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# Variables

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## Overview

JavaScript variables are used to hold a data value and can be changed anytime.

A JavaScript variable is a name for a storage location. In JavaScript there are three ways to declare variables:

- **let** – a block-scoped variable (don’t worry – we’ll discuss what block-scoped means later).
- **const** – the same as let, but must be initialised at declaration and cannot be changed.
- **var** – a function-scoped variable whose declaration is hoisted and can lead to confusing code! To be avoided now that we have let and const.

## Declaring variables

Using the new ES6 standard we use **let** or **const** to declare variables.

<code>x = 10;</code>	Implicit - DO NOT USE
<code>let y;</code>	Explicit without assignment
<code>let z = 10;</code>	Explicit with assignment
<code>const W = 10;</code>	Const with assignment

## Rules for creating variables

Variable names:

- Starts with a letter, ‘\_’ or ‘\$’
- Can also include digits
- Are case sensitive
- Cannot use reserved words
  - e.g. int, else, case
- Best Practice is to use camelCase for variable names
  - e.g. `thisIsCamelCase`

## JavaScript types



► String types

## String Concatenation and Interpolation

- Adding 2 (or more strings) is an expensive operation due to the memory manipulation required
- To concatenate a string the + operator is used

```
let str1 = "5 + 3 = ";
let value = 5 + 3;
let str2 = str1 + value
console.log(str2); // 5 + 3 = 8
```

- Template literals (introduced in ES2015) allow for strings to be declared with JavaScript expressions that are evaluated immediately using `${ }` notation.

```
let str2 = `5 + 3 = ${5 + 3}`;
console.log(str2); // 5 + 3 = 8
```

► String functions

## Tutorial

There are no tutorials for this module.

## Exercises

### How to get started

1. Open Google Chrome
2. Press F12 to access developer tools.
3. Click console and then start each of the activities.

### How to find JavaScript types

```
let a;
let b = "12345";
let c = 12344;
let d = true;
let e = {a:"JavaScript"};
```

► Solution

### Use template literals in order to dynamically change the sentence

```
let totalMoney = 4000;
let moneyPaidSoFar = 2348;
let totalLeftToPay;

`The total bill is £4000 the remaining amount of money to be paid is £1652`
```

► Solution