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.

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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

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Screenshots of Code:

JS week3.js > ...

```
// 1.  Create an array called ages that contains the following
//          values: 3, 9, 23, 64, 2, 8, 28, 93.
console.log("Question #1:");
const ages = new Array(3, 9, 23, 64, 2, 8, 28, 93);
console.log(ages);

//      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.
console.log("Question #1a:");
console.log("Difference between last & first elements of ages array: " + (ages[ages.length-1]-ages[0]));

//      b.  Add a new age to your array and repeat the step above to
//              ensure it is dynamic (works for arrays of different lengths).
console.log("Question #1b:");
ages.push(103);
console.log(ages);


//      c.  Use a loop to iterate through the array and calculate the
//              average age. Print the result to the console.
console.log("Question #1c:")
console.log("Difference between last & first elements of new ages array: " + (ages[ages.length-1]-ages[0]));

// 2.  Create an array called names that contains the following
//          values: 'Sam', 'Tommy', 'Tim', 'Sally', 'Buck', 'Bob'.
console.log("Question #2:")
const names = new Array("Sam", "Tommy", "Tim", "Sally", "Buck", "Bob");
console.log(names);

//      a.  Use a loop to iterate through the array
//          and calculate the average number of letters per name.
//          Print the result to the console.
console.log("Question #2a:");
var average = 0;
var sum = 0;

for (var index = 0; index < names.length; index++) {
    sum += names[index].length;
}
result = sum/names.length;
console.log("The average number of letters per name is: " + result);

```

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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));
```

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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!!!!! -- calcuatedDiscountedPrice()
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
```

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```
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
```

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```
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
 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
```

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Screenshots of Running Application: