

国外计算机科 学教材系列

美国卡内基梅隆大学 SSD 软件系统开发课程指定教材

Visual Basic 6.0 编程 (提高版)

Programming with Microsoft Visual Basic 6.0
Enhanced Edition

英文原版

[美] Diane Zak 著

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COURSE TECHNOLOGY
汤姆森学习出版集团



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北京 · BEIJING

内 容 简 介

这是一本详细讲解如何使用 Visual Basic 6.0 进行编程的英文原版教材。该书使用面向对象 / 事件驱动的 Visual Basic 6.0 语言, 采用任务驱动的方式向学生讲解编程的概念, 激发学生对于基于 Windows 应用程序的热情, 让学生理解如何充分利用 Visual Basic 的强大功能, 学会编写实际工作中会遇到的应用程序。书中强调了设计技巧, 如访问数据库中的信息、创建与打印报表、引用对象、使用 OLE 等。此外, 该书向学生简介了面向对象编程技术以及 Visual Basic .NET 的最新功能。作为教材, 书中提供了大量的练习题, 并提供有教辅材料, 另外在随书光盘中, 提供有专为本教材定制的 Visual Basic 6.0 软件。

该书是美国卡内基梅隆大学 SSD 软件系统开发课程指定教材, 可作为太中专院校计算机专业学生的教材和参考书, 也可供计算机工程技术人员及参考, 同时对推进我国在计算机教学上尽快赶上国际先进水平以及提高学生的英语水平也大有裨益。

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出版说明

21 世纪初的 5 至 10 年是我国国民经济和社会发展的关键时期,也是信息产业快速发展的关键时期。在我国加入 WTO 后的今天,培养一支适应国际化竞争的一流 IT 人才队伍是我国高等教育的重要任务之一。信息科学和技术方面人才的优劣与多寡,是我国面对国际竞争时成败的关键因素。

当前,正值我国高等教育特别是信息科学领域的教育调整、变革的重大时期,为使我国教育体制与国际化接轨,有条件的高等院校正在为某些信息学科和技术课程使用国外优秀教材和优秀原版教材,以使我国在计算机教学上尽快赶上国际先进水平。

电子工业出版社秉承多年来引进国外优秀图书的经验,翻译出版了“国外计算机科学教材系列”丛书,这套教材覆盖学科范围广、领域宽、层次多,既有本科专业课程教材,也有研究生课程教材,以适应不同院系、不同专业、不同层次的师生对教材的需求,广大师生可自由选择和自由组合使用。这些教材涉及的学科方向包括网络与通信、操作系统、计算机组织与结构、算法与数据结构、数据库与信息处理、编程语言、图形图像与多媒体、软件工程等。同时,我们也适当引进了一些优秀英文原版教材,本着翻译版本和英文原版并重的原则,对重点图书既提供英文原版又提供相应的翻译版本。

在图书选题上,我们大都选择国外著名出版公司出版的高校教材,如 Pearson Education 培生教育出版集团、麦格劳-希尔教育出版集团、麻省理工学院出版社、剑桥大学出版社等。撰写教材的许多作者都是蜚声世界的教授、学者,如道格拉斯·科默(Douglas E. Comer)、威廉·斯托林斯(William Stallings)、哈维·戴特尔(Harvey M. Deitel)、尤利斯·布莱克(Uyless Black)等。

为确保教材的选题质量和翻译质量,我们约请了清华大学、北京大学、北京航空航天大学、复旦大学、上海交通大学、南京大学、浙江大学、哈尔滨工业大学、华中科技大学、西安交通大学、国防科学技术大学、解放军理工大学等著名高校的教授和骨干教师参与了本系列教材的选题、翻译和审校工作。他们中既有讲授同类教材的骨干教师、博士,也有积累了几十年教学经验的老教授和博士生导师。

在该系列教材的选题、翻译和编辑加工过程中,为提高教材质量,我们做了大量细致的工作,包括对所选教材进行全面论证;选择编辑时力求达到专业对口;对排版、印制质量进行严格把关。对于英文教材中出现的错误,我们通过与作者联络和网上下载勘误表等方式,逐一进行了修订。

此外,我们还将与国外著名出版公司合作,提供一些教材的教学支持资料,希望能为授课老师提供帮助。今后,我们将继续加强与各高校教师的密切联系,为广大师生引进更多的国外优秀教材和参考书,为我国计算机科学教学体系与国际教学体系的接轨做出努力。

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Preface



Welcome to the Enhanced Edition of *Programming with Microsoft Visual Basic 6.0*. This updated version provides a preview of the Microsoft Visual Studio.NET programming environment and the Microsoft Visual Basic.NET programming language. Two new tutorials, Tutorials 11 and 12, introduce you to the newest features and updates to the software by exploring Beta 1 from Microsoft. To ease your transition to Visual Basic.NET, Course Technology gives you an advance glimpse of the next generation of this powerful programming tool before the final version of the software is released. Within these new lessons, you will plan and create your own interactive Windows applications, as well as explore the power of Visual Basic.NET on the World Wide Web.

Programming with Microsoft Visual Basic 6.0, Enhanced Edition is designed for a beginning programming course. This book uses Visual Basic 6.0 for Windows 95 or 98, an object-oriented/event-driven language, to teach programming concepts. This book capitalizes on the energy and enthusiasm students naturally have for Windows-based applications and clearly teaches students how to take full advantage of Visual Basic's power. It assumes students have learned basic Windows skills and file management.

Organization and Coverage

Programming with Microsoft Visual Basic 6.0, Enhanced Edition contains an Overview and 12 tutorials that present hands-on instruction. In these tutorials, students with no previous programming experience learn how to plan and create their own interactive Windows applications. Using this book, students will be able to do more advanced tasks sooner than they would using other introductory texts; a perusal of the table of contents affirms this. By the end of the book, students will have learned how to write If...Then...Else, Select Case, Do...While, Do...Until, and For...Next statements, as well as how to create and manipulate sequential access files, random access files, and arrays. Students will also learn how to create executable files and how to include multiple forms in a project. GUI design skills are emphasized, and advanced skills such as accessing information in a database, creating and printing reports, referencing objects, and using OLE are taught. The text also introduces students to OOP terminology.

Approach

Programming with Microsoft Visual Basic 6.0, Enhanced Edition distinguishes itself from other Windows textbooks because of its unique two-pronged approach. First, it motivates students by demonstrating why they need to learn the concepts and skills. This book teaches programming concepts using a task-driven, rather than a command-driven, approach. By working through the tutorials—which are each motivated by a realistic case—students learn how to use programming applications they are likely to encounter in the workplace. This is much more effective than memorizing a list of commands out of context. Second, the content, organization, and pedagogy of this book exploit the Windows environment. The material presented in the tutorials capitalizes on Visual Basic's power to perform complex programming tasks earlier and more easily than was possible under DOS.

Features

Programming with Microsoft Visual Basic 6.0, Enhanced Edition is an exceptional textbook because it also includes the following features:

- **“Read This Before You Begin” Sections** These sections are consistent with Course Technology’s unequalled commitment to helping instructors introduce technology into the classroom. Technical considerations and assumptions about hardware, software, and default settings are listed in one place to help instructors save time and eliminate unnecessary aggravation.
- **Tutorial Cases** Each tutorial begins with a programming-related problem that students could reasonably expect to encounter in business, followed by a demonstration of an application that could be used to solve the problem. Showing the students the completed application before they learn how to create it is motivational and instructionally sound. By allowing the students to see the type of application they will be able to create after completing the tutorial, the students will be more motivated to learn because they can see how the programming concepts they are about to learn can be used and, therefore, why the concepts are important.
- **Lessons** Each tutorial is divided into three lessons—A, B, and C. Lesson A introduces the programming concepts that will be used in the completed application. In Lessons B and C, the student creates the application required to solve the problem specified in the Tutorial Case. (Tutorials 11 and 12 use two lessons instead of three.)
- **Step-by-Step Methodology** The unique Course Technology methodology keeps students on track. They click or press keys always within the context of solving the problem posed in the Tutorial Case. The text constantly guides students, letting them know where they are in the process of solving the problem. The numerous illustrations include labels that direct students’ attention to what they should look at on the screen.
- **Help?** paragraphs anticipate the problems students are likely to encounter and help them resolve these problems on their own. This feature facilitates independent learning and frees the instructor to focus on substantive conceptual issues rather than on common procedural errors.
- **Tips** provide additional information about a procedure—for example, an alternative method of performing the procedure. They also relate the OOP terminology learned in the Overview to applications created in Visual Basic.
- **GUI Design Tips** contain guidelines and recommendations for designing applications that follow Windows standards, as outlined in *The Windows Interface Guidelines for Software Design*, published by Microsoft Press.
- **Summaries** Following each lesson is a Summary, which recaps the programming concepts, commands, and controls covered in the lesson.
- **Questions and Exercises** Each lesson concludes with meaningful, conceptual Questions that test students’ understanding of what they learned in the lesson. The Questions are followed by Exercises, which provide students with additional practice of the skills and concepts they learned in the lesson.
- **Discovery Exercises** Unlike DOS, the Windows environment allows students to learn by exploring and discovering what they can do. The Discovery Exercises are designated by the word “Discovery” in the margin. They encourage students to challenge and independently develop their own programming skills while exploring the capabilities of Visual Basic.
- **Debugging Techniques and Exercises** One of the most important programming skills a student can learn is the ability to correct problems in an existing application. The Debugging Techniques and Exercises at the end of each tutorial introduce various bug-detecting techniques and then provide an opportunity for students to apply the techniques to detect and correct errors in an existing application.

Resources for Instructors

- **Instructor's Manual** The Instructor's Manual has been written by the author and has been quality assurance tested. It is available in printed form and through the Course Technology Faculty Online Companion on the World Wide Web. (Call your customer service representative for the URL and your password.) The Instructor's Manual contains the following items:
 - Additional coverage of Visual Basic concepts such as Sorting and Binary Search.
 - Cases that can be assigned as semester projects.
 - Answers to all of the questions and solutions to all of the exercises. Suggested solutions are also included for Discovery Exercises.
 - Teaching Suggestions, which contain an outline of the lesson and additional information to cover during the lecture.
 - Technical Notes, which include troubleshooting tips as well as information on how to customize the students' screens to closely emulate the screen shots in the book.
- **ExamView®** This textbook is accompanied by ExamView, a powerful testing software package that allows instructors to create and administer printed, computer (LAN-based), and Internet exams. ExamView includes hundreds of questions that correspond to the topics covered in this text, enabling students to generate detailed study guides that include page references for further review. The computer-based and Internet testing components allow students to take exams at their computers, and also save the instructor time by grading each exam automatically.
- **PowerPoint Presentations** This book comes with Microsoft PowerPoint slides for each tutorial. These are included as a teaching aid for classroom presentation, to make available to students on the network for chapter review, or to be printed for classroom distribution. Instructors can add their own slides for additional topics they introduce to the class.
- **Solutions Files** Solution Files contain every file students are asked to create or modify in the tutorials, Exercises, and Debugging Techniques and Exercises.
- **Student Files** Student Files, containing all of the data that students will use for the tutorials, Exercises, and Debugging Techniques and Exercises, are provided through Course Technology's Online Companion, as well as on disk. A Help file includes technical tips for lab management. See the inside front cover of this book and the "Read This Before You Begin" page before the Overview for more information on Student Files.
- **Distance Learning** Course Technology is proud to present online courses in WebCT and Blackboard, as well as at MyCourse.com, Course Technology's own course enhancement tool, to provide the most complete and dynamic learning experience possible. When you add online content to one of your courses, you're adding a lot: self tests, links, glossaries, and, most of all, a gateway to the twenty-first century's most important information resource. We hope you will make the most of your course, both online and offline. For more information on how to bring distance learning to your course, contact your local Course Technology sales representative.

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Finally, I dedicate this book to my father, Henry.

Diane Zak

Read This Before You Begin, Part 1

To the Student

Student Disks

To complete the tutorials, Exercises, and Debugging Techniques and Exercises in this book, you need Student Disks. Your instructor will either provide you with Student Disks or ask you to make your own.

If you are told to make your own Student Disks, you will need 6 blank, formatted high-density disks. You will need to copy a set of folders from a file server or standalone computer onto your disks. Your instructor will tell you which computer, drive letter, and folders contain the files you need. The following table shows you which folders go on each of your disks, so that you will have enough disk space to complete all the tutorials, Exercises, and Debugging Techniques and Exercises:

| Student Disk | Write this on the disk label | Put these folders on the disk |
|--------------|------------------------------|----------------------------------------------------------------------|
| 1 | Overview, Tutorials 1–3 | <i>Overview</i> <i>Tut01</i> <i>Tut02</i> <i>Tut03</i> |
| 2 | Tutorials 4–6 | <i>Tut04</i> <i>Tut05</i> <i>Tut06</i> |
| 3 | Tutorials 7–8 | <i>Tut07</i> <i>Tut08</i> |
| 4 | Tutorial 9 | <i>Tut09</i> |
| 5 | Tutorial 10 | <i>Tut10</i> |
| 6 | Appendices A, B, C, & D | <i>AppendA</i> <i>AppendB</i> <i>AppendC</i> <i>AppendD</i> |

When you begin each tutorial, be sure you are using the correct Student Disk. For more information on Student Disk files ask your instructor or technical support person for assistance.

Using Your Own Computer

If you are going to work through this book using your own computer, you will need:

- **Computer System** Microsoft Visual Basic 6.0 Professional Edition, Working Model, or Enterprise Edition for Windows 95 must be installed on your computer. This book assumes a complete installation of Microsoft Visual Basic 6.0, excluding Microsoft Visual SourceSafe 6.0, and including Graphics. It also assumes that you have access to the Visual Basic documentation contained in the MSDN Library.

Microsoft Visual Basic 6.0 for Windows 95, Working Model is provided with each copy of this book. The following system requirements apply.

- Personal computer with a 486 or higher processor
- Microsoft Windows 95 or later, or Windows NT version 4.0 or later
- 16 MB of RAM for Windows 95 or later
- 24 MB of RAM for Windows NT
- VGA or higher-resolution monitor (Super VGA recommended)
- Microsoft Mouse or compatible pointing device

- Hard Disk Requirements:
 - 52 MB for typical installation
 - 65 MB for maximum installation
- CD-ROM drive

The Working Model has all the functionality of the commercial version of Visual Basic, excluding the ability to make executable files and the ability to create Web pages and ActiveX controls (Appendices A and D). The Working Model also does not include the MSDN Library. Be sure to read the Help file on the CD for information on which sections of the book cannot be completed using the Working Model.

- **Student Disks** Ask your instructor or lab manager for details on how to get Student Disks. You will not be able to complete the tutorials or exercises in this book using your own computer until you have Student Disks. The student files may also be obtained electronically through the Internet.

Visit Our World Wide Web Site

Additional materials designed especially for you are available on the World Wide Web. Go to www.course.com.

Installing Visual Basic 6.0 and setting up your environment:

To install Visual Basic 6.0 and set up your environment so that your screens match the figures shown in the book, do the following:

- 1 When installing Visual Basic 6.0, use the Custom button in the Microsoft Visual Basic 6.0 Setup dialog box to include the Graphics files in the installation. When installing the MSDN Library, install the VB Documentation. If you want to use the MSDN Library without having to put the MSDN CD in the CD-ROM drive, then also install the Full Text Search index.
- 2 Click Tools on the Visual Basic menu bar, and then click Options. When the Options dialog box appears, click the Editor tab, and then click the Default to Full Module View check box to deselect it. Click the Advanced tab in the Options dialog box, then click the SDI Development Environment check box to select it, and then click the OK button.
- 3 Size the Visual Basic Toolbox so that the tools appear in two columns, rather than three columns.
- 4 Double-click the My Computer icon on the Windows 95 desktop. Click View on the menu bar, and then click Options. Click the View tab, then click the Hide MS-DOS file extensions for file types that are registered check box to deselect it, and then click the OK button.

To the Instructor

To complete the tutorials in this book, your students must use a set of student files. These files are included in the Instructor's Resource Kit. They may also be obtained electronically through the Internet. Follow the instructions in the Help file to copy the student files to your server or standalone computer. You can view the Help file using a text editor such as WordPad or Notepad.

Once the files are copied, you can make Student Disks for the students yourself, or tell students where to find the files so they can make their own Student Disks. Make sure the files get copied correctly onto the Student Disks by following the instructions in the Student Disks section on the previous page, which will ensure that students have enough disk space to complete all the tutorials, Exercises, and Debugging Techniques and Exercises.

Course Technology Student Files

You are granted a license to copy the Student Files to any computer or computer network used by students who have purchased this book.

Read This Before You Begin, Part 2

Special Instructions For Working with Visual Basic.NET in Tutorials 11 and 12

To the Student

Data Files

Visual Basic.NET has more technical requirements than its predecessor, Visual Basic 6.0, therefore, you will need to make some changes to your file structure when working with Tutorials 11 and 12. To complete the tutorials and the exercises at the end of the tutorials, you need data files. In Tutorials 1 through 10, you used the data files that were provided on the Student Disks. In Tutorials 11 and 12, you will access files from and save files to folders stored on your computer's hard drive or a workstation shared drive. For Tutorial 11, you will use the Tut11 folder, and for Tutorial 12, you will use the Tut12 folder.

Using Your Own Computer

If you are going to complete these tutorials using your own computer, you will need:

- **Computer System** The prerelease version of Microsoft Visual Studio.NET must be installed on your computer. The prerelease Beta 1 version of Visual Studio.NET is available to the public. You must also be running Microsoft Internet Information Server (IIS) version 4.0 or higher and Microsoft Access 2000. See the "Setting Up Your Computer" section.
- Personal computer with a 486 or higher processor
- Microsoft Windows 98, 2000, or NT
- 128 MB of RAM
- 256-color monitor
- Hard drive: 3 GB for installation
- CD-ROM drive
- Mouse or other pointing device
- **Data files** Ask your instructor or lab manager for details on how to get the data files. You may need to create Tut11 and Tut12 folders on your computer and copy the data files to these folders. You will not be able to complete the tutorials or exercises without the data files. The files also may be obtained electronically through the Internet. Go to www.course.com, click Student Downloads, and search for the title of this book.

Setting Up Your Computer

Tutorials 11 and 12 require that your computer be set up as a server, which means you must have IIS running.

If you are running Windows 98:

1. Locate the Windows\System\inetrv folder on your computer's hard drive.
2. Open the inetrv folder and double-click the pws.exe file to start Internet Information Server.

If you are running Windows NT or Windows 2000:

- 1 Locate the `Winnt\System32\Inetsrv` folder on your computer's hard drive.
- 2 Open the `Inetsrv` folder and double-click the `pws.exe` file to start IIS. If the `pws.exe` file is not on your workstation, then IIS might not be installed on your computer.
- 3 To install IIS from the operating system disk that came with your computer, run the operating system disk setup.
- 4 Choose **Install Add-on Components** from the **Start Page** menu to activate the **Windows Components Wizard**.
- 5 To add the IIS component, check the corresponding check box.
- 6 Click the **Details** button and verify that the subcomponents of IIS are also checked. These files are required by IIS, however, they should only be installed at the time you install IIS.
- 7 Click **OK** and **Next**. The **Windows Components Wizard** will now configure your hardware and install the software. This may take a few minutes.
- 8 When the installation is successful and complete, click **Finish** to exit the wizard.
- 9 Restart your computer. If IIS does not begin running at startup or is not displayed on the right side of the taskbar on your Windows desktop, review the steps above to start IIS.

After you have started IIS, right-click the IIS icon on the taskbar. A menu is displayed that allows you to start and shut down the IIS service and change configurations from the **Properties** window. Verify that the service is started. You must also check the configuration settings. To do so, select **Properties** from the shortcut menu and open the **IIS Main** page. On the **Main** page, verify that **Web publishing** is on. To turn on **Web publishing**, click the **Start** button. Your home page should be displayed as a URL address when **Web publishing** is on. Your home directory will also be displayed and may be changed as necessary on the **Main properties** page.

To install **Visual Studio.NET**, simply insert the **Beta 1** compact disk into your disk drive and follow the installation instructions. Accept the default setting suggestions.

To the Instructor

To complete Tutorials 11 and 12, your students must use a set of data files. These files are included in the **Instructor's Resource Kit** or may be obtained through the Internet by going to www.course.com. Follow the instructions in the **Help** file to copy the data files to your server or standalone computer. You can view the **Help** file using a text editor such as **WordPad** or **Notepad**.

Once the files are copied, you can distribute them to students on floppy disks or through a shared drive. Make sure that students set up the **Tut11** and **Tut12** folders and that these folders contain the appropriate files.

Course Technology Data Files

You are granted a license to copy the data files to any computer or computer network used by students who have purchased this book.

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