Ajax – JavaScript and XML

Length:
3 Days

Description:

This course covers Ajax techniques and how they have evolved as a result of web and other new technologies. XML is introduced as the foundation for XHTML documents. The differences between an HTML and XHTML document are discussed as well as formatting XHTML documents using Cascading Style Sheets (CSS). Students will study JavaScript along with its interaction with the W3C DOM for XML and XHTML and how all of these technologies come together to form the basis of an Ajax application. XMLHttpRequestObject will be studied as a means of communicating with server-side components.

Course Objectives:

Upon completion of this course, you will:

- Know the purpose of Ajax and its underlying application model
- Be able to create and manipulate well-formed XML documents
- Understand the differences between an HTML and XHTML document
- Know how to use Cascading Style Sheets to format an XHTML document
- Know how to develop dynamic web pages using JavaScript
- Be able to interface with the W3C DOM through the use of JavaScript
- Study the DOM event model and use it to allow JavaScript to interact with user input
- Learn about the XMLHttpRequestObject to asynchronously communicate with server-side components
- Be able to handle the response from the XMLHttpRequestObject to dynamically update web pages without the need to refresh the entire document

Audience:
Application developers interested in building a dynamic and interactive web based application.

Prerequisite:
Basic knowledge of HTML is a must. Prior programming experience is suggested.

Chapter 1 - Introduction

- Introduction to Ajax
- Typical Web Application Model
- Ajax Application Model
- Coding Ajax Applications

Chapter 2 - Getting Started with XML

- Parsing XML
- XML Syntax
- Elements
- Attributes
- Comments
- Unicode and Character Sets
- Character References
- Entity References
- CDATA Sections
- Processing Instructions

Chapter 3 - HTML/XHTML

- HTML/XHTML Differences

Chapter 4 - Cascading Style Sheets

- CSS Syntax
- CSS Property Names and Values
- Creating CSS Style Sheets
- Grouping Selectors
- Pattern Matching Rules
- Inheritance

Chapter 5 - The Core JavaScript Language

- A Simple XHTML and JavaScript Example
- Language Structure
- Variables
- Numbers
- Strings
- Booleans
- Expressions and Operators
- Arithmetic Operators
- Comparison and Logical Operators
- Operator Precedence
- The if Statement
- The switch Statement
- The while Statement
- The for Statement
- Nested Loops
- The break Statement
- The continue Statement
- Functions
- Local vs. Global Variables

Chapter 6 - JavaScript Arrays

- Creating Arrays
- Processing Arrays
- Array Methods
- Associative Arrays

Chapter 7 - Functions

- User Defined Functions
- Arguments and Parameters
- The arguments Array
- Core JavaScript Functions
- Numerical Functions
- URI Encoding and Decoding Functions

Chapter 8 - Core JavaScript Objects

- Objects
- The Math Object
- The Date Object

Chapter 9 - The Document Object Model (DOM)

- Web Browsers and Parsers

- The W3C DOM
- Trees and Nodes
- The Node Interface
- The NodeList and NamedNodeMap Interfaces
- Node Traversal Example
- Node Traversal Display
- Node Traversal Details
- The Element Interface
- The Text and Attr Interfaces
- DOM Compatibility
- The Document Interface

Chapter 10 - The DOM Event Model

- JavaScript Events
- Event Handlers as XHTML Attributes
- Event Handlers as Properties
- Event Propagation
- The Event Object
- Event Properties and Methods
- Cross-Browser Event Handling
- Handling Mouse Events

Chapter 11 - The XMLHttpRequest Object

- Cross-Browser XMLHttpRequest Object
- XMLHttpRequest Properties
- XMLHttpRequest Methods
- Communicating with the Server
- Processing Text Responses
- Processing XML Responses
- Attributes Named id and of Type ID
- Defining a Callback Handler Function
- Handling Multiple XMLHttpRequest Objects

Chapter 12 - A More Complex Ajax Example

- The XHTML Component
- The CSS Component
- The Server-Side XML Components
- The Utility Components
- Building the Application - Stage 1
- Building the Application - Stage 2
- Building the Application - Stage 3
- Building the Application - Stage 4
- Building the Application - Stage 5
- Building the Application - The Final Stage