**URL to GitHub Repository:**

**URL to Your Coding Assignment Video:**

**Instructions (**these are **required**)**:**

* In Visual Studio Code, **write the code** that accomplishes the objectives listed below and ensure that the code you have written compiles and runs as directed.
* **Comment your code**, to prove that you have understand of what you have written.
* **Create a new repository on GitHub** for this week’s assignments and push this document, with your project code, to the repository.
* **Include the URLs** for this week’s repository and video where instructed.
* **Submit a document** containing the two URL links as a .PDF file **in the LMS**.

**Coding Steps:**

The answer to all questions must be printed to your Browser’s console -- using console.log():

1. Create an array called ages that contains the following values: 3, 9, 23, 64, 2, 8, 28, 93.
   1. 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!
   2. Add a new age to your array and repeat the step above to ensure it is dynamic. (works for arrays of different lengths).
   3. Use a loop to iterate through the array and calculate the average age.
2. let ages = [3, 9, 23, 64, 2, 8, 28, 93];
3. //1a.   Programmatically subtract the value of the first element in the array from the value in the last element of the array
4. //1b.   Add a new age to your array and repeat the step above to ensure it is dynamic.
5. ages.push(40); // add new age to the end of the array
6. let difference = ages[ages.length - 1] - ages[0];
7. console.log(difference);
8. //1c.   Use a loop to iterate through the array and calculate the average age.
9. let sum = 0;
10. for (let i = 0; i < ages.length; i++) {
11. sum += ages[i];
12. }
13. let average = sum / ages.length;
14. console.log(average);
15. Create an array called names that contains the following values: ‘Sam’, ‘Tommy’, ‘Tim’, ‘Sally’, ‘Buck’, ‘Bob’.
    1. Use a loop to iterate through the array and calculate the average number of letters per name.
    2. Use a loop to iterate through the array again and concatenate all the names together, separated by spaces.
16. let names = ['Sam', 'Tommy', 'Tim', 'Sally', 'Buck', 'Bob'];
17. //2a.   Use a loop to iterate through the array and calculate the average number of letters per name.
18. let totalLetters = 0;
19. for (let i = 0; i < names.length; i++) {
20. totalLetters += names[i].length;
21. }
22. let averageLetters = totalLetters / names.length;
23. console.log(averageLetters);
24. //2b.   Use a loop to iterate through the array again and concatenate all the names together, separated by spaces.
25. let namesConcate = ' ';
26. for (let i = 0; i < names.length; i++) {
27. namesConcate += names[i] + ' ';
28. }
29. console.log(namesConcate);

1. How do you access the last element of any array?

In JavaScript the two methods that we can use to access the last element of arrays are array.length and array.slice.

1. For array.length this is how it works:

For example, if we have an array called myArray = [1, 2, 3, 4, 5] the length of this array is 5 and in order to get the index of the last element in this array, we need to subtract myArray.length with 1 which here is 4. Then we use that index to access the last element of the array, which is 5.

const myArray = [1, 2, 3, 4, 5];

const lastElement = myArray[myArray.length - 1];

console.log(lastElement);

1. Regarding the array.slice method, it returns a new array that contains only the last element of myArray, which is [5]. The code is below:

const myArray = [1, 2, 3, 4, 5];

const lastElement = myArray.slice(-1)[0];

console.log(lastElement);

We use [0] to extract the first (and only) element from this new array, which is the last element of myArray.

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

To access the first element in the array in JavaScript we can use the index 0 which is the index of the first element in the arrays. For example:

const myArray = [1, 2, 3, 4, 5];

const firstElement = myArray[0];

console.log(firstElement);

In the above code the output is value [1] which is the first element in the array.

1. 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:

let names = ["Kelly", "Sam", "Kate"]; //starting with this array

let nameLengths = [5, 3, 4]; //create this new array

//5.  Create a new array called nameLengths

  let myNames = ['Najmeh', 'Ann', 'Dave'];

  let nameLengths = [];

  for (let i=0; i < myNames.length; i++){

nameLengths.push(myNames[i].length);

  }

  console.log(nameLengths);

1. Write a loop to iterate over the nameLengths array and calculate the sum of all the elements in the array.

let nameLength = [6, 3, 4];

  let sumOfName = 0;

  for (let i = 0; i < nameLengths.length; i++) { // iterate over the elements in the nameLengths array

    sumOfName += nameLengths[i];

  }

  console.log(sumOfName);

1. 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’).

function concatenated(word, n){

    let result = "";

    for (let i = 0; i < n; i++) {

      result += word;

    }

    return result;

  }

//for example:

  let result = concatenated("Hello", 3);

console.log(result);

1. 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*.

function fullName(firstName, lastName){

  return firstName + ' ' + lastName;

}

// for example:

let myName = fullName('Najmeh', 'Dehghani');

console.log(myName);

1. 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.

function sumArray(numbers) {

  let sum = 0;

  for (let i = 0; i < numbers.length; i++) {

    sum += numbers[i];

  }

  return sum > 100;

}

//for example:

let array1 = [10, 2, 20];

console.log(sumArray(array1));

1. Write a function that takes an array of numbers and returns the average of all the elements in the array.

function getAverage(numbers) {

  let sum = 0;

  for (let i = 0; i < numbers.length; i++) {

    sum += numbers[i];

  }

  return sum / numbers.length;

}

//for example:

let arr1 = [10, 20, 30, 40];

console.log(getAverage(arr1));

1. 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.

function greaterAverage(no1, no2){

  let sum1 = 0;

  for (let i = 0; i < no1.length; i++){

    sum1 += no1[i];

  }

let avg1 = sum1 / no1.length;

let sum2 = 0;

for (let i = 0; i < no2.length; i++){

  sum2 += no2[i];

}

let avg2 = sum2 / no2.length;

return avg1 > avg2;

}

//for example:

let no1 = [20, 10, 30, 50];

let no2 = [50, 20, 60, 40];

console.log(greaterAverage(no1, no2));

1. 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.

function willBuyDrink(isHotOutside, moneyInPocket) {

  if (isHotOutside && moneyInPocket > 10.50) {

    return true;

  } else {

    return false;

  }

}

//for example:

console.log(willBuyDrink(true, 10));  // Output: true

console.log(willBuyDrink(false, 5));  // Output: false

console.log(willBuyDrink(true, 20));  // Output: false

1. Create a function of your own that solves a problem. *In* ***comments****, write what the function does and why you created it.*

//write a function that takes an array of numbers as input and returns their sum.

//this function initializes the variable 'sum' to zero.

//it loops through the array 'arr'.

//it adds each element to the 'sum'.

//the function returns the sum of the array.

//it's a common function,

//it is useful in calculating averages, and finding max or min values in arrays.

function sumArray(arr) {

  let sum = 0;

  for (let i = 0; i < arr.length; i++) {

    sum += arr[i];

  }

  return sum;

}

**Video Steps:**

* Create a video, up to five minutes max, showing and explaining how your project works with an emphasis on the portions you contributed.
* This video should be done using screen share and voice over.
* This can easily be done using Zoom, although you don't have to use Zoom, it's just what we recommend.
  + You can create a new meeting, start screen sharing, and start recording.
  + This will create a video recording on your computer.
* This should then be uploaded to a publicly accessible site, such as YouTube.
  + Ensure the link you share is **PUBLIC** or **UNLISTED**!
  + If it is not accessible by your grader, your project will be graded based on what they can access.