计算机科学引论

（影印版）

Computing Essentials

● Timothy J. O'Leary

● Linda I. O'Leary

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Computing Essentials 2000—2001, Complete Edition

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出 版 说 明

本书是美国麦格劳•希尔(McGraw-Hill)出版公司出版的《Computing Essentials 2000—2001, Complete Editon》一书的影印版。原书自 1989 年以来每年都出一次新版，主要用作英语国家的计算机导论性教材。我社曾经影印过该书 1995—1996 和 1998—1999 的简写版，并作为计算机专业英语教材推荐给各高等学校使用，采用的学校普遍反映较好。本书是今年 5 月出版的最新版，内容做了全面更新，突出知识的先进性、实用性和 Internet 应用，并提供更为丰富的习题与思考题。

本书概括地介绍了计算机科学与信息技术的主要领域、各种应用及其对社会的影响。全书由 15 章和一些附录组成，主要内容包括：计算机概述；应用软件、系统软件以及各种软件的界面和功能（其中包括字处理、表处理、文稿演示、个人信息管理、Internet 浏览器、数据库管理系统、操作系统以及各种实用软件等）；信息表示与计算机系统的构成；输入输出及各种外部设备；程序设计与程序设计语言；数据库概述；信息系统的分析与设计；计算机网络与信息传输技术；Internet、WWW 及其应用；多媒体、网页设计、图形图像处理、虚拟现实、人工智能和项目管理等；与计算机有关的社会、道德、法律、安全和环境等问题，信息社会的人、技术、组织和职业；以及计算机发展简介，个人计算机购机及升级指南等。书中大量的图示、精心的版式设计，使各种概念、技术、设备等一目了然。每章之后附有综合性的图示小结、重要词汇和术语的列表、丰富的复习题、思考题和网上实习题等。

本书内容丰富新颖，叙述简练清楚，英语语言规范流畅。书中比较全面地覆盖了计算机科学与信息技术领域中基本的名词和术语，尤其是目前十分流行和最新的一些概念和词汇。因此，本书在使学生了解和掌握计算机及信息技术专业基础知识的同时，也有助于他们掌握相应的英文词汇，提高专业英语的阅读能力。本书既可作为计算机、信息管理及相关专业计算机导论课程的教材，也可作为相应专业的计算机英语教材。

随书附原版多媒体光盘一张，图文并茂，语音清楚纯正。内容包括网上练习与实践、案例学习与指导、PowerPoint 演示等，可辅助教师教学和学生练习。

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高等教育出版社

2000 年 5 月

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Introduction

The twentieth century not only brought us the dawn of the Information Age, but continued to bring us rapid changes in information technology. There is no indication that this rapid rate of change will be slowing—it may even be increasing. As we begin the 21st century, computer literacy will undoubtedly become prerequisite in whatever career a student chooses. The goal of *Computing Essentials, 2000–2001* edition is to provide students with the basis for understanding the concepts necessary for success in the Information Age. *Computing Essentials* also endeavors to instill in students an appreciation for the effect of information technology on people and our environment, and a basis for building the necessary skill set to succeed in this new, 21st century.

About the Authors

Tim and Linda O'Leary live in the American Southwest and spend much of their time engaging instructors and students in conversation about learning. In fact, they have been talking about learning for over 25 years. Something in those early conversations convinced them to write a book, to bring their interest in the learning process to the printed page. Today, they are as concerned as ever about learning, about technology, and about the challenges of presenting material in new ways, both in terms of content and the method of delivery.

A powerful and creative team, Tim combines his years of classroom teaching experience with Linda's background as a consultant and corporate trainer. Tim has taught courses at Stark Technical College in Canton, Ohio, Rocherster Institute of Technology in Upper New York state, and is currently a professor at Arizona State University in Tempe, Arizona. Tim and Linda have talked to and taught students from 8 to 80, all of them with a desire to learn something about computers and the applications that make their lives easier, interesting, and more productive.

Each new edition of an O'Leary text, supplement, or learning aid has benefited from these students and their instructors who daily stand in front of them (or over their shoulders). *Computing Essentials, 2000–2001* edition is no exception.

About Our Book

Times are changing, technology is changing, and this text is changing too. Do you think the students of today are different from yesterday? Mine are and I'll wager that yours are as well. On the positive side, I am amazed how much effort students put toward things that interest them and things they are convinced are relevant to them. Their effort directed at learning application programs and exploring the Web seems at times limitless. On the other hand, it is difficult to engage them in other equally important topics such as personal privacy and technological advances.

I've changed the way I teach and this book reflects that. I no longer *lecture* my students about how important certain concepts like microprocessors, input devices, and utility programs are. Rather, I begin by *engaging* their interest by presenting practical tips related to the key concepts, by *demonstrating* interesting applications that are relevant to their lives, and by *focusing* on outputs rather than processes. Then, I *discuss* the concepts and processes.

Motivation and relevance are the keys. This text has several features specifically designed to engage students and to demonstrate the relevance of technology in their lives. These elements are combined with a thorough coverage of the concepts and sound pedagogical devices.

XIX
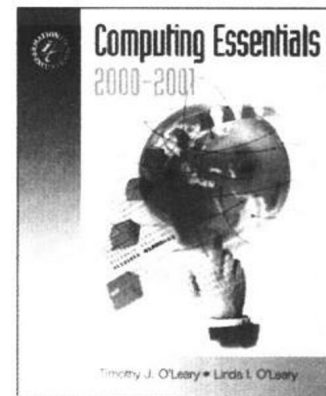
What's New in this Edition?

- Reorganization of the early chapters of the text to allow for greater coverage of applications as well as system software.

- Chapter 2 now includes coverage of word processing, spreadsheets, databases, presentation graphics, integrated packages and suites, and browsers. The chapter emphasizes the features of the various programs and the output of each program.

- An exciting addition to our software coverage is a series of four, full-color pull-out guides that illustrate how each program works.

- Chapter 3 focuses on system software, including Windows 2000, Norton Utilities, and Outlook.

- One of the most significant enhancements to this edition is the integration of a three-level approach to learning in both the text and the supplements. Based upon a proven learning model, this three-level format is engineered to help students take ownership of the text material.

  > **Level 1** questions and exercises test recall of the basic information and terminology in the chapter.
  > **Level 2** questions and exercises review students' understanding of concepts and ability to integrate ideas presented in different parts of the chapter.
  > **Level 3** questions and exercises test students' critical thinking skills and ability to apply the concepts they have mastered to solve problems.

- Within the text material, we have incorporated new pedagogical features that follow the three-level approach and enhance both instruction and learning.

  ✔ In-text Concept Checks serve to reinforce text material by calling upon students to recall facts and concepts relating to what they have just read.

- Making IT Work is a new feature that visually demonstrates how technology is applied in our everyday lives. Topics covered include TV Tuner Cards; Voice Recognition Systems; Music from the Internet; Home Networks; Instant Messaging; and Finding Jobs Online. These "gallery" style boxes combine text and art to take students step-by-step through technological processes that are both interesting and useful.

- The end of chapter material has been significantly revised in this edition. *Computing Essentials, 2000–2001* contains many more opportunities for students to test their knowledge. To facilitate student learning, the **Chapter Review** follows the three-level approach described above.

  > **Level 1** includes matching, true/false, multiple choice, and completion exercises.
  > **Level 2** includes short answer and concept mapping exercises.
  > **Level 3** includes critical thinking questions and problems.

- The **Testbank** follows the same three-level approach that is introduced in the text to provide a valuable testing and reinforcement tool. Each question is assigned a category: **Level 1**, definition, **Level 2** concept, and **Level 3** application. Also included are a text page reference and a rational for each question and answer.

For each chapter, the student **Online Learning Center** offers both a review of the text material, in the form of an **e-learning session,** and additional exercises organized around the following themes: Group/team projects, Internet/Web-related content, mini case studies of actual companies, and profiles of careers that are influenced by information technology. The content and activities for the exercises further establish O'Leary's three-level learning approach.

Resources for Instructors

We understand that, in today's teaching environment, offering a textbook alone is not sufficient to meet the needs of the many different instructors who use our books. To teach effectively, instructors must have a full complement of supplemental resources to assist them in every facet of teaching from preparing for class; to conducting and lecture; to assessing students' comprehension. *Computing Essentials, 2000–2001* offers a complete, fully integrated supplements package, as described below.

Instructor's Resource Kit

The Instructor's Resource Kit contains a printed Instructor's Manual and a CD-ROM containing the Instructor's Manual in both MS Word and .pdf formats; PowerPoint slides; and Brownstone's Diploma test generation software; and accompanying test item files for each chapter. The distinctive features of each component of the Instructor's Resource Kit are described below.

- **Instructor's Manual** The Instructor's Manual contains a schedule showing how much time is required to cover the material in the chapter; a list of the chapter competencies; tips for covering difficult material; and answers to the Concept Checks. Also included are references to corresponding topics on the Interactive Companion CD-ROM, answers to all the exercises in the Chapter Review section and answers to the On the Web Exercises. The manual also includes a helpful introduction that explains the features, benefits, and suggested uses of the IM and an index of concepts and corresponding competencies.

- **PowerPoint Presentation** Prepared by Alfred Zimermann of the University of Hawaii, the PowerPoint presentation is designed to provide instructors with a comprehensive resource for use during lecture. It includes a review of key terms and definitions, figures from the text, along with several new illustrations, anticipated student questions with answers, and additional resources which can be accessed in Internet-enabled classrooms. Also included with the presentation are comprehensive speaker's notes.

- **Testbank** The *Computing Essentials 2000–2001* edition testbank contains over 3,000 questions

categorized by level of learning (definition, concept, and application). This is the same learning scheme that is introduced in the text to provide a valuable testing and reinforcement tool. The test questions are identified by text page number to assist you in planning your exams, and rationales for each answer are also included. Additional test questions, which can be used as pretests and posttests in class, can be found on the Online Learning Center, accessible through our supersite (www.mhhe.com/it).

Business Week Edition of Computing Essentials

An exciting new supplement with this edition of *Computing Essentials* is our *Business Week Edition.* With the purchase of a *Business Week Edition* of an Irwin/McGraw-Hill textbook, students will receive a 15-week subscription to *Business Week* for only $8.25 more than the price of the book alone. Professors who adopt the Business Week Edition will enjoy a complimentary subscription for a full year to *Business Week* magazine and complimentary access to the Business Week Resource Center Web site as well as Business Week Online through the duration of their subscription.

Students will also enjoy free access to the Business Week Resource Center Web site (www.resourcecenter.businessweek.com) for the duration of their magazine subscription. The Business Week Resource Center Web site contains a wealth of supplemental materials, including the Business Week Online Archives. Students will have instant access to any business topic from the past nine years of *Business Week*—from 1991 to 1999. From the Resource Center, students may also access Business Week Online (www.businessweek.com) for current issues, online-only features, and career tips. Access to these sites provides a marvelous opportunity to increase students' Internet literacy as instructors explore new ways to integrate the Web into a wide array of student exercises and research projects.

Interactive Companion CD-ROM

This free student CD-ROM, designed for use in class, in the lab, or at home by students and professors alike includes a collection of interactive tutorial labs on some of the most popular topics in information technology. By combining video, interactive exercises, animation, additional content, and actual "lab" tutorials, we expand the reach and scope of the textbook.

Digital Solutions to Help You Manage Your Course

PageOut—PageOut is our Course Web Site Development Center that offers a syllabus page, URL, McGraw-Hill Online Learning Center content, online exercises and quizzes, gradebook, discussion board, and an area for student Web pages. For more information, visit the PageOut Web site (www.mhla.net/pageout).

Online Learning Centers—The Online Learning Center that accompanies *Computing Essentials* is accessible through our Information Technology Supersite (www.mhhe.com/it). This site provides additional learning and instructional tools developed using the same three-level approach found in the text and supplements. This offers a consistent method for students to enhance their comprehension of the concepts presented in the text.

Online Courses Available—OLCs are your perfect solutions for Internet-based content. Simply put, these Centers are "digital cartridges" that contain a book's pedagogy and supplements. As students read the book, they can go online and take self-grading quizzes or work through interactive exercises. These also provide students appropriate access to lecture materials and other key supplements.

Online Learning Centers can be delivered through any of these platforms:

McGraw-Hill Learning Architecture (TopClass)

Blackboard.com

ECollege.com (formally Real Education)

WebCT (a product of Universal Learning Technology)

O'Leary Series Applications Lab Manuals

Available separately, or packaged with *Computing Essentials* is the O'Leary Series computer applications lab manuals for Microsoft Office. The O'Leary Series offers a step-by-step approach to developing computer applications skills and is available in both brief and introductory levels. The introductory level manuals are MOUS Certified and prepare students for the Microsoft Office User Certification Exam.

Skills Assessment

Irwin/McGraw-Hill offers two innovative systems to meet your skills assessment needs. These two products are available for use with any of our applications manual series.

ATLAS (Active Testing and Learning Assessment Software)—Atlas is one option to consider for an application skills assessment tool from McGraw-Hill. Atlas allows students to perform tasks while working live within the Microsoft applications environment. Atlas provides flexibility for you in your course by offering:

- Pre-testing options
- Post-testing options
- Course placement testing
- Diagnostic capabilities to reinforce skills
- Proficiency testing to measure skills

ATLAS is Web-enabled, customizable, and is available for Microsoft Office 2000.

SimNet (Simulated Network Assessment Product)—SimNet is another option for a skills assessment tool that permits you to test students' software skills in a simulated environment. SimNet is available for Microsoft Office 97 (deliverable via a network) and Microsoft Office 2000 (deliverable via a network and the Web). SimNet provides flexibility for you in your course by offering:

- Pre-testing options
- Post-testing options
- Course placement testing
- Diagnostic capabilities to reinforce skills
- Proficiency testing to measure skills

PowerWeb for Concepts

PowerWeb is an exciting new online product available for *Computing Essentials 2000–2001*. A nominally priced token grants students access through our Web site to a wealth of resources—all corresponding to the text. Features include an interactive glossary; current events with quizzing, assessment, and measurement options; Web survey; links to related text content; and WWW searching capability via Northern Lights, an academic search engine.

Student's Guide to the O'Leary Learning System

At the end of last semester, some of my students stopped by my office to say they enjoyed the class and that they "learned something that they could *actually* use." High praise indeed for a professor! Actually, I had mixed feelings. Of course, it felt good to learn that my students enjoyed the course. However, it hurt a bit that they were *surprised* that they learned something useful.

Here's my promise to you: *In the following pages you will find things that you can actually use now as well as provide a foundation to understand future technological advances.*

As you read the text, notice the "Tips" scattered throughout the book. These tips offer suggestions on a variety of topics from the basics of cleaning a monitor to how to make your computer run faster and smoother. Also, notice the "Making IT Work for You" sections that demonstrate some specific computer applications you might find interesting. For example, one demonstrates how to capture and use television video clips for electronic presentations and another shows how to capture, save, and play music from the Internet.

Many learning aids are built into the text to ensure your success with the material and to make the process of learning rewarding. On the pages that follow, we call your attention to the key features in the text. We also show you supplemental materials, such as the student Online Learning Center, that you should take advantage of to ensure your success in this course.

CHAPTER 8

The Internet and the Web

COMPETENCIES

After you have read this chapter, you should be able to:

1. Describe Internet providers, connections, and protocols.
2. Discuss e-mail, mailing lists, newsgroups, and chat groups.
3. Describe Internet services: Telnet, FTP, Gopher, and the Web.
4. Describe electronic commerce including Web storefronts, electronic payment options, and Web auctions.
5. Discuss browsers, Web pages, and Web portals.
6. Compare the two types of search tools: indexes and search engines.
7. Discuss the two types of Web utilities: plug-ins and helper applications.
8. Describe intranets, extranets, and firewalls.

W‍ant to communicate with a friend across town, in another state, or even in another country? Perhaps you would like to send a drawing, a photo, or just a letter. Looking for travel or entertainment information? Perhaps you're researching a term paper or exploring different career paths. Where do you start? For these and other information-related activities, try the Internet and the Web. They are the 21st-century information resources designed for all of us to use.

The Internet is like a highway that connects you to millions of other people and organizations. Unlike typical highways that move people and things from one location to another, the Internet moves your *ideas* and *information*. Rather than moving through geographic space, you move through cyberspace—the space of electronic movement of ideas and information. The Web provides an easy-to-use, exciting, multimedia interface to

Visual Chapter Openers

Each chapter begins with a unique presentation of text and graphics that introduces you to the key concepts in the chapter. A list of competencies will help you structure your reading of the chapter and keep you focused on the key points.

172

Netscape Netcenter.

Browsers

Key Terms

Throughout the text, the most important terms are presented in bold type and are defined within the text. You will also find a list of key terms at the end of each chapter and in the glossary at the end of the book.

Electronic Commerce 185

Term	Description
FAQ	Frequently asked question
Flaming	Insulting, putting down, or attacking
Lurking	Reading news but not joining in to contribute
RFD	Request for discussion
Saint	Someone who aids new users by answering questions
Thread	A sequence of ongoing messages on the same subject

FIGURE 8-12
Selected discussion group terms

Terms

Before you submit a contribution to a discussion group, it is recommended that you observe or read the communications from others. This is called **lurking.**

By lurking, you can learn about the culture of a discussion group. For example, you can observe the level and style of the discussions. You may decide that a particular discussion group is not what you were looking for— in which case, unsubscribe. If the discussions are appropriate and you wish to participate, try to fit into the prevailing culture. Remember that your con-tributions will likely be read by hundreds of people.

For a list of some other commonly used discussion group terms, see Figure 8-12.

CONCEPT CHECK

✔ Give examples of the types of discussion groups you can find on the Internet.

✔ What is the most popular chat service on the Internet?

Electronic Commerce

Electronic commerce is buying and selling over the Internet. Web storefronts offer goods and services. Electronic payment options include check, credit card, and electronic cash.

Electronic commerce, also known as e-commerce, is the buying and selling of goods over the Internet. Have you ever bought anything over the Internet? If you have not, there is a very good chance that you will with-in the next year or two. Shopping on the Internet is growing rapidly and there seems to be no end in sight. (See Figure 8-13.)

Web Storefronts

Web storefronts are virtual stores where shoppers can go to inspect mer-chandise and make purchases. (See Figure 8-14.) A new type of program

TIPS What if you don't know or have forgotten someone's e-mail address? You can go to e-mail address directories, also known as e-mail "white pages." These directories can be used much like you would use the telephone white pages. Here are three e-mail address directories you might try:

www.bigfoot.com

www.people.yahoo.com

www.infospace.com

Tips
Tips offer practical and timely advice on a variety of topics related to computers and information technology. These tips answer your questions about how to clean your mouse; how to protect your privacy on the Web; and what to do to avoid catching a virus (a computer virus, that is!).

ON THE WEB EXPLORATIONS

All kind of IPSs and online service providers offer e-mail service to their customers. But you can get this service for free from Hotmail, Juno, Online Services, USA Net Inc., and Yahoo. To learn more about free e-mail service, visit one or more of the following sites:

http://www.hotmail.com
http://www.juno.com
http://www.sus.net
http://www.yahoo.com

On the Web Explorations
Throughout each chapter, you will notice On the Web Explorations notes that encourage you to visit well-established and informative sites to learn more about topics presented.

Concept Checks
These questions, located at the end of major sections in each chapter, encourage you to stop and assess your understanding of the concepts you have read in the preceding section. The questions are designed to be answered quickly and easily. If the questions seem difficult, you should probably review that material before continuing.
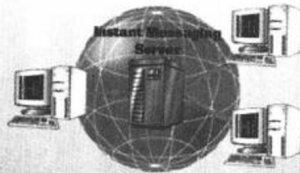
Instant Messaging

Although **instant messaging** has been around for a while, it has recently become much more popular as a tool for communicating and collaborating with others. Like chat groups, instant messaging allows one or more people to communicate via direct, "live" communication. Instant messaging, however, provides greater control and flexibility than chat groups.

To use instant messaging, you specify a list of friends, or "buddies," and register with an instant messaging server. Whenever you connect to the Internet, you use special software to tell your messaging server that you are online too. It notifies you if any of your buddies are online. At the same time, it notifies your buddies that you are online. You then can then send messages back and forth to one another instantly.

MAKING IT WORK FOR YOU

Instant Messaging

Do you enjoy chatting with your friends? Are you working on a project and need to collaborate with others in your group? Perhaps instant messaging is just what you're looking for. It's easy and free with an Internet connection and the right software.

How It Works

The instant messaging server maintains a list of all registered users. When a user goes online and signs in, his or her account is activated and the server supports direct "live" communication among buddies.

Getting Started

The first step is to connect to one of the many Web sites that support instant messaging. Once at the site, register, download, and install instant messaging software, and create your buddy list.

For example, you can set up AOL Instant Messenger as shown below.

1. Enter aim.aol.com in the Location box of your browser.

2. Select the link to register as a new user.

3. Complete the registration form.

4. After installing the instant messaging software, create your "buddy list."

Making IT Work

Making IT Work is a new feature that visually demonstrates how technology is used in our everyday lives. Topics covered include TV Tuner Cards; Voice Recognition Systems; Music from the Internet; Home Networks; Instant Messaging; and Finding Jobs Online. These "gallery" style boxes combine text and art to take you step-by-step through technological processes that are both interesting and useful.

Database Administrator

Librarians have had to be trained in the use of electronic databases so that they can help their corporate users. However, corporate databases of all sorts—not just those in the library—have become extremely important. Hence, many large organizations employ a **database administrator (DBA)**. He or she helps determine the structure of the large databases and evaluates the performance of the DBMS. For shared databases, the DBA also determines which people have access to what kind of data; these are called **processing rights**. In addition, the DBA is concerned with such significant issues as security, privacy, and ethics.

CONCEPT CHECK

✔ What are some of the security concerns involved with databases?

✔ Why might an organization need a database administrator?

A Look to the Future
These boxes involve interesting discussions about future trends in information technology and their effect on our lives.

A LOOK TO THE FUTURE

The Internet on Wheels from Mercedes Benz is a leader in smart cars.

Did you see Bruce Willis's futuristic airborne taxi in *The Fifth Element*? Imagine a car that operates on its own, flies, has rocket boosters, monitors traffic conditions and weather, and entertains us as we travel. In the 21st century, smart cars may well look and act a lot like Bruce Willis's taxi . . . hopefully more sleek and efficient but just as smart.

Of course, none of today's cars can do all those things. But you can expect more cars that navigate themselves and surf the Internet in the near future. Several car makers offer global positioning systems (GPSs) that combine large databases of streets, highways, and interchanges with satellite communications. These GPSs precisely track a vehicle as it travels to its destination. You can obtain specific directions and navigational advice without ever leaving your car.

Daimler-Benz, maker of Mercedes Benz cars, recently unveiled a concept car dubbed The Internet Multimedia on Wheels. This smart car allows occupants to access the Internet from most locations in Europe and North America. They foresee a day when you will be able to access Internet-based roadside services that will diagnose car problems remotely as well as deliver traffic advisories and headline news.

When will these smart cars be available? Don't expect to see any Internet applications in your sedan anytime soon. Most observers predict that it will be 10 years away. However, many of the other applications are already here, and more are on their way.

VISUAL SUMMARY The Internet and the Web

INTERNET APPLICATIONS

The most common Internet applications include com-municating, **shopping, researching,** and enter-tainment.

ACCESS

Once connected to the Internet, your computer seem-ingly becomes an extension of a giant computer that branches all over the world.

Providers
The most common access is through a **provider** or **host computer.** Three widely used providers are:
* **Colleges and universities**—often offer free Internet access through their LANs.
* **Internet service providers (ISPs)**—offer access for a fee.
* **Online service providers**—offer access and a variety of other services for a fee.

Connections
To access the Internet, you need to connect to a provider. Three types of connections are **direct (ded-icated), SLIP** and **PPP,** and **Terminal.**

TCP/IP
TCP/IP is a standard **protocol** of the Internet.
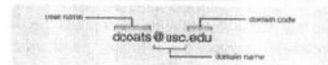
E-MAIL

Sending and receiving **e-mail** is the most common Internet activity.

Basic Elements
E-mail messages have three basic elements.
* **Header**—contains the **subject, address,** and **attachment information.**
* **Message**—should be short and to the point.
* **Signature**—often includes sender's name, address and telephone number.

Addresses
The Internet uses the **domain name system (DNS)** for e-mail. The first part is the **user** name, followed by the **domain name,** and then the **domain code.**

DISCUSSION GROUPS

Discussion groups support electronic communica-tion between individuals. Three types exist:
* **Mailing lists** use e-mail **subscription addresses** to join and **list addresses** to communication to every member
* **Newsgroups** are organized by major topic areas and use e-mail on the UseNet network to allow users to check contributions of interest
* **Chat groups** do not use e-mail and allow direct "live" communication.

Visual Summaries

Visual Summaries incorporate text and graphics to provide you with a dynamic review of all the material presented in the chapter. The Visual Summary also serves as a useful text reference.

Chapter Review

The Chapter Review now follows a three-level format and includes exercises that reinforce a review of terms, a review of concepts, and application of concepts. This is achieved through various types of questions and exercises including matching; true/false; multiple choice; completion; short answer; concept matching; and critical thinking.

Level 1 questions and exercises help you test your recall of the basic information and terminology in the chapter.

200

Chapter Review

COMPUTING 2000 2001 ESSENTIALS

LEVEL 1

Reviewing Facts and Terms
Matching

Match each numbered item with the most closely related lettered item. Write your answers in the spaces provided.

1. The space of electronic movement of ideas and information. ____
2. The standard protocol for the Internet. ____
3. Security system designed to protect an organization's network against external threats. ____
4. Special software used by your computer to access the Web. ____
5. Identifies a unique person or computer at the listed domain. ____
6. Programs that are automatically uploaded and operate as part

a. Applets
b. Browser
c. Cyberspace
d. DNS
e. E-commerce
f. Firewall
g. HTML
h. Hyperlinks
i. Intranet
j. Java
k. Mailing list
l. Packet

202 **CHAPTER 8 The Internet and the Web**

Level 2 questions and exercises help you review your understanding of concepts and your ability to integrate ideas presented in different parts of the chapter.

Reviewing Concepts

COMPUTING 2000 2001 ESSENTIALS

LEVEL 2

Open-Ended

On a separate sheet of paper, respond to each question and statement.

1. Discuss four frequently used Internet services.
2. Describe how addresses are assigned under the domain name system.
3. What are the two types of Internet search tools? How do they differ?
4. Describe some typical Web utilities and how they can help you.
5. Discuss the similarities and differences between intranets and extranets.

Concept Mapping

Draw a concept map or a flow chart showing how the following terms are related. Be sure to show all relationships. Include any additional terms you can think of.

applets	FTP	plug-ins
browsers	host computer	TCP/IP
chat groups	HTML	Telnet
cyberspace	hyperlinks	uploading/downloading
e-mail	intranets	Web site
end user	ISP	World Wide Web
firewall	mailing lists	

Critical Thinking Questions and Projects

LEVEL 3

Read each exercise and answer the related questions on a separate sheet of paper.

1. *Going on an Internet scavenger hunt:* Use the Internet to find information about the following topics. (Record the URLs where you found the information, and write a short description of your findings.)
   a. Hotels in London
   b. Cast members for one of your favorite television programs
   c. MTV's news for this week
   d. Employment opportunities in a career of your choice
   e. Painting as the *Mona Lisa*
   f. The weather conditions for your city (or the nearest large city)

Level 3 questions and exercises test your critical thinking skills and ability to apply the concepts you have mastered to solve problems.

XXX

On the Web Exercises

1. Off-Line Browsing

Off-line browsing offers a great promise of increased productivity. What could be better than to have your computer searching the Web for you while you sleep? To learn more about off-line browsing, visit our site at http://www. mhhe.com/cit/concepts/oleary2000-2001/webex8.html to link a site that specializes in off-line browsing. Once connected, explore and learn more about off-line browsing. Print out the most informative Web page you find and write a brief paragraph summarizing the pros and cons of off-line browsing.

2. E-Cash

Several companies, including CyberCash and DigiCash, are working on different variations of e-cash. Visit our site at http://www.mhhe.com/cit/concepts/oleary2000-2001/webex8.html to link to a site that specializes in e-cash. Once connected, explore and learn more about e-cash and its alternatives. Print out the most informative Web page you find and write a brief paragraph describing how e-cash works.

3. Searching

Finding relevant information quickly on the Web can be both rewarding and frustrating. Each search tool is a unique resource. Knowing which search tool to use and how to use it can save you a lot of time. To learn more about the different search tools and search techniques, visit the Yahoo site at http://www.yahoo.com and look at the subject area "Computers and Internet: Internet: Searching the Net: World Wide Web." Explore and learn more about different search tools and search techniques. Print out the Web page you find the most informative, and write a brief paragraph describing what you learned.

4. Adventure Tours

Travel to exotic places around the world without ever leaving home. To do this, visit our site at http://www.mhhe.com/cit/concepts/oleary2000-2001/webex8.html to link to a site specializing in exotic virtual travel. Once connected to the site, explore and learn more about adventure tours. Print out the Web page you find the most informative, and write a brief paragraph describing a virtual tour and discuss what you think the future is for this type of activity.

On the Web Exercises

An extension of the in-text On the Web Exercises, the On the Web Exercises present thought-provoking questions that require you to access the Web and are designed to demonstrate the quantity and quality of information available on the Internet.

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HOME   CIT   MIS

Binary Numbers Lab

Concept: Making numbers from binary
DIGI available!
Detail: Places are bases.

0 1 0 1 0 0 1 1   Set swit t repr g

Reset   Oops...better try again

Finally, to round it out, each "place" is the base, raised to the place location, remember? So, in decimal, the ones place is 10^0, the tens is 10^1, hundreds is 10^2, thousands is 10^3, and so on.

Of course, it's the same in the binary:
ones is 2^0; twos is 2^1, fours is 2^2; $8 = 2^3$; $16 = 2^4$; $32 = 2^5$; $64 = 2^6$; $128 = 2^7$.

Interactive Companion CD-ROM
Use this free CD-ROM to explore some of the most popular topics in information technology. Video, interactive exercises, animation and actual 'labs" expand the reach and scope of the textbook.