

e-Business & e-Commerce for Managers

- e-BUSINESS/e-COMMERCE MODELS
- TURNKEY e-BUSINESS SOLUTIONS
- ONLINE MONETARY TRANSACTIONS
- ONLINE TRADING
- e-BANKING/e-LENDING
- e-MARKETING/e-ADVERTISING
- CUSTOMER RELATIONSHIP MANAGEMENT
- PARTNERING/AFFILIATE PROGRAMS
- LEGAL AND ETHICAL ISSUES
- PRIVACY/PERSONALIZATION
- COPYRIGHT/FILE SHARING
- SOCIAL ISSUES/WEB ACCESSIBILITY
- INTERNET TAXATION
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- SECURITY/DIGITAL SIGNATURES
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- SSL/SET™/DIGITAL CERTIFICATES
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- WEB SITE DESIGN/MAINTENANCE
- e-CONSULTING/e-PUBLISHING
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JAVASCRIPT, VBSCRIPT®,
ACTIVE SERVER PAGES, DATABASE,
SQL, ACTIVEX® DATA OBJECTS,
HTTP, WEB SERVERS

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e-Business and e-Commerce FOR MANAGERS

H. M. Deitel
Deitel & Associates, Inc.

P. J. Deitel
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Deitel & Associates, Inc.

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To

Michael M. Tulman:

Thank you for your love of business,
and for your love of teaching and
writing that you shared with us.

We dedicate this book to you,
our friend and mentor, to whom we owe
our teaching and writing careers.

Harvey and Paul Deitel

To my parents for their love, infinite patience and support.

Kate Steinbuhler

Preface

Live in fragments no longer. Only connect.

Edward Morgan Forster

Welcome to the exciting world of the Internet, the World Wide Web, e-business and e-commerce. This book is by an old guy, a young guy, a young lady and the Deitel & Associates, Inc. writing team she heads, known collectively as “The PACK.” The old guy (HMD; Massachusetts Institute of Technology 1967) has been in the computer field for 40 years. The young guy (PJD; MIT 1991) has been programming and/or teaching programming for 19 years. The young lady (Kate Steinbuhler; Boston College 2000) majored in English and communications and studied Web development. Kate’s team, the PACK—for “Paul,” “Abbey,” “Christy” and “Kate”—consists of Paul Brandano (Boston College School of Management 2000; majored in marketing), Abbey Deitel (Carnegie Mellon University 1995; majored in industrial administration), Christy Connolly (Boston College School of Management; majored in marketing and finance), and, of course Kate Steinbuhler. Together, our experience includes Internet, World Wide Web, e-business and e-commerce software technologies, as well as academic study and industry experience in computer science, information technology, finance, marketing, management, English and communications.

Ideally, we want this book to speak to students in all areas of interest; we hope you will find it informative, challenging and entertaining. This is not a computer programming book, but it does include an optional case study (in Appendices B through H) on building a storefront e-business that sells books online.

E-business and e-commerce are evolving rapidly, if not explosively. This creates tremendous challenges for us as authors, for our publisher (Prentice Hall), for instructors, for students and for professional people. This book, *e-business & e-commerce for Managers*, is designed to meet these challenges.

Why We Wrote *e-Business and e-Commerce for Managers*

Today, e-business and e-commerce are exploding; businesses everywhere are creating Web presences and reaching their markets in ways that were never before possible. College professors are eager to incorporate e-business and e-commerce into their undergraduate and graduate Internet, Web and business curricula. Professionals are eager to incorporate e-business and e-commerce technology into their organizations. Students want to learn these leading-edge technologies that will be immediately useful to them as they leave the college environment and head into a world where the Internet and World Wide Web have a massive prominence.

Our goal was clear: produce a textbook for college-level courses in e-business and e-commerce for students with little or no programming experience, and to explore the tremendous opportunities afforded by the Web. To meet this goal, we produced a comprehensive book that explains the different elements of e-business and e-commerce and provides abundant real-world applications to encourage students to learn from examples currently on the Web. We performed extensive research for this book and located hundreds of Internet and Web resources to help students learn about building and managing e-businesses. These links include general information, tutorials and demonstrations. Many of the demos are fun, such as the E*TRADE investing game in which students can win cash prizes for participating. The resources also point students to lots of free stuff on the Internet, including free Internet access.

This book is appropriate for students and professionals who wish to create their own e-businesses. Many of the Internet and Web resources we include point students to turnkey solutions (some for a fee and others for free) for creating e-businesses. Students will also be able to use the programming technologies presented in the appendices to create e-businesses themselves (they will also need to set up merchant accounts with banks and use an industrial-strength database system). The tour of the book in Chapter 1 outlines the elements we present for building real e-businesses.

Teaching Approach

e-Business and e-Commerce for Managers contains a rich collection of examples, exercises and projects drawn from many fields to give students an opportunity to solve interesting real-world problems. The book concentrates on the principles of good e-business management, and provides opportunities for class discussion and scores of Web-based exercises. The text emphasizes good pedagogy.

World Wide Web Access

The installation instructions for the case study for *e-Business and e-Commerce for Managers* (and our other publications) is free for download at the Deitel & Associates, Inc. Web site:

www.deitel.com

Objectives

Each chapter begins with a statement of *Objectives*. This tells students what to expect and gives them an opportunity, after reading the chapter, to determine if they have met these objectives.

Quotations

The learning objectives are followed by quotations. Some are humorous, some are philosophical and some offer interesting insights. Our students enjoy relating the quotations to the chapter material. Many of the quotations are worth a “second look” *after* reading each chapter.

Outline

The chapter *Outline* helps students approach the material in top-down fashion. This, too, helps students anticipate what is to come and set a comfortable and effective learning pace.

Illustrations/Figures

The illustrations and figures provide visual examples of business concepts, or feature actual businesses on the Web. Charts and tables offer lists of additional resources, and break information into an organized, easy-to-read format.

e-Facts

The *e-Facts* offer the student an interesting break from the text. They are tied into the current discussion, providing interesting facts and statistics on the effects of the Internet, current trends and future projections.

Summary

Each chapter ends with additional pedagogical devices. We present a thorough, bullet-list-style *Summary* of each chapter, to help the student review and reinforce key concepts.

Terminology

We include in the *Terminology* section an alphabetized list of the important terms defined in the chapter—again for further reinforcement.

Self-Review Exercises and Answers

Self-Review Exercises and Answers are included for self-study. This gives the student a chance to build confidence with the material and prepare for the regular exercises. Students should attempt all the self-review exercises and check their answers.

Exercises

The chapter exercises include simple recall of important terminology and concepts, issues for class discussion, Web-based demonstrations and group and semester projects. The large number of exercises across a wide variety of areas enables instructors to tailor their courses to the unique needs of their audiences, and to vary course assignments each semester. Instructors can use these exercises to form homework assignments, short quizzes and major examinations. The solutions for most of the exercises are included in the *Instructor's Manual*. **[NOTE: Please do not write to us requesting the instructor's manual. Distribution of this publication is strictly limited to college professors teaching from the book. Instructors may obtain the solutions manual only from their regular Prentice Hall representatives. We regret that we cannot provide the solutions to professionals.]**

Optional Case Study Using the Deitel™ Live-Code™ Approach

The optional case study, “Building an e-Business,” in the appendices completely implements a simplified version of an e-business storefront that sells books. Please take a moment now and read about this case study in the Tour of the Book at the end of Chapter 1; the case

study is summarized in the descriptions of Appendices B through H. In the case study, each new concept is presented in the context of a complete, working program immediately followed by one or more windows showing the program's input/output dialog. We call this style of teaching and writing our *live-code approach*TM. *We use real, working programs to teach programming languages.* Reading these programs is much like entering and running them on a computer. All the code in the case study is free for download at our Web site, **www.deitel.com**. If you choose to do the case study, please download this code and carefully read the installation and setup instructions in Appendices J and K on our Web site.

Glossary

The extensive glossary summarizes the key terms in each chapter to provide a quick reference for students while working on a homework assignment or preparing for an exam.

Index Entries

We have included an extensive *Index* at the back of the book. This helps the student find any term or concept by keyword. The terms in the *Terminology* sections generally appear in the *Index* (along with many more index items from each chapter). Students can use the *Index* in conjunction with the *Terminology* sections to be sure they have covered the key material of each chapter.

Recommended Readings

An extensive bibliography of books, articles and online documentation is included at the close of several chapters to encourage further reading.

Acknowledgments

One of the great pleasures of writing a textbook is acknowledging the efforts of the many people whose names may not appear on the cover, but whose hard work, cooperation, friendship and understanding were crucial to the production of the book.

Many other people at Deitel & Associates, Inc. devoted long hours to this book.

- Barbara Deitel managed the preparation of the manuscript, coordinated the production of the book with Prentice Hall and spent long hours researching the quotations at the beginning of each chapter. She did all this in parallel with handling her extensive financial and administrative responsibilities at Deitel & Associates, Inc., including serving as Chief Financial Officer.
- Abbey Deitel, a graduate of Carnegie Mellon University's Industrial Management program, and President of Deitel & Associates, Inc., co-authored Chapters 5, 6, 7 and Appendix A and actively participated in the development of the other chapters.
- Paul Brandano, a graduate of the Boston College Carroll School of Management, and Director of Marketing and Corporate Training at Deitel & Associates, Inc., co-authored Chapters 2, 15, 18 and 19 and actively participated in the development of the other chapters. He would like to thank, Mr. Tom Pollock who provided insights for Chapter 19.
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- Tem Nieto, a graduate of the Massachusetts Institute of Technology, and the Director of Product Development at Deitel & Associates, Inc., was the chief architect of the case study appendices. He has co-authored several books and multimedia packages with the Deitels and has contributed over the years to virtually every Deitel & Associates, Inc. publication.
- Matt R. Kowalewski, a graduate of Bentley College with a major in accounting information systems, was the chief implementer and writer of the programming appendices. He also co-authored Chapter 5.
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- Marina Zlatkina, a senior majoring in computer science at Brandeis University, edited the case study.
- Peter Lavalley, a junior majoring in computer information systems at Bentley College, edited the case study.
- Jacob Ellis, a freshman at the University of Pennsylvania, and David Gusovsky, a freshman at Berkeley, co-authored with us Chapters 3 and 4 in our *Internet and World Wide Web How to Program* book. Appendices C and D evolved from these chapters.

The Deitel & Associates, Inc. *College Internship Program* offers a limited number of salaried positions to Boston-area college students majoring in Computer Science, Information Technology, Marketing, English and technical writing. Students work at our corporate headquarters in Sudbury, Massachusetts full-time in the summers and/or part-time during the academic year. Full-time positions are available to college graduates. For more information about this competitive program, please contact Abbey Deitel at **deitel@deitel.com** and check our Web site, **www.deitel.com**. Deitel & Associates, Inc. student interns who worked on this book include:

- Neil Agarwal, a Harvard student majoring in Mathematics, co-authored Chapter 7.
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Under a tight time schedule, these reviewers scrutinized the text and made countless suggestions for improving the accuracy and completeness of the presentation.

We would sincerely appreciate your comments, criticisms, corrections and suggestions for improving the text. Please address all correspondence to our email address:

deitel@deitel.com

We will respond immediately. Well, that's it for now. Our best wishes to you as you enter the exciting world of e-business and e-commerce.

Dr. Harvey M. Deitel
Paul J. Deitel
Kate Steinbuhler

About the Authors

Dr. Harvey M. Deitel, CEO of Deitel & Associates, Inc., has 40 years in the computing field including extensive industry and academic experience. He is one of the world's leading computer science instructors and seminar presenters. Dr. Deitel earned B.S. and M.S. degrees from the Massachusetts Institute of Technology and a Ph.D. from Boston University. He has 20 years of college teaching experience including earning tenure and serving as the Chairman of the Computer Science Department at Boston College before founding Deitel & Associates, Inc. with Paul J. Deitel. He is author or co-author of several dozen books and multimedia packages and is currently writing many more. With translations published in Japanese, Russian, Spanish, Elementary Chinese, Advanced Chinese, Korean, French, Polish and Portuguese, Dr. Deitel's texts have earned international recognition. Dr. Deitel has delivered professional seminars internationally to major corporations, government organizations and various branches of the military.

Paul J. Deitel, Executive Vice President of Deitel & Associates, Inc., is a graduate of the Massachusetts Institute of Technology's Sloan School of Management where he studied Information Technology. Through Deitel & Associates, Inc. he has delivered Internet and World Wide Web courses and programming language classes for industry clients including Compaq, Sun Microsystems, White Sands Missile Range, Rogue Wave Software, Computervision, Stratus, Fidelity, Cambridge Technology Partners, Lucent Technologies, Adra Systems, Entergy, CableData Systems, NASA at the Kennedy Space Center, the National Severe Storm Laboratory, IBM and many other organizations. He has lectured on for the Boston Chapter of the Association for Computing Machinery, and has taught satellite-based courses through a cooperative venture of Deitel & Associates, Inc., Prentice Hall and the Technology Education Network. He and his father, Dr. Harvey M. Deitel, are the world's best-selling Computer Science textbook authors.

Kate Steinbuhler, Editorial Director at Deitel & Associates, Inc. and a graduate of Boston College with majors in English and communications, served as project manager and primary author of Chapters 3, 11, 12, 17 and 20. She co-authored Chapters 1, 4, 12 and 14, and served as project manager and co-author for six business chapters in *e-Business and e-Commerce for Managers*' sister book, *e-Business and e-Commerce How To Program*. She would like to acknowledge the other members of the PACK (the PACK consists of Paul Brandano, Abbey Deitel, Christy Connolly and Kate Steinbuhler) for their hard work and devotion to the project, and extend a special thank you to Greg Friedman and Alyssa Clapp for their support. She would also like to thank Dale Herbeck, Chair and Associate Professor of Communications at Boston College, who provided insights for Chapter 11.

The Deitels are co-authors of the best-selling introductory college computer-science programming language textbooks, *Internet and World Wide Web How to Program* and *e-Business and e-Commerce How to Program*. The Deitels are also co-authors the *Internet and World Wide Web Programming Multimedia Cyber Classroom* and the *e-Business and e-Commerce Programming Multimedia Cyber Classroom*. The Deitels are authors of the world's #1 selling college text books in Java, C and C++.

e-Business and e-Commerce How to Program: A Sister Book Intended for Programming Courses

e-Business & e-Commerce for Managers is one of two e-Business/e-Commerce books that we developed for Prentice Hall this year; this book—intended primarily for managers and nonprogrammers—and its sister book, *e-Business & e-Commerce How to Program*—is intended for information technology and computer science majors. Here is the table of contents for *e-Business & e-Commerce How to Program*:

- Chapter 1 Introduction to Computers, the Internet and the Web
- Chapter 2 Introduction to Internet Explorer 5 and the World Wide Web
- Chapter 3 e-Business Models
- Chapter 4 Internet Marketing
- Chapter 5 Online Monetary Transactions
- Chapter 6 Legal, Ethical and Social Issues; Internet Taxation
- Chapter 7 Computer and Network Security
- Chapter 8 Hardware, Software and Communications

Chapter 9 Introduction to Hypertext Markup Language 4 (HTML 4)
 Chapter 10 Intermediate HTML 4
 Chapter 11 Ultimate Paint
 Chapter 12 Microsoft Frontpage Express
 Chapter 13 JavaScript/ JScript: Introduction to Scripting
 Chapter 14 JavaScript/ JScript: Control Structures I
 Chapter 15 JavaScript/ JScript: Control Structures II
 Chapter 16 JavaScript/ JScript: Functions
 Chapter 17 JavaScript/ JScript: Arrays
 Chapter 18 JavaScript/ JScript: Objects
 Chapter 19 Dynamic HTML: Cascading Style Sheets™ (CSS)
 Chapter 20 Dynamic HTML: Object Model and Collections
 Chapter 21 Dynamic HTML: Event Model
 Chapter 22 Dynamic HTML: Filters and Transitions
 Chapter 23 Dynamic HTML: Data Binding with Tabular Data Control
 Chapter 24 Dynamic HTML: Client-Side Scripting with VBScript
 Chapter 25 Active Server Pages (ASP)
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 Chapter 32 Multimedia: Audio, Video, Speech Synthesis and Recognition
 Chapter 33 Macromedia® Flash™: Building Interactive Animations
 Chapter 34 Accessibility
 Appendix A: HTML Special Characters
 Appendix B: HTML Colors
 Appendix C: ASCII Character Set
 Appendix D: Operator Precedence Charts

e-Business and e-Commerce Programming Multimedia Cyber Classroom: An Interactive Multimedia Version of e-Business and e-Commerce How to Program

We have prepared an optional, interactive CD-ROM-based, software version of *e-Business and e-Commerce How to Program* called the *e-Business and e-Commerce Programming Multimedia Cyber Classroom*. It is loaded with features for learning and reference. The *Cyber Classroom* is wrapped with the textbook at a discount in *The Complete e-Business and e-Commerce Programming Training Course*. If you already have the book and would like to purchase the *e-Business and e-Commerce Programming Multimedia Cyber Classroom* separately, please call 1-800-811-0912 and ask for ISBN# 0130895407.

The CD has an introduction with the authors overviewing the *Cyber Classroom*'s features. The 258 live-code example Web documents in the textbook truly "come alive" in the *Cyber Classroom*. If you are viewing a document and want to execute it, simply click on the lightning bolt icon and the document will be loaded into a Web browser and rendered.

You will immediately see—and hear for the audio-based multimedia Web pages—the program’s outputs. If you want to modify a document and see and hear the effects of your changes, simply click the floppy-disk icon that causes the source code to be “lifted off” the CD and “dropped into” one of your own directories so that you can edit the document and try out your new version. Click the speaker icon for an audio that talks about the document and “walks you through” the code.

The *Cyber Classroom* also provides navigational aids including extensive hyperlinking. The *Cyber Classroom* remembers in a “history list” recent sections you have visited and allows you to move forward or backward in that history list. The thousands of index entries are hyperlinked to their text occurrences. You can key in a term using the “find” feature and the *Cyber Classroom* will locate occurrences of that term throughout the text. The *Table of Contents* entries are “hot,” so clicking a chapter name takes you to that chapter.

Students like the hundreds of solved problems from the textbook that are included with the *Cyber Classroom*. Studying and running these extra programs is a nice way for students to enhance their learning experience.

Students and professional users of our *Cyber Classrooms* tell us they like the interactivity and that the *Cyber Classroom* is an effective reference because of the extensive hyperlinking and other navigational features. We recently had an e-mail from a person who said that he lives “in the boonies” and cannot take a live course at a university, so the *Cyber Classroom* was a good solution to his educational needs.

Professors tell us that their students enjoy using the *Cyber Classroom*, spend more time on the course and master more of the material than in textbook-only courses. Also, the *Cyber Classroom* helps shrink lines outside professors’ offices during office hours. We have also published the *C++ Multimedia Cyber Classroom (3/e)*, the *Visual Basic 6 Multimedia Cyber Classroom*, the *Java 2 Multimedia Cyber Classroom (3/e)* and the *Internet and World Wide Web Programming Multimedia Cyber Classroom*.

About Deitel & Associates, Inc.

Deitel & Associates, Inc. is an internationally recognized corporate training and content creation organization specializing in Internet/World Wide Web software technology, e-business/e-commerce software technology and computer programming languages education. Deitel & Associates, Inc. is a member of the World Wide Web Consortium. The company provides courses on Internet and World Wide Web programming, e-business and e-commerce programming, Object Technology and major programming languages. The principals of Deitel & Associates, Inc. are Dr. Harvey M. Deitel and Paul J. Deitel. The company’s clients include many of the world’s largest computer companies, government agencies, branches of the military and business organizations. Through its publishing partnership with Prentice Hall, Deitel & Associates, Inc. publishes leading-edge programming textbooks, professional books, interactive CD-ROM-based multimedia *Cyber Classrooms*, satellite courses and Web-based training courses. Deitel & Associates, Inc. and the authors can be reached via email at

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To learn more about Deitel & Associates, Inc., its publications and its worldwide corporate on-site curriculum, see the last few pages of this book and visit:


www.deitel.com

Individuals wishing to purchase Deitel books, Cyber Classrooms, Complete Training Courses and Web-based training courses can do so through

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Bulk orders by corporations and academic institutions should be placed directly with Prentice Hall. See the last few pages of this book for worldwide ordering details.

The World Wide Web Consortium (W3C)

 Deitel & Associates, Inc. is a member of the *World Wide Web Consortium (W3C)*. The W3C was founded in 1994 “to develop common protocols for the evolution of the World Wide Web.” As a W3C member, we hold a seat on the W3C Advisory Committee (our Advisory Committee representative is our Chief Technology Officer, Paul Deitel). Advisory Committee members help provide “strategic direction” to the W3C through meetings around the world (the Spring 2000 meeting was held in Amsterdam). Member organizations also help develop standards recommendations for Web technologies (such as HTML, XML and many others) through participation in W3C activities and groups. Membership in the W3C is intended for companies and large organizations. For information on becoming a member of the W3C visit www.w3.org/Consortium/Prospectus/Joining.

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