

Advanced JavaScript

Course Summary

Description

This course will build upon the basics of JavaScript. The student will learn how to add DHTML into their web pages, manipulate DOM elements, use AJAX to parse and work with XML data, as well as more advanced techniques of working with custom objects, multi-dimensional arrays, and cookies. The student will also work extensively with the string object and use pattern matching with regular expressions.

Topics

- Objects
- Arrays
- Strings
- Regular Expressions
- Cookies
- Dynamic HTML
- DOM Scripting
- AJAX

Audience

This course is designed for JavaScript programmers.

Prerequisites

The student should have completed or have equivalent knowledge of introductory JavaScript.

Duration

Two Days

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Course Outline

I. Building on the Basics

- A. .js files
- B. Troubleshooting
 - 1. The Error Message Box
 - 2. Types of Errors
 - a) Syntax
 - b) Runtime
 - c) Logical
 - 3. Common JavaScript Error Messages
 - 4. Errors in the HTML

II. Objects

- A. Custom Objects
 - 1. Object Constructors
 - 2. Properties and Methods
 - 3. The this Keyword
 - 4. The new Keyword
- B. Constructor Property
- C. The toString() Method

III. Arrays

- A. Working with Arrays
 - 1. Sorting Arrays
- B. Manipulating Array Elements
 - 1. Inserting Elements into an Array
 - 2. Removing Elements from an Array
- C. Multi-dimensional Arrays
- D. Associative Arrays
 - 1. The for/in Statement
 - 2. Objects as Associative Arrays
 - 3. Associative Arrays in Forms

IV. Strings

- A. Working with Strings
 - 1. Escaping Special Characters
 - 2. Character Position
 - 3. The charAt() Method
 - 4. The indexOf() Method
 - 5. The lastIndexOf() Method
 - 6. Substrings
 - 7. The slice() Method
 - 8. The substring() Method
 - 9. The substr() Method
- B. Making Arrays from Strings
 - 1. The split() Method
- C. Other String Methods

V. Regular Expressions

- A. What are Regular Expressions?
 - 1. Declaring Regular Expressions
 - 2. Patterns
 - 3. Escaping
 - 4. Quantifiers
 - 5. Grouping and Match Capturing
 - 6. Lookaheads
 - 7. Character Sets
 - 8. Special Characters
 - 9. Metacharacters
 - 10. Flags
 - 11. i
 - 12. g
- B. Using Regular Expressions
 - 1. String Methods
 - 2. The match() Method
 - 3. The search() Method
 - 4. The replace() Method
- C. Form Validation
 - 1. The with Statement

VI. Cookies

- A. What is a Cookie?
 - 1. The Cookie File
 - 2. Cookie Limitations
- B. Writing Cookies
 - 1. Name/Data
 - 2. The escape() Method
 - 3. Expires
 - 4. The toGMTString() Method
 - 5. Path
 - 6. Domain
 - 7. Secure
- C. Retrieving Cookie Data
 - 1. The unescape() Method
 - 2. Determining if Cookies Exist
- D. Deleting Cookies

VII. Dynamic HTML

- A. What is Dynamic HTML?
 - 1. Referencing
 - 2. The getElementById() Method
- B. Positioning
 - 1. The setInterval() and clearInterval() Methods
- C. Showing and Hiding Elements

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Course Outline (cont'd)

VIII. DOM Scripting

- A. Working with Elements
 - 1. Beyond Dot Notation
 - 2. The `getElementsByTagName()` Method
 - 3. The `getElementsByName()` Method
 - 4. Dynamically Writing to the Page
 - 5. The `innerText` Property
 - 6. The `innerHTML` Property
- B. Nodes vs Elements
 - 1. Parents, Children, and Siblings
 - 2. Node Properties
 - 3. Creating and Inserting New Nodes
 - 4. The `createElement()` Method
 - 5. The `createTextNode()` Method
 - 6. The `appendChild()` Method
 - 7. Replacing and Deleting Node Content
 - 8. The `replaceChild()` Method
 - 9. The `removeChild()` Method
- C. Attribute Nodes
 - 1. Getting the Value of an Attribute
 - 2. The `getAttribute()` Method
 - 3. Custom Attributes
 - 4. Custom Attributes of Custom Elements
- D. Working with Tables
 - 1. Adding and Removing Table Elements
 - 2. The `insertRow()` Method
 - 3. The `deleteRow()` Method
 - 4. The `insertCell()` Method
 - 5. The `removeCell()` Method

IX. AJAX

- A. What is AJAX?
 - 1. Understanding XML
 - 2. Checking for Well-formed XML
 - 3. XML as a Database
- B. Loading the XML File
 - 1. The XML Parser
- C. Working with the XML DOM
 - 1. Parsing the Data
- D. Using XML Data in a Web Page