
Developing J2EE Applications using AJAX

Duration: 5 days

Description:

This training course teaches AJAX and all of its foundational technologies, AJAX API, XHTML and CSS2, the HTML Document Object Model (DOM) and how to manipulate a page dynamically in the client side using JavaScript. Students will learn how to build their own AJAX based framework which will help them write complex applications quickly. They will get a clear understanding of the MVC framework, and be able to understand and use all the MVC components (Servlets, JSP's and Beans) in conjunction with Ajax.

After completing this course, the student should be able to:

- Understand how to develop J2EE applications, efficient Ajax, with JSP's and Servlets.
- Use Eclipse to Develop Ajax J2EE applications.
- Understand the concepts of MVC framework.
- Understand what AJAX is and when to use AJAX.
- Plan the architecture of an application that will use AJAX.
- Manipulate look and feel and content of a page dynamically.
- Manipulate the client side using JavaScript.
- Using Ajax in conjunction with CSS2 and HTML DOM
- Creating impressive visual effects and rich customer experience.
- Make an AJAX application interact with the server using an RPC mechanism.
- Know how to build the server side code to support an AJAX client.
- Use a third party AJAX framework, Data Processing Model and Ajax.

Audience

Web based application developers - The class is designed mainly for the J2EE developers, but, Web site designers with good knowledge of Java Scripting can also take this class.

Prerequisites:

Basic understanding of web development.

Course Content:

1. J2EE Overview

- J2EE Components and Technologies, Useful J2SE Technologies
- Application Artifacts
- J2EE Architecture, J2EE 1.4 Version Levels, J2EE Software Packaging
- Deployment Descriptor
- Enterprise Archive (EAR)
- Web Modules and WAR
- EJB Modules
- Building Module Dependency

2. Using the IDE

- Project Explorer, Servers View
- The J2EE Perspective and The Web Perspective
- RAD Project Structure
- Create an Enterprise Application, Create an EJB Project , Create a Web Project
- Setup Utility JAR, Setup Dependent JAR Files
- Create Server Instance and Server Configuration
- Configure Server Instance
- Add an Enterprise Application Project to the Test Server
- Start and Stop the Server
- Test and Debug a Servlet and a JSP
- Automatic Code Reloading

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3. Developing Servlets with Relation to Ajax

- History CGI
- Server Extension APIs
- Java Servlet
- Servlet Container, Servlet Responsibilities
- J2EE and Servlet
- The Servlet Class, The HttpServlet Class
- The Servlet Container and The Servlet API
- Life Cycle Initialization, Processing, Destroy
- User Input, Output to Client
- Servlet Error Handling
- Threading Issues
- Create a Servlet in RAD
- Code Servlet Methods
- The Web Deployment Descriptor
- Test and Debug Servlets in the WebSphere Test Environment

4. Developing Java Server Pages, with Relation to Ajax

- What are Java Server Pages, JSP Benefits, and How JSP Works
- JSP Invocation.
- First JSP - hello.jsp, Invoking hello.jsp.
- Compiled JSP Servlet Code.
- JSP Expressions, and JSP Scriptlets.
- Implicit Objects.
- JSP Directives.
- Attributes of Page Directives
- Retrieving Form Fields - An Example.
- Session Tracking - An Example.
- Servlet to JSP Communication.

5 J2EE and Advanced JDBC using Ajax

- JDBC Architecture, and JDBC: Basic Steps
- Loading a Driver, DB2 UDB JDBC Drivers
- Create a Connection
- Connection, Statement, PreparedStatement, ResultSet
- Example JDBC Servlet With Transactions
- Connection Pooling in JDBC 2.0
- Access a DataSource, Get and Release a Connection
- Create a Java Bean with RAD
- Add Attributes and Getters and Setters with RAD

6 Introduction to AJAX

- Two Key Aspects of AJAX
- What are the Advantages of the AJAX Approach?
- AJAX Technologies, The Basic AJAX API
- Creating the XMLHttpRequest Object, and XMLHttpRequest Object Basics

7 XHTML

- The DTD and MIME Type
- The Basic Syntax
- Embedding XHTML in a XML Document
- Differences With HTML 4

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- Embedding Scripts and Styles
- The Standard Attributes
- The <div> Element , The Element

8 Java Script DOM API's

- Element Hierarchy, Element Event Handlers
- The document Object , Nodes and Elements , The Element Object
- The window ,Frame, and History Objects

9 AJAX API's Details

- Creating the Request Object
- Making a POST Request
- Mozilla XmlHttpRequest Extensions
- IE Microsoft.XMLHTTP Extensions
- Making Concurrent Requests
- Memory Leak With Inner Function
- A POST Utility Function

10 Advanced DOM

- The Event Object, Event Bubbling
- Creating and Initializing an Event
- Dispatching an Event , Handling Events
- Registering Event Handler
- Working With Styles, The Style Object
- Setting Style of an Element, Working With Style Sheets
- DOM HTML API
- Table DOM Objects
- The Form Element Objects

11 Basic Communication with Server

- Application Layer Protocol
- Plain HTML Snippet
- XML Document , XML Document Server Side
- C#: Create a XML DOM Document
- C#: Output XML in HTTP Reply
- XML Document - Client Side
- DOM API The Document Object
- DOM API The Element Object
- Body Text of an Element
- Setting Body Text
- Displaying Body Text
- Using XML As Request Data
- Creating a New DOM Document
- Serializing DOM Document as Text
- Posting an XML Document
- Processing the Posted XML From a Servlet

12 Communication with Server JSON

- JavaScript Object Notation (JSON), JSON Syntax
- How Does JSON Based Communication Work?
- How JSON Based Communication Work?
- JSON: Server Side , JSON: Client Side

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- Working With Arrays
- Advanced JSONObject Methods, Advanced JSONArray Methods

13 Direct Web Remoting (DWR)

- How DWR Works
- DWR: The Server Side
- Configuring the Server Side
- The dwr.xml File
- DWR: The Client Side
- Unit Testing, Error Handling
- Accessing Servlet API Objects

14 The DOJO ToolKit

- Simple Example Tab Widget
- Importing Packages
- Widget Basics
- Creating Widgets Programmatically
- Widget Properties and Events
- Showing and Hiding Widgets
- Form Widgets, Layout Widgets
- Other Common GUI Widgets
- Custom Widget Development

15 The DOJO Event System

- JavaScript Function Call Event
- Writing a JavaScript Class and an Event Handler Class
- Attaching the Event Handler
- Before Advice Event Handler
- Around Advice Event Handler
- Handling Widget Event
- More on Handler Attachment
- The Dojo Event Object
- Window Load/Unload Event
- Publish Subscribe System
- Writing a Message Class
- Writing a Publisher and a Subscriber
- Publishing the Message

16 Debugging DOJO Applications

- Basic Logging in Dojo
- The Logging Package
- The dojo.logging.Logger Class
- Mozilla Debugging Tools
- IE Debugging Tools

17 Other MVC Components that Communicate with Ajax

- Ajax JDBC Development.
- Ajax with JSP's.
- Ajax with Spring.
- Ajax with Hibernate.
- Ajax with JSF.