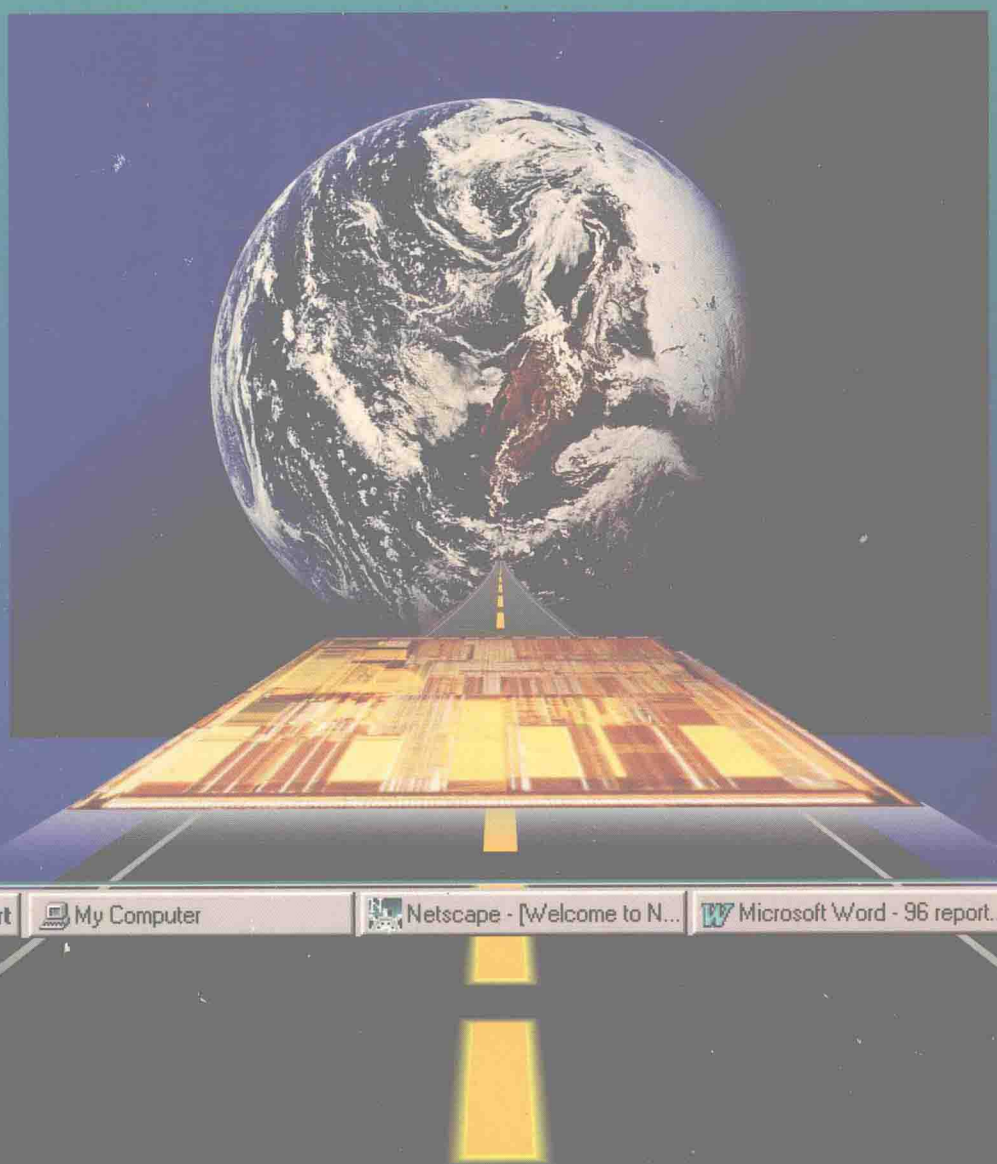
SHELLY CASHMAN SERIES

# *Using Computers A Gateway to Information*

## WORLD WIDE WEB *Brief Edition*




Designed for Microsoft Windows 95

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# *Using Computers*
# *A Gateway to Information*
## WORLD WIDE WEB *Brief Edition*

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# *Using Computers*
# *A Gateway to Information*
## WORLD WIDE WEB *Brief Edition*

# Preface

In 1994, the Shelly Cashman Series team produced one of the most successful computer concepts textbooks ever. The title of the textbook was *Using Computers: A Gateway to Information*. We could have rested on our laurels and revised it in 1997, following the typical three-year-revision cycle of higher education publishers. Two major events occurred in the computer industry in 1995, however, that propelled us to revise this best seller after just one year. The two events were the phenomenal acceptance of the World Wide Web as a depository of useful information and the long-awaited release of Microsoft Windows 95.

Using our bestseller as a basis, we developed *Using Computers: A Gateway to Information, World Wide Web Brief Edition*. An instructor using the earlier edition need not create new lecture material when moving to this new edition. What we have done is, taken the identical material from the previous edition and presented it using Windows 95 figures. We also have incorporated Windows 95 and World Wide Web exercises into the end-of-chapter material. A few paragraphs and tables and the Timeline have been updated. Other than these changes, the new edition is the same as the previous edition, even to the point of having identical pagination.

Combining the earlier edition and the latest revisions, this book was developed with five goals in mind: The material must

- represent the latest in computer technology, particularly with respect to personal computer hardware and software.
- recognize that personal computers have become the backbone of the computer industry and emphasize their use as both stand-alone devices and networked devices.
- focus on using the computer as a productivity tool.
- present the material in an interesting, exciting manner with a format that invites the student to learn. This includes new, color photographs and unique, state-of-the-art drawings that augment the text material.
- provide exercises and lab assignments that allow the student to interact with a computer and actually learn by using the computer.

Therefore, not only do we discuss the latest in computer equipment, computer software, and personal computer applications, but we also explain the processes required to successfully use these tools to produce useful information. The result is a complete treatment of computers and the computer industry.

Merely explaining topics without allowing a student to interact with a computer, however, would deprive the student of an essential experience. Therefore, at the end of each chapter, we have included a series of *In the Lab with Windows 95* and *Where on the Web* exercises that direct the student to use a computer to learn Microsoft Windows 95 and access information on the World Wide Web using Netscape Navigator. In addition, a series of special Shelly Cashman Series Interactive Labs allows students to learn computer skills and gain computer knowledge in an online, interactive setting.

Each of the sections of the book, together with the extraordinary instructor's materials, are explained in the following paragraphs.

## Objective of the Textbook

*Using Computers: A Gateway to Information, World Wide Web Brief Edition* is intended for use in a course whose purpose is to provide students with a firm foundation in computer technology, computer nomenclature, and the use of computers as productivity tools; or, as the computer fundamentals portion of a one-quarter or one-semester course that also includes significant instruction in the use of application software such as Microsoft Works, Microsoft Office, or other personal computer software.

Although each of the eight chapters in the book addresses a specific topic, the fundamental computer concepts are actually integrated throughout the textbook in a manner that first presents an overview of the material and then, in subsequent chapters, moves to more in-depth coverage. Therefore, it is suggested that the book be used in a sequential manner, from beginning to end, with a minimum of jumping to chapters out of sequence.

When a student has completed a course using this book, he or she will have an understanding of computers, computer technology, computer hardware and software, and how computers can be used to produce meaningful information. With the experience gained via the *In the Lab with Windows 95* and *Where on the Web* sections of the book, the student should be proficient in using computers running Windows 95 and Netscape Navigator.

## Chapter Organization

Each chapter within the book is organized to present the optimum amount of material in the most effective manner possible. The text is presented in concise, clearly identified sections and subsections so the student is easily guided through the chapter. Figures (pictures and drawings) are visually separated from the text so the student can read without being encumbered by confusing text, graphics, arrows, and drawings.

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Each chapter is organized into the following sections:

- **Objectives** The objectives for the chapter are clearly stated on the first page of the chapter so the student has an overview of the subject matter.
- **Chapter Introduction** Each chapter has an introduction that briefs the student on the material within the chapter and the reason the material is important.
- **Chapter Text, Pictures, and Drawings** The major learning material in the chapter is presented as text, pictures, and drawings. The pictures have been chosen for their pedagogical value and provide a valuable addition that allows students to see the actual hardware, software, and other subjects being described in the text. The drawings, created with the latest state-of-the-art drawing capabilities of computers, specifically illustrate concepts that are understood more easily through the use of drawings. The combination of drawings and pictures used in this book sets a new standard for computer textbooks.
- **Computers at Work** At the end of each chapter, an example of computers being used for interesting applications is presented. These examples illustrate points made within the chapter.
- **In the Future** This feature, which appears at the end of each chapter, points out an application or applications that will occur in the future using technology discussed in the chapter.
- **What You Should Know** This clear, step-by-step summary of the material in the chapter will help students review the chapter and prepare for examinations.
- **Terms to Remember** This listing of the key terms found in the chapter together with the page on which the terms are defined will aid students in mastering the chapter material. A complete summary of all key terms in the book, together with their definitions, appear in the Index at the end of the book.
- **Test Your Knowledge** Fill-in and short answer questions, together with a figure from the chapter that must be labeled, help focus the student when reviewing the material within the chapter.
- **Points to Ponder** The computer industry is not without its controversial issues. At the end of each chapter, six scenarios are presented that challenge the student to critically examine the computer industry and rethink his or her perspective of technology in society.
- **Out and About** Computers are found everywhere. This section, appearing at the end of each chapter, provides multiple projects that send the student out of the classroom and into the world where interesting discoveries about computers will take place.
- **In the Lab with Windows 95** Students must interact with and use a computer to complete their introduction to computers. At the end of each chapter, a series of Windows 95 Lab exercises are presented for student use. Beginning with the simplest exercises within Microsoft Windows 95, students are led through a series of activities that, by the end of the book, will enable them to be proficient in using Windows.
- **Where on the Web** In this section that ends each chapter students learn how to access information from the World Wide Web using Netscape Navigator.
- **Shelly Cashman Series Interactive Labs** These unique exercises, developed specifically for this book, are hands-on exercises that use the computer to teach about the computer. The Labs are described in detail on page xvi.

This chapter organization and the material presented provide the most in-depth treatment of introductory computer subjects ever found in a textbook. Students will finish the course with a complete understanding of computers, how to use computers, and how to access information from the World Wide Web.

## Contents of *Using Computers: A Gateway to Information, World Wide Web Brief Edition*

A brief explanation of each of the chapters in this book follows:

**Chapter 1 – An Overview of Computer Concepts** Introduces the student to the fundamentals of a computer, including the information processing cycle. When the student completes the chapter, he or she will have a firm understanding of the basics of computer processing and will be ready for the more in-depth treatment of subjects in subsequent chapters.

**Chapter 2 – Computer Software Applications: User Tools** Provides a complete explanation of application software available on computers, with an emphasis on personal computer software that students are likely to use. Numerous examples of the use of software such as word processing, spreadsheets, database, presentation graphics, data communications, electronic mail, and others in a Windows 95 environment are included.

**Chapter 3 – Input to the Computer** Presents the manner in which data is entered into the computer for processing, with primary attention to personal computers. In addition to the keyboard and mouse, pointing devices, scanners, voice input, and other means of entering data into personal computers are closely examined.

**Chapter 4 – The System Unit** Offers a detailed look inside the system unit. Topics include the motherboard, processors, memory, ports, and other elements that make a personal computer run.

**Chapter 5 — Output from the Computer** Explores the many means for obtaining useful information from a computer, including printers, display devices, voice output, and plotters. Included is an explanation of the types of output from personal computers, such as reports, graphics, audio output, video output, multimedia, and virtual reality.

**Chapter 6 – Secondary Storage** Discusses the manner in which data is stored on a computer. Included are diskettes, hard disks, and cartridge tape systems, among others, together with an explanation of such storage issues as defragmentation and compression.

**Chapter 7 – Communications and Networks** Covers communications and networks from a user's perspective. All important subjects are explained, with a special emphasis on local area networks and personal computers.

**Chapter 8 – Operating Systems and System Software** Teaches students about operating systems such as Windows 95, OS/2, and DOS. A clear explanation of difficult subjects such as multitasking and multiprocessing contributes to a student's overall understanding.

**Special Features** Within the book, the special features sections provide an in-depth look at certain aspects of computers. The six special features are:

- The Evolution of the Computer Industry
- Making a Computer Chip
- The Internet
- How to Purchase, Install, and Maintain a Personal Computer

These contents, together with *In the Lab with Windows 95* and *Where on the Web* and other projects within this book, present a thorough course on computers and computer usage.

## Instructor's Support Package

The most comprehensive instructor's support package ever developed accompanies *Using Computers: A Gateway to Information, World Wide Web Brief Edition.* The elements of this package are as follows:

- **Annotated Instructor's Edition (AIE)** The AIE is designed to assist you with your lectures by suggesting transparencies to use, summarizing key points, proposing pertinent questions, offering important tips, and incorporating the answers to the student activities. The several hundred annotations in the AIE fall into three major categories:
  - **Teacher Notes** Suggest ways to convey an idea effectively; point beyond what is covered in the book; describe the latest uses of computers; explain misconceptions; include quotes, show and tell suggestions, and interesting sidelights
  - **Discussion Topics** Include questions to ask students that result in classroom discussion
  - **Transparency References** Recommend transparencies to use at key points in the lecture presentation
- **Instructor's Manual** The Instructor's Manual includes the following:
  - Detailed lesson plans, including objectives, overviews, and lecture outlines with transparency references for each illustration in each chapter of the book
  - Black and white transparency masters
  - A test bank of True/False, Multiple Choice, and Fill-in questions
  - A lesson plans and test bank diskette, called ElecMan, that includes the detailed lesson plans and test bank for customizing to each instructor's needs
  - Answers to all student activities
  - Black and white transparency masters for every drawing in the textbook and actual color transparencies of selected drawings for use in lectures
  - A lab solutions diskette that contains all the answers to the *In the Lab with Windows 95* and *Where on the Web* exercises in the book

- **Color Transparencies** One hundred of the figures and tables in the textbook are available as color transparencies with accompanying lecture notes.
- **MicroSWAT III** MicroSWAT III, a computerized test-generating system, is available free to adopters of any Shelly Cashman Series textbook. It includes all the questions from the test bank previously described. MicroSWAT III is an easy-to-use, menu-driven software package that provides instructors with testing flexibility and allows customizing of testing documents.
- **NetTest IV** NetTest IV, available at no cost, allows instructors to take a MicroSWAT III file made up of True/False and Multiple Choice questions and proctor a paperless examination in a network environment. The same questions display in a different order on each personal computer in the network. Students have the option of instantaneous feedback. Tests are electronically graded, and an item analysis is produced.
- **Video Tapes to Augment Lectures** Complimentary selections from the three series, *Computer Applications*, *The Machine That Changed the World*, and *The Computer Revolution*, are available to qualified adopters of *Using Computers: A Gateway to Information, World Wide Web Brief Edition.*
- **Multimedia Lecture Presentation System** The multimedia lecture presentation system was prepared specifically for use with *Using Computers: A Gateway to Information, World Wide Web Brief Edition*. The multimedia lecture presentation system is available on CD-ROM and includes chapter highlights, pictures, and more than one hour of video clips. The pictures and video clips can be viewed during lecture at the discretion of the instructor.

## Student Study Guide

This highly popular supplement contains completely new student activities to help solidify the concepts and techniques presented in the text. The Study Guide compliments the end-of-chapter material with short answer, fill-in, and matching questions and other challenging exercises.

## Acknowledgments

The Shelly Cashman Series would not be the most successful computer textbook series ever published without the contributions of outstanding publishing professionals. First, and foremost, among them is Becky Herrington, director of production and designer. She is the heart and soul of the Shelly Cashman Series, and it is only through her leadership, dedication, and untiring efforts that superior products are produced.

Under Becky's direction, the following individuals made significant contributions to this book: Ginny Harvey, series administrator and manuscript editor; Peter Schiller, production manager; Tracy Murphy, series coordinator; Nancy Lamm, proofreader; Sarah Evertson and Sarah Bendersky, photo researchers; Marilyn Martin, photo credits; and Cristina Haley, indexer.

Our sincere thanks go to Dennis Tani, who together with Becky Herrington, designed this book. In addition, Dennis performed all the layout and typography, executed the magnificent drawings contained in this book, designed the cover, and survived an impossible schedule with goodwill and amazing patience. We salute Dennis's superior work.

We appreciate the assistance of Kenneth Frizane, Harry Rosenblatt, and Althea Stevens in preparing the Annotated Instructor's Edition.

The efforts of our three contributing authors, John Repede, Misty Vermaat, and Tim Walker on the chapter ending material helped make this book extraordinary. As always, special recognition for a job well-done must go to Jim Quasney, who quarterbacked this book from its beginning to its final form. Thanks to Tom Walker, president and CEO of boyd & fraser publishing company, for his vision and support of this project.

We hope you find using this book an enriching and rewarding experience.

**Gary B. Shelly**
**Thomas J. Cashman**
**Gloria A. Waggoner**
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| | Microsoft Works 3.0 (also in spiral bound)* ı Microsoft Works 2.0 (also in spiral bound ) |
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| Windows | Microsoft Windows 95 |
| | Microsoft Windows 3.1 Introductory Concepts and Techniques |
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| | QBasic |
| | QBasic: An Introduction to Programming |
| | Structured COBOL Programming |
| Networking | Novell NetWare for Users |
| | Business Data Communications: Introductory Concepts and Techniques |
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| Networking<br>Internet | Novell NetWare for Users<br>The Internet: Introductory Concepts and Techniques (UNIX)<br>Netscape Navigator 2.0 Windows 95 Edition<br>Netscape Navigator 2.0 Windows 3.1 Edition<br>Netscape Navigator: An Introduction |

*Also available as a mini-module

# *Shelly Cashman Series Interactive Labs*

Each of the chapters in this book concludes with hands-on exercises, which consist of *In the Lab with Windows 95* and *Where on the Web*. The purpose of these hands-on exercises is to allow students to use computers so they learn firsthand how computers work. The exercises solidify and reinforce the computer concepts presented in each chapter in a way unparalleled in previous computer textbooks. Students completing these exercises will have a firm understanding of how to use computers with Windows 95 and Netscape Navigator.

Of particular interest in the section titled *In the Lab with Windows 95* are the Shelly Cashman Series Interactive Labs (below), which help students gain a better understanding of a specific subject covered in a chapter.

## Shelly Cashman Series Interactive Labs

| Lab | Function | Page |
|---|---|---|
| Using the Mouse | Master how to use a mouse. The Lab includes pointing, clicking, double-clicking, and dragging. | 1.30 |
| Using the Keyboard | Learn how to use the keyboard. The Lab discusses different categories of keys, including the edit keys, function keys, ESC, CTRL, and ALT keys, and how to press keys simultaneously. | 1.30 |
| Scanning Documents | Understand how document scanners work. | 3.30 |
| Understanding the Motherboard | Step through the components of the motherboard and build one by adding components. The Lab shows how different motherboard configurations affect the overall speed of a computer. | 4.33 |
| Setting Up to Print | See how information flows from the system unit to the printer and how drivers, fonts, and physical connections play a role in generating a printout. | 5.36 |
| Configuring Your Display | Recognize the different monitor configurations available, including screen size, display cards, and number of colors. | 5.36 |
| Maintaining Your Hard Drive | Understand how files are stored on disk, what causes fragmentation, and how to maintain an efficient hard drive. | 6.33 |
| Connecting to the Internet | Learn how a computer is connected to the Internet. The Lab presents using the Internet to access information. | 7.41 |
| Evaluating Operating Systems | Evaluate the advantages and disadvantages of different categories of operating systems. | 8.27 |
| Working at Your Computer | Learn the basic ergonomic principles that prevent back and neck pain, eye strain, and other computer-related ailments. | 8.27 |

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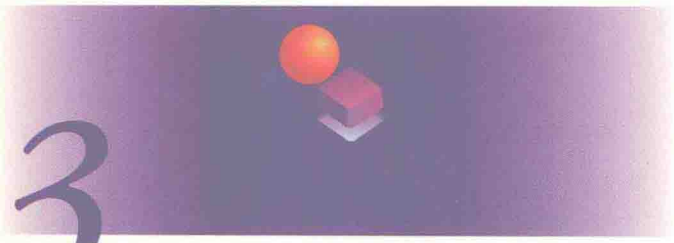

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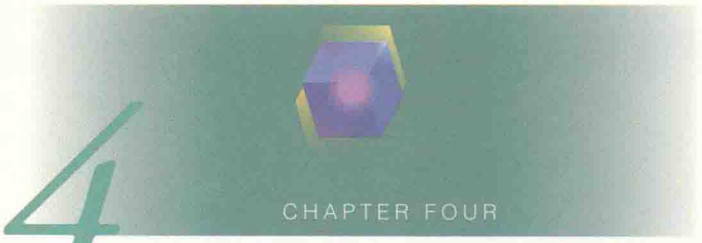

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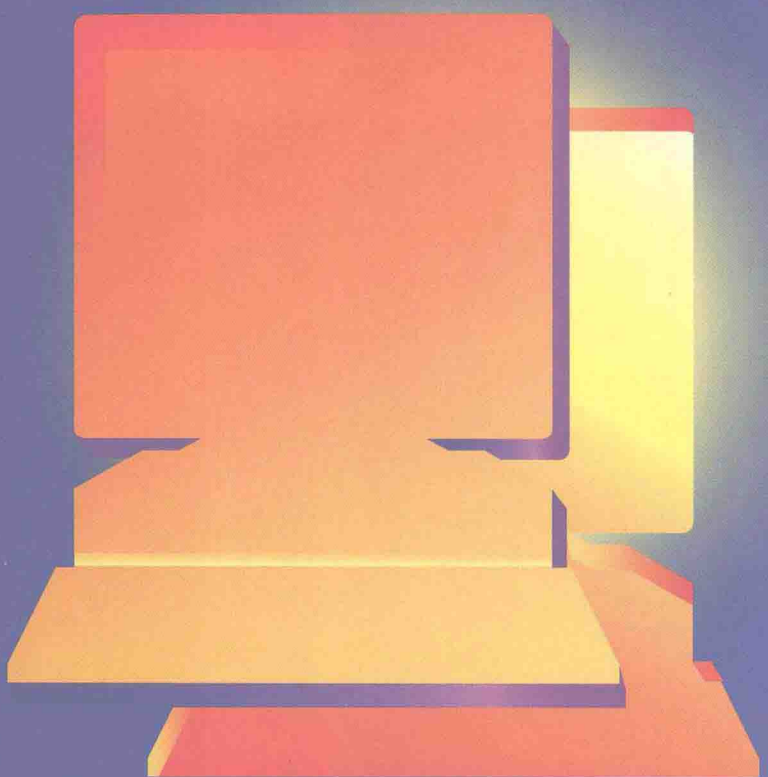
SPECIAL FEATURE

*How to Purchase, Install, and Maintain a Personal Computer* **8.29**

# An Overview of Computer Concepts

# 1



## Objectives

After completing this chapter, you will be able to:

- Define computer and information literacy
- Explain the four operations of the information processing cycle: input, process, output, and storage
- Explain how speed, reliability and storage make computers powerful tools
- Identify the major components of a computer
- Identify the categories of computers
- Explain the difference between system software and application software
- Describe how the six elements of an information system work together

*Computers play a key role in how individuals work and how they live. Today, even the smallest organizations have computers to help them operate more efficiently. Computers also affect people's lives in many unseen ways. Buying groceries at the supermarket, using an automated teller machine, or making a long-distance phone call all require using computers.*

*As they have for a number of years, personal computers continue to make an increasing impact on our lives. At home, at work, and in the field, these small systems help us do our work faster, more accurately, and in some cases, in ways that previously would not have been possible.*