

Javascript Specialist Designation Program

Lab Exercise #8

It's time for some practice with arrays! Let's put it to the test.

Lab Instructions

1) Run your Brackets development environment, create a new file and quickly save it under the file name **eighth_javascript_lab.html**

2) Key in the basic HTML document structure and set **Lab #8** as the content for the title tag.

3) In the body of the HTML document add a heading 1 tag with the content, "Find the most frequent item in an Array".

4) We won't need any other HTML for this so let's head straight to Javascript

Create a separate Javascript file and quickly save it as **main.js**.

5) Link the HTML file to the Javascript file.

```
<script src="main.js"></script>
```

6) Open your **main.js** file and create the window.onload function.

Inside the onload function, we're going to declare 4 variables but only initialize 3 of them.

The first variable will be called "arr" and will represent your array. Inside the array, add as many items as you'd like, separated by commas. Be sure to make one of the items appear several times.

The second variable will be called "mostFrequent" and will be given the value of 1. The third variable will be called "notFrequent" and given the value of 0.

Lastly, the fourth variable will be declared as "item" but not initialized.

```
window.onload = function() {  
    var arr = [1, 3, 4, 5, 2, 1, 2, 1, 1]  
    var mostFrequent = 1;  
    var notFrequent = 0;  
    var item;  
}
```

7) Still inside the onload function, we will now create 2 for loops.

The first for loop will start "i" as the iterator at 0, the iterator will be less than the length of "arr" and will increment by 1.

Inside this first loop we will write a second loop and will use "j" as the iterator. Make j equal to i, j must be less than the length of arr, and will increment by 1.

Your loops should look something like this:

```
for (var i = 0; i < arr.length; i++) {  
    for (var j = i; j < arr.length; j++) {  
    }  
}
```

8) Inside the second for loop we are typing 2 if statements. The first if statement will if the "i" iterator is identical to the "j" iterator. Then, the if statement will increment "notFrequent" by 1. ("j" and "i" will always be identical so this if statement does not need curly brackets)

The second if statement will check to see if "mostFrequent" is less than "notFrequent", if so, we will make "mostFrequent" equal to "notFrequent". Then, we will make "item" equal to the array's iterator.

Outside the main for loop, we will make "notFrequent" back equal to 0.

Your code should look something like this:

```
window.onload = function() {  
    var arr = [1, 2, 3, 4, 2, 1, 1, 1, 1];  
    var mostFrequent = 1;  
    var notFrequent = 0;  
    var item;  
    for (var i = 0; i < arr.length; i++) {  
        for (var j = i; j < arr.length; j++) {  
            if (arr[i] == arr[j])  
                notFrequent++;  
            if (mostFrequent < notFrequent) {  
                mostFrequent = notFrequent;  
                item = arr[i];  
            }  
        }  
    }  
    notFrequent = 0;  
}
```

9) Lastly, the last function within the onload function will be an alert to let the user know which items appears the most in the array.

Inside the alert, you should start off with the variable "item", then concatenate the string "appears", then concatenate the "mostFrequent" variable, and finally concatenate the string "times".

```
alert(item + " appears " + mostFrequent +  
" times");
```

10) Click File Save to save the current version of your document. Navigate to the HTML document using your operating system and double click it. The document should open in your default browser.

Check out the alert! Go back into the Javascript file and mess with your array. Refresh, then try again.

Challenge Yourself

Enhance your skills by attempting the exercises below.

1) Write a JavaScript function to get the first element of an array. Passing a parameter 'n' will return the first 'n' elements of the array.

2) Put your site on the web. We've arranged a special deal with Blue Host. Visit <http://www.bluehost.com/track/learntoprogram/> and click "Get Stated Now." You will be able to access web hosting plans as low as \$3.49 a month. Once Blue Host takes you through the process of creating your domain and web server upload your lab and post the URL for the others in the class to see.