Accessing Characters inside a String

This lesson will introduce you to ways to access characters inside a string. Moreover, it will also teach you to modify characters in a string.

The Bracket Notation

The bracket notation, also used with arrays, can provide access to an arbitrary character in a string:

```
let digits = '0123456789';
console.log(digits[4]);
```

The `charAt` Method

Instead of indexing, you can also use the `charAt` method:

```
let digits = '0123456789';
console.log(digits.charAt(4));
```

Opposed to arrays, setting a character inside the string to a new value doesn't work. Indexing a string is strictly *read-only*:

```
let digits = '0123456789';
digits[4] = 'X';
console.log(digits)
```

Setting `digits[4]` to `'X'` failed silently.

In general, strings are said to be *immutable*. This means that we cannot change their content. When adding a character to the end of the string, a new string is created.

To iterate on a string, all JavaScript control structures can be used: `for`, `while`, `do...while`, `for...in`, `for...of`:

```javascript
let digits = '0123456789';
let sum1 = "";
for ( let i = 0; i < digits.length; ++i ) {
    sum1 += digits[i];
}

let sum2 = "";
for ( let i in digits ) {
    sum2 += digits[i];
}

let sum3 = "";
for ( let digit of digits ) {
    sum3 += digit;
}

console.log(sum1);
console.log(sum2);
console.log(sum3);
```