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Introduction to functions

What is a function?

A function is basically a little script within a larger script. Its purpose is to perform a single task or a series of task.

Functions help organize the various parts of a script which makes the code easier to:

- Read
- Debug
- Reuse

Like variables we have to **declare** (define) a function before we can use it.

To declare a function, you first use the reserved word **function**, followed by the name of the function, and then a set of parentheses.

function somefunctionname()

This is also called the **head** of the function. What the function will do is defined inside its **stomach** which is surrounded by curly brackets `{}`.

```
<html>
<!-- function_definition1.htm -->
<head>
<title>Functions</title>
<script LANGUAGE="JavaScript">

// here we define the function called Greet()

function Greet() {
    document.write("Greetings to all of you");
}
</script>
</head>
<body>
<h1>Function Example</h1>
<p></p>

<script LANGUAGE="JavaScript">

Greet(); // here we call the function Greet()

</script>
</body></html>
```

The example shows that the function `Greet()` first is doing something, when it is called.

Like with variables function names are casesensitive, no space are allowed, some names are reserved and
it is a good idea til the give your functions meaningful names.

Adding parameters to functions

Parameters are used to allow a function to import one or more values from somewhere outside the function.

function functionname(variable1, variable 2)

E.g. if we want to greet someone by name we could changes the Greet() function to Greet(name)

Example:

```
<html>
<!-- function_definition2_param-->
<head>
<title>Functions</title>
<script LANGUAGE="JavaScript">

function Greet(name) {
    document.write("Greetings to you "+ name +" <br>");
}
</script>
</head>
<body>
<h1>Function Example</h1>
<p></p>

<script LANGUAGE="JavaScript">

Greet(); // here we call the function

Greet("Douglas Engelbart"); //here we call the function with a parameter

var student = "Brian";

Greet(student); //here the parameter is inside a variable

</script>
</body>
</html>
```

Global and Local variables

Variables declared inside a function are called local variables because they only can be used inside this function (locally).

Normal variables that are declared outside a function are also called global variables.

Example:

```

<html>
<!-- function_local_global_var.htm-->
<head>
<title>Functions</title>
</head>
<body>
<h1>Function Example</h1>
<p></p>

<script LANGUAGE="JavaScript">
var title = "teacher"; //this is a global variable

function Greet(name) {
    var localName = name; // localName and title are local variables
    var title = "student"; // they only lives inside this function body
    document.write("Greetings to you "+title+ " "+localName +" <br>");
}

Greet("Douglas Engelbart"); //here we call the function with a parameter

window.alert(" The value of the title "+title);

</script>
</body>
</html>

```

functions with Return Statements

To call a function and use a return statement in the function, you can assign the result of the function to a variable.

Example:

```

<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0 Transitional//EN">
<HTML><HEAD><TITLE>Function Example</TITLE>

<SCRIPT language=JavaScript type=text/javascript>

function Average(a,b,c,d) {
result = (a + b + c + d) / 4;
return result;
}
</SCRIPT>

</HEAD>
<BODY>
<P>The following is the result of the function call.</P>

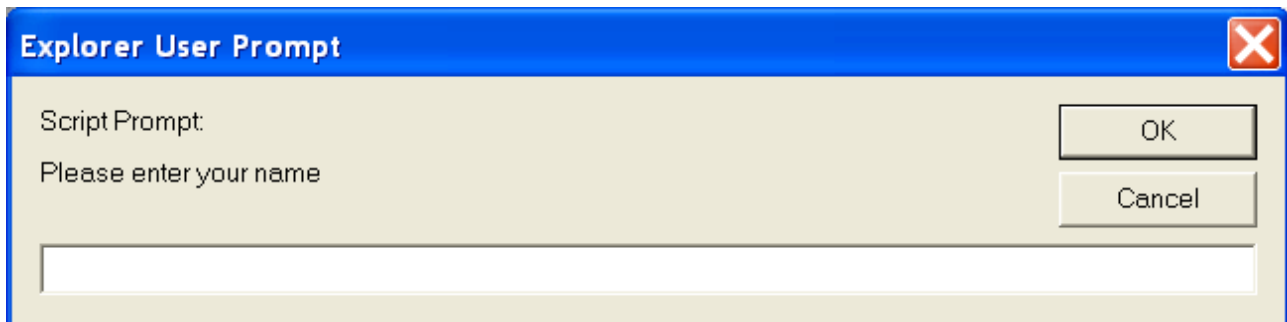
<SCRIPT language=JavaScript type=text/javascript>
score = Average(3,4,5,6);
document.write("The average is: " + score);

</SCRIPT></BODY></HTML>

```

Input from the user can be done by calling the **prompt function**.

```
var name=prompt("Please enter your name","")
```



Examples of different functions

```
Greet();  
alert("Hello World");  
ab = golden(ac); // The golden ratio = length * 0,61803398875 = length/1.6180339887  
document.write(ab);  
fadein();
```