



Intro to JavaScript Week 3 Coding Assignment

Points possible: 70

Category	Criteria	% of Grade
Functionality	Does the code work?	25
Organization	Is the code clean and organized? Proper use of white space, syntax, and consistency are utilized. Names and comments are concise and clear.	25
Creativity	Student solved the problems presented in the assignment using creativity and out of the box thinking.	25
Completeness	All requirements of the assignment are complete.	25

Instructions: In VS Code, or an IDE of your choice, write the code that accomplishes the objectives listed below. Ensure that the code compiles and runs as directed. Take screenshots of the code and of the running program (make sure to get screenshots of all required functionality) and paste them in this document where instructed below. Create a new repository on GitHub for this week's assignments and push this document, with your JavaScript project code, to the repository. Add the URL for this week's repository to this document where instructed and submit this document to your instructor when complete.

Coding Steps:

1. Create an array called `ages` that contains the following values: 3, 9, 23, 64, 2, 8, 28, 93.
 - a. Programmatically subtract the value of the first element in the array from the value in the last element of the array (do not use numbers to reference the last element, find it programmatically, `ages[7] - ages[0]` is not allowed). Print the result to the console.
 - b. Add a new age to your array and repeat the step above to ensure it is dynamic (works for arrays of different lengths).
 - c. Use a loop to iterate through the array and calculate the average age. Print the result to the console.
2. Create an array called `names` that contains the following values: 'Sam', 'Tommy', 'Tim', 'Sally', 'Buck', 'Bob'.



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- a. Use a loop to iterate through the array and calculate the average number of letters per name. Print the result to the console.
 - b. Use a loop to iterate through the array again and concatenate all the names together, separated by spaces, and print the result to the console.
3. How do you access the last element of any array?
4. How do you access the first element of any array?
5. Create a new array called `nameLengths`. Write a loop to iterate over the previously created `names` array and add the length of each name to the `nameLengths` array.

For example:

```
namesArray = ["Kelly", "Sam", "Kate"] //given this array
nameLengths = [5, 3, 4] //create this new array
```

6. Write a loop to iterate over the `nameLengths` array and calculate the sum of all the elements in the array. Print the result to the console.
7. Write a function that takes two parameters, `word` and `n`, as arguments and returns the word concatenated to itself `n` number of times. (i.e. if I pass in 'Hello' and 3, I would expect the function to return 'HelloHelloHello').
8. Write a function that takes two parameters, `firstName` and `lastName`, and returns a full name (the full name should be the first and the last name separated by a space).
9. Write a function that takes an array of numbers and returns true if the sum of all the numbers in the array is greater than 100.
10. Write a function that takes an array of numbers and returns the average of all the elements in the array.
11. Write a function that takes two arrays of numbers and returns true if the average of the elements in the first array is greater than the average of the elements in the second array.
12. Write a function called `willBuyDrink` that takes a boolean `isHotOutside`, and a number `moneyInPocket`, and returns true if it is hot outside and if `moneyInPocket` is greater than 10.50.
13. Create a function of your own that solves a problem. In comments, write what the function does and why you created it.

Screenshots of Code: I used CodeSnap extension to grab my screenshots of each chunk of the code.



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```
1  /* 1a.
2  Create an array called ages that contains the following values:
3  3, 9, 23, 64, 2, 8, 28, 93.
4  Programmatically subtract the value of the first element in
5  the array from the value in
6  the last element of the array
7  (do not use numbers to reference the last element, find it
8  programmatically,
9  ages[7] - ages[0] is not allowed).
10 Print the result to the console.
11 */
12
13 //A variable to declare an array of ages.
14 let ages = [3, 9, 23, 64, 2, 8, 28, 93];
15
16 //A variable to subtract the first ages array element from
17 the last ages array element.
18 let minusAges = ages[ages.length - 1] - ages[0];
19
20 //Logs out the results of minusAges variable to the browser
21 console.
22 console.log("1a. Subtracting first array from last array:",
23 minusAges);
24
25 /* 1b.
26 Add a new age to your array and repeat the step above to ensure
27 it is dynamic.
28 (works for arrays of different lengths).
29 */
30
31 //This will add two additional values to our ages variable
32 above.
33 ages.push(100, 110);
34
35 //Logs out the results of minusAges variable to the browser
36 console but include our added ages from above.
37 console.log("1b. Adding to the array then repeat step 1:",
38 minusAges);
39
40 /* 1c.
41 Use a loop to iterate through the array and calculate the average
42 age.
43 Print the result to the console.
44 */
45
46 //Declares a variable with a number of zero.
47 let total = 0;
48
49 //Runs a loop to iterate through the ages array.
50 for (let i = 0; i < ages.length; i++) {
51   //We then call the total variable and sum the values of each
52   element in the array to the total.
53   total += ages[i];
54   //Sets a variable called average and divides total by
55   the length of the ages array to get the average of the array.
56   average = total / ages.length;
57 }
58
59 //Logs out the results of the average variable to the browser
60 console.
61 console.log("1c. The average of all ages:", average);
62
63 /* 2a.
64 Create an array called names that contains the following values:
65 'Sam', 'Tommy', 'Tim', 'Sally', 'Buck', 'Bob'.
66 Use a loop to iterate through the array and calculate the average
67 number of letters per name.
68 Print the result to the console.
69 */
70
71 //Sets a variable to an array of names.
72 let names = ["Sam", "Tommy", "Tim", "Sally", "Buck", "Bob"];
73
74 //Sets a variable to equal zero.
75 let totalNamesAverage = 0;
76
77 //Runs a loop to iterate through the names array.
78 for (let i = 0; i < names.length; i++) {
79   //Sums the characters in each name element and divides by
80   the array length.
81   totalNamesAverage += names[i].length / names.length;
82 }
83
84 //Logs out the results of the totalNamesAverage variable to
85 the browser console.
86 console.log("2a. The average of all names:", totalNamesAverage);
87
88 /* 2b.
89 Use a loop to iterate through the array again and concatenate
90 all the names together,
91 separated by spaces,
92 and print the result to the console.
93 */
94
95 //Sets a variable containing an empty string.
96 let concatNames = "";
97
98 //Runs a loop to iterate through the names length array.
99 for (let i = 0; i < names.length; i++) {
100   concatNames = concatNames.concat(names[i], " ");
101 }
102
103 //Logs out the results of the concatNames to the browser console.
104 console.log("2b. Names Concatenated:", concatNames);
105
106 /* 3
107 How do you access the last element of any array?
108 */
109 let lastArrayElement = names.slice(-1);
110
111 //Logs out the results of the lastArrayElement variable to
112 the browser console.
113 console.log("3. Last Element:", lastArrayElement);
114
115 /* 4
116 How do you access the first element of any array?
117 */
118 let firstArrayElement = names.slice(0, 1);
119
120 //Logs out the results of the firstArrayElement variable to
121 the browser console.
122 console.log("4. First Element:", firstArrayElement);
```



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```
1
2 /*5
3 Create a new array called nameLengths.
4 Write a loop to iterate over the previously created names a
rray and add the length of each name to the nameLengths arr
ay.
5 For example:
6
7 namesArray = ["Kelly", "Sam", "Kate"] //given this array
8 nameLengths = [5, 3, 4] //create this new array
9 */
10 let nameLengths = [];
11
12 //Runs a loop to iterate through the names length array.
13 for (let i = 0; i < names.length; i++) {
14   nameLengths.push(names[i].length);
15 }
16
17 //Logs out the results of the nameLengths variable to the b
rowser console.
18 console.log("5. Names character lengths add to new array:",
nameLengths);
19
20 /*6
21 Write a loop to iterate over the nameLengths array and calc
ulate the sum of all the elements in the array.
22 Print the result to the console.
23 */
24
25 //Sets a blank variable for the total name array length.
26 let totalNameArrLength;
27
28 //Runs a loop to iterate through the names length array.
29 for (let i = 0; i < nameLengths.length; i++) {
30   totalNameArrLength = nameLengths.length;
31 }
32
33 //Logs out the results of the totalNameArrLength variable t
o the browser console.
34 console.log("6. Total of nameLength Array elements:", total
NameArrLength);
35
36 /*7
37 Write a function that takes two parameters,
word and n, as arguments and returns the word concatenated
to itself a number of times.
38 (i.e. if I pass in 'Hello' and 3, I would expect the functi
on to return 'HelloHelloHello').
39 */
40
41 /*Creates a function to repeat a string by a given number o
f times.
42 This accepts two parameters. A string and a number.*/
43 function parAddition(word, n) {
44   wordRep = word.repeat(n);
45   return wordRep;
46 }
47
48 //Sets a variable to call the function parAddition
49 let wordRepeating = parAddition("Hello", 3);
50
51 //Logs out the results of the wordRepeating variable to the
browser console.
52 console.log("7. Word Concatenating based on n number of tim
es:", wordRepeating);
53
54 /*8
55 Write a function that takes two parameters, firstName and l
astName, and returns a full name
56 (the full name should be the first and the last name separa
ted by a space).
57 */
58
59 /*Creates a function to display a full name.
60 This accepts two parameters. A First Name and Last Name ie.
John, Doe*/
61 function fullName(firstName, lastName) {
62   fullNameMerged = firstName + " " + lastName;
63   return fullNameMerged;
64 }
65
66 //Sets a variable to call the function fullName
67 let yourFullName = fullName("Matthew", "Cox");
68
69 //Logs out the results of the yourFullName variable to the
browser console.
70 console.log("8. First name and last name:", yourFullName);
71
72 /*9
73 Write a function that takes an array of numbers and returns
true
74 if the sum of all the numbers in the array is greater than
100.
75 */
76
77 //Sets a variable to an array of numbers.
78 let yourArray = [10, 20, 30, 40, 1];
79
80 /*Creates a function to return true/false if the array is g
reater than 100.
81 This accepts one array parameter.*/
82 function trueArray(arr1) {
83   arrayTotal = 0;
84   for (let i = 0; i < arr1.length; i++) {
85     arrayTotal += arr1[i];
86   }
87   arrayIsTrue = arrayTotal > 100;
88   return arrayIsTrue;
89 }
90
91 //sets a variable to call a function.
92 let yourSummedArray = trueArray(yourArray);
93
94 //Logs out the results of the yourSummedArray variable to t
he browser console.
95 console.log("9. Is array sum greater than 100?", yourSummed
Array);
96
97 /*10
98 Write a function that takes an array of numbers and returns
the average of all the elements in the array.
99 */
100
101 /*Create a function to output the average of all numbers i
n the array.
102 This accepts one array parameter.*/
103 function averageArray(arr1) {
104   let total = 0;
105   arr1.forEach(function (num, index) {
106     total += num;
107   });
108   return total / arr1.length;
109 }
```



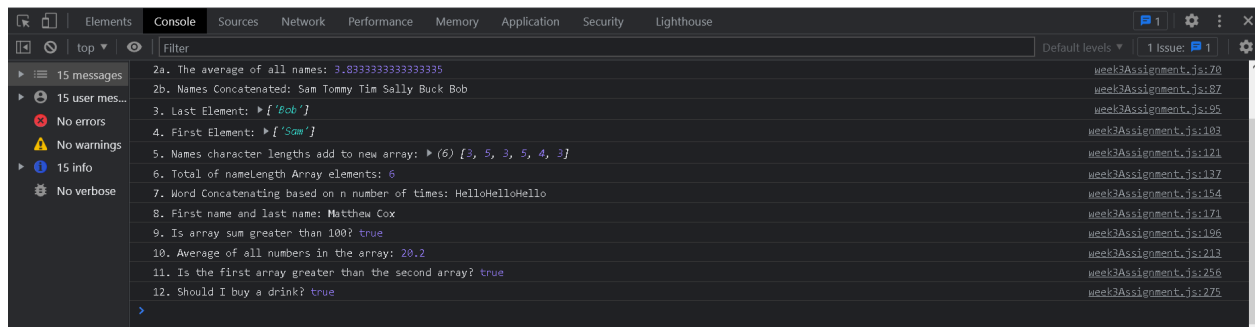
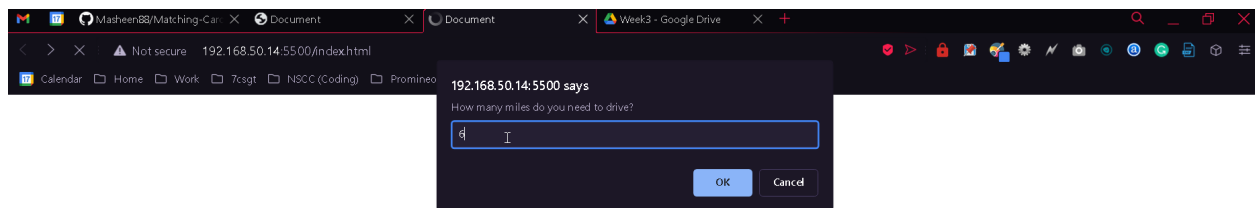
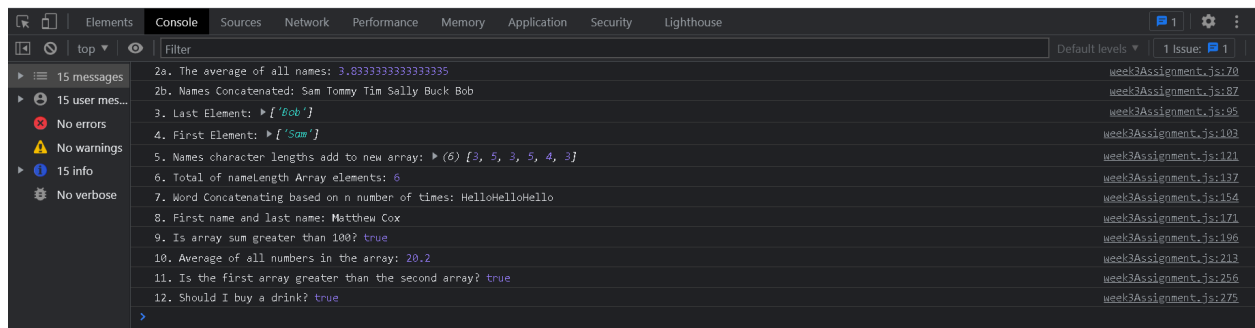
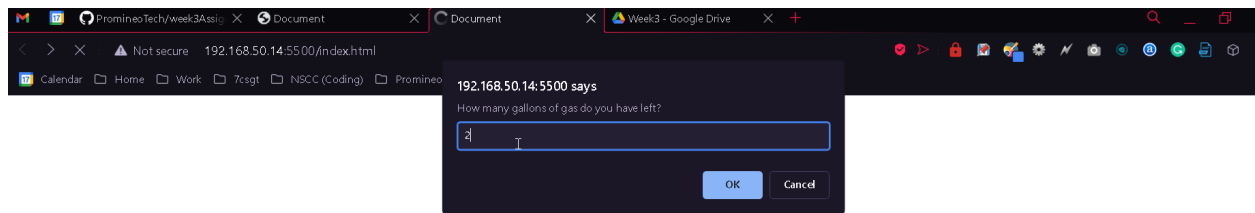
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```
1 //Logs out the results of the averageArray function to the browser console.
2 console.log(
3   "10. Average of all numbers in the array:",
4   averageArray(yourArray)
5 );
6
7 /*11
8 Write a function that takes two arrays of numbers and returns true if
9 the average of the elements in the first array is greater than the average of the elements in the second array.
10 */
11
12 //Two arrays are declared below.
13 let array1 = [10, 15, 10];
14 //Feel free to change the 9 to a 10.
15 let array2 = [10, 10, 12];
16
17 /*Creates a function to compare the average of the first array vs the second array.
18 This accepts two array parameters.*/
19 function averageTwoArrays(arr1, arr2) {
20   //Two variables are set to 0 and will be added to later in the function.
21   let totalArr1 = 0;
22   let totalArr2 = 0;
23
24   //Uses a forEach method to iterate through each arr1's element and index.
25   arr1.forEach(function (arr1Element, index) {
26     //Adds each of arr1's elements together and adds them to variable totalArr1
27     totalArr1 += arr1Element;
28   });
29   //Sets a variable that divides arr1's total by the length of arr1.
30   array1Average = totalArr1 / arr1.length;
31
32   //Uses a forEach method to iterate through each arr2's element and index.
33   arr2.forEach(function (arr2Element, index) {
34     //Adds each of arr2's elements together and adds them to variable totalArr1
35     totalArr2 += arr2Element;
36   });
37   //Sets a variable that divides arr2's total by the length of arr2.
38   array2Average = totalArr2 / arr2.length;
39
40   //Returns true if array1 is greater than array2
41   return array1Average > array2Average;
42 }
43
44 //Logs out the results of the averageTwoArrays function to the browser console.
45 console.log(
46   "11. Is the first array greater than the second array?",
47   averageTwoArrays(array1, array2)
48 );
49
50 /*12
51 Write a function called willBuyDrink that takes a boolean isHotOutside, and a number moneyInPocket, and
52 returns true if it is hot outside and if moneyInPocket is greater than 10.50.
53 */
54
55 /*Creates a function to determine if it is hot outside and if you have enough money to buy a drink.
56 This accepts two parameters. Parameter one is true or false. Parameter two is the amount of money you have.*/
57 function willBuyDrink(isHotOutside, moneyInPocket) {
58   let buyADrink = isHotOutside == true && moneyInPocket > 10.5;
59
60   return buyADrink;
61 }
62
63 //Logs out the results of the willBuyDrink function to the browser console.
64 console.log("12. Should I buy a drink?", willBuyDrink(true, 10.51));
65
66 /*13
67 Create a function of your own that solves a problem.
68 In comments, write what the function does and why you created it.
69 */
70
71 /*
72 Problem: We are driving the worlds worst car! :) You use 1 gallons of gas per mile. We need to calculate
73 if you have enough gallons of gas to get to your destination.
74
75 Solution: I chose to create a function containing an IF statement that will tell you if you need to fill up
76 based on the amount of fuel you have "gallonsOffFuel" and the miles you have left to drive "milesLeftToDrive"
77 */
78
79 //Creates a function called buyGas and accepts two parameters.
80 function buyGas(gallonsOffFuel, milesLeftToDrive) {
81   //Sets a blank variable
82   let goBuyGas;
83
84   //If Your gallons of fuel are less than or equal to the miles you have left let the user know they need gas.
85   if (gallonsOffFuel <= milesLeftToDrive) {
86     goBuyGas =
87       "You have " +
88       gallonsOffFuel +
89       " gallons left and " +
90       milesLeftToDrive +
91       " miles to drive. Please go get fuel!";
92   //If Your gallons of fuel are more than the miles you have left let the user know they do not need gas.
93   } else {
94     goBuyGas = "You do not need to get any gas. Keep Driving!";
95   }
96
97   return goBuyGas;
98 }
99
100 //Sets a variable to prompt the user on how many gallons they have left.
101 let gasLeft = prompt("How many gallons of gas do you have left?");
102 //Sets a variable to prompt the user on how many miles they have left.
103 let milesLeft = prompt("How many miles do you need to drive?");
104
105 //Logs out the results of the buyGas function to the browser console.
106 console.log("13. Should I buy gas?", buyGas(gasLeft, milesLeft));
107 console.log("2" == 2);
108
```



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Screenshots of Running Application:





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The screenshot shows a web browser window with the URL `192.168.50.14:5500/index.html`. The page title is "Week 3 Assignments". Below the title, there is a link "Open Inspect Element". The browser's developer tools are open, showing the "Console" tab with 16 messages. The messages are as follows:

Message	File
2b. Names Concatenated: Sam Tommy Tim Sally Buck Bob	week3Assignment.js:87
3. Last Element: ▶ <code>'Bob'</code>	week3Assignment.js:95
4. First Element: ▶ <code>'Sam'</code>	week3Assignment.js:103
5. Names character lengths add to new array: ▶ <code>(6) [3, 5, 3, 5, 4, 3]</code>	week3Assignment.js:121
6. Total of nameLength Array elements: 6	week3Assignment.js:137
7. Word Concatenating based on n number of times: HelloHelloHello	week3Assignment.js:154
8. First name and last name: Matthew Cox	week3Assignment.js:171
9. Is array sum greater than 100? <code>true</code>	week3Assignment.js:196
10. Average of all numbers in the array: 20.2	week3Assignment.js:213
11. Is the first array greater than the second array? <code>true</code>	week3Assignment.js:256
12. Should I buy a drink? <code>true</code>	week3Assignment.js:275
13. Should I buy gas? You have 2 gallons left and 6 miles to drive. Please go get fuel!	week3Assignment.js:317

URL to GitHub Repository:

<https://github.com/Masheen88/PromineoTech/blob/main/Week%203/week3Assignment.js>