



Topic 9: JavaScript

Arrays

Lecture Contents



- What is an Array
- Why Are Arrays Useful?
- Array Practice: `function printArray(a)`

What is an Array

- An array is a collection of items stored together under one variable name.

students	
0	Chris
1	David
2	Lin
3	Selina

What is an Array

- An array is an *ordered list* of items stored together under one variable name.
- An elements in an array is referenced by an index
 - Valid indices are whole numbers (non-negative integers): {0, 1, 2, ...}

students	
0	Chris
1	David
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What is an Array

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- An elements in an array is referenced by an index
 - Valid indices are whole numbers (non-negative integers): {0, 1, 2, ...}
- An array may be defined by a comma-separated list in square brackets

```
var students = [ "Chris", "David", "Lin", "Selina" ];
```

	students
0	Chris
1	David
2	Lin
3	Selina

What is an Array

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 - Valid indices are whole numbers (non-negative integers): {0, 1, 2, ...}
- An array may be defined by a comma-separated list in square brackets
- An element is accessed using its index in square brackets

```
var students = [ "Chris", "David", "Lin", "Selina" ];  
console.log(students[2]);
```

students	
0	Chris
1	David
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What is an Array

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var students = [ "Chris", "David", "Lin", "Selina" ];  
console.log(students[2]);
```

Lin

students	
0	Chris
1	David
2	Lin
3	Selina

Why Are Arrays Useful?

- It would be tedious to make a variable for the name of each student that is in a class, then somewhere later use those names:

```
var student1 = "Chris";  
var student2 = "David";  
var student3 = "Lin";  
var student4 = "Selina";
```

...

```
console.log(student1);  
console.log(student2);  
console.log(student3);  
console.log(student4);
```

Why Are Arrays Useful?

- It would be tedious to make a variable for the name of each student that is in a class, then somewhere later use those names:
- But with an array, we can write a loop and use the index to refer to each element

```
var student1 = "Chris";
var student2 = "David";
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...
console.log(student1);
console.log(student2);
console.log(student3);
console.log(student4);
```

students	
0	Chris
1	David
2	Lin
3	Selina

```
var students = ["Chris", "David", "Lin", "Selina" ];
for(var x = 0; x < students.length; x++) {
  console.log(students[x]);
}
```

Why Are Arrays Useful?

- With an array, we can write a loop and use the index to refer to each element
- To get the size of the array, we can use the *length* attribute
 - The last element in the array will be at index *length-1*.

	students
0	Chris
1	David
2	Lin
3	Selina

```
var students = ["Chris", "David", "Lin", "Selina"];
for(var x = 0; x < students.length; x++) {
  console.log(students[x]);
}
```

Array Practice: function printArray(a)

- Write a function to print out an array as a comma-separated list surrounded by curly braces.
- For example, the array `students`, defined like this:

```
var students = ["Chris", "David", "Lin", "Selina" ];
```

Would print to the console in this format:

```
{ Chris, David, Lin, Selina }
```



Why did the programmer quit his job?



Why did the programmer quit his job?

Because he didn't get arrays.

Array Methods

- `a.includes(e)` : boolean – true if element is in the array
- `a.push()` - add to the end of the array
- `a.pop()` - remove and return the item at the end of the array
- Code FizzBuzz



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