EXAMPLE 10: COPYING AN ARRAY - DEEP AND SHALLOW

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CREATING AN ARRAY IS SUPER-SIMPLE,
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CREATE AN ARRAY

```
var allDays = [‘Mon','Tue','Wed','Thu','Fri','Sat'
```

ASSIGN IT TO ANOTHER VARIABLE

```
var shallowCopy = allDays;
```

CHANGE THE ORIGINAL..

```
allDays[3] = 'Thursday';
```

CREATE AN ARRAY

```
var allDays = [‘Mon','Tue','Wed','Thu','Fri','Sat','
```

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var shallowCopy = allDays;
```

CHANGE THE ORIGINAL..

```
allDays[3] = 'Thursday';
```

THE ORIGINAL CHANGES..

```
[‘Mon','Tue','Wed','Thursday','Fri','Sat','Sun'];
```

THE ORIGINAL CHANGES..

```
['Mon','Tue','Wed','Thursday','Fri','Sat','Sun'];
```

SO DOES THE COPY!

```
['Mon','Tue','Wed','Thursday','Fri','Sat','Sun'];
```

THAT'S WHAT HAPPENS WHEN YOU COPY LIKE THIS

```
var shallowCopy = allDays;
```

THE ORIGINAL CHANGES..

SO DOES THE COPY!

THAT'S WHAT HAPPENS WHEN YOU COPY LIKE THIS

```
var shallowCopy = allDays;
```

THIS IS CALLED A "SHALLOW COPY"

```
var deepCopy = allDays.slice();
```

THIS IS HOW YOU MAKE A "DEEP COPY"

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```
var deepCopy = allDays.slice();
```

WITH A DEEP COPY, THE 2 ARRAYS ARE ENTIRELY INDEPENDENT. CHANGING ONE DOES NOTHING TO THE OTHER.

THE SLICE METHOD IS NOT VERY INTUITIVELY NAMED, SO BE SURE TO REMEMBER WHAT IT REALLY DOES.

THIS IS HOW YOU MAKE A "DEEP COPY"

```
var deepCopy = allDays.slice();
```

THE SLICE METHOD IS NOT VERY INTUITIVELY NAMED

ACTUALLY, THE SLICE METHOD CAN BE USED TO EXTRACT SPECIFIC PARTS OF AN ARRAY - ITS DEEP COPY CREATION IS A BIT OF A SIDE-EFFECT.

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```
                    0     1     2     3     4     5     6
var allDays = [‘Mon','Tue','Wed','Thu','Fri','Sat',

var weekends = allDays.slice(5,7);

["Sat", "Sun"]
```

WHEN USED WITH ARGUMENTS, SLICE WILL RETURN THE DEEP COPY OF A PORTION OF AN ARRAY (END INDEX IS NOT INCLUDED, START INDEX IS)

LET'S TRY THIS ALL OUT

```
function arrayStuff() {
  var allDays = ['Mon','Tue','Wed','Thu','Fri','Sat','Sun']
  var deepCopy = allDays.slice();
  var shallowCopy = allDays;

  printArray(allDays,"Original (before edits)");
  printArray(deepCopy,"Deep copy (before edits)");
  printArray(shallowCopy,"Shallow copy(before edits)");

  allDays[3] = 'Thursday';

  printArray(allDays,"Original (after edits)");
  printArray(deepCopy,"Deep copy (after edits to original)");
  printArray(shallowCopy,"Shallow copy (after edits to origin

  weekends = allDays.slice(5,7);
  console.log(weekends);

}


function printArray(array,name) {
  console.log("printing array:"+name);
  console.log(array.length + " elements");
  for(var i=0;i<array.length;i++) {
```

LET'S TRY THIS ALL OUT

```
function arrayStuff() {
  var allDays = ['Mon','Tue','Wed','Thu','Fri','Sat','Sun']
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CREATE AN ARRAY, AS WELL AS SHALLOW AND DEEP COPIES.

LET'S TRY THIS ALL OUT

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function arrayStuff() {
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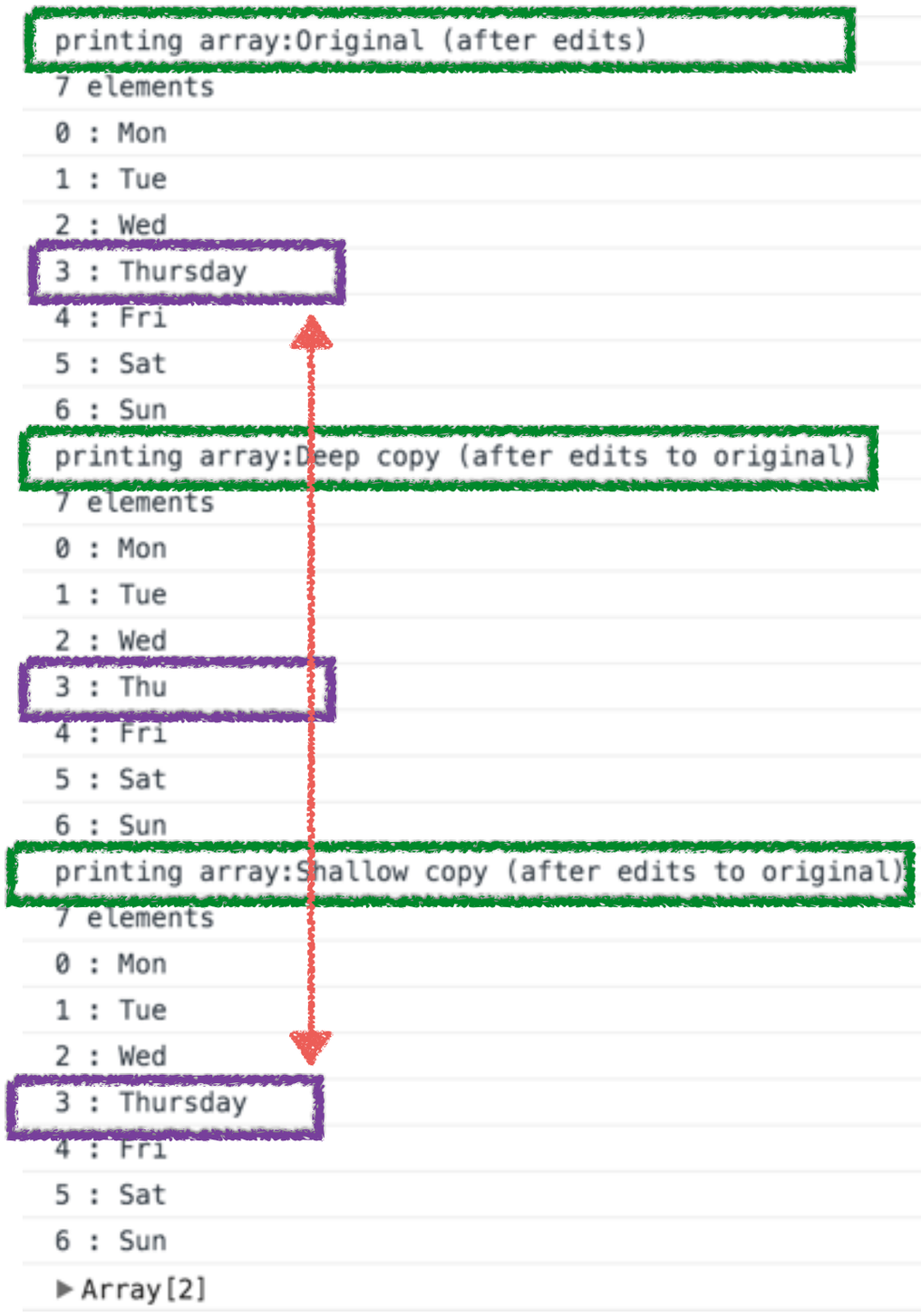
function printArray(array,name) {
  console.log("printing array:"+name);
  console.log(array.length + " elements");
  for(var i=0;i<array.length;i++) {
```

CHANGE THE ORIGINAL..

```
printing array:Original (before edits)
7 elements
0 : Mon
1 : Tue
2 : Wed
3 : Thu
4 : Fri
5 : Sat
6 : Sun
printing array:Deep copy (before edits)
7 elements
0 : Mon
1 : Tue
2 : Wed
3 : Thu
4 : Fri
5 : Sat
6 : Sun
printing array:Shallow copy(before edits)
7 elements
0 : Mon
1 : Tue
2 : Wed
3 : Thu
4 : Fri
5 : Sat
6 : Sun
```

THE ORIGINAL ARRAY AND THE COPIES BEFORE ANY EDITS!



THE DEEP COPY IS UNCHANGED..

WHILE THE SHALLOW COPY HAS CHANGED EXACTLY LIKE THE ORIGINAL!