Attention Students

Installing Visual Studio

To complete the tutorials and programming problems in this book, you need to install Visual Studio 2017 on your computer.

We recommend that you download Visual Studio Community 2017 from the following Web site, and install it on your system:

www.visualstudio.com

Visual Studio Community 2017 is a free, full-featured development environment, and is a perfect companion for this textbook.

NOTE: If you are working in your school’s computer lab, there is a good chance that Microsoft Visual Studio has already been installed. If this is the case, your instructor will show you how to start Visual Studio.

Installing the Student Sample Program Files

The Student Sample Program files that accompany this book are available for download from the book’s companion Web site at:

http://www.pearsonhighered.com/cs-resources

These files are required for many of the book’s tutorials. Simply download the Student Sample Program files to a location on your hard drive where you can easily access them.
Guide to VideoNotes

www.pearsonhighered.com/cs-resources

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Visual Basic has been a widely used programming language since its introduction in 1991. Its latest incarnation, Visual Basic 2017, brings continued refinement of the language. Visual Basic programmers are enthusiastically embracing the powerful capabilities of the language. Likewise, students learning their first programming language will find VB 2017 the ideal tool to understand the development of computer programs.

My objectives when writing this text were as follows:

1. **To develop focused chapters.** Rather than covering many topics superficially, I concentrate on important subjects and cover them thoroughly.

2. **To use examples and exercises with which students can relate, appreciate, and feel comfortable.** I frequently use real data. Examples do not have so many embellishments that students are distracted from the programming techniques illustrated.

3. **To produce compactly written text that students will find both readable and informative.** The main points of each topic are discussed first and then the peripheral details are presented as comments.

4. **To teach good programming practices that are in step with modern programming methodology.** Problem solving techniques and structured programming are discussed early and used throughout the book. The style follows object-oriented programming principles.

5. **To provide insights into the major applications of computers.**

**What’s New in the Eleventh Edition**

1. **Visual Basic Upgraded** The version of Visual Basic has been upgraded from Visual Basic 2015 to Visual Basic 2017.

2. **Updated Screen Captures** One hundred and forty-five screen captures have been replaced with up-to-date versions.

3. **New IntelliSense Features** The new-to-VB2017 IntelliSense features are used.

4. **Run to Click** The new-to-VB2017 debugging feature “Run to Click” is explained and used in a walkthrough.

5. **Revised Databases** The databases used in 35 exercises have been updated or expanded.

6. **Inside Back Cover** The instructions on how to carry out thirteen important Visual Basic operations are presented on the inside back cover.
Unique and Distinguishing Features

Exercises for Most Sections. Each section that teaches programming has an exercise set. The exercises both reinforce the understanding of the key ideas of the section and challenge the student to explore applications. Most of the exercise sets require the student to trace programs, find errors, and write programs. The answers to all the odd-numbered exercises in Chapters 2 through 7 and the short-answer odd-numbered exercises from Chapters 8, 9, 10, and 11 are given at the end of the text.

Practice Problems. Practice Problems are carefully selected exercises located at the end of a section, just before the exercise set. Complete solutions are given following the exercise set. The practice problems often focus on points that are potentially confusing or are best appreciated after the student has thought about them. The reader should seriously attempt the practice problems and study their solutions before moving on to the exercises.

Programming Projects. Beginning with Chapter 3, every chapter contains programming projects. The programming projects not only reflect the variety of ways that computers are used in the business community, but also present some games and general-interest topics. The large number and range of difficulty of the programming projects provide the flexibility to adapt the course to the interests and abilities of the students. Some programming projects in later chapters can be assigned as end-of-the-semester projects.

Comments. Extensions and fine points of new topics are deferred to the “Comments” portion at the end of each section so that they will not interfere with the flow of the presentation.

Captions. Every example and applied exercise is labeled with a caption identifying its type of application.

Screen Captures. The output for most applied exercises and programming projects are shown in screen captures. This feature helps clarify the intent of the exercises.

Case Studies. Each of the three case studies focuses on an important programming application. The problems are analyzed and the programs are developed with top-down charts and pseudocode. The programs can be downloaded from the companion website at http://www.pearsonhighered.com/schneider.

Chapter Summaries. In Chapters 2 through 11, the key results are stated and the important terms are summarized at the end of the chapter.


Appendix on Debugging. The placing of the discussion of Visual Basic’s sophisticated debugger in Appendix D allows the instructor flexibility in deciding when to cover this topic.

Guide to Application Topics. This section provides an index of programs that deal with various topics including Business, Mathematics, and Sports.
VideoNotes. Thirty VideoNotes are available at www.pearsonhighered.com/cs-resources. VideoNotes are Pearson’s visual tool designed for teaching key programming concepts and techniques. VideoNote icons are placed in the margin of the textbook to notify the reader when a topic is discussed in a video. Also, a Guide to Video Notes summarizing the different videos throughout the text is included.

Solution Manuals. The Student Solutions Manual contains the answer to every odd-numbered exercise. The Instructor Solutions Manual contains the answer to every exercise and programming project. Both solution manuals are in pdf format and can be downloaded from the Publisher’s Web site.

Source Code. The programs for all examples and case studies can be downloaded from the Publisher’s Web site.

How to Access Instructor and Student Resource Materials

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For a full demonstration, to see feedback from instructors and students, or to get started using MyProgrammingLab in your course, visit www.myprogramminglab.com.

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The following protected instructor resource materials are available on the Publisher’s Web site at www.pearsonhighered.com/cs-resources. For username and password information, please contact your local Pearson representative.

• Test Item File
• PowerPoint Lecture Slides
• Instructor Solutions Manual
• VideoNotes
• Programs for all examples, case studies, and answers to exercises and programming projects (Databases, text files, and picture files needed for the exercises are included in the Programs folder.)
Student Resources

Access to the Premium Website and VideoNotes tutorials is located at www.pearsonhighered.com/cs-resources. Students must use the access card located in the front of the book to register and access the online material. If there is no access card in the front of this textbook, students can purchase access by going to www.pearsonhighered.com/cs-resources and selecting “purchase access to premium content.” Instructors must register on the site to access the material.

The following content is available through the Premium Web site:

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• Programs for examples and case studies (Databases, text files, and picture files needed for the exercises are included in the Programs folder.)
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USING THIS BOOK FOR A SHORT OR CONDENSED COURSE

This book provides more than enough material for a complete semester course. For a course shorter than a semester in length, it will be necessary to bypass some sections. The following syllabus provides one possible way to present an abbreviated introduction to programming.

Chapter 1 An Introduction to Computers and Problem Solving
   1.1 An Introduction to Computing and Visual Basic

Chapter 2 Visual Basic, Controls, and Events
   2.1 An Introduction to Visual Basic 2017
   2.2 Visual Basic Controls
   2.3 Visual Basic Events

Chapter 3 Variables, Input, and Output
   3.1 Numbers
   3.2 Strings
   3.3 Input and Output

Chapter 4 Decisions
   4.1 Relational and Logical Operators
   4.2 If Blocks
   4.3 Select Case Blocks
   4.4 Input via User Selection

Chapter 5 General Procedures
   5.1 Function Procedures
   5.2 Sub Procedures, Part I

Chapter 6 Repetition
   6.1 Do Loops
   6.2 For . . . Next Loops

Chapter 7 Arrays
   7.1 Creating and Accessing Arrays
   7.2 Using LINQ with Arrays

Chapter 8 Text Files
   8.1 Managing Text Files
   or 8.2 StreamReaders, StreamWriters, Structured Exception Handling

1 Passing by reference can be omitted or just mentioned briefly. In Chapters 6 through 11, ByRef is used only in Example 6 of Section 7.3 (Arrays of Structures) and in the Chapter 7 case study. In both of those programs, it is used to obtain input.

2 Sections 8.1 and 8.2 are independent of each other.