

Arrays

You can find HTML-templates for the exercises in folder `templates`.

1. Cars

The array to be used is:

```
let cars = ["Nissan", "Opel", "Peugeot", "Renault", "Audi", "Volvo", "Opel", "Audi"];
```

a) Create a program that lists the cars in the array

Cars

List cars Car:

How many times appears Add car

Nissan
Opel
Peugeot
Renault
Audi
Volvo
Opel
Audi

- Declare the array inside a script element.
- List the array using a for loop.

```
// Declare a variable to collect the cars in the array
let text = "";

// Iterate through the array and collect the cars into the text variable
for (let i = 0; i < cars.length; i++) {
    text = text + cars[i] + "<br>";
}
```

- Write the result to an HTML page.

b) Create a program that tells how many times a specific car appears in the array.

Cars

List cars Car: Opel How many times appears Add car

Car Opel appears 2 times

- The search is done using a for loop, where each car in the array is compared to the value of the input field using `if (cars[i] == searchValue)`.
- Declare a `count` variable (initialize it to zero) above the loop to store the number of occurrences.
- If the loop finds that the car in the array matches the value of the input field, increment the `count` variable by one.

```
let count = 0;

// Iterate through the array and collect the values into the text variable
for (let i = 0; i < cars.length; i++) {
  // If the value in the array matches the value of the input field
  if (cars[i] == searchValue) {
    count = count + 1;
  }
}
```

c) Create a program to add a new car to the array

Cars

List cars Car: Buick How many times appears Add car

Nissan
Opel
Peugeot
Renault
Audi
Volvo
Opel
Audi
Opel
Buick

2. Courses

Create a program that displays the course codes for the first semester.

The array is:

```
let courses = ["STU001HH1A", "ICB001HH1A", "COM001HH1A", "DIG001IT1A",  
"SOF001IT1A", "ICI001IT1A", "ICB001IT1A"];
```

Courses

STU001HH1A
ICB001HH1A
COM001HH1A
DIG001IT1A
SOF001IT1A
ICI001IT1A
ICB001IT1A

3. Rainfall

Create a program that calculates the annual rainfall in Helsinki.

Annual rainfall

Annual rainfall in Helsinki is 637.0 mm

Below is an array containing the rainfall for each month.

```
let rainfall = [47.0, 36.6, 34.7, 37.0, 41.9, 47.5, 61.7, 74.8, 65.4, 69.7, 66.1,  
54.6];
```

The code is conceptually:

```
let total = 0;  
for (let i = 0; i < rainfall.length; i++) {  
  // total = total + the value at index i in the array  
}  
  
// write the result
```

4. Temperatures

Create a program that displays the average monthly temperatures in Helsinki and their average.

Monthly average temperatures in Helsinki

0. -3.3
1. -4.7
2. -1.3
3. 3.9
4. 10.2
5. 14.6
6. 17.8
7. 16.3
8. 11.5
9. 6.6
10. 1.6
11. -2.0

Annual average temperature in Helsinki is 5.9

Below is an array containing the average temperature for each month.

```
let temperatures = [-3.3, -4.7, -1.3, 3.9, 10.2, 14.6, 17.8, 16.3, 11.5, 6.6, 1.6, -2.0];
```

The code is conceptually:

```
let text = "";
let total = 0;

for (let i = 0; i < temperatures.length; i++) {
  // text = text + (i+1) + ". " + the value at index i in the array
  // total = total + the value at index i in the array
}

let average = total / temperatures.length; // why?

// write the result
```

- The `toFixed(1)` method can be used to format the result to one decimal place.