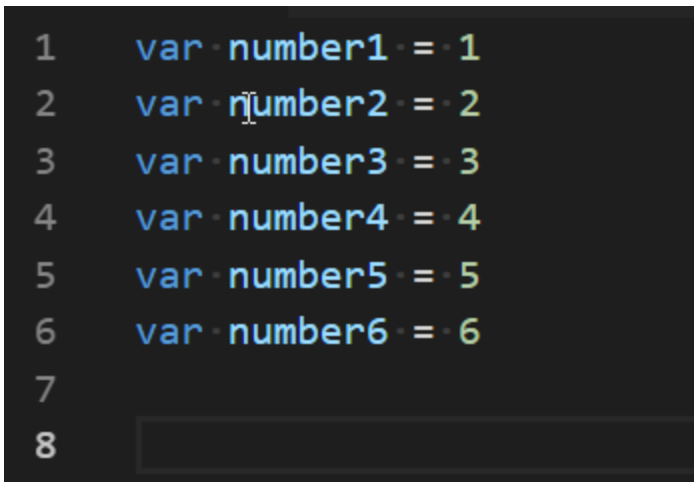
JS Arrays

Lesson Time: 30 Minutes

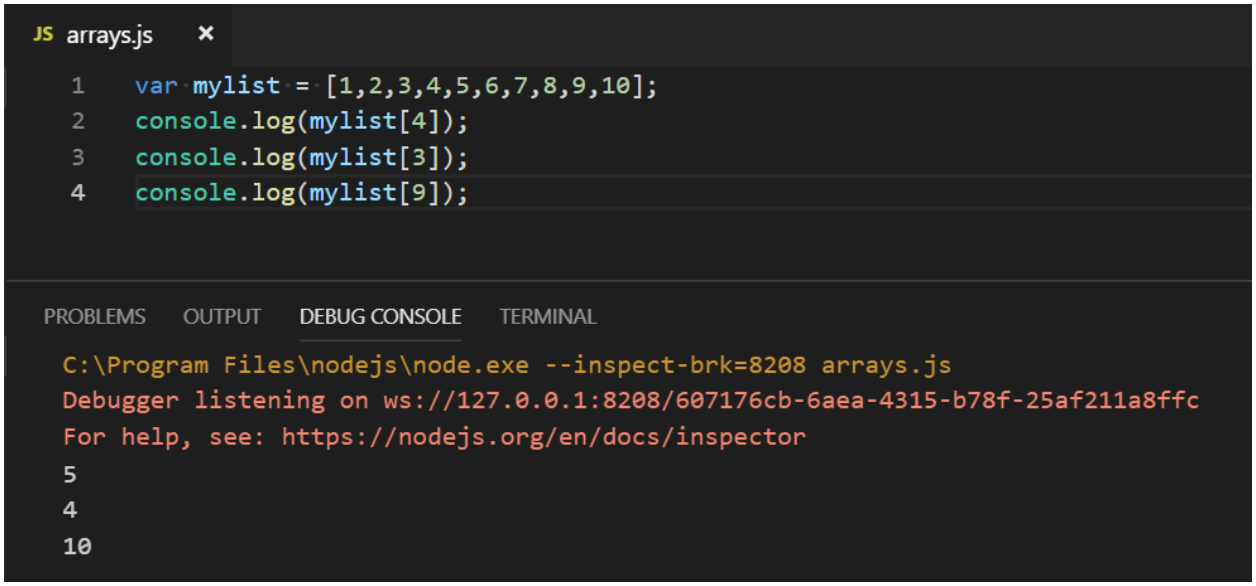
Arrays are a list, or bucket, or folder of many variables

Arrays can be pretty difficult for a new student to understand, but there is nothing to be scared of! In this lesson, we'll show you what an array is and how it works.

First let's create some data without using an array.



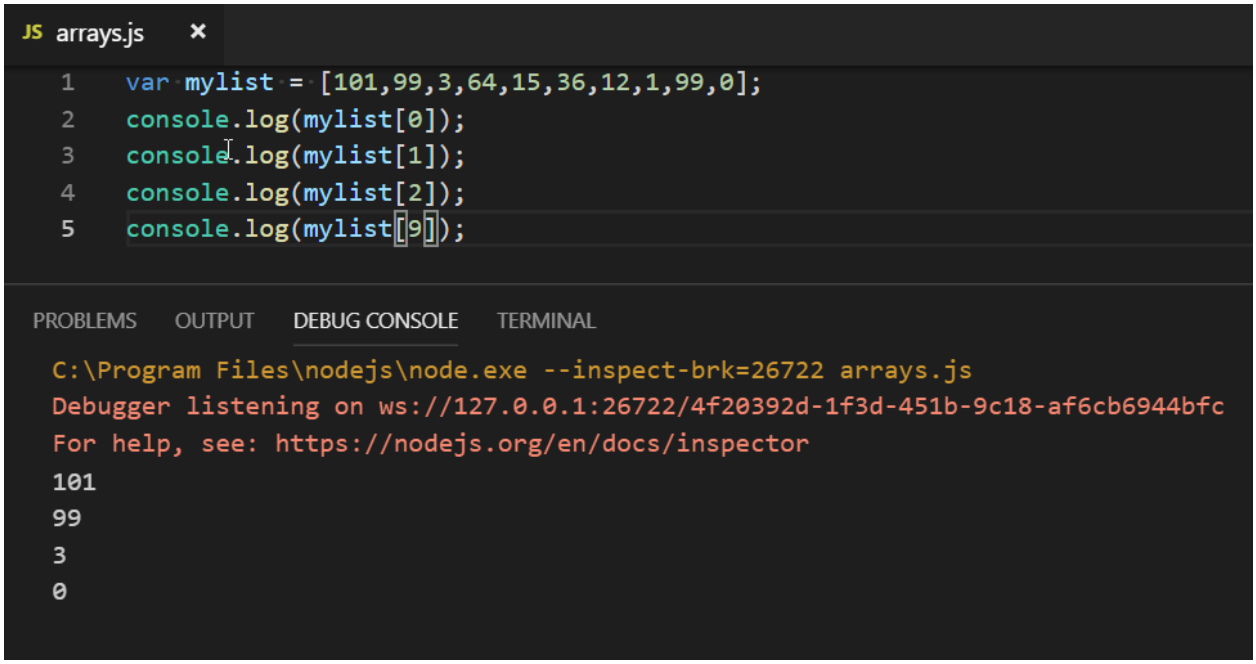
Ok, this is quickly getting out of control! While we can create a variable for everything, we are quickly creating too many variables to deal with. It would be better if we could group all of these variables together in a bucket. We'll do that by creating an array.



Mylist is an array of numbers. It's a bucket of numbers. Each number is an **item** in the array, and each item has an **index value**. We can access each item in the array by specifying it's **index**.

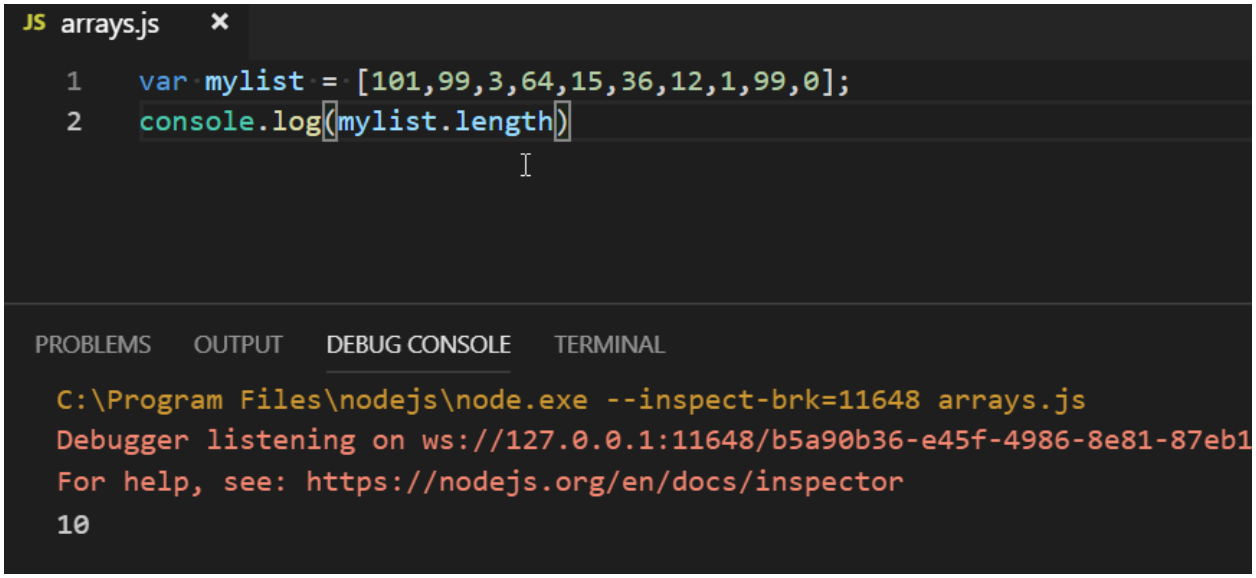
Notice in the example above, when we access mylist[4], we get the value 5. This is because the array's index starts at **zero**. So mylist[0] holds the first value in our list, which in this case is the number 1.

Here's a few more examples to make it clear.



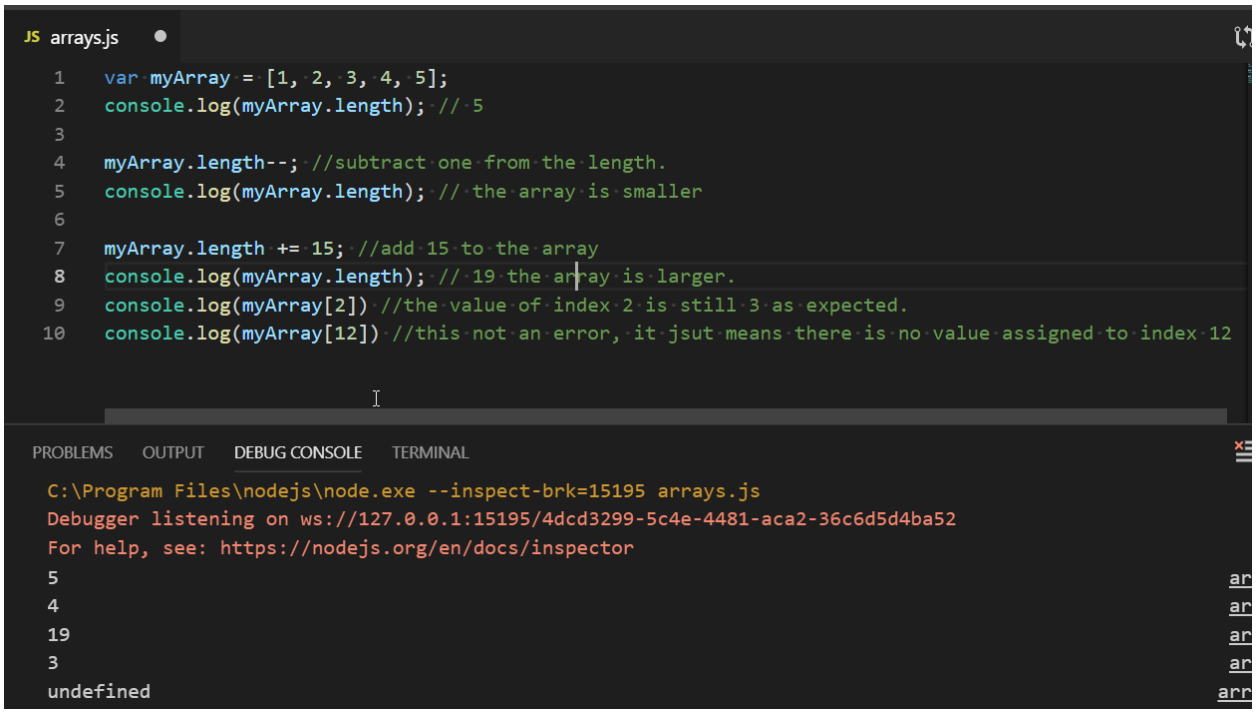
The value 101 is the first item in this array. We are able to access it by getting index 0. The value 99 is the second item in this array. We are able to access it by getting index 1.

Every array has a length, which equals the number of items it contains. This array holds 10 items, so it's length is 10. The final index of this array is 9, because the first index starts at 0.



In most other languages, we would get an error if we try to access an index in the array that does not exist. Calling an index of an array that does not exist is called an **out of bounds error.**

However, in Javascript, we are allowed to resize an array. If we want to make the array larger or smaller, we can do it as shown below. In most other languages, once an array is created, it's size cannot be changed, but this is not true of JS, and accessing an array index that has not been created simply returns undefined.



Key Terms	Array, index, zero-index, length, bounds, out-of-bounds error
Lesson Files	arrays.js
Additional Resources	https://www.w3schools.com/js/js_functions.asp
Further Learning	

LAB: JS Arrays

Lesson Time: 60 Minutes

Before starting this lesson, review Arrays on http://javascript.info/array

Practice creating arrays. For each task below, print the results to the console.

1. Create an array called animals. The array will have these values in it.
    - Lion
    - Tiger
    - Zebra
    - Donkey
    - Catfish

2. Create an array called numbers. The array will have these values in.
    - 42
    - 8
    - 12
    - 30

3. Create a variable called myTiger and assign it the tiger value from the animal array.
4. Create a variable called meaningOfLife and assign it the value 42 from the numbers array.
5. Create an array called mixedData and assign it these values.
    - 101
    - Dog
    - 6
    - George Washington
    - The boolean value true
    - Null

6. Add the value Cobra to the animals array
7. Create a new value in the mixedData array and assign it the Donkey value from the animal array
8. Use animals.pop() and log the results
9. Push a shark into animals with the .push() method
10. Create a variable called myLion and assign it the results off animal.shift(). Log the results.
11. Put the lion back in the array by using animal.unshift