What is JavaScript ?

JavaScript started life as LiveScript, but Netscape changed the name, possibly because of the excitement being generated by Java.to JavaScript. JavaScript made its first appearance in Netscape 2.0 in 1995 with a name *LiveScript*.

JavaScript is a lightweight, interpreted programming language with object-oriented capabilities that allows you to build interactivity into otherwise static HTML pages.

The general-purpose core of the language has been embedded in Netscape, Internet Explorer, and other web browsers

The [ECMA-262 Specification](http://www.ecma-international.org/publications/index.html) defined a standard version of the core JavaScript language.

JavaScript is:

* JavaScript is a lightweight, interpreted programming language
* Designed for creating network-centric applications
* Complementary to and integrated with Java
* Complementary to and integrated with HTML
* Open and cross-platform

Client-side JavaScript:

Client-side JavaScript is the most common form of the language. The script should be included in or referenced by an HTML document for the code to be interpreted by the browser.

It means that a web page need no longer be static HTML, but can include programs that interact with the user, control the browser, and dynamically create HTML content.

The JavaScript client-side mechanism features many advantages over traditional CGI server-side scripts. For example, you might use JavaScript to check if the user has entered a valid e-mail address in a form field.

The JavaScript code is executed when the user submits the form, and only if all the entries are valid they would be submitted to the Web Server.

JavaScript can be used to trap user-initiated events such as button clicks, link navigation, and other actions that the user explicitly or implicitly initiates.

Advantages of JavaScript:

The merits of using JavaScript are:

* **Less server interaction:** You can validate user input before sending the page off to the server. This saves server traffic, which means less load on your server.
* **Immediate feedback to the visitors:** They don't have to wait for a page reload to see if they have forgotten to enter something.
* **Increased interactivity:** You can create interfaces that react when the user hovers over them with a mouse or activates them via the keyboard.
* **Richer interfaces:** You can use JavaScript to include such items as drag-and-drop components and sliders to give a Rich Interface to your site visitors.

Limitations with JavaScript:

We can not treat JavaScript as a full fledged programming language. It lacks the following important features:

* Client-side JavaScript does not allow the reading or writing of files. This has been kept for security reason.
* JavaScript can not be used for Networking applications because there is no such support available.
* JavaScript doesn't have any multithreading or multiprocess capabilities.

Once again, JavaScript is a lightweight, interpreted programming language that allows you to build interactivity into otherwise static HTML pages.

JavaScript Development Tools:

One of JavaScript's strengths is that expensive development tools are not usually required. You can start with a simple text editor such as Notepad.

Since it is an interpreted language inside the context of a web browser, you don't even need to buy a compiler.

To make our life simpler, various vendors have come up with very nice JavaScript editing tools. Few of them are listed here:

* **Microsoft FrontPage:** Microsoft has developed a popular HTML editor called FrontPage. FrontPage also provides web developers with a number of JavaScript tools to assist in the creation of an interactive web site.
* **Macromedia Dreamweaver MX:** Macromedia Dreamweaver MX is a very popular HTML and JavaScript editor in the professional web development crowd. It provides several handy prebuilt JavaScript components, integrates well with databases, and conforms to new standards such as XHTML and XML.
* **Macromedia HomeSite 5:** This provided a well-liked HTML and JavaScript editor, which will manage their personal web site just fine.

Where JavaScript is Today ?

The ECMAScript Edition 4 standard will be the first update to be released in over four years. JavaScript 2.0 conforms to Edition 4 of the ECMAScript standard, and the difference between the two is extremely minor.

The specification for JavaScript 2.0 can be found on the following site:[http://www.ecmascript.org/](http://www.ecmascript.org/" \t "_blank)

Today, Netscape's JavaScript and Microsoft's JScript conform to the ECMAScript standard, although each language still supports features that are not part of the standard.

# JavaScript Syntax

A JavaScript consists of JavaScript statements that are placed within the <script>... </script> HTML tags in a web page.

You can place the <script> tag containing your JavaScript anywhere within you web page but it is preferred way to keep it within the <head> tags.

The <script> tag alert the browser program to begin interpreting all the text between these tags as a script. So simple syntax of your JavaScript will be as follows

|  |
| --- |
| <script ...>  JavaScript code  </script> |

The script tag takes two important attributes:

* **language:** This attribute specifies what scripting language you are using. Typically, its value will be *javascript*. Although recent versions of HTML (and XHTML, its successor) have phased out the use of this attribute.
* **type:** This attribute is what is now recommended to indicate the scripting language in use and its value should be set to *"text/javascript"*.

So your JavaScript segment will look like:

|  |
| --- |
| <script language="javascript" type="text/javascript">  JavaScript code  </script> |

# Your First JavaScript Script:

Let us write our class example to print out "Hello World".

|  |
| --- |
| <html>  <body>  <script language="javascript" type="text/javascript">  <!--  document.write("Hello World!")  //-->  </script>  </body>  </html> |

We added an optional HTML comment that surrounds our Javascript code. This is to save our code from a browser that does not support Javascript. The comment ends with a "//-->". Here "//" signifies a comment in Javascript, so we add that to prevent a browser from reading the end of the HTML comment in as a piece of Javascript code.

Next, we call a function *document.write* which writes a string into our HTML document. This function can be used to write text, HTML, or both. So above code will display following result:

|  |
| --- |
| Hello World! |

To understand it in better way you can [Try it yourself](http://www.tutorialspoint.com/cgi-bin/practice.cgi?file=javascript_1).

# Whitespace and Line Breaks:

JavaScript ignores spaces, tabs, and newlines that appear in JavaScript programs.

Because you can use spaces, tabs, and newlines freely in your program so you are free to format and indent your programs in a neat and consistent way that makes the code easy to read and understand.

# Semicolons are Optional:

Simple statements in JavaScript are generally followed by a semicolon character, just as they are in C, C++, and Java. JavaScript, however, allows you to omit this semicolon if your statements are each placed on a separate line. For example, the following code could be written without semicolons

|  |
| --- |
| <script language="javascript" type="text/javascript">  <!--  var1 = 10  var2 = 20  //-->  </script> |

But when formatted in a single line as follows, the semicolons are required:

|  |
| --- |
| <script language="javascript" type="text/javascript">  <!--  var1 = 10; var2 = 20;  //-->  </script> |

**Note:** It is a good programming practice to use semicolons.

# Case Sensitivity:

JavaScript is a case-sensitive language. This means that language keywords, variables, function names, and any other identifiers must always be typed with a consistent capitalization of letters.

So identifiers *Time*, *TIme* and *TIME* will have different meanings in JavaScript.

**NOTE:** Care should be taken while writing your variable and function names in JavaScript.

# Comments in JavaScript:

JavaScript supports both C-style and C++-style comments, Thus:

* Any text between a // and the end of a line is treated as a comment and is ignored by JavaScript.
* Any text between the characters /\* and \*/ is treated as a comment. This may span multiple lines.
* JavaScript also recognizes the HTML comment opening sequence <!--. JavaScript treats this as a single-line comment, just as it does the // comment.
* The HTML comment closing sequence --> is not recognized by JavaScript so it should be written as //-->.

## Example:

|  |
| --- |
| <script language="javascript" type="text/javascript">  <!--  // This is a comment. It is similar to comments in C++  /\*  \* This is a multiline comment in JavaScript  \* It is very similar to comments in C Programming  \*/  //-->  </script> |