Lab 1 - Expressions, Functions and Objects

95.5/100 Points

1/28/2024

Attempt 1

Review Feedback
1/28/2024

Attempt 1 Score:
95.5/100

Add Comment

Anonymous Grading: **no**

1 Attempt Allowed
1/14/2024 to 2/4/2024

Details

Using Expressions, Functions and Objects

This lab demonstrates material from chapters 2 and 3 of the textbook.

Now that you have successfully created a web page, it is time to try some real functionality using functions, expressions and objects.

In Chapter 2 (page 63), the textbook demonstrates the use of textContent to send text to a page element. This works well to change the text of a page element. Also notice that the author uses innerHTML for output on page 65. innerHTML can be used to send text and formatting to a page element as demonstrated on page 130 of the text. Also, notice that the author uses the += operator to send output to the page.

```
strMessage = "hello";     // replace the previous contents of strMessage with "hello"

strMessage += " world";     // add to strMessage
```

The final value of strMessage is "hello world"

Check out the following demos to see examples of JavaScript in action:

- The **Page Output Demo** (https://cs.iupui.edu/~linglu/n341/demos/multiWritesDemo.html)
- The **Functions Demo** (http://cs.iupui.edu/~linglu/n341/demos/functionsDemo.html)
- The **Objects Demo** (http://cs.iupui.edu/~linglu/n341/demos/objectsDemo.html)

Activities

For this lab, you will:

1. Create a new HTML file. The page should contain as many page elements as you need to produce the required output.
2. Your page must have a theme that demonstrates a defined purpose. For example, it could be a job application or an order form for a restaurant. Please describe your theme in an HTML comment. You will use this theme for each lab throughout the semester. Each requirement must reflect your chosen theme.
3. Use variables with appropriate prefixes

Variable Type	Prefix	Example
string	str	strUserName

integer	int	intHeight
Boolean	bol	bolHasBooks
float	flt	fltAccountBalance
page element	el	elOutput

4. Declare a string variable. Use the str prefix and initialize it to a string value.
5. Declare an integer variable. Use the int prefix and initialize it to an integer value.
6. Declare a Boolean variable. Use the bol prefix and initialize it to a Boolean value.
7. Create a simple function that sends output to the page using textContent or innerHTML. One parameter should be the ID of the page element to accept the output, and other parameters should be used to create the output. Output must be sent to the page element from inside the function. All output must be clearly labelled. Do **not** use alert(). Do **not** use .write().
8. Call your function three separate times using different variables to three different page elements. Output must be visible for all three page elements. Be sure that each page element is clearly labelled. For example:

   Name: Lyla Eberly
   Home address: 123 Dearborn Street
   Favorite Flower: Lilly
9. Create an array of strings. The array should have at least five elements.
10. Create an array of integers. The array should have at least five elements.
11. Use the function from step 7 to output the values of both arrays to different page elements.
12. Use three different arithmetic operators to change each of the values in the array of integers.
13. Use two different string methods to change each of the values in the array of strings.
14. Use the function from step 7 to output the modified array of integers.
15. Use the function from step 7 to output the modified array of strings.
16. Create an object. The object must contain:
    - at least two properties
    - At least one method that correctly uses the keyword **this**
    - a method that returns a value that is calculated from the instantiated object's properties
    - a method that outputs each of the object's properties with labels to a page element
    - a method that uses a Math Object method
    - a method that uses a Date Object method
    - You can combine the above requirements, e.g. create one method that satisfies two bullet item requirements.
17. Initialize the object's properties to visible values.
18. Use the object's output method to output the values of the properties to the page.
19. Call the object's method that uses the Math Object.
20. Call the object's method that uses the Date Object.
21. Use dot notation inside a method to update at least one of the object's properties.
22. After modifying the properties, use the object's output method to send the property values to a different page element.

Notes:

- All **HTML should validate (https://validator.w3.org/)** .
- Use **the JS Console (https://iu.instructure.com/courses/2214520/pages/the-js-console)** to check for errors in your code. ***If your page crashes, there will be a 50% penalty.***
- Each file must contain a header block comment.
- All CSS and JavaScript must be stored in external files.

- All page output must be labeled clearly on the page. For example:
  - **Original integer array:** 1, 2, 3, 4, 5
  - **Modified integer array:** 6, 7, 8, 9, 10
- All requirements listed in the rubric below **must be labelled clearly with comments** in the JavaScript file. For example:
  - `var myIntegerArray = [1, 2, 3, 4, 5];  // Req 10: Create an array of integers`
  - `var myStringArray = ['one', 'two', 'three', 'four', 'five'];  // Req 9: Create an array of strings`
- All output requirements must produce visible results on the page
- Modified values cannot be the same as the original value and must be sent to a separate page element
- Requirements 4 - 15 can be included in the object, but this is not required.

View Rubric

Select Grader

Laurie Callahan (Teacher)

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Criteria	Ratings	Pts
Declare a string variable view longer description		3 / 3 pts
Declare an integer variable view longer description		3 / 3 pts
Declare a Boolean variable view longer description		3 / 3 pts
Create a simple function for output. view longer description		5 / 5 pts
Use a function to output all three variables to the page. view longer description		3 / 3 pts
Create an array of strings. view longer description		2 / 2 pts
Create an array of integers view longer description		2 / 2 pts
Use a function to output the values of both arrays. view longer description		2 / 2 pts

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Criteria	Ratings	Pts
Use three arithmetic operators to change each of the values in the array of integers. view longer description	**Comments** Instead of using three different arithmetic operators, one operator is used many times. (-2)	1 / 3 pts
Use two different string methods to change each of the values in the array of strings. view longer description		2 / 2 pts
Use a function to output the values of both modified arrays. view longer description		2 / 2 pts
Create an object. view longer description		5 / 5 pts
The object contains at least two properties view longer description		2 / 2 pts
The object contains at least one method that uses the keyword this.		2 / 2 pts
The object contains a method that returns a value that is calculated from the object's properties.		2 / 2 pts
The object contains a method that outputs each of the object's properties with labels to a page element.		2 / 2 pts
The object contains a method that uses the Math Object.		4 / 4 pts
The object contains a method that uses the Date object.		4 / 4 pts
Initialize the object's properties to visible values.		2 / 2 pts

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Criteria	Ratings	Pts
Use the object's output method to output the values of the properties to the page. view longer description		5 / 5 pts
Use dot notation inside a method to update at least one of the object's properties.		2 / 2 pts
Call the object's method that uses the Math Object.		2 / 2 pts
Call the object's method that uses the Date Object.		2 / 2 pts
After modifying the properties, use the object's output method to send the property values to a different page element.	**Comments** The output method sends values to the same page element and overwrites the existing output. (-2.5)	2.5 / 5 pts
Each requirement is labelled with comments. view longer description		10 / 10 pts
HTML validates at https://validator.w3.org/		3 / 3 pts
HTML file contains a header block comment. view longer description		3 / 3 pts
JavaScript file contains a header block comment. view longer description		5 / 5 pts
Lab has a defined theme. view longer description		10 / 10 pts
		Total Points: 95.5

https://cs.iupui.edu/~parmsing/n341/labone/

(https://iu.instructure.com/courses/2214520/modules/items/31320374)

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