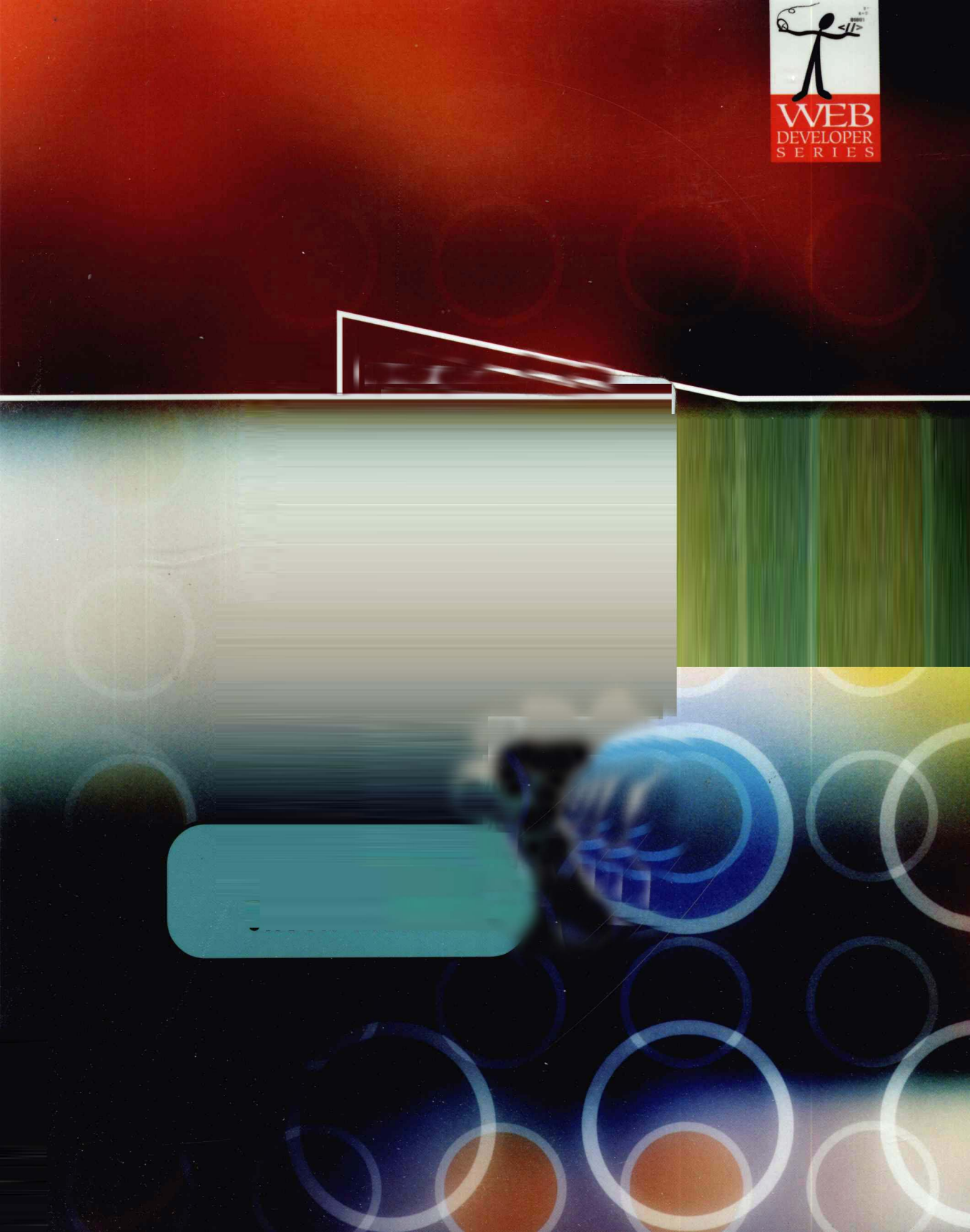
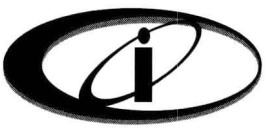

WEB
DEVELOPER
SERIES

Programming the Web: An Introduction

Barrie Sosinsky
Valda Hilley



Mc Graw Hill Technology Education

Boston Burr Ridge, IL Dubuque, IA Madison, WI New York San Francisco St Louis
Bangkok Bogotá Caracas Kuala Lumpur Lisbon London Madrid Mexico CITY
Milan Montreal New Delhi Santiago Seoul Singapore Sydney Taipei Toronto

PROGRAMMING THE WEB: AN INTRODUCTION
Published by McGraw-Hill Technology Education, a business unit of The McGraw-Hill Companies, Inc., 1221 Avenue of the Americas, New York, NY, 10020.

This book is printed on acid-free paper.

1 2 3 4 5 6 7 8 9 0 DOC/DOC 0 9 8 7 6 5 4 3

ISBN 0-07-286605-5

Editor in chief: *Bob Woodbury*
Publisher: *Brandon Nordin*
Senior sponsoring editor: *Donald J. Hull*
Developmental editor: *Lisa Chin-Johnson*
Marketing manager: *Andy Bernier*
Media producer: *Greg Bates*
Senior project manager: *Jean Lou Hess*
Production supervisor: *Gina Hangos*
Lead designer: *Pam Verros*
Supplement producer: *Lynn M. Bluhm*
Senior digital content specialist: *Brian Nacik*
Cover design: *Pam Verros*
Interior design: *Pam Verros*
Typeface: *10/12 New Baskerville*
Compositor: *Black Dot Group*
Printer: *R. R. Donnelley*

Library of Congress Control Number: 2003114503

www.mhhe.com

McGraw-Hill Technology Education

At McGraw-Hill Technology Education, we publish instructional materials for the technology education market, in particular computer instruction in post–secondary education—from introductory courses in traditional four-year universities to continuing education and proprietary schools. McGraw-Hill Technology Education presents a broad range of innovative products—texts, lab manuals, study guides, testing materials, and technology-based training and assessment tools.

We realize that technology has created and will continue to create new mediums for professors and students to use in managing resources and communicating information to one another. McGraw-Hill Technology Education provides the most flexible and complete teaching and learning tools available as well as offers solutions to the changing world of teaching and learning. McGraw-Hill Technology Education is dedicated to providing the tools for today's instructors and students, which will enable them to successfully navigate the world of Information Technology.

- McGraw-Hill/Osborne—This division of The McGraw-Hill Companies is known for its best-selling Internet titles, Harley Hahn's *Internet & Web Yellow Pages*, and the *Internet Complete Reference*. For more information, visit Osborne at **www.osborne.com.**
- Digital Solutions—Whether you want to teach a class online or just post your "bricks-n-mortar" class syllabus, McGraw-Hill Technical Education is committed to publishing digital solutions. Taking your course online doesn't have to be a solitary adventure, nor does it have to be a difficult one. We offer several solutions that will allow you to enjoy all the benefits of having your course material online.
- Packaging Options—For more information about our discount options, contact your McGraw-Hill Sales representative at 1-800-338-3987 or visit our Web site at **www.mhhe.com/it**.

McGraw-Hill Technology Education is dedicated to providing the tools for today's instructors and students.

Mc Graw Hill **Technology Education**

Preface

Overview

Programming the Web: An Introduction, a part of McGraw-Hill's Web Developer Series, is designed for the first course in a Web programming curriculum. It presents a technical introduction to the technologies and languages used to program the Web. The scope of the book will provide a foundation to meet the prerequisites for the more in-depth courses on particular languages that make up the Web programming curriculum.

Programming the Web: An Introduction differs from similar works in that it dedicates two chapters to teaching fundamental programming skills that are used in the majority of the languages covered. It also will go into enough detail on HTML, XML, Java, JavaScript, ASP, and Perl/CGI so that students have the exposure they need to be successful in the more in-depth courses later in the curriculum.

Author's Notes

The book is organized into five parts following a logical progression of the technologies and topics related to Web programming. Part One introduces and explains basic Web browser technologies such as HTML, XML, and CSS. Part Two deals with computer programming fundamentals and the application of programming languages to enhance the functionality of Web pages. Part Three presents programming constructs and syntax specific to JavaScript and VBScript, which are used to write programs to make Web pages dynamic and interactive. This section is designed to get readers recognizing, writing, and analyzing scripts. Part Four builds on everything readers have learned to this point by showing them how to put the knowledge to practical use. In this section, readers will trail through the building of Web pages implementing DHTML and using industry standard tools, Dreamweaver and FrontPage. Part Five shows the readers how to extend their Web pages by writing programs that interact with Web servers.

Following this order should instill confidence in the readers' ability to recognize, use, and analyze the basic technologies in Web programming. The level and scope of material is such that it gives readers enough exposure through explanations and examples to enable them to build, troubleshoot, and improve.

Part One

Part One covers the basic Web browser technologies.

Chapter 1. Internet Fundamentals

This chapter will help readers draw the relationship between the Web, a browser, and the technologies that sit behind it.

Chapter 2. Building a Web Page with HTML

This is an introduction to get readers recognizing and writing HTML. This chapter will build a foundation for making HTML documents accessible on a wide range of browsers.

Chapter 3. XML and XHTML

This chapter is an introduction to XML technologies. It presents the principles and use of XML (Extensible Markup Language) beginning with the concepts of tagging and markup, then moving on to a few advanced topics such as validation and presentation.

Chapter 4. Markup Transformations

This chapter introduces Cascading Style Sheets (CSS) as a simple mechanism for adding style (e.g., fonts, colors, spacing) to Web documents. The chapter begins with a quick introduction to CSS to acquaint readers with the reasoning behind CSS, what it is, and how it works.

Part Two

Part Two provides the programming fundamentals needed to work with the languages in the rest of the book.

Chapter 5. Web Programming: A Programmer's Perspective

This chapter discusses programming techniques and issues as they relate to the Internet and Web. It begins with a general introduction to the discipline of computer science to prepare the readers for learning to use the various programming languages introduced in this book and lead them through general techniques and important programming concepts, such as algorithms, data types, and data structures.

Chapter 6. Object Programming

To use an object-oriented language, students need to understand the underlying concepts before attempting to write code. This chapter helps readers to understand what an object is, what a class is, the relationship between objects and classes, and how objects use messages to communicate. The chapter begins by describing the concepts behind object-oriented programming and progress to show readers how to translate the concepts into code. The chapter contains some source code designed to give the readers exposure and to help them associate it with the concepts and terminology presented in the chapter.

Part Three

Part Three gets the readers recognizing, writing, and analyzing scripts.

Chapter 7. Client-Side Scripting with JavaScript

In this chapter, readers learn to create Web-based applications that run completely within a Web browser using JavaScript.

Chapter 8. Client-Side Scripting with VBScript

Readers learn to use or create VBScript variables, arithmetic and logical operators, built-in and custom functions, and conditional statements and loops, as well as understand variant subtypes. It's presented here because it is considered the preferred scripting language for Active Server Pages (ASP).

Part Four

Part Four extends the Web page with server-side programming.

Chapter 9. Understanding Dynamic HTML

Dynamic HTML is a combination of technologies: HTML or XML, JavaScript, DOM, and CSS. All of these technologies have been discussed in the earlier chapters. In this chapter, readers trail the process of creating Web pages that use DHTML.

Chapter 10. Beginning Active Server Pages

Chapter 11. Introduction to Java Applet Programming

Part Five

Part Five brings together the technologies and techniques from the first four parts and gets readers working with the technologies.

Chapter 12. CGI with Perl

The chapter leads readers through a quick primer on CGI in order to implement CGI scripting using Perl.

Chapter 13. Dynamic Action with Macromedia Dreamweaver MX

In this chapter, the readers will apply key object-oriented programming fundamentals presented in Chapter 6 and the Java programming language explained in this chapter. Readers learn to write small server-side applications (servlets).

Chapter 14. Creating Dynamic Web Pages with FrontPage

Appendix A: Creating a Virtual Directory

STUDENT CD

The accompanying Student CD contains all the code examples found throughout the chapters and exercises in the text, which is also available on the book's Web site.

Instructor's Resource Kit

The Instructor's Resource Kit is a CD-ROM containing the Instructor's Manual in MS Word, a Test Bank in both MS Word format and Computerized Brownstone test-generating software, and PowerPoint presentation slides.

Instructor's Manual

- Chapter learning objectives
- Overview of chapter
- Teaching tips and strategies
- Lecture notes
- Solutions to all QuickCheck Questions, Review Questions, and Exercises

Test Bank

The Test Bank, using Diploma Network Testing Software by Brownstone, contains 1,000 questions that are identified by the level of difficulty, which is clearly indicated for each question.

There are 100 questions per chapter. The Test Bank consists of 60 Multiple Choice and 40 True/False questions per chapter.

PowerPoint Presentation Slides

PowerPoint presentation slides are available as a lecture presentation program developed in Microsoft PowerPoint. These slides are developed to correspond to related text material and are available for every chapter to enhance class presentations of the text material.

Custom Web Site

http://www.mhhe.com/webdev/sosinsky

The course Web site includes a Student Center and an Instructor Center. For the Student Center, there are code examples from the text, answers to QuickCheck questions from the text, and additional multiple question exercises for every chapter. The Instructor Center has all the materials from the Instructor's Resource Kit and any or all updates, all of which are available for downloading.

Digital Solutions for Instructors and Students

PageOut

PageOut is our Course Web Site Development Center that offers a syllabus page, URL, Custom Web Site content, online quizzes, gradebook, discussion board, and an area for student Web pages. For more information, visit the PageOut Web site at www.pageout.net.

Acknowledgments

Our thanks to the McGraw-Hill team: Lisa Chin-Johnson, Dan Silverburg, and all the editors and production staff who worked so hard to get this book into

shape, and to the academic reviewers and professional programmers who reviewed each chapter and offered many suggestions that made this a better textbook.

The McGraw-Hill staff offers their sincere appreciation and special thanks to Professor Ahmed Mesbah of the University of Toledo for his tireless help, important insights, diligence, patience, and valuable encouragement throughout the entire process.

Brief Contents

Contents