

**Chapter
1**

**GETTING
STARTED**

*Get on the
Fast Track!*



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**SYS-ED/
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Objectives

You will learn:

- C Language features.
- C Tools.
- C Embedding scripts.
- C <SCRIPT> tag.
- C Specifying a file of JavaScript code.
- C JavaScript expressions as HTML attribute values.
- C Hiding scripts from old browsers.
- C Comments.
- C Terminating a statement.

1 Language Features

Language

JavaScript is a scripting language developed by Netscape. It is used to create interactive web-pages. JavaScript is not the same as JAVA.

To run scripts written in JavaScript, a JavaScript-enabled browser is required.

Script

A JavaScript script is a program which is included on an HTML page. Because it is enclosed in the <SCRIPT> tag, the text of the script doesn't appear on the user's screen. The Web browser will execute the JavaScript program.

The <SCRIPT> tag is most often found within the <HEAD> section of the HTML page; it is also possible to have scripts in the <BODY> section.

Scripts that write text to the screen or that write HTML are best placed in the <BODY>.

2 What JavaScript Can Do

JavaScript provides a wide variety of facilities for making Web pages more interactive and providing users with a visually appealing interface.

Creating an Active User Interface

JavaScript provides for the creation of an active user interface, giving the users feedback as they navigate through HTML pages.

For example, JavaScript deploys a technique known as rollover for implementing buttons that highlight as the user moves the mouse pointer over them.

Checking for Valid Data on Forms

JavaScript can be used to ensure that users enter valid information in forms.

If a form requires calculation, they can be implemented on the user's machine without using a complex server CGI.

Creating HTML Pages

JavaScript can be used to create custom HTML pages on the fly depending on actions that the user takes.

For example, consider a travel site which is promoting Hawaii as a travel destination; JavaScript can be used to have the latest Hawaii travel deals appear in a new window.

Controlling the Browser

JavaScript controls the browser so that new windows can be opened up to display alert boxes, and custom messages can be placed in the status bar of the browser window.



Using the Date and Time Features

JavaScript has a set of date and time features which can be used for generating clocks, calendars, and timestamp documents.

Testing for the Presence of Browser Plug-ins

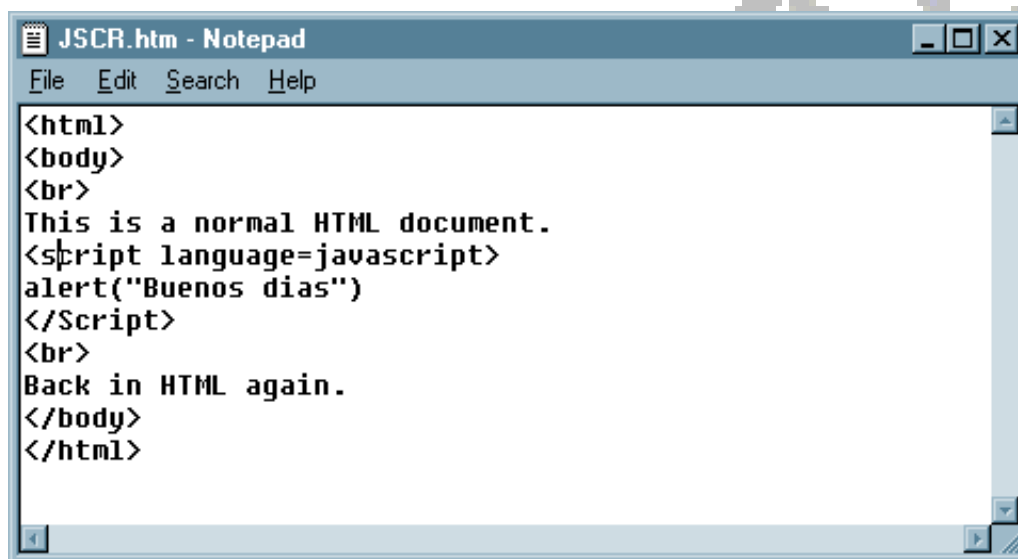
In Netscape Navigator 3.0 and Microsoft Internet Explorer 3.0 and later, JavaScript can be used for:

- C testing for the presence of browser plug-ins.
- C directing the user to a different page if they don't have the plug-in needed to view a page.

3 Tools

JavaScript is plain text and can be used with a wide variety of text editors.

A word processor such as Microsoft Word or WordPerfect, can be used with Javascript as long as the files are saved in Text Only format. A word processor's native format can not be read by a web browser.



```
JSCR.htm - Notepad
File Edit Search Help
<html>
<body>
<br>
This is a normal HTML document.
<script language=javascript>
alert("Buenos dias")
</Script>
<br>
Back in HTML again.
</body>
</html>
```

Common Text Editors

- C On Windows 98, many people use Notepad.
- C On the Macintosh, SimpleText can be used.
- C Programmers also use BBEEdit, by Bare Bones Software.

Whatever the program, it will be necessary to save plain text files with the extension:

- C .html
- or
- C .htm

WYSIWYG HTML editors, such as MS FrontPage, can also be used to develop JavaScripts.

To do so, switch to HTML Source modes and code the scripts.

4 Embedding Scripts

JavaScript can be embedded in an HTML document in the following ways:

- C as statements and functions within a `<SCRIPT>` tag.
- C by specifying a file as the JavaScript source.
(rather than embedding the JavaScript in the HTML)
- C by specifying a JavaScript expression as the value of an HTML attribute.
- C as event handlers within certain other HTML tags (mostly form elements).

Unlike HTML, JavaScript is case sensitive.

4.1. `<SCRIPT>` Tag

The `<SCRIPT>` tag is an extension to HTML that can enclose any number of JavaScript statements:

```
<SCRIPT>  
    JavaScript statements...  
</SCRIPT>
```

A document can have multiple `<SCRIPT>` tags, and each can enclose any number of JavaScript statements.

A screenshot of a Notepad window titled "JSCR.htm - Notepad". The window has a menu bar with "File", "Edit", "Search", and "Help". The text area contains the following code:

```
<html>
<body>
<h1><script language=javascript>
document.write("Buenos dias")
</Script></h1>
</body>
</html>
```

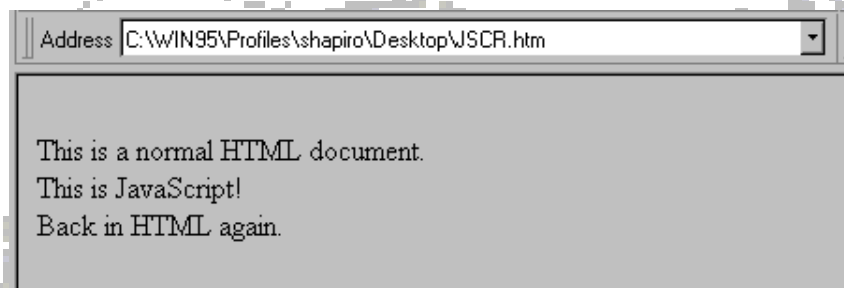
In the above script:

Statement	Explanation
<SCRIPT>	This is the opening script tag. This tells the browser to expect JavaScript instead of
document.write("Buenos dias")	This is the first line of JavaScript. It takes the document window and writes "Buenos dias" into it.
</SCRIPT>	End writing JavaScript, and tell the browser to start expecting HTML again.

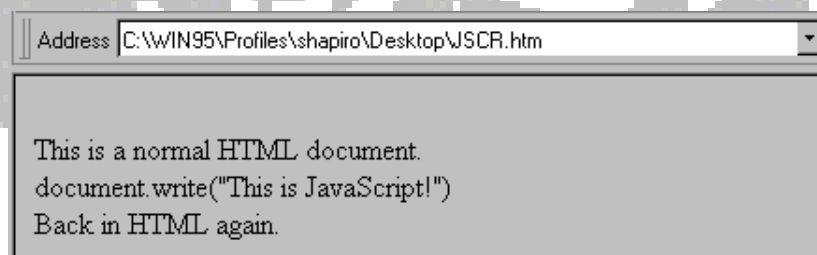
Example:

```
<html>
<body>
<br>
This is a normal HTML document.
<br>
  <script language="JavaScript">
    document.write("This is JavaScript!")
  </script>
<br>
Back in HTML again.
</body>
</html>
```

The output in a browser is:



A non-JavaScript browser does not know the `<script>` tag. It ignores the tag and outputs all following code as if it was normal text. This means the user will see the JavaScript-code of our program inside the HTML-document.



4.2. Specifying a File of JavaScript Code

The SRC attribute of the <SCRIPT> tag provides for a file to be specified as the JavaScript source (rather than embedding the JavaScript in the HTML).

Example:

```
<HEAD>
<TITLE>My Page</TITLE>
<SCRIPT SRC="common.js">
    ...
</SCRIPT>
</HEAD>
<BODY>
    ...
```

This attribute is especially useful for sharing functions among many different pages. The closing </SCRIPT> tag is required.

JavaScript statements within a <SCRIPT> tag with a SRC attribute are ignored unless the inclusion has an error.

For example, the following statement can be placed between the <SCRIPT SRC="..."> and </SCRIPT> statements:

```
document.write("Included JS file not found");
```

The SRC attribute can specify any URL, relative or absolute.

Example:

```
<SCRIPT SRC="http://www.sysed.com/utills/area.js">
```

- C External JavaScript files cannot contain any HTML tags; they must contain only JavaScript statements and function definitions.
- C External JavaScript files should have the file name suffix .js.

4.3. JavaScript Expressions as HTML Attribute Values

JavaScript Entities

A JavaScript expression can be specified as the value of an HTML attribute.

Entity values are evaluated dynamically. This allows the programmer to create more flexible HTML constructs, because the attributes of one HTML element can depend on information about elements placed previously on the page.

The HTML character entities can be used for defining characters with special numerical codes or names by preceding the name with an ampersand (&) and terminating it with a semicolon (;).

Example:

A greater-than symbol (>) can be included with the character entity > and a less-than symbol (<) with <.

JavaScript entities also start with an ampersand (&) and end with a semicolon (;). Instead of a name or number, a JavaScript expression can be enclosed in curly braces {}.

JavaScript entities can only be used where an HTML attribute value would normally go.

Example:

Consider a variable defined `barWidth`. A programmer could create a horizontal rule with the specified percentage width as follows:

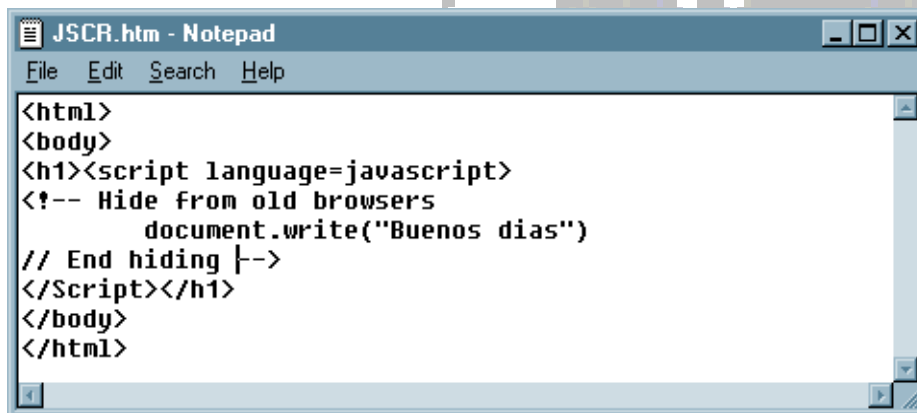
```
<HR WIDTH="{barWidth}%" ALIGN="LEFT">
```

5 Hiding Scripts from Old Browsers

Older browsers, which include Netscape 1.x, Microsoft Internet Explorer versions 3 and earlier, and the America Online browser before version 4 don't understand JavaScript.

Well-behaved browsers are supposed to ignore everything between tags they don't understand, however not all of them do so.

There is a technique that will fool these backwards browsers into thinking that the contents of a script are actually HTML comments, which will then be ignored.



```

<html>
<body>
<h1><script language=javascript>
<!-- Hide from old browsers
      document.write("Buenos dias")
// End hiding |-->
</Script></h1>
</body>
</html>

```

In the above example:

Statement	Explanation
<!-- Hide from old browsers	This line opens the HTML comment with
document.write("Buenos días")	This is the actual JavaScript.
// End hiding -->	This line starts with // which signifies a JavaScript comment. The line Ends with --> which ends an HTML comment.

If there is a message that will be necessary to be used/viewed by older browsers, the message can be added into a <NOSCRIPT> tag.

This message will then be processed both by badly behaved browsers, and by newer browsers when the user has turned off JavaScript.

6 Comments

Comments can be added to a script by inserting comments that JavaScript won't Interpret as script commands.

Comments can be used to explain why a programmer has solved the problem in a particular way.

Another reason to comment a script is to help other people who will be re-using and modifying a script.

Single-Line Comment

A single-line comment is a line starting with `//`.

Multi-Line Comment

1. The `/*` at the beginning of the line tells JavaScript to ignore everything that follows until it sees the end comment operator.
2. `*/` is the end comment operator.

`/* This is an example of a Long JavaScript comment.
Note the characters at the beginning and ending of the comment.*/`

7 Terminating a Statement

Semicolons are optional and are required only if a programmer wants to put more than one statement on a single line.

Semicolons are useful in defining event handlers.

