Java EE, Part 5 of 8: AJAX Fundamentals

Meet the expert: Ali Hamad has a Bachelor and Masters degree in Computer Science and has been training many aspects of Java for over 14 years, covering Introduction through JDBC, JBoss and beyond. His training and consulting background also covers C, C , Object Oriented Analysis and Design (OOAD), and Unix/Linux. Ali has worked for or been a consultant and trainer for many companies including Dell, Texas Instruments, State of New Hampshire, Web Age Solutions, and many more. He is the author of training material for several programming topics such as Java, Struts, C , Unix and J2EE applications.

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Course description: This course starts with a simple introduction of the AJAX, what it is and what it can do. It will then move on to how to use XHTML with Java, using JavaScript with the Document Object Model (DOM) API and the AJAX API. The course will then cover Cascading Style Sheets and why it is an important part of AJAX and webpage development. In the final chapters, the course will cover communication with the server on a basic level and using JavaScript Object Notation (JSON).

Course outline:

Introduction To Ajax
- Introduction
- The Old Way
- What is AJAX?
- A Simple Example
- The AJAX Way
- Two Key Aspects of AJAX
- Advantages of AJAX
- AJAX Technologies
- The Basic AJAX API
- Creating the XMLHttpRequest Object
- Demo: Create an AJAX Object
- The XMLHttpRequest Object Basics
- Complete Example
- The Timeline
- Summary

XHTML
- Introduction
- What is XHTML?
- The DTD and MIME Type
- The Basic Syntax
- Embedding XHTML in a XML Document
- Differences With HTML 4
- Embedding Scripts and Styles
- The Standard Attributes
- The Element
- The Element
- Demo: AJAX Login Mechanism
- Summary

DOM Document Object
- Introduction
- What is DOM
- Element Hierarchy
- DOM Standardization
- The Document Object
- Demo: DOM Document Object
- Summary

Nodes and Elements
- Introduction
- Nodes and Elements
- The Element Object
- Important Properties
- Important Methods
- Element Event Handlers
- The Window Object
- Key Methods
- Events
- The Frame Object
- The History Object
- Demo: Nodes and Elements
- Summary

Ajax API Details
- Introduction
- The Request Object
- Creating the Request Object
- The Request Object
- Demo: Request Object Status
- Summary

Request Object Properties
- Introduction
- The Request Object Properties
- The Request Object Methods
- Making a POST Requesrt
- Demo: Concurrent Requests
- Summary

Request Object Properties - 2
- Introduction
- Demo: Intro
- New Project
- Create Servlet
- Constructor
- Import Statement
- Summary

Request Object Properties -3
- Introduction
- Creating the Form
- AJAX Request Function
- Deploying the Application
- Summary

Concurrent Requests
- Introduction
- Making Concurrent Requests
- Inner Function
- Inner Function: Memory Leak
- A POST Utility Function
- Mozilla XmlHttpRequest
- IE Microsoft.XMLHTTP Extension
- Demo: Setting Up MySQL
- Summary

Defining a DataSource
- Introduction
- Demo: Defining a DataSource
- Defining the DataSource
- Starting the Server
- Test the JSP
- Summary

Ajax Caching
- Introduction
- Ajax Caching
- Control Cache Duration
- Advanced Cache Control
- Demo: Ajax Caching
- Summary

CSS2
- Introduction
- Introduction
- New in CSS2
- Example: CSS2
- Formatted Output
- Unformatted Output
- Basic Syntax
- Creating a Style Sheet
- Demo: CSS2
- Summary

Creating Style Sheets
- Introduction
- Creating a Style Sheet
- Value Types
- Selectors
- Styling Rules
- Demo: Creating Style Sheets
- Summary

Advanced Selectors
- Introduction
- More on Selectors
- Class Selector
- ID Selector
- Child Selector
- Descendent Selector
- Attribute Selector

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- Pseudo-class Selector
- Demo: Advanced Selectors
- Summary

Element Grouping
- Introduction
- Grouping Elements
- The Box Model
- Box Properties
- The Visual Formatting Model
- Types of Boxes
- Display Property
- Positioning Schemes
- The Position Property
- Relative Positioning
- The Float Property
- The Clear Property
- Absolute Positioning
- Layered Presentation
- Color Property
- Background Properties
- Font Properties
- Summary

Advanced DOM
- Introduction
- Event Handling
- The Event Object
- Event Object: Life Cycle
- Event Object: Key Properties
- Event Object: Key Methods
- Event Bubbling
- Creating an Event
- Dispatching an Event
- Example
- Demo: Advanced DOM
- Summary

Events Handling
- Introduction
- Handling Events
- Register Using HTML Markup
- Register Using Element Property
- Register Using DOM API
- Example: Register Using DOM
- Best Practice
- Canceling Default Action
- Working with Styles
- Demo: Event Handling
- Summary

Working with Styles
- Introduction
- Working with Styles
- Examples
- The Style Object
- Setting Style of an Element
- Working with Style Sheets
- DOM HTML API
- Table DOM Objects
- HTMLTableElement Object
- HTMLTableRowElement Object
- HTMLTableCellElement Object
- Example of Table DOM API
- The Form Element Objects
- Demo: Working with Stles
- HTMLFormElement Object
- HTMLInputElement Object
- HTMLSelectElement Object
- HTMLOptionElement Element
- Summary

Server Communication
- Introduction
- Introduction
- Application Layer Protocol
- Diagram
- Plain HTML Snippet
- XML Document
- XML Document: Server Side
- Example: Build DOM Document
- Example: Write DOM Document
- Example: The Servlet
- XML Document: Client Side
- DOM API Summary
- Demo: Server Communication
- Summary

DOM API Summary
- Introduction
- The Document Object
- Document Object Methods
- Element Object
- Element Object Methods
- Body Text of an Element
- Setting Body Text
- Displaying Body Text
- Using XML as Request Data
- Creating a New DOM Document
- Serializing DOM Documents
- Posting an XML Document
- Processing the Posted XML
- Demo: DOM API Summary
- Summary

Introduction to Debugging
- Introduction
- Demo: Intro to Debugging
- Syntax Error
- Logic Error 1
- Logic Error 2
- Summary

Complete Chat
- Introduction
- Demo: Chat
- Import Files
- Create the Chat Servlet
- Create DOM Function
- Chat.html
- Time Out
- Testing Chat
- Summary

JSON
- Introduction
- Introduction
- JavaScript Object Notation
- JSON Syntax
- How Does JSON Work
- JSON: Server Side
- Demo: JSON
- Summary

JSON Client
- Introduction
- JSON: Client Side
- Working with Arrays
- Advanced JSONObject Methods
- Advanced JSONArray Methods
- Demo: JSON Client
- Summary