**Java Script**

JavaScript is the most popular scripting language on the internet, and works in all major browsers, such as Internet Explorer, Firefox, Chrome, Opera, and Safari.

What is JavaScript?

* JavaScript was designed to add interactivity to HTML pages
* JavaScript is a scripting language
* A scripting language is a lightweight programming language
* JavaScript is usually embedded directly into HTML pages
* JavaScript is an interpreted language (means that scripts execute without preliminary compilation)
* Everyone can use JavaScript without purchasing a license

What can a JavaScript do?

* **JavaScript gives HTML designers a programming tool -** HTML authors are normally not programmers, but JavaScript is a scripting language with a very simple syntax! Almost anyone can put small "snippets" of code into their HTML pages
* **JavaScript can put dynamic text into an HTML page -** A JavaScript statement like this: document.write("<h1>" + name + "</h1>") can write a variable text into an HTML page
* **JavaScript can react to events -** A JavaScript can be set to execute when something happens, like when a page has finished loading or when a user clicks on an HTML element
* **JavaScript can read and write HTML elements -** A JavaScript can read and change the content of an HTML element
* **JavaScript can be used to validate data -** A JavaScript can be used to validate form data before it is submitted to a server. This saves the server from extra processing
* **JavaScript can be used to detect the visitor's browser** - A JavaScript can be used to detect the visitor's browser, and - depending on the browser - load another page specifically designed for that browser
* **JavaScript can be used to create cookies** - A JavaScript can be used to store and retrieve information on the visitor's computer
* JavaScript's official name is ECMAScript.
* ECMAScript is developed and maintained by the [ECMA organization](http://www.ecma-international.org).
* ECMA-262 is the official JavaScript standard.
* The language was invented by Brendan Eich at Netscape (with Navigator 2.0), and has appeared in all Netscape and Microsoft browsers since 1996.
* The development of ECMA-262 started in 1996, and the first edition of was adopted by the ECMA General Assembly in June 1997.
* The standard was approved as an international ISO (ISO/IEC 16262) standard in 1998.
* The development of the standard is still in progress.

## Where to Put the JavaScript

JavaScripts in a page will be executed immediately while the page loads into the browser. This is not always what we want. Sometimes we want to execute a script when a page loads, or at a later event, such as when a user clicks a button. When this is the case we put the script inside a function

## Scripts in <head>

Scripts to be executed when they are called, or when an event is triggered, are placed in functions.

Put your functions in the head section, this way they are all in one place, and they do not interfere with page content.

<html>  
<head>  
<script type="text/javascript">  
function message()  
{  
alert("This alert box was called with the onload event");  
}  
</script>  
</head>  
  
<body onload="message()">  
</body>  
</html>

## **Scripts in <body>**

If you don't want your script to be placed inside a function, or if your script should write page content, it should be placed in the body section.

<html>  
<head>  
</head>  
  
<body>  
<script type="text/javascript">  
document.write("This message is written by JavaScript");  
</script>  
</body>  
  
</html>

## **JavaScript is Case Sensitive**

Unlike HTML, JavaScript is case sensitive - therefore watch your capitalization closely when you write JavaScript statements, create or call variables, objects and functions.

## **JavaScript Comments**

Comments can be added to explain the JavaScript, or to make the code more readable.

Single line comments start with //.

Multi line comments start with /\* and end with \*/.

## **JavaScript Variables**

JavaScript variables are used to hold values or expressions.

A variable can have a short name, like x, or a more descriptive name, like carname.

Rules for JavaScript variable names:

* Variable names are case sensitive (y and Y are two different variables)
* Variable names must begin with a letter or the underscore character

## **Declaring (Creating) JavaScript Variables**

Creating variables in JavaScript is most often referred to as "declaring" variables.

You can declare JavaScript variables with the **var statement**:

var x=15;  
var carname="TMV";

## **Comparison Operators**

Comparison operators are used in logical statements to determine equality or difference between variables or values.

Given that **x=5**, the table below explains the comparison operators:

|  |  |  |
| --- | --- | --- |
| **Operator** | **Description** | **Example** |
| == | is equal to | x==8 is false |
| === | is exactly equal to (value and type) | x===5 is true x==="5" is false |
| != | is not equal | x!=8 is true |
| > | is greater than | x>8 is false |
| < | is less than | x<8 is true |
| >= | is greater than or equal to | x>=8 is false |
| <= | is less than or equal to | x<=8 is true |

## **Logical Operators**

Logical operators are used to determine the logic between variables or values.

Given that **x=6 and y=3**, the table below explains the logical operators:

|  |  |  |
| --- | --- | --- |
| **Operator** | **Description** | **Example** |
| && | And | (x < 10 && y > 1) is true |
| || | Or | (x==5 || y==5) is false |
| ! | Not | !(x==y) is true |

## **Conditional Operator**

JavaScript also contains a conditional operator that assigns a value to a variable based on some condition.

### Syntax

|  |
| --- |
| variablename=(condition)?value1:value2 |

### Example

|  |
| --- |
| greeting=(visitor=="PRES")?"Dear President ":"Dear "; |

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**Array Object**

The Array object is used to store multiple values in a single variable.

## **What is an Array?**

An array is a special variable, which can hold more than one value, at a time.

## **Create an Array**

An array can be defined in three ways.

The following code creates an Array object called myCars

1:

|  |
| --- |
| var myCars=new Array(); // regular array (add an optional integer myCars[0]="Saab";       // argument to control array's size) myCars[1]="Volvo"; myCars[2]="BMW"; |

2:

|  |
| --- |
| var myCars=new Array("Saab","Volvo","BMW"); // condensed array |

3:

|  |
| --- |
| var myCars=["Saab","Volvo","BMW"]; // literal array |