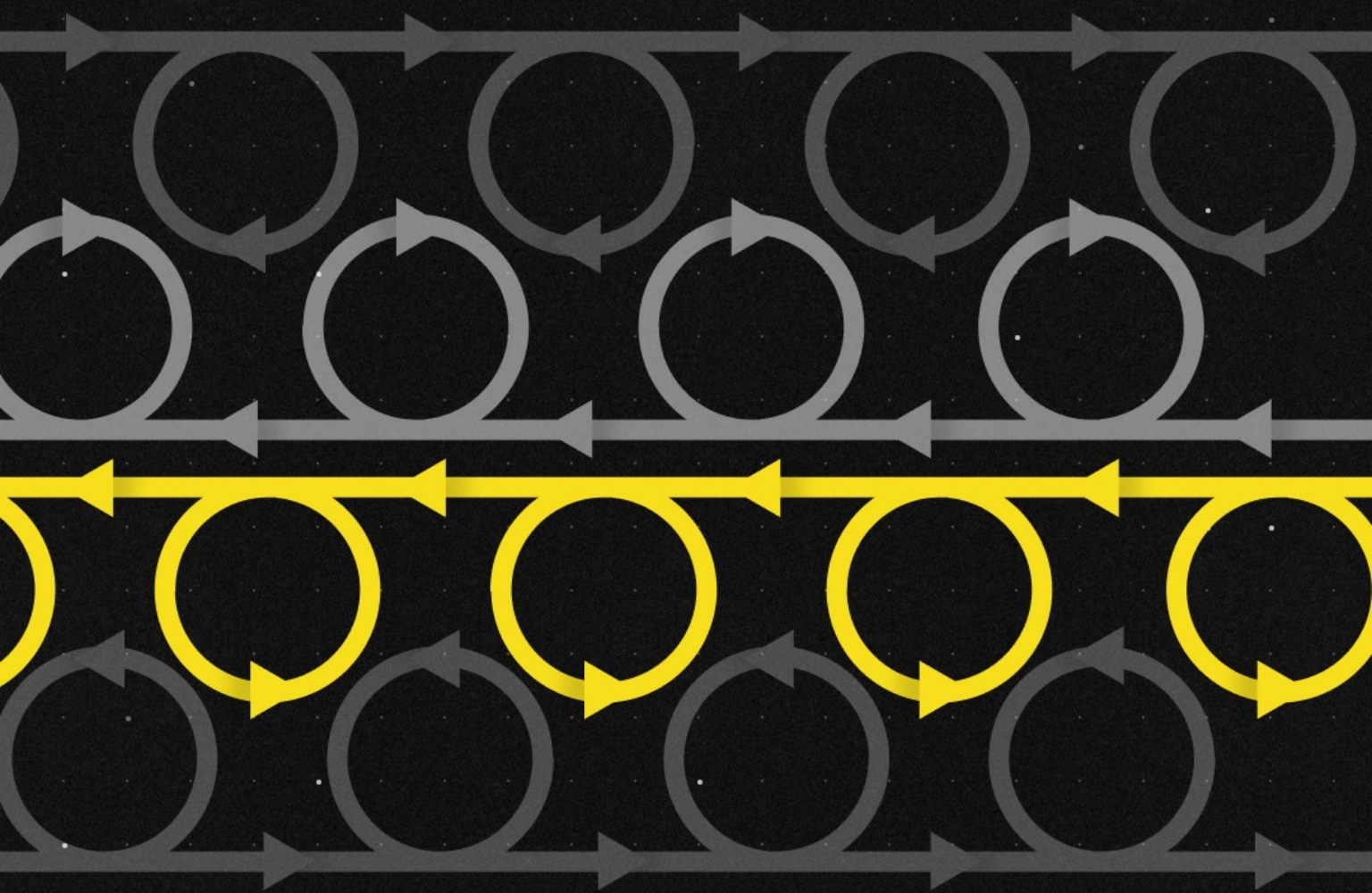# Loops
in JavaScript

JS

What are loops and why are they used?

Loops are handy, if you want to run the **same code** over and over again, each time with a **different value**.
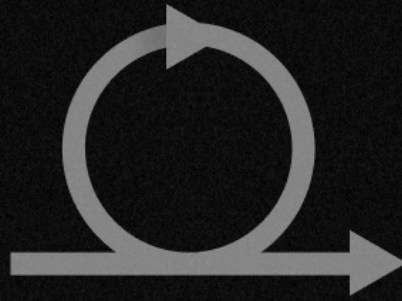
Instead of this

```
text += cars[0] + "<br>";
text += cars[1] + "<br>";
text += cars[2] + "<br>";
text += cars[3] + "<br>";
text += cars[4] + "<br>";
text += cars[5] + "<br>";
```

```
for (let i = 0; i < cars.length; i++)
{
  text += cars[i] + "<br>";
}
```

You can simply write this!

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JS

Types of Loops

1. **for** – loops through a block of code a number of times

2. **for/in** – loops through the properties of an object

3. **for/of** – loops through the values of an iterable object

4. **while** – loops through a block of code while a specified condition is true

5. **do/while** – also loops through a block of code while a specified condition is true

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1. **For** loop

```javascript
for (statement 1; statement 2; statement 3) {
  // code block to be executed
}
```

Statement 1 is executed (one time) before the execution of the code block.

Statement 2 defines the condition for executing the code block.

Statement 3 is executed (every time) after the code block has been executed.

```javascript
for (let i = 0; i < cars.length; i++)
{
    text += cars[i] + "<br>";
}
```

JS

2. **For/in** loop

```
for (key in object) {
  // code block to be executed
}
```

The JavaScript for in statement loops through the properties of an Object

```
const person = {fname:"John", lname:"Doe", age:25};

let text = "";
for (let x in person) {
  text += person[x];
}
```

Here,
- The for in loop iterates over a person object
- Each iteration returns a key (x)
- The key is used to access the value of the key
- The value of the key is person[x]

3. For/of loop

```
for (variable of iterable) {
  // code block to be executed
}
```

The JavaScript for of statement loops through the values of an iterable object.

It lets you loop over iterable data structures such as Arrays, Strings, Maps, NodeLists, and more

variable – For every iteration the value of the next property is assigned to the variable. Variable can be declared with const, let, or var.
iterable – An object that has iterable properties.

```
const cars = ["BMW", "Volvo", "Mini"];

let text = "";
for (let x of cars) {
  text += x;
}
```

JS

4. **While** loop

```
while (condition) {
  // code block to be executed
}
```

The while loop loops through a block of code as long as a specified condition is true.

```
while (i < 10) {
    text += "The number is " + i;
    i++;
}
```
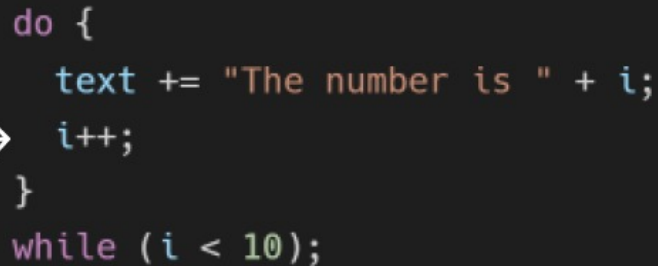
The code in the loop will run, over and over again, as long as a variable (i) is less than 10

JS

5. Do While loop

The do while loop is a variant of the while loop. This loop will execute the code block once, before checking if the condition is true, then it will repeat the loop as long as the condition is true.

```js
do {
    text += "The number is " + i;
    i++;
}
while (i < 10);
```

Do not forget to increase the variable used in the condition, otherwise the loop will never end!