



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
```

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
2	Lin
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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

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

	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.
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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 students 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 students 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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var student4 = "Selina";
```

```
...  
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?

The image shows a book cover with a textured, light brown paper background. A dark blue horizontal band runs across the middle. A red bookmark is visible in the top right corner. The text is centered on the blue band.

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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