

Preface

About this book

This book combines all major practical Web technologies and covers a complete series of Web applications. It provides an instant course and a reference for Web design beginners, young professionals (Web design programmers and engineers), as well as Web practitioners. We do not attempt to cover all aspects of a particular technology or to solve every problem with a single technology. Instead, we consider Web technologies as a whole to solve problems and generate applications. The contents and materials are organized with practical implementations in mind. All major Web technologies are included and arranged into five parts and three levels of study according to their strengths, application areas, and competition with other technologies:

Basic level: HTML/XHTML, CSS, Java, ECMAScript (or JavaScript), XML, and XSLT

Intermediate: DOM (W3C Document Object Model), CGI, Perl, ASP, ASP.NET, and PHP

Advanced: MySQL (Web Databases), SSL and TLS (Web Security), WML and WMLScript (Mobile Internet)

A complete spectrum of Web applications is presented, from Web design, client and server scripting, and e-commerce to cutting-edge skills such as broadcasting live video, Web databases and SSL security. More than 400 working examples are provided. Most of them are real applications from Web industries and projects. They are presented in “cut and paste” format so that they can be used directly in other Web applications. By including over 450 illustrations and screen shots, mastering all the Web technologies step by step in a global way can be achieved smoothly.

A quick tour of the book

This book is organized into five parts containing a total of 21 chapters, as follows.

Part I covers a fundamental course of Web design. It is suitable for Web design beginners and students to design and set up functional sites on the World Wide Web with styles (CSS styles), multimedia, 2D presentation graphics, and XML/XSLT features. Step-by-step practical examples are provided throughout. We begin with a practical study of the HTML/XHTML language and quickly get into the details of the Cascading Style Sheet (CSS). With CSS styles, formatting properties such as fonts, colors, borders, alignment, background, and images can be controlled and reused in a more structured way. To enhance the functionality and put Web pages into real applications, 2D presentation graphics such as lines, graphs, shapes, bar and pie charts are introduced. Examples to display data of different stock exchange indices are provided. Multimedia is an important subject for Web page design. In addition to different multimedia types such as sound, music, video, and movie formats, we present a detailed study of media players, plugins, and how to control them within Web pages. Some advanced applications such as broadcasting live video are also included. As another dimension of Web applications, we discuss XSLT transforms step by step. With XSLT, a considerable number of XML applications can be converted to HTML/XHTML pages and displayed by Web browsers directly.

Part II is dedicated to Web programming. It is suitable for Web designers and young professionals who want to seriously enhance their career prospects. First, comprehensive mouse controls including mouse over, buttons, clicks, text, and image move with the mouse are introduced. They are the foundations of dynamic Web page

design. Next, programming browser windows such as Internet Explorer (IE) and Netscape (NS) is presented with a series of real examples on browser detection, redirection, window sizing, positioning, and other controls, generating random windows, and cycling over multiple windows. To put these programming skills into practice, a number of professional techniques including single and multiple moving objects, shootings, hit and scoring, drag and drop, random flying, and catching are demonstrated. These techniques can deliver dynamic life and add eye-catching effects to a Web page and in particular are vital for many game designs on the Web.

Part III is an extension of Part II. In order to solve all browser incompatibility problems, the W3C's Document Object Model (DOM) is introduced and studied extensively. With the DOM, Web pages can be programmed across all W3C-compliant browsers including the latest IE, NS, Opera, and many more. The second half of this part is related to date and time manipulation and the controlling of email. These tools are essential for many serious online businesses. In addition to various date and time controls, dynamic clocks and calendars, applications with countdown features such as "answer question within a certain time" and "countdown to next Christmas" are exploited. Needless to say, emailing is important on the Web. Your Web site can use it to send a thank you message to your visitors, to acknowledge something, confirm an order, or deliver a receipt. From browser emails to server emailing with ASP, Perl, and PHP, we provide everything that you need to control and program them. In fact, not just text emails, but also some examples on how to generate emails with "Attachments" and "Multipurpose Internet Mail Extensions (MIME)" are illustrated step by step.

Part IV is designed for more advanced topics and is suitable for students and young professionals with some experience of HTML/XHTML and Web programming. The first half of this part concentrates on the Common Gateway Interface (CGI) and server scripting technologies such as Perl, ASP, ASP.NET, and PHP. When server pages are developed by these techniques and requested by a Web browser, HTML/XHTML documents are usually generated and returned. Since server pages are processed by a server before a browser, they open a whole new series of Web applications essential for most online businesses. This part covers in detail applications ranging from basic operations such as getting user input, using file and server storage, properties of files, folders, and drives, using and changing passwords, online guest book, and a simple e-commerce model to more dedicated applications such as online examinations and marking, reserving seats online, search engines, and ODBC databases. For ASP users, ASP objects and how to migrate to ASP.NET are also included.

The second half of this part is about Web databases. A comprehensive study of the SQL language, databases, and their applications on the Web is presented. In particular, PHP has built-in database support so that database applications are more straightforward. For Perl and ASP, database techniques known as DBI and ADO are discussed in detail. All applications are demonstrated on a popular and freely available database product, MySQL.

Part V is dedicated to a more advanced topic, namely, Web security. This part is suitable for master students and professionals. We begin with data security and move quickly on to digital cryptography. Cryptography offers message encryption so that security and protection can be established on the insecure Internet and in the Web environment. In addition to encryption/decryption, public-key cryptography, digital signatures, and Message Digest are also discussed. They can be used to generate signatures to identify who you are and to guarantee that the encrypted message is only available to those for whom it is intended. Message Digest can also be used to protect downloads against viruses and any alterations on the Web. To put these skills into practice, a freely available product, namely, GnuPG, is used to demonstrate such techniques. In order to conduct online business (e-commerce) with total security, we present a detailed discussion on the Secure Sockets Layers (SSL) and certificates. With SSL, your site can become a secure site and communicates with the HTTPS protocol. All information and traffic between a client and the site are protected. We also show you how to modify the Web server software Apache to establish a secure Web site.

As an additional topic on the Web, we discuss the Mobile Internet and Wireless Markup Language (WML). Pages developed by WML can be displayed on wireless devices such as a mobile phone. As a contrast to the Web environment, WMLScript, m-business, CGI, and databases are also included with applications.

A study map

We have tried to design the book to be flexible. A study map for the book is provided as follows:

