



## Intro to JavaScript Week 3 Coding Assignment — Lisa Smith

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. [I] Create a new repository on GitHub for this week's assignments and [II] push this document, with your JavaScript project code, to the repository. [III] 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'.
  - 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.
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.

**URL to GitHub Repository:** <https://github.com/sw-dev-lisa-s-nh/JavaScript-Week3>



## Screenshots of Code:

```
JS week3.js > ...
1  // 1. Create an array called ages that contains the following
2  //     values: 3, 9, 23, 64, 2, 8, 28, 93.
3  console.log("Question #1:");
4  const ages = new Array(3, 9, 23, 64, 2, 8, 28, 93);
5  console.log(ages);
6
7  //     a. Programmatically subtract the value of the first element
8  //           in the array from the value in the last element of the
9  //           array (do not use numbers to reference the last element,
10 //           find it programmatically, ages[7] - ages[0] is not allowed).
11 //           Print the result to the console.
12 console.log("Question #1a:");
13 console.log("Difference between last & first elements of ages array: " + (ages[ages.length-1]-ages[0]));
14
15 //     b. Add a new age to your array and repeat the step above to
16 //           ensure it is dynamic (works for arrays of different lengths).
17 console.log("Question #1b:");
18 ages.push(103);
19 console.log(ages);
20
21
22 //     c. Use a loop to iterate through the array and calculate the
23 //           average age. Print the result to the console.
24 console.log("Question #1c:");
25 console.log("Difference between last & first elements of new ages array: " + (ages[ages.length-1]-ages[0]));
26
27 // 2. Create an array called names that contains the following
28 //     values: 'Sam', 'Tommy', 'Tim', 'Sally', 'Buck', 'Bob'.
29 console.log("Question #2:");
30 const names = new Array("Sam", "Tommy", "Tim", "Sally", "Buck", "Bob");
31 console.log(names);
32
33 //     a. Use a loop to iterate through the array
34 //           and calculate the average number of letters per name.
35 //           Print the result to the console.
36 console.log("Question #2a:");
37 var average = 0;
38 var sum = 0;
39
40 for (var index = 0; index < names.length; index++) {
41     sum += names[index].length;
42 }
43 result = sum/names.length;
44 console.log("The average number of letters per name is: " + result);
45
```



# PROMINEO TECH

```
45
46
47 //      b. Use a loop to iterate through the array again
48 //      and concatenate all the names together, separated by spaces,
49 //      and print the result to the console.
50 console.log("Question #2b:");
51 var newString = "";
52 for (var index = 0; index < names.length; index++) {
53 |   newString += names[index] + " ";
54 | }
55 console.log("The concatenated string of names is: " + newString);
56
57
58 // 3. How do you access the last element of any array?
59 console.log("Question #3:");
60 console.log("The last element of names is: " + names[names.length-1]);
61
62 // 4. How do you access the first element of any array?
63 console.log("Question #4:");
64 console.log("The first element of names is: " + names[0]);
65
66 // 5. Create a new array called nameLengths.
67 //      Write a loop to iterate over the previously created names array
68 //      and add the length of each name to the nameLengths array.
69 console.log("Question 5:");
70 const nameLengths = [];
71 for (var index = 0; index < names.length; index++) {
72 |   nameLengths.push(names[index].length);
73 | }
74 console.log("The nameLengths array: " + nameLengths);
75
76 // 6. Write a loop to iterate over the nameLengths array
77 //      and calculate the sum of all the elements in the array.
78 //      Print the result to the console.
79 console.log("Question #6:");
80 var sum = 0;
81 for (num of nameLengths) {
82 |   sum += num;
83 | }
84 console.log("The sum of all elements in nameLengths is: " + sum);
85
86 // Call to 7.
87 console.log("Question #7:");
88 console.log("Result from call to function numConcat(Hello, 3): " + numConcat("Hello", 3));
89 console.log("Result from call to function numConcat(Goodbye, 5): " + numConcat("Goodbye", 5));
90 console.log("Result from call to function numConcat(Adios, 8): " + numConcat("Adios", 8));
91
```



# PROMINEO TECH

```
91
92 // Call to 8. createFullName(p1,p2)
93 console.log("Question #8:");
94 console.log("Result from call to function createFullName: " + createFullName("Mickey", "Mouse"));
95
96 // Call to 9. sumAnArray(arrayName)
97 console.log("Question #9:");
98 console.log("Result from call to function sumAnArrayGreaterThan100(ages): " + sumAnArrayGreaterThan100(ages));
99 ages.push(20);
100 console.log("Result from call to function sumAnArrayGreaterThan100(ages): " + sumAnArrayGreaterThan100(ages));
101
102 // Call to 10. returnAverageOfNumbers(arrayName)
103 console.log("Question #10:");
104 console.log("Result from call to function returnAverageOfNumbers(ages): " + returnAverageOfNumbers(ages));
105 ages.push(40);
106 console.log("Result from call to function returnAverageOfNumbers(ages): " + returnAverageOfNumbers(ages));
107
108 // Call to 11. isGreaterThan(newages,ages)
109 console.log("Question #11:");
110 const newages = new Array(3, 9, 23, 64, 2, 8, 28, 93,200,30,5);
111 console.log("newages: " + newages);
112 console.log("returnAverageOfNumbers(newages): " + returnAverageOfNumbers(newages));
113 console.log("ages: " + ages);
114 console.log("returnAverageOfNumbers(ages): " + returnAverageOfNumbers(ages));
115 console.log("Result of isGreaterThan! Is the average of numbers in newages greater than in ages: " + isGreaterThan(newages,ages));
116
117 // Call to 12. willBuyDrink (isHotOutside, moneyInPocket)
118 console.log("Question #12:");
119 console.log("Result from call to function willBuyDrink (true, 20.00): " + willBuyDrink (true, 20.00));
120 console.log("Result from call to function willBuyDrink (false, 20.00): " + willBuyDrink (false, 20.00));
121 console.log("Result from call to function willBuyDrink (true, 10.00): " + willBuyDrink (true, 10.00));
122
123 // Call to 13. Write Own Function Here!!!! -- reverseString()
124 console.log("Question #13: reverseString()");
125 console.log("Results from reverseString: " + reverseString("Hello"));
126 console.log("Results from my reverseString: " + reverseString("Goodbye"));
127 console.log("Results from my reverseString: " + reverseString("madam Im adam"));
128 console.log("Results from my reverseString: " + reverseString("tacocat"));
129
130 // Call to 13. Write Own Function Here!!!! -- calculateDiscountedPrice()
131 console.log("Question #13: calculateDiscountedPrice()");
132 console.log("Original Price is: 4000. New Price: " + calculateDiscountedPrice(4000));
133 console.log("Original Price is: 3000. New Price: " + calculateDiscountedPrice(3000));
134 console.log("Original Price is: 2000. New Price: " + calculateDiscountedPrice(2000));
135 console.log("Original Price is: 1000. New Price: " + calculateDiscountedPrice(1000));
136
137
```



# PROMINEO TECH

```
136
137
138
139
140 // 7. Write a function that takes two parameters, word and n, as arguments
141 //     and returns the word concatenated to itself n number of times.
142 //     (i.e. if I pass in 'Hello' and 3, I would expect the function to
143 //         return 'HelloHelloHello').
144
145 function numConcat(word, number) {
146     var result = "";
147     for (var index = 0; index < number; index++) {
148         result += word;
149     }
150     return result;
151 }
152
153 // 8. Write a function that takes two parameters, firstName and lastName,
154 //     and returns a full name (the full name should be the first
155 //         and the last name separated by a space).
156 function createFullName(firstName, lastName) {
157     return firstName + " " + lastName; // The function returns the product of p1 and p2
158 }
159
160
161 // 9. Write a function that takes an array of numbers
162 //     and returns true if the sum of all the numbers in the array is greater than 100.
163
164 function sumAnArrayGreaterThan100 (newArray) {
165     var sum = 0;
166     for (number of newArray) {
167         sum += number;
168     }
169     return (sum > 100);
170 }
171
172 // 10. Write a function that takes an array of numbers
173 //      and returns the average of all the elements in the array.
174
175 function returnAverageOfNumbers(newArray) {
176     var sum = 0;
177     for (number of newArray) {
178         sum += number;
179     }
180     return sum/newArray.length;
181 }
182
```



# PROMINEO TECH

```
182
183 // 11. Write a function that takes two arrays of numbers
184 //     and returns true if the average of the elements in the
185 //     first array is greater than the average of the elements in the second array.
186
187 function isGreaterThan (arrayOne, arrayTwo) {
188     let sum1 = returnAverageOfNumbers(arrayOne);
189     let sum2 = returnAverageOfNumbers(arrayTwo);
190     let result = (sum1 > sum2);
191     return result;
192 }
193
194 // 12. Write a function called willBuyDrink that takes a
195 //     boolean isHotOutside, and a number moneyInPocket,
196 //     and returns true if it is hot outside and if moneyInPocket is greater than 10.50.
197
198 function willBuyDrink (isHotOutside, moneyInPocket) {
199     return ((isHotOutside) && (moneyInPocket > 10.50));
200 }
201
202 // 13. Create a function of your own that solves a problem.
203 //     In comments, write what the function does and why you created it.
204
205 //
206 // reverseString(name)
207 //
208 // I wrote this function to reverse a string. I created it to have fun!
209 // in addition, I love palindromes!
210 //
211 function reverseString(name) {
212     var reverse = "";
213     for (var index = name.length-1; index >=0; index--) {
214         reverse += name[index];
215     }
216     return reverse;
217 }
218
219 //
220 // calculateDiscountedPrice(originalPrice)
221 //
222 // Calculate the discount for a particular price.
223 // IF PRICE > $4000 --> the discount is 20%
224 //     > $3000 --> the discount is 15%
225 //     > $2000 --> the discount is 10%
226 //     ELSE discount is 5%.
227
228 function calculateDiscountedPrice(price) {
229     if (price > 4000) {
230         return price - (price * .20);
231     } else if (price > 3000) {
232         return price - (price * .15);
233     } else if (price > 2000) {
234         return price - (price * .10);
235     } else {
236         return price - (price * .05);
237     }
238 }
239
```



## Screenshots of Running Application:

Console cleared at 11:23:01 AM	
Question #1:	Global Code — week3.js:3
[3, 9, 23, 64, 2, 8, 28, 93] (8)	Global Code — week3.js:5
Question #1a:	Global Code — week3.js:12
Difference between last & first elements of ages array: 90	Global Code — week3.js:13
Question #1b:	Global Code — week3.js:17
[3, 9, 23, 64, 2, 8, 28, 93, 103] (9)	Global Code — week3.js:19
Question #1c:	Global Code — week3.js:24
Difference between last & first elements of new ages array: 100	Global Code — week3.js:25
Question #2:	Global Code — week3.js:29
["Sam", "Tommy", "Tim", "Sally", "Buck", "Bob"] (6)	Global Code — week3.js:31
Question #2a:	Global Code — week3.js:36
The average number of letters per name is: 3.8333333333333335	Global Code — week3.js:44
Question #2b:	Global Code — week3.js:50
The concatenated string of names is: Sam Tommy Tim Sally Buck Bob	Global Code — week3.js:55
Question #3:	Global Code — week3.js:59
The last element of names is: Bob	Global Code — week3.js:60
Question #4:	Global Code — week3.js:63
The first element of names is: Sam	Global Code — week3.js:64
Question 5:	Global Code — week3.js:69
The nameLengths array: 3,5,3,5,4,3	Global Code — week3.js:74
Question #6:	Global Code — week3.js:79
The sum of all elements in nameLengths is: 23	Global Code — week3.js:84
Question #7:	Global Code — week3.js:87
Result from call to function numConcat(Hello, 3): HelloHelloHello	Global Code — week3.js:88
Result from call to function numConcat(Goodbye, 5): GoodbyeGoodbyeGoodbyeGoodbyeGoodbye	Global Code — week3.js:89
Result from call to function numConcat(Adios, 8): AdiosAdiosAdiosAdiosAdiosAdiosAdiosAdios	Global Code — week3.js:90
Question #8:	Global Code — week3.js:93
Result from call to function createFullName: Mickey Mouse	Global Code — week3.js:94
Question #9:	Global Code — week3.js:97
Result from call to function sumAnArrayGreaterThanOrEqualTo100(ages): true	Global Code — week3.js:98
Result from call to function sumAnArrayGreaterThanOrEqualTo100(ages): true	Global Code — week3.js:100
Question #10:	Global Code — week3.js:103
Result from call to function returnAverageOfNumbers(ages): 35.3	Global Code — week3.js:104
Result from call to function returnAverageOfNumbers(ages): 35.72727272727273	Global Code — week3.js:106
Question #11:	Global Code — week3.js:109
newAges: 3,9,23,64,2,8,28,93,200,30,5	Global Code — week3.js:111
returnAverageOfNumbers(newAges): 42.27272727272727	Global Code — week3.js:112
ages: 3,9,23,64,2,8,28,93,103,20,40	Global Code — week3.js:113
returnAverageOfNumbers(ages): 35.72727272727273	Global Code — week3.js:114
Result of isGreaterThanOrEqualTo100: Is the average of numbers in newAges greater than in ages: true	Global Code — week3.js:115
Question #12:	Global Code — week3.js:118
Result from call to function willBuyDrink(true, 20.00): true	Global Code — week3.js:119
Result from call to function willBuyDrink(false, 20.00): false	Global Code — week3.js:120
Result from call to function willBuyDrink(true, 10.00): false	Global Code — week3.js:121
Question #13: reverseString()	Global Code — week3.js:124
Results from reverseString: olleH	Global Code — week3.js:125
Results from my reverseString: eybdoog	Global Code — week3.js:126
Results from my reverseString: madam I'm adam	Global Code — week3.js:127
Results from my reverseString: tacocat	Global Code — week3.js:128
Question #13: calculateDiscountedPrice()	Global Code — week3.js:131
Original Price is: 4000. New Price: 3400	Global Code — week3.js:132
Original Price is: 3000. New Price: 2700	Global Code — week3.js:133
Original Price is: 2000. New Price: 1900	Global Code — week3.js:134
Original Price is: 1000. New Price: 950	Global Code — week3.js:135