circle, rectangle, or trapeze, depending on the choice, you will prompt again the user to get the dimensions of the object:

- radius for the circle
- height and width for the rectangle
- sizes of parallel sides, and height for the trapeze

Then, you will display through alert the perimeter and area of the selected element. Use functions to compute areas and perimeters.

Exercise 1. Concatenations

Evaluate each expression (alert) and give the type of each output:

1. "" + 1 + 0
2. "" - 1 + 0
3. true + false
4. 6 / "3"
5. "2" * "3"
6. 4 + 5 + "px"
7. "$" + 4 + 5
8. "4" - 2
9. "4px" - 2
10. 7 / 0
11. " -9\n" + 5
12. " -9\n" - 5
13. null + 1
14. undefined + 1

Comment the differences obtained for expressions 11 and 12.

Exercise 2. Conditions

Rewrite the following if then else expression with the ? syntax. Test both versions of the code with a prompt and alert in separate webpages.

```
let msg;
if (login == 'student') {
  msg = 'Hi';
} else if (login == 'faculty') {
  msg = 'Greetings';
} else if (login == '') {
  msg = 'No login';
} else {
  msg = '';
}
```

Exercise 3. Basic array functions

We consider an array that can be defined as follows:

var x = new Array(12); // 12 being the size of the array

You can access the elements like in C ++: x[0] for the first position

- Create a function to ask the user to enter numbers in an array.
- Create a function to get the average of the values in the array
- Create a function to get the standard deviation of the values in the array
- Create a function to display the average and standard deviation in a message box.

Exercise 4. Prime numbers

Create a webpage that will display with alert the n first prime number, where n is given by the user.

Exercise 5. Binary Search

The goal of this exercise is to obtain a random number between 1 and 100 (use the Math object and its associated functions) and to ask the user to find this number. When the number is found, you can tell the user how many queries were done.

You will find information about the Math object in the following page:

https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global_Objects/Math