JavaScript Functions

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A JavaScript function is a block of code designed to perform a particular task.

A JavaScript function is executed when "something" invokes it (calls it).

Example

```
function myFunction(p1, p2) {
    return p1 * p2;              // The function returns the product of
p1 and p2
}
```

Try it Yourself »

JavaScript Function Syntax

A JavaScript function is defined with the **function** keyword, followed by a **name**, followed by parentheses **()**.

Function names can contain letters, digits, underscores, and dollar signs (same rules as variables).

The parentheses may include parameter names separated by commas:
(parameter1, parameter2, ...)

The code to be executed, by the function, is placed inside curly brackets: **{}**

```
function name(parameter1, parameter2, parameter3) {
    code to be executed
}
```

Function **parameters** are listed inside the parentheses () in the function definition.

Function **arguments** are the **values** received by the function when it is invoked.

Inside the function, the arguments (the parameters) behave as local variables.

A Function is much the same as a Procedure or a Subroutine, in other programming languages.

Function Invocation

The code inside the function will execute when "something" **invokes** (calls) the function:

- When an event occurs (when a user clicks a button)
- When it is invoked (called) from JavaScript code
- Automatically (self invoked)

You will learn a lot more about function invocation later in this tutorial.

Function Return

When JavaScript reaches a **return statement**, the function will stop executing.

If the function was invoked from a statement, JavaScript will "return" to execute the code after the invoking statement.

Functions often compute a **return value**. The return value is "returned" back to the "caller":

Example

Calculate the product of two numbers, and return the result:

```
var x = myFunction(4, 3);    // Function is called, return value will end
up in x

function myFunction(a, b) {
    return a * b;             // Function returns the product of a and b
}
```

The result in x will be:

```
12
```

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Why Functions?

You can reuse code: Define the code once, and use it many times.

You can use the same code many times with different arguments, to produce different results.

Example

Convert Fahrenheit to Celsius:

```
function toCelsius(fahrenheit) {
    return (5/9) * (fahrenheit-32);
}
document.getElementById("demo").innerHTML = toCelsius(77);
```

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The () Operator Invokes the Function

Using the example above, toCelsius refers to the function object, and toCelsius() refers to the function result.

Accessing a function without () will return the function definition instead of the function result:

Example

```
function toCelsius(fahrenheit) {
    return (5/9) * (fahrenheit-32);
}
document.getElementById("demo").innerHTML = toCelsius;
```

Try it Yourself »

Functions Used as Variable Values

Functions can be used the same way as you use variables, in all types of formulas, assignments, and calculations.

Example

Instead of using a variable to store the return value of a function:

```
var x = toCelsius(77);
var text = "The temperature is " + x + " Celsius";
```

You can use the function directly, as a variable value:

```
var text = "The temperature is " + toCelsius(77) + " Celsius";
```

Try it Yourself »

You will learn a lot more about functions later in this tutorial.

Local Variables

Variables declared within a JavaScript function, become **LOCAL** to the function.

Local variables can only be accessed from within the function.

Example

```
// code here can NOT use carName

function myFunction() {
    var carName = "Volvo";
    // code here CAN use carName
}

// code here can NOT use carName
```

Try it Yourself »

Since local variables are only recognized inside their functions, variables with the same name can be used in different functions.

Local variables are created when a function starts, and deleted when the function is completed.

Test Yourself with Exercises!

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