

Preface

Asynchronous JavaScript and XML (Ajax or AJAX) is a web technique to transfer XML data between a browser and a server asynchronously. Ajax is a web technique, not a technology. Ajax is based on the JavaScript, DOM, and XMLHttpRequest technologies. The “A” in Ajax is for Asynchronous, which implies that the web page sending the Ajax request continues to be processed while the Ajax request is processed on the server and an Ajax response returned to the browser. The web page or sections in the web page get refreshed with the XML data in the Ajax response without posting the web page to the server. Without Ajax the complete web page had to be reloaded. Ajax has the following advantages over non-Ajax web applications.

1. Reduced response time and reduced server load as the complete web page is not reposted.
2. Reduced bandwidth of web applications as only data is transferred and the HTML format is applied in the browser.
3. Separation of data, format and style.

Motivation for this Book

A vast array of Ajax frameworks is available and it is often a dilemma as to which Ajax framework would be the most suitable. Ajaxian.com¹ conducted a survey on Ajax frameworks and found that 25% of Ajax developers would rather not use any framework and prefer to use XMLHttpRequest directly. Out of the frameworks that are used Prototype is the most commonly used, because Prototype reduces the JavaScript required in an Ajax application. PHP is the most commonly used server side language for Ajax, but Xajax, the most commonly used Ajax framework for PHP, is used by only 4% of Ajax developers. One of the reasons for not using an Ajax framework could be the non-availability of an integrated development environment (IDE) that integrates the Ajax

¹ Ajaxian.com-<http://ajaxian.com/archives/ajaxiancom-2006-survey-results>

frameworks with web applications and provides other web application development features such as support for Java Database Connectivity (JDBC) for developing an Ajax based web application.

Various Ajax plugins such as Googlipse, EchoStudio 2, Yet Another GWT Plugin, and Backbase are available for Eclipse, but these plugins are framework specific. Thus, a different plugin has to be installed if a different Ajax framework is required to be used. Also, Eclipse does not have a built-in support for JDBC and most Ajax applications are database based.

We have used Oracle JDeveloper for Ajax, because JDeveloper has the following advantages over Eclipse.

1. JDeveloper 11g provides an integrated JavaScript Editor for Ajax/Web development.
2. JDeveloper provides a PHP extension, which may be used to develop Ajax applications with PHP; PHP being one of the most commonly used scripting languages on the web.
3. JDeveloper supports JSF. JSF GUI components may be selected from a JSF Component Palette and added to an Ajax web application.
4. JDeveloper has a built-in support for JDBC, which is a requirement for database based Ajax applications.
5. JDeveloper includes an embedded application server, the Oracle Container for Java EE (OC4J) server. JDeveloper also has the provision to connect to and deploy applications to any of the commonly used application servers such as Oracle Application Server, JBoss application server, and WebLogic Server.

While a number of books have been published on Ajax, none of the books is IDE based. Also, no other book on Ajax covers web search and RSS Feed with Ajax.

Who Should Read this Book?

The target audience of the book is Ajax developers. The target audience is also students taking a course in Ajax. The book discusses using Ajax in Oracle JDeveloper. If the reader is an Ajax developer, JDeveloper provides an integrated development environment for Ajax development. If the reader is already using JDeveloper for web development the book introduces the reader to adding Ajax to web applications. We have discussed the Prototype framework, the most commonly used Ajax framework. If the reader uses Ajax for dynamic form validation, the book

covers dynamic form validation with Ajax frameworks for Java, JSP, JSF, and PHP. We have discussed Google AJAX Search API and Yahoo Web Services to add Ajax to web search. Ajax developers shall learn about setting the environment for developing various Ajax based applications and the procedure to develop Ajax based applications. Example applications are provided that may be modified to suit a developer's requirements. Chapters include illustrations at milestone stages of application development.

Outline to the Book Structure

In Chapter 1 we introduce the `XMLHttpRequest` object, which forms the basis of Ajax. We discuss the `XMLHttpRequest` properties and methods and also discuss the procedure to send an Ajax request and process the Ajax response. The integrated JavaScript Editor in JDeveloper 11g is also discussed.

In Chapter 2 we create an Ajax web application in JDeveloper 11g. We create an Ajax web application for dynamic form validation using a HTTP Servlet on the server-side in JDeveloper 11g. The example form used creates a catalog entry in Oracle database. Thus, the JDBC aspect of an Ajax application is also discussed. JDeveloper provides built-in support for JDBC with any database.

Chapter 3 discusses the Prototype JavaScript framework for Ajax. According to the Ajaxian.com survey Prototype is the most commonly used Ajax framework and is used by 43% of Ajax developers. Prototype reduces the JavaScript required in an Ajax application with JavaScript utility functions. The same Ajax application that is created in Chap. 2 is created with Prototype in JDeveloper 11g.

In Chapter 4 we create an Ajax application with Java on the server-side using the Google Web Toolkit (GWT) framework for Ajax. We integrate GWT in JDeveloper 11g by creating a run configuration for GWT Shell and Compiler. GWT versions 1.3 and later are licensed by Apache 2.0 open source.

In Chapter 5 we discuss Direct Web Remoting (DWR), another open source Ajax framework for Java. According to the Ajaxian.com survey DWR is used by 12% of Ajax developers. We create the database based dynamic form validation application with DWR in JDeveloper 11g.

In Chapter 6 we discuss AjaxTags Ajax framework for Java Server Pages (JSP). Prototype reduces JavaScript, and AjaxTags eliminates

JavaScript with JSP tag library tags. We integrate the AjaxTags tag library in JDeveloper 11g to create the same dynamic form validation application.

In Chapter 7 we discuss Ajax4jsf, an Ajax framework for JSF. JDeveloper provides an integrated support for JSF Core and HTML components using which we create a database based dynamic form validation application.

In Chapter 8 we discuss the PHP extension for JDeveloper 10g for creating a database based dynamic form validation application with PHP on the server-side. According to the Ajaxian.com survey PHP is the most commonly used platform for Ajax. JDeveloper 11g does not yet provide a PHP extension, therefore, we have used JDeveloper 10g in this chapter. Xajax, a PHP Ajax framework is used for generating the required JavaScript for the PHP Ajax application.

In Chapter 9 we discuss the Google AJAX Feed API to retrieve RSS 2.0 feed in a web application in JDeveloper 11g.

In Chapter 10 we discuss adding Ajax to web search with Google AJAX Search API and Yahoo Web Services. We discuss localized web search using the Google AJAX Search API and contextual web search using Yahoo Web Services.

Prerequisite Skills

It is not a goal to instruct the reader about JavaScript. Familiarity with JavaScript is required, and if the reader is not very familiar with JavaScript, the Netscape JavaScript Guide² would be a suitable reference. Also, it is assumed the reader has used Java, JSF, and PHP. Although we have discussed setting the environment in JDeveloper for Ajax, some familiarity with JDeveloper is also required.

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²Netscape JavaScript Guide-<http://wp.netscape.com/eng/mozilla/3.0/handbook/javascript/>



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