JavaScript Arrays

JS Arrays

- JavaScript arrays are used to store multiple values in a single variable.

```
cars = ["Saab", "Volvo", "BMW"];
```

//We can use Array with var, let and const

concat() function

- The concat() method concatenates (joins) two or more arrays.
- The concat() method does not change the existing arrays, but returns a new array, containing the values of the joined arrays.
- *Array1.concat(Array2)*

Example

```
const shop1 =
["Apple","Mango","Orange"];
```

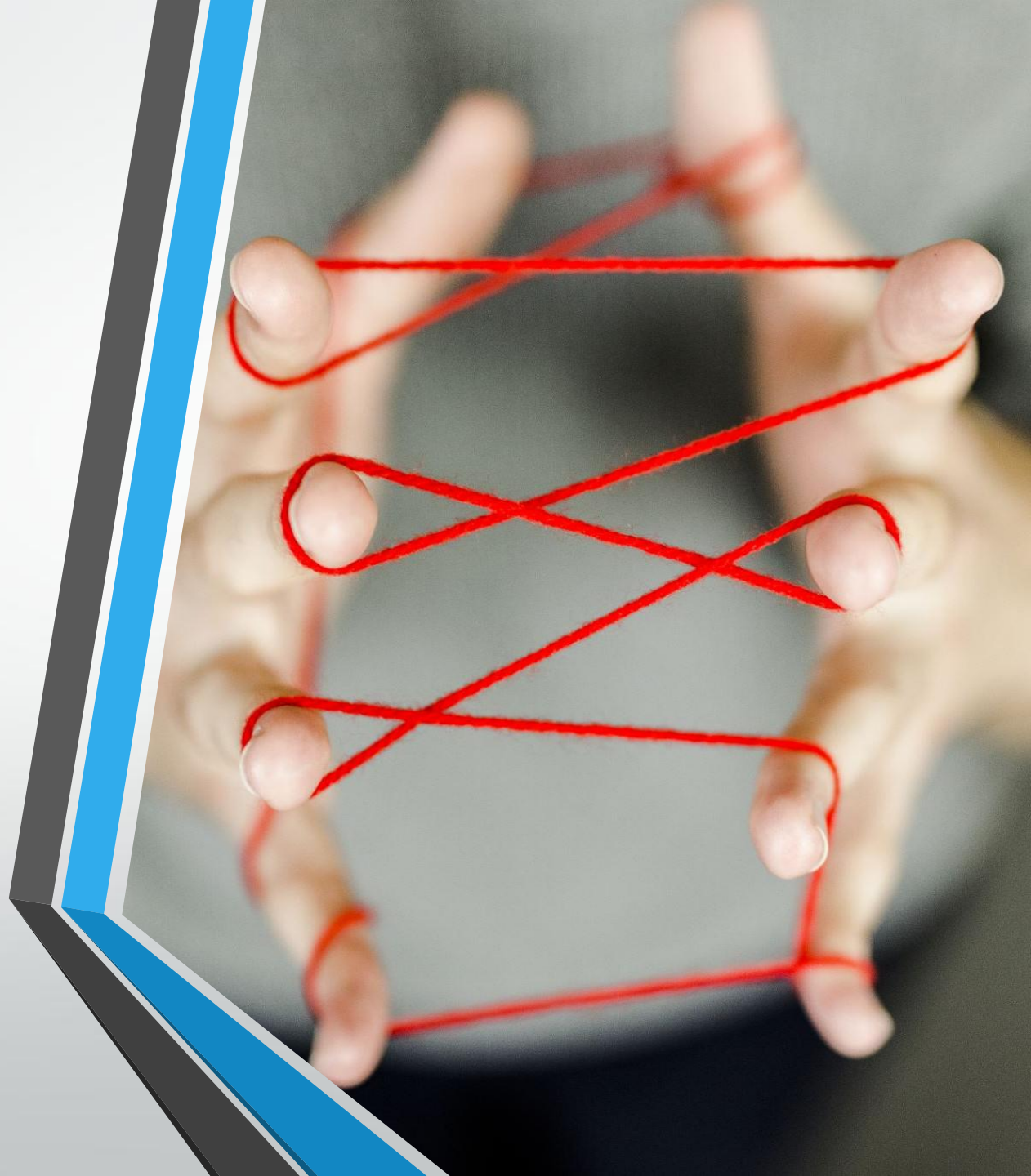
```
const shop2 =
["Banana","Grapes","PineApple"];
```

```
const total=shop1.concat(shop2);
console.log(total);
```

copyWithin() function

- The copyWithin() method copies array elements to another position in an array, overwriting the existing values.
- The copyWithin() does not add items to the array.

```
array.copyWithin(target, start, end)
```



Example

```
<script>
const fruits = ["Banana", "Orange", "Apple", "Mango",
"Kiwi", "Papaya"];
fruits.copyWithin(5,0,2);
document.getElementById("demo").innerHTML = fruits;
</script>
```

Banana,Orange,Apple,Mango,Kiwi,Banana

entries() function

- The entries() method returns an Array Iterator object with key/value pairs.
- For each item in the original array, the new iteration object will contain an array with the index as the key, and the item value as the value:

```
const fruits = ["Banana", "Orange", "Apple", "Mango"];
```

[0, "Banana"]

[1, "Orange"]

[2, "Apple"]

[3, "Mango"]

- entries() does not change the original array.

Example

```
const fruits = ["Banana", "Orange", "Apple", "Mango"];
const f = fruits.entries();
for (let   x of   f) {
  console.log(x);
}
```

fill() function

The fill() method fills specified elements in an array with a static value.

You can specify the position of where to start and end the filling. If not specified, all elements will be filled.

array.fill(*value*, *start*, *end*)

- *//start and end are optional*

Example

```
const array1 = [1, 2, 3, 4];

console.log(array1.fill(0, 2, 3));
```

filter() function

The filter() method creates an array filled with all array elements that pass a test

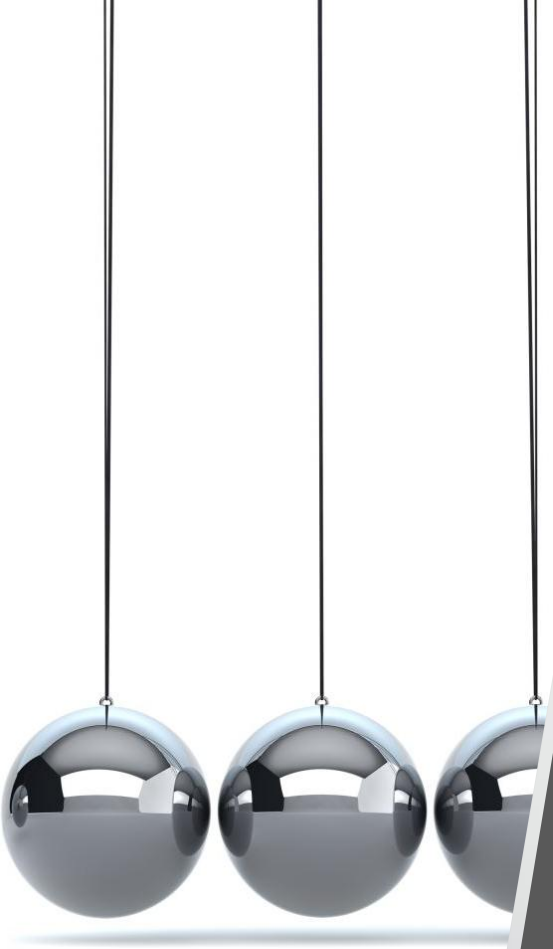
filter() does not execute the function for empty array elements.

filter() does not change the original array.

Example

```
const words = ['spray', 'limit', 'elite', 'exuberant', 'destruction', 'present'];
const result = words.filter(word => word.length > 6);
console.log(result);
```

```
const ages = [32, 33, 16, 40];
const result = ages.filter(age => age > 18);
console.log(result);
```



find() function

- The find() method returns the value of the array element that passes a test.
- The method executes the function once for each element present in the array:
  - If it finds an array element where the function returns a true value, find() returns the value of that array element (and does not check the remaining values)
  - Other wise it returns undefined

Example

```
const ages = [32, 33, 16, 40];
```

```
const found = ages.find(age => age > 18);
```

```
console.log(found);
```

map() function

- The map() method creates a new array with the results of calling a function for every array element.
- The map() method calls the provided function once for each element in an array, in order.
- map() does not execute the function for empty elements.
- map() does not change the original array.

Example

```
const array1 = [1, 4, 9, 16];

const map1 = array1.map(x => x * 2);

console.log(map1);
```

2,8,18,32

forEach() function

The forEach() method calls a function once for each element in an array, in order.

forEach() is not executed for array elements without values.

Example

```
const array1 = ['a', '2', 'c'];

array1.forEach(element => console.log(element));
```

Map vs forEach

- forEach: This iterates over a list and applies some operation with side effects to each list member (example: saving every list item to the database) and does not return anything.

- map: This iterates over a list, transforms each member of that list, and returns another list of the same size with the transformed members (example: transforming list of strings to uppercase).

slice() function

- The slice() method returns selected elements in an array, as a new array.
- slice() selects the elements starting at the given start argument, and ends at, but does not include, the given end argument.
- slice() does not change the original array.

```
array.slice(start, end)
```

Example

```
const animals = ['ant', 'owl', 'camel', 'duck',
'elephant'];
```

```
console.log(animals.slice(2));
```

```
console.log(animals.slice(2, 4));
```

```
console.log(animals.slice(1, 5));
```

```
console.log(animals.slice(-2));
```

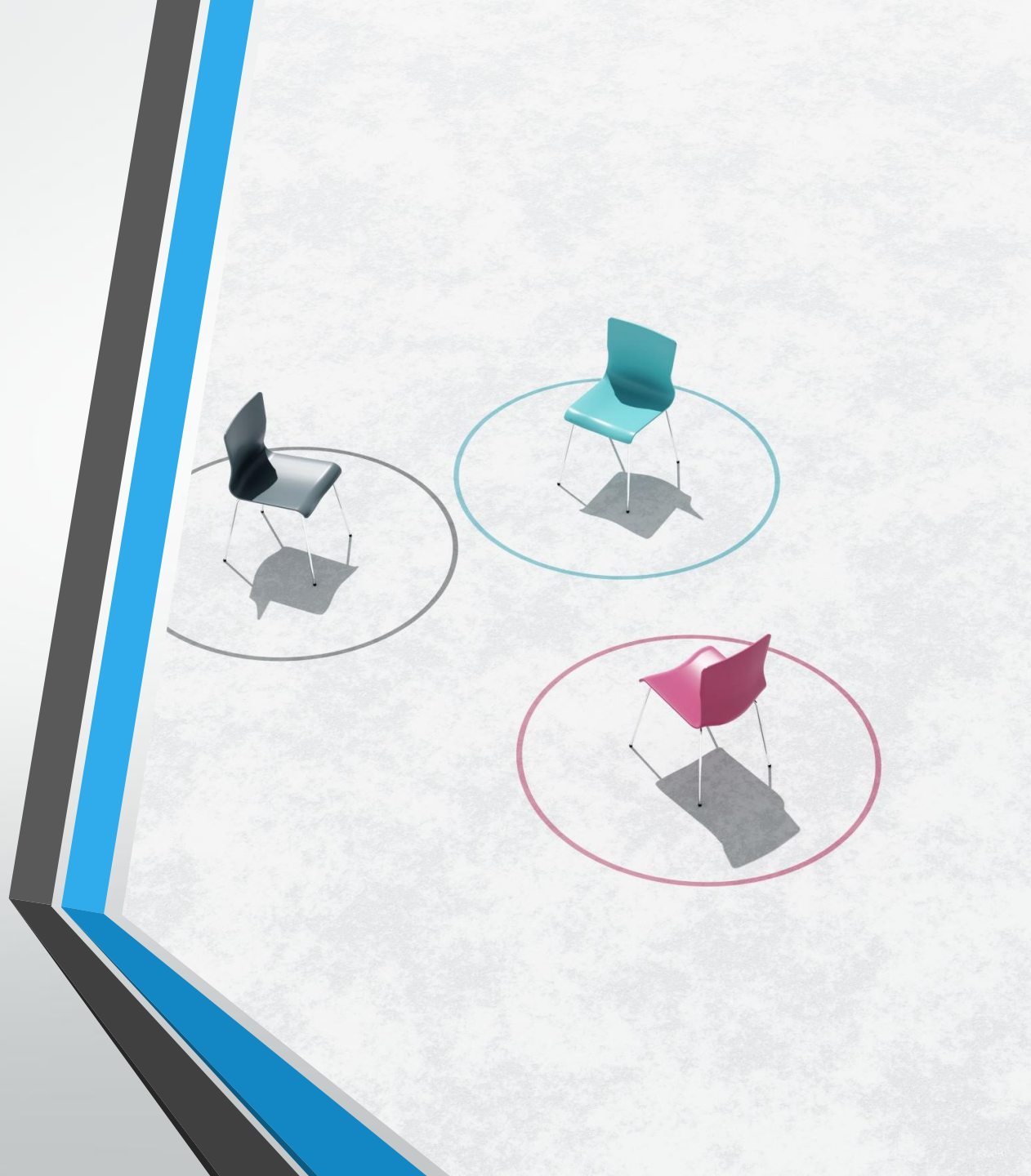
```
console.log(animals.slice(2, -1));
```

pop() function

- The pop() method removes the last element of an array.
- pop() returns the element it removes.
- pop() changes the length of the array.

  ```
  array.pop()
  ```

- Use shift() to remove element from first position.



Example

```
const plants = ['broccoli', 'onion', 'cabbage', 'tomato’];

console.log(plants.pop());

console.log(plants);

console.log(plants.shift());

console.log(plants);
```

push() function

- The push() method adds new items to the end of an array.
- push() changes the length of the array and returns the new length.
- To add items at the beginning of an array, use unshift().

```
array.push(item1, item2, ..., itemX)
```

Example

```
const animals = [‘elephants', 'goats', 'sheep’];
const count = animals.push('cows’);
console.log(count);
console.log(animals);

animals.push('chickens', 'cats', 'dogs’);
console.log(animals);

animals.unshift(‘FirstAnimal’);
console.log(animals);
```

flat() function

flat() method that creates a new array with all the elements of the subarrays concatenated to it recursively up to a specified depth.

By default, the depth is ‘1’.

We can also use ‘Infinity’ parameter for all sub arrays.

```
const numbers = [1, 2, [3, 4, 5]];
```

```
const flatNumbers = numbers.flat();
```

```
console.log(flatNumbers);
```

Example (1)

Example (2)

```
const numbers = [1, 2, [3, 4, 5, [6, 7]]];
const flatNumbers = numbers.flat(2);
console.log(flatNumbers);

const numbers1 = [1, 2, [3, 4, 5, [6, 7, [8, 9]]]];
const flatNumbers1 = numbers1.flat(Infinity);
console.log(flatNumbers1);
```

sort() function

The sort() method sorts an array alphabetically.

The reverse() method reverses the elements in an array.

Both methods changes the original array.

Example

```
const fruits = ["Banana", "Orange", "Apple", "Mango"];

console.log(fruits.sort());

console.log(fruits.reverse());
```