

Major Revisions and Additional Topics in This Edition

With the exception of small, concept-demonstrating programs, all programs are written as multitier applications. The chapters are reorganized to cover Web services prior to Web applications, and the middle-tier components are written as Web services.

Coverage of ASP.NET security is greatly expanded, as is the explanation of classes and of MDI applications.

Two new margin icons flag items that are “New to Visual Basic 2005” and a “Security Issue.”

The text covers the new features of Visual Studio 2005 and some new coverage of existing features, including

- Partial classes.
- The singleton design pattern for a class that should be instantiated only once.
- Validation of user input using TryParse.
- Displaying of messages using an ErrorProvider component.
- ClickOnce deployment.
- Generics and generic collections.
- Web themes and master pages.
- The My object.
- MenuStrips, ToolStrips, and ContextMenuStrips.
- SQL Server Express, which provides the advantage of local database files for development and testing.
- TableAdapter, BindingSource, and BindingNavigator objects.
- Stored procedures.
- The Windows database controls: DataGridView and DetailsView.
- Master-detail applications that require no code.
- Table lookups for populating a combo box from a related table.
- Use of properties and methods of the BindingSource to filter, navigate, and update database tables.
- Use of named table relationships.
- Field-level and record-level validation in the event handlers for changes in columns and rows.
- Consuming of a commercial Web service.
- Use of related tables in a Web service.
- The new Login controls for Web applications.
- Display and updating of data using the Web DataSource objects and new data components: GridView, DetailsView, and FormView.
- The built-in Web server, which allows development of Web applications without the necessity of running IIS. This feature also allows development



on XP Home Edition, rather than requiring XP Professional for all Web development.

- Smart Device applications, including the new device emulators.
- Use of My.Application for changing culture settings.
- The BackgroundWorker component for executing more than one thread.

New features of the Visual Studio IDE that are covered in the text include

- The DataSources window and creation of bound controls by dragging objects from the window.
- The DataSet Designer.
- The Project Designer.
- Designer-generated class diagrams.

Chapter Organization

Each chapter begins with identifiable objectives and a brief overview. Numerous coding examples as well as hands-on projects with guidance for the coding appear throughout. Thought-provoking feedback questions give students time to reflect on the current topic and to evaluate their understanding of the details. The end-of-chapter items include key terms, a chapter review, questions, programming exercises, and two case studies. The case studies provide a continuing-theme exercise that may be used throughout the course. The in-chapter programs are included on the student CD, allowing the student to test and modify existing code. Of course, it is also important to develop a complete application from scratch to really learn the programming techniques.

Chapter 1, “Visual Studio.NET,” discusses the features of the Visual Studio IDE and the .NET Framework. Applications demonstrate how to display data from the AssemblyInfo.vb file using the My object. MDI projects, toolbars, and status bars are reviewed.

Chapter 2, “Building Multitier Programs with Classes,” reviews object-oriented terminology, creating classes, and instantiating objects. Creating and throwing exceptions from the business tier is introduced. The ErrorProvider and TryParse are demonstrated to improve the efficiency of validation in the presentation tier.

Chapter 3, “Windows Database Applications,” explains the relationship of datasets, tables, rows, and constraints. Database applications use SQL Server databases to display information in grids, combo boxes, labels, and the new database display controls.

Chapter 4, “Windows Database Using Related Tables,” explores the types of table relationships and covers the display of related tables on Windows forms. The chapter discusses how to retrieve and display the parent row for a selected child row and also an array of child rows for a selected parent row.

Chapter 5, “Windows Database Updates,” performs updates on data in a grid, in bound controls on a form, and in unbound controls. Updating

related tables also is covered. Both a combo box selection and the form's binding navigator are used to navigate records.

Chapter 6, “Web Services,” discusses the concepts of Web services. Examples for Web services include calculations and database access.

Chapter 7, “Using Web Forms—ASP.NET,” discusses the concepts of Web-based applications and the files that make up a Web project. Hyperlinks and link buttons allow navigation from one Web page to another while maintaining the state (data values). The Validator controls test user input. Master pages and themes assist in designing the layout for the Web site.

Chapter 8, “Web Forms Database,” covers the techniques for accessing data using data source controls. The chapter discusses displaying data from related tables and updating databases from a Web page. Multitier development uses a Web service for database access and updates.

Chapter 9, “Writing Database Reports Using Crystal Reports,” uses advanced reporting features, such as numeric functions, grouping, sorting, and special fields. Both Windows applications and Web applications are covered.

Chapter 10, “Using Collections,” discusses types of collections including stacks, queues, dictionaries, hash tables, sorted lists, and array lists. The chapter demonstrates adding objects to the Items collection of a list box. The chapter also demonstrates implementing the new features of generics and generic collections.

Chapter 11, “User Controls,” creates Windows user controls and Web controls. The techniques for raising an event and writing code in the form to handle the event are discussed.

Chapter 12, “Creating Help Files,” creates the necessary files to set up HTML Help and uses HTML Help Workshop to create a Help file.

Chapter 13, “Looking Ahead,” demonstrates how to develop applications for mobile devices, how to localize an application, and how to use the BackgroundWorker class to run processes in a separate thread.

The appendices offer important additional material. Appendix A holds the answers to all Feedback questions. Appendix B is an extensive review of VB topics generally covered in an introductory course. Appendix C gives information about creating and installing database files for SQL Server Express, and Appendix D covers deployment using ClickOnce. Appendix E contains many helpful tips and shortcuts for mastering the Visual Studio environment.

Resources for Instructors

Instructors CD-ROM (ISBN 007XXXXXX) is available, containing the following supplemental materials:

Instructor's Manual, authored by Rajiv D. Narayana, senior editor of Suntech Data Systems (India) Pvt. Ltd., offering

- Objectives with built-in summaries for each chapter.
- Teaching suggestions.

- Answers to the Review Questions from the end-of-chapter material.
- Chapter topics covered in the Programming Exercises.

Testbank, authored by Rajiv D. Narayana, senior editor of Suntech Data Systems (India) Pvt. Ltd., offers over 500 questions covering key terms and concepts found in each chapter. The test questions appear in the form of true/false and multiple-choice questions. Text page references have been provided for all questions, including level-of-difficulty rating. A computerized version of the **testbank in Diploma by Brownstone** is also available. Diploma is the most flexible, powerful, and easy-to-use computer-based testing system available for higher education. The Diploma system allows instructors to create an exam as a printed version, as a LAN-based online version, or as an Internet version. Diploma also includes grade book features, which automate the entire testing process.

PowerPoint Presentation, authored by Brenda Nielsen of Mesa Community College-Red Mountain, follows the outline of the Instructor's Manual and gives instructors a resource for presenting the text material to a classroom.

Text figures are available electronically for use in presentations, transparencies, or handouts. These include all the illustrations, screenshots, and tables featured throughout the book.

An **Online Learning Center (OLC)** is also available for students and instructors. The OLC can be found at www.mhhe.com/bradleyadvanced2007 and offers a wide variety of learning opportunities for students, including additional case studies, self-quizzes, and downloadable data files.

Instructors also will find the OLC a useful resource. All of the materials found on the Instructors CD-ROM also can be found on the password-protected instructor's portion of the OLC.

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TO THE STUDENT

Welcome to the exciting new features of Visual Basic 2005. You have probably already learned that the best way to learn how to program is to actually sit at a computer and write code, change things, and test it again. Stepping through existing code is also a great tool in learning new techniques. With that in mind, we have included all of the code from the examples within the chapters on your student CD. Please feel free to load the programs, change things, and test it again.

But . . . If you really want to learn how it works, it is critical that you create a blank project and try the techniques yourself. If you run into a problem, take a look at the sample and compare properties and code.

There are several tools in this text to help you on your way.

- Each chapter begins with a list of topics and ends with a summary. Combine these for a thumbnail review of the chapter. Understanding the terminology is an important part of learning any new language, which is also true with programming languages.
- A list of key terms is at the end of each chapter. Each of those terms is in boldface within the chapter. There is also a glossary at the end of the text where you can look up the definition of the terms.
- Test yourself with the Feedback questions as you work through each section of a chapter. The review questions at the end of the chapter can test your understanding of the topics.
- Tips are included to give suggestions in situations where you may run into problems caused by the version of software installed/not installed or with settings.
- Make sure to check out the appendices, which hold a wealth of support material.

J.C.B.
A.C.M.

The Authors

We have had fun teaching and writing about Visual Basic. We hope that this feeling is evident as you read this book and that you will enjoy learning or teaching this outstanding programming language.

Both of us have taught courses in beginning and advanced Visual Basic for several years at Mt. San Antonio College. We also have taught Visual Basic at the National Computer Educator's Institute at the University of Central Oklahoma.

Julia Bradley developed the Faculty Computing Center at Mt. San Antonio College and acted as director during the first year of operation. Anita Millspaugh served as the department chair of Computer Information Systems for several years.

Julia Case Bradley

Anita C. Millspaugh