

Developing Ajax Applications

CSDT201

This course introduces the Ajax programming model for web applications. We start with a tour of basic browser programming, using JavaScript, the HTML DOM, and CSS. Then, students learn how to establish communication between their on-page JavaScripts and server-side application components, and thus to develop richer, more user-friendly and responsive web applications.

Audience

- This course is intended for managers, project leaders and developers who are interested in using WSAD to build their applications.

Prerequisites

- This course is intended for software developers, and some programming experience is assumed. Familiarity with basic HTML constructs is required. Any prior knowledge of JavaScript, CSS, or the HTML DOM will be helpful, but no such knowledge is required.

Learning Objectives

- Use JavaScript in web pages to respond to user events.
- Manipulate an HTML page dynamically using the DOM.
- Make HTTP requests to the server side of an application from JavaScript, without causing the browser to reload the page.
- Use script libraries such as Prototype and Dojo to simplify coding tasks and improve UI functionality

Teaching Methods

- Lectures
- Hands-on workshops

Course Length

- Three Days

Course Outline

CSDTJ9

Overview of Ajax

- What is Ajax?
- Desktop vs. Browser-Based Applications
- Page Request/Response Issues
- The XMLHttpRequest Object
- Ajax Processing
- Client-Side Frameworks
- Server-Side Frameworks
- Criticism of Ajax

JavaScript

- Syntax
- Variables
- Data Types
- Arithmetic and String Operators
- Conditionals and Loops
- Logical and Comparison Operators
- Functions
- Variables Scope
- Objects and Encapsulation
- Constructors
- Prototypes
- Closures
- Arrays

The Document Object Model

- The Document Object Model
- The DOM Node Tree
- The Document and Window Objects
- Elements
- Attributes

- Text Nodes
- Walking the Tree
- DOM Events
- Modifying the DOM
- Using innerHTML

Cascading Style SheetsSyntax

- Styling an Element
- Cascading Styles
- Elements, Classes, and IDs
- The Box Model
- CSS2 Positioning
- Controlling Visibility

Making Remote Requests

- iFrames vs. XMLHttpRequest
- Getting an XHR Instance
- XHR Methods and Properties
- Synchronous vs. Asynchronous
- Data Formats
- Extensible Markup Language (XML)
- Receiving XML
- Building and Sending XML
- JavaScript Object Notation (JSON)

Prototype & Co.

- Client-Side Frameworks
- Script Libraries
- Ajax Issues
- Prototype
- A Review of prototype.js
- Ajax.Request
- The Options Object
- The \$ Function
- Other Convenience Functions
- String Functions
- Algorithmic Programming

Dojo

- The Dojo Toolkit
- Architecture
- Dojo Namespaces
- Simplified DOM Manipulation
- dojo.xhrGet and dojo.xhrPost
- Response Content Types
- The Dojo Event System
- Event Registration
- Disconnecting Event Handlers
- Chaining Event Handlers
- The Dojo Widget System
- Built-In Widgets
- Custom Widgets
- Drag-and-Drop Support