Intro to JavaScript Week 3 Coding Assignment

Points possible: 75

URL to Your GitHub Repository:

https://github.com/WhitneyHendrickson94/Week3CodingAssignment.git

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'.
    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?

Answer: You can access the last element of an array by locating the index of the last element. Since array indices are 0-based, you can use this methodology to find the index of the last element of any array length (even before you know it), by finding taking the length of the array and subtracting 1 from it. This gives you the index of the last element in an array. You reference the last element as follows:" array[array.length - 1]; ".

4. How do you access the first element of any array?

Answer: The first element of an array will always be at the index of 0. You can reference the first element in your code as follows: " array[0]; ".

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:

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```
// Assignment Question 1. Array ages[]
var ages = [3, 9, 23, 64, 2, 8, 28, 93];

//Assignment Question 1a. Subtract first element of ages[] from last element
console.log(((ages[ages.length - 1]) - ages[0]));

//Assignment Questiom 1b. Add new age to ages[] and rerun the previous opertaion to adjust the difference.
ages.push(28);
console.log(((ages[ages.length - 1]) - ages[0]));

//Assignment Question 1c. Find the average of ages[] using a loop
var sum = 0;
for(var number of ages){
    sum += number;
}
average = sum / ages.length;

console.log(average);

//Assignment Question 2 - Create an names[] array
var names = ['Sam', 'Tommy', 'Tim', 'Sally', 'Buck', 'Bob'];

//Assignment Question 2a. - Use loop to calculate average of letters per name in names[]
sumOfLetters = 0;

for (element of names) {
    element.length;
    sumOfLetters += element.length;
}
averageOfLetters = sumOfLetters / names.length;
console.log(averageOfLetters);

//Assignment Question 2b. - Concatenate all names from names[] together.
let list = ' ';
for (i=0; i < names.length; i++){
    list = list.concat(names[i]);
    if(i < names.length - 1) {
        list = list.concat(' ');
    }
}
console.log(list);

```

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```
43  //Assignment Question 5 - Create nameLengths[] Array from using the length of names in names[]
44  nameLengths = names.map(function(element){
45      return element.length;
46  });
47  console.log(nameLengths);
48
49  //Assignment Question 6 - Calculate the sum of all elements in nameLengths[] using a loop.
50  sumOfLengths = 0;
51  for (number of nameLengths) {
52      sumOfLengths += number;
53  }
54  console.log(sumOfLengths);
55
56  //Assignment Question 7 - Create a function that prints a chosen "word" "n" number of times in a row with no spaces
57  function repeatWord(word,n){
58      console.log(word.repeat(n));
59  };
60      //Demonstrating functionatlity of repeatWord Function
61  repeatWord("cat", 6);
62
63  //Assignment Question 8 - Creat a unction with that take parameters of firstName and lastName and prints them as "FirstName LastName".
64  function printFullName(firstName,lastName){
65      console.log (firstName + " " + lastName);
66  }
67      //Demonstrating Functionality of printFullName
68  printFullName("Whitney","Hendrickson");
69
70  //Assignment Question 9 - Create a function to evaluate if the sum of an array of numbers is greater than 100 is true.
71  //Array === 112 so should return "true"
72  var array1 = [18, 20, 25, 7, 23, 8, 11];
73  sumOfArray1 = 0;
74  function compareToOneHundred(){
75  for (var number of array1){
76     sumOfArray1 += number;
77  }
78  console.log(sumOfArray1 > 100);
79  }
80  compareToOneHundred();
81
```

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```
125  //Assignment Question 13 - Custom Function
126  //Problem that Function will Solve: Determine if student has received their required amount of speech therapy minutes in a school year
127  //Functionality: Given the total minutes required for a student in a year and an array accumulating the total minutes a
128  //child has received (adding minutes has they are serviced to a student) to date, the function will determine if required minutes are met
129  //and print out how many minutes are remaining for them to receive.
130
131  //Set Variables - Total Student Required in a School for a student to reveive in speech therapy && array with current minutes to date
132  var totalMinutesRequired = 1400;
133  var currentMinutes = [20, 20, 20, 20, 20, 15, 10, 20];
134
135  //Create Function Label and Set Parameters
136  function determineRemainingMinutes(){
137  //Calculate the Sum of currentMinutes
138  var sumOfCurrentMinutes = 0;
139  for(var number of currentMinutes){
140      (sumOfCurrentMinutes += number);
141  }
142  //Subtract sumOfCurrentMinutes from totalMinutesRequired to get totalMinutesRemaining
143  totalMinutesRemaining = (totalMinutesRequired - sumOfCurrentMinutes);
144
145  //Use conditional statements to determine an appropriate message given how many minutes are remaining.
146  //If there's more than 0 minutes, the childs needs to get more minutes of speech services
147  //If totalMinutesRemaining === 0, the child is done needing minutes
148  //If there is a negative number - the child has received more minutes than they needed.
149  if(totalMinutesRemaining > 0){
150      console.log(totalMinutesRemaining + " more minutes are needed this year.");
151  }else if(totalMinutesRemaining === 0){
152      console.log("They have met their yearly minutes!");
153  }
154  else{
155      console.log("They received extra minutes!");
156  }
157  }
158  determineRemainingMinutes();
```

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```
82   //Assignment Question 10 - Create a function that determine the average of an array of numbers.
83   var array2 = [80, 74, 93, 98, 100, 73, 72, 88, 94, 95];
84   function findAverageOfArray2(){
85       var sumOfArray2 = 0;
86       for (var number of array2){
87           sumOfArray2 += number;
88       }
89       averageOfArray2 = sumOfArray2 / array2.length;
90       console.log(averageOfArray2);
91   }
92   findAverageOfArray2();
93
94   //Assignment Question 11 - Function that takes 2 arrays of Numbers and returns 'true' if average of first array is greater than average of 2nd array
95   var array3 = [8, 6, 5, 7, 9];
96   var array4 = [2, 4, 5, 0, 3];
97
98   function compareArrayAverage(){
99       var sumOfArray3 = 0;
100      var sumOfArray4 = 0;
101      for(var number of array3){
102          (sumOfArray3 += number);
103      }
104          averageOfArray3 = sumOfArray3 / array3.length;
105      for(var number of array4){
106          (sumOfArray4 += number);
107      }
108      averageOfArray4 = sumOfArray4 / array4.length;
109          console.log(averageOfArray3 > averageOfArray4);
110      }
111  compareArrayAverage();
112
113  //Assignment Question 12 - Determine whether willBuyDrink is true based on isHotOutside && moneyInPocket > $10.50
114  var isHotOutside = true;
115  var moneyInPocket = 2.50;
116  function willBuyDrink(isHotOutside,moneyInPocket){
117      if((isHotOutside === true) && (moneyInPocket > 10.50)){
118      console.log(true);
119      }else{
120          console.log(false);
121      }
122  }
123  willBuyDrink();
```


```
159
160  //Used determineReamainingMinutes function with a different totalMinutesRequired to adjust it
161  //for a different student
162  var totalMinutesRequired = 1250;
163  var currentMinutes = [20, 20, 20, 20, 20, 15, 10, 20];
164  determineRemainingMinutes();
165
166  //Added more minutes to the amount of current minutes
167  currentMinutes.push(20,20,30);
168
169  //Changed totalMinutesRequired back to 1400 to change it to original student's amount, and
170  //determined new amount of minutes needed after adding more minutes above.
171  totalMinutesRequired = 1400;
172  determineRemainingMinutes();
173
174
```

Screenshots of Running Application:

Week 3 Coding Assignment