Basic JavaScript Notes

Click Count Demo

This small demo shows examples of using an `onclick` event handler, `document.getElementById()`, and the `innerHTML` function.

Douglas Crockford's JavaScript Web site

Douglas Crockford has a good Web site available at http://javascript.crockford.com/. In particular, you might want to read these articles:

- JavaScript: The Wrrrld's Most Misunderstood Programming Language
- A Survey of the JavaScript Programming Language

At the bottom of the page is a list of blog entries and videos about various JavaScript topics.

Variables

Here are some important things to know about variables in JavaScript:

- Variables in a function that are not declared with the `var` keyword will be considered global variables. It's best to declare all variables with `var` to avoid scope problems. (This can also affect performance.)
- JavaScript does not have block scope (unlike Java and C++).
- JavaScript variables are untyped. A variable could have a numeric value at one time and a string value at another time.

Strings

Strings in JavaScript are immutable. That means once a string is created, it can't be changed.

Debugging JavaScript

Since JavaScript is usually executed in a web browser, debugging JavaScript programs is quite different from debugging programs written in other programming languages. In most cases you won't be using an IDE, and there is no print statement in the core JavaScript language. Differences in web browsers also make debugging more difficult.

Here are some debugging options:

- **Use `alert()`** One of the easiest JavaScript debugging tools to use is the `alert` function. This function opens a dialog box and displays its parameters. `alert` can be very helpful, but it can also be very annoying. Every time the function a dialog box opens you have to click on the OK button to close it.
- **Use the error console** Many web browsers have a JavaScript error console that displays JavaScript error messages. If you don't see any results from your JavaScript program, check for error messages in the error console.

- **Use a JavaScript debugger** Chrome and Safari have similar developer tools for debugging JavaScript that are built into them. Firebug is a set of debugging tools that can be installed as an add-on to Firefox. Internet Explorer also has debugging tools included with it, but I'm not familiar with them.

Firebug

Firebug is a debugger that can be used with Mozilla Firefox. Firebug Lite is a JavaScript library that simiulates some features of Firebug in other browsers. You can read about Firebug Lite here.

Internet Explorer Developer Tools

A five-part series of articles about the developer tools in Internet Explorer is available here. Part 3 of the series is about debugging JavaScript.

JavaScript debugging tutorial

Here is a tutorial on debugging JavaScript in a web browser. The tutorial includes a short video demonstration of using Firebug.

Using JavaScript outside a web browser

The most common way to execute a JavaScript program is inside a web browser. However, there are other ways to execute JavaScript programs, including server-side scripting in Node.js. Other server-side options are Netscape's web server and Microsoft's IIS web server.

Mozilla provides two JavaScript interpreters--Spider Monkey, which is written in C, and Rhino, which is written in Java. These interpreters can be embedded in other programs, which makes an easy way to add a macro or scripting language to another program. In fact, Version 6.0 of Java includes a JavaScript interpreter, so that any Java 6.0 program can execute JavaScript.

Generating HTML

You can see an example of generating HTML with a detailed explanation on these web pages:
•genSample.html A web page with ten h2 headers generated by JavaScript code.
•genSample.js The JavaScript code that generates the HTML for genSample.html.
•genSampleNotes.html A walk-through of genSample.html and genSample.js