计算机专业英语

—Computing Essentials

(2008影印版)

Timothy J. O'Leary
Linda I. O'Leary

高等教育出版社
Education

计算机专业英语

——Computing Essentials(2008 影印版)

Timothy J. O'Leary
Linda I. O'Leary

高等教育出版社
Higher Education Press

图字：01-2008-0491 号

Timothy J. O'Leary, Linda I. O'Leary

Computing Essentials 2008: Introductory Edition

原版 ISBN：0-07-329468-3

Copyright © 2008 by The McGraw-Hill Companies, Inc.

Original language published by The McGraw-Hill Companies, Inc. All rights reserved. No part of this publication may be reproduced or distributed by any means, or stored in a database or retrieval system, without the prior written permission of the publisher. Authorized English language reprint edition jointly published by McGraw-Hill Education(Asia)Co. and Higher Education Press. This edition is authorized for sale in the People's Republic of China only, excluding Hong Kong, Macao SARs and Taiwan areas. Unauthorized export of this edition is a violation of the Copyright Act. Violation of this Law is subject to Civil and Criminal Penalties.

本书英文影印版由高等教育出版社和美国麦格劳-希尔教育出版(亚洲)公司合作出版。此版本仅限在中华人民共和国境内(不包括中国香港、澳门特别行政区和中国台湾地区)销售。未经许可之出口，视为违反著作权法，将受法律之制裁。

未经出版者预先书面许可，不得以任何方式复制或抄袭本书的任何部分。

本书封面贴有 McGraw-Hill 公司防伪标签，无标签者不得销售。

图书在版编目(CIP)数据

计算机专业英语 = Computing Essentials 2008: Introductory Edition/(美)奥利里(O'Leary, T. J.)，(美)奥利里(O'Leary, L. I.)编. —影印本. —北京：高等教育出版社，2008.4

ISBN 978-7-04-023119-9

Ⅰ. 计… Ⅱ. ①奥…②奥… Ⅲ. 电子计算机-英语 Ⅳ. H31

中国版本图书馆 CIP 数据核字(2008)第 021367 号

策划编辑 武林晓　　**责任编辑** 张海波　　**封面设计** 李卫青

版式设计 范晓红　　**责任印制** 尤　静

出版发行	高等教育出版社	**购书热线**	010-58581118
社　　址	北京市西城区德外大街 4 号	**免费咨询**	800-810-0598
邮政编码	100011	**网　　址**	http://www.hep.edu.cn
总　　机	010-58581000		http://www.hep.com.cn
		网上订购	http://www.landraco.com
经　　销	蓝色畅想图书发行有限公司		http://www.landraco.com.cn
印　　刷	北京铭成印刷有限公司	**畅想教育**	http://www.widedu.com
开　　本	850×1168　1/16	**版　　次**	2008 年 4 月第 1 版
印　　张	23.75	**印　　次**	2008 年 4 月第 1 次印刷
字　　数	410 000	**定　　价**	36.00 元(含光盘)

本书如有缺页、倒页、脱页等质量问题，请到所购图书销售部门联系调换。

版权所有　侵权必究

物料号　23119-00

郑重声明

高等教育出版社依法对本书享有专有出版权。任何未经许可的复制、销售行为均违反《中华人民共和国著作权法》，其行为人将承担相应的民事责任和行政责任，构成犯罪的，将被依法追究刑事责任。为了维护市场秩序，保护读者的合法权益，避免读者误用盗版书造成不良后果，我社将配合行政执法部门和司法机关对违法犯罪的单位和个人给予严厉打击。社会各界人士如发现上述侵权行为，希望及时举报，本社将奖励举报有功人员。

反盗版举报电话：(010)58581897/58581896/58581879

传　　真：(010)82086060

E - mail：dd@ hep. com. cn

通信地址：北京市西城区德外大街 4 号
高等教育出版社打击盗版办公室

邮　　编：100011

购书请拨打电话：(010)58581118

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 2008, Introductory Edition 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。我社曾经影印过本书的 1995—1996 版、1998—1999 版和 2002—2003 版，主要用作高等学校计算机专业英语教材，采用的学校普遍反映较好。本书是今年出版的新版，在内容上做了全面更新，突出了知识的先进性、系统性和教学的实践性，并提供了更为丰富的习题和在线学习功能。

本书概括地介绍了计算机与信息技术的常见概念和术语、主要应用领域及其对社会的影响。全书由 11 章和附录组成，主要内容包括：信息技术概述；因特网、万维网与电子商务；应用软件；系统软件；硬件系统；输入/输出设备；存储设备；通信与网络；隐私与安全；信息技术展望等。书中含有大量丰富的图片，用于说明计算机及各种技术、设备的结构、原理和组成，使各种技术、概念和术语一目了然。每章之后附有未来展望、综合性的图示小结、关键词和术语列表、习题、技术应用、知识扩展、自制文档等丰富的实践内容。

本书内容丰富新颖，叙述简练清楚，形式生动活泼，英语语言规范流畅。书中比较全面地覆盖了计算机与信息技术领域中的基本名词和术语，尤其是目前十分流行和最新的一些概念和词汇。因此，本书既有助于读者了解和掌握计算机及信息技术基础知识，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。本书可作为计算机及信息技术相关专业的计算机专业英语教材，也可作为相应专业的计算机导论教材。

本书配有非常丰富的教学资源，包括教师手册、PPT、在线测试、辅助教学的多媒体资源等。使用本书的教师可以通过麦格劳－希尔教育出版集团北京办事处的免费服务热线(800－810－1936－108)获得相关资源。

本书中凡所提及页码、章节号及叙述内容等超出本书范围的，请参阅《计算机科学引论(2008 影印版)》(Timothy J. O'Leary, Linda I. O'Leary, 高等教育出版社出版, 书号为 978－7－04－023967－6)。

高等教育出版社

2007 年 12 月

此为试读，需要完整PDF请访问：www.ertongbook.com

PREFACE

The 20th century brought us the dawn of the digital information age and unprecedented 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 is undoubtedly becoming a prerequisite in whatever career you choose.

The goal of *Computing Essentials* is to provide you with the basis for understanding the concepts necessary for success. *Computing Essentials* also endeavors to instill an appreciation for the effect of information technology on people and our environment and to give you a basis for building the necessary skill set to succeed in this the 21st century.

Times are changing, technology is changing, and this text is changing too. As students of today, you are different from those of yesterday. You put much effort toward the things that interest you and the things that are relevant to you. Your efforts directed at learning application programs and exploring the Web seem, at times, limitless. On the other hand, it is sometimes difficult to engage in other equally important topics such as personal privacy and technological advances.

In this text, we present practical tips related to key concepts through the demonstration of interesting applications that are relevant to your lives and by focusing on outputs rather than processes. Then, we discuss the concepts and processes.

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

We have specifically designed the end-of-chapter materials to this text to meet the different needs of students and instructors. In addition to the traditional end-of-chapter review materials, you will find three unique categories: (1) Applying Technology is designed to help students gain a better understanding of how the technology covered in a particular chapter is used today, (2) Expanding Your Knowledge offers a deeper understanding to topics covered in that particular chapter, and (3) Writing About Technology provides the opportunity to hone essential writing skills while learning about technology issues relating to privacy, security, and ethics.

This table offers a glimpse of the unique coverage you can find at the end of each chapter.

END-OF-CHAPTER COVERAGE

Chapter	Applying Technology	Expanding Your Knowledge	Writing About Technology
1	TV Tuner Cards and Video Clips (p. 176) Digital Video Editing (p. 98) Home Networking (p. 273) Job Opportunities (p. 331)	How Virus Protection Programs Work (p. 146) How Digital Cameras Work (p. 210) How Internet Telephones Work (p. 210) How Wireless Home Networks Work (p. 274)	HTML Source Code (p. 119) Antitrust (p. 147) Electronic Monitoring (p. 275) Processor Serial Numbers (p. 178)
2	Blocking Spam (p. 57) Online Shopping (p. 57) Web Auctions (p. 57)	How Spam Filters Work (p. 58) How Instant Messaging Works (p. 58) Domain Registrations (p. 58)	Free Speech Online (p. 59) Dot-Bombs (p. 59)
3	Speech Recognition (p. 89) Presentation Graphics (p. 89) Corel WordPerfect Office Suite (p. 89)	How Speech Recognition Works (p. 90) Sharing Data between Applications (p. 90) Shareware (p. 90)	Acquiring Software (p. 91) Software Standards (p. 91)
4	Digital Video Editing (p. 117) Shockwave (p. 117) Streaming Multimedia Players (p. 117)	How Digital Video Editing Works (p. 118) Personal Web Site (p. 118) Streaming Multimedia (p. 118)	HTML Source Code (p. 119) Online Expert Systems (p. 119)
5	Virus Protection (p. 145) Windows Update (p. 145) WinZip (p. 145)	How Virus Protection Programs Work (p. 146) Booting and POST (p. 146) Customized Desktop (p. 146)	Antitrust (p. 147) Online Backup (p. 147)
6	TV Tuner Cards and Video Clips (p. 176) Desktop and Notebook Computers (p. 176) Custom System Units (p. 176)	How TV Tuner Cards Work (p. 177) How Virtual Memory Works (p. 177) Binary Numbers (p. 177)	Processor Serial Numbers (p. 178) Smart Cards (p. 178)
7	WebCams and Instant Messaging (p. 209) Internet Telephones (p. 209) Voice Recognition (p. 209)	How Digital Cameras Work (p. 210) How Internet Telephones Work (p. 210) Handwriting Recognition (p. 210)	WebCams (p. 211) Electronic Security (p. 211)
8	iPods and Music from the Internet (p. 237) iPod (p. 237) USB Storage Devices (p. 237)	How Music is Downloaded from the Internet (p. 238) File Compression (p. 238) Internet Hard Drives (p. 238)	CD-R and Music Files (p. 239) Storage Trade-offs (p. 239)
9	Home Networking (p. 273) Distributed Computing (p. 273) Palm (p. 273)	How Wireless Home Networks Work (p. 274) How Napster and Gnutella Work (p. 274) Hotspots (p. 274)	Electronic Monitoring (p. 275) Digital Rights Management (p. 275)
10	Spyware (p. 307) Personal Firewalls (p. 307) Ergonomic Workstations (p. 307)	How Web Bugs Work (p. 308) Mistaken Identity (p. 308) Air Travel Database (p. 308)	Facial Recognition (p. 309) Plagiarism (p. 309)
11	Jobs Online (p. 331) Maintain Computer Competence (p. 331)	Your Career (p. 332) Resume Advice (p. 332)	Writing about Privacy and Ethics (p. 333) Writing about Security (p. 333)

Before beginning this new edition, an extensive review process was completed. Many of the reviewers were current users of *Computing Essentials* and many were users of other textbooks. A clear message was sent: More is not better . . . better is better. One reviewer succinctly stated: "Determine what is most important and focus on that."

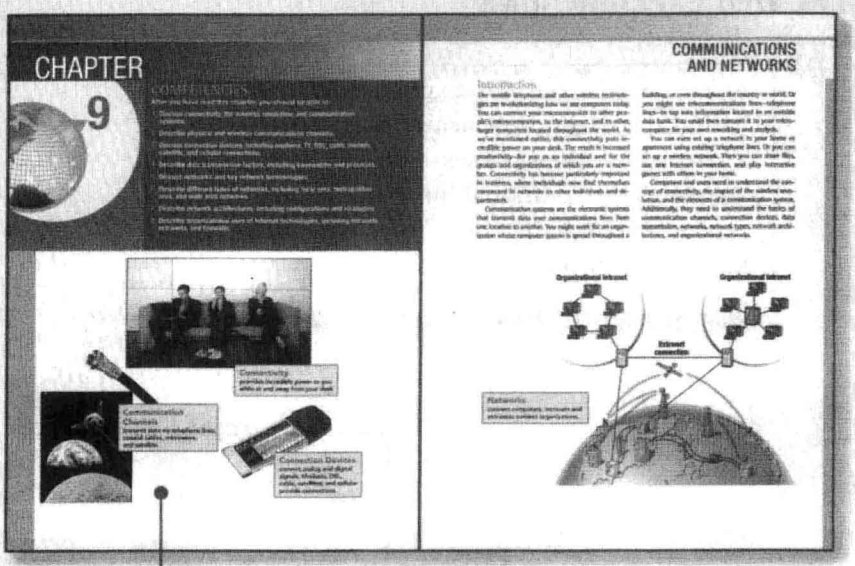
As an educator myself, I knew exactly what the reviewer meant. Today, so many textbooks on information technology have way too much detail and too many technical terms. The density of the information can become overwhelming. To help ease this, many textbooks add relief by inserting numerous photographs that, while attractive to the eye, have little or no informational content.

The result is that our students have difficulty determining what is most important. Too many details tend to hide what is most important. As authors add more and more detail to textbooks, students have greater and greater challenges discerning what is really important—what are the key concepts. More is not better . . . better is better.

Fresh from reading the reviewer comments, I carefully reread *Computing Essentials 2007*. From this new perspective, it was clear what needed to be done. So, the focus of *Computing Essentials 2008* is not to just cover the newest material but to refocus on what are the most important concepts. I have carefully reviewed every figure, photograph, and table. If it lacked informational content, the figure, photograph, or table was dropped. I reexamined every key term. If the term was outdated or not essential, I dropped it. My objective was to return to the roots of *Computing Essentials*—focusing on the most important and essential concepts of information technology.

VISUAL LEARNING

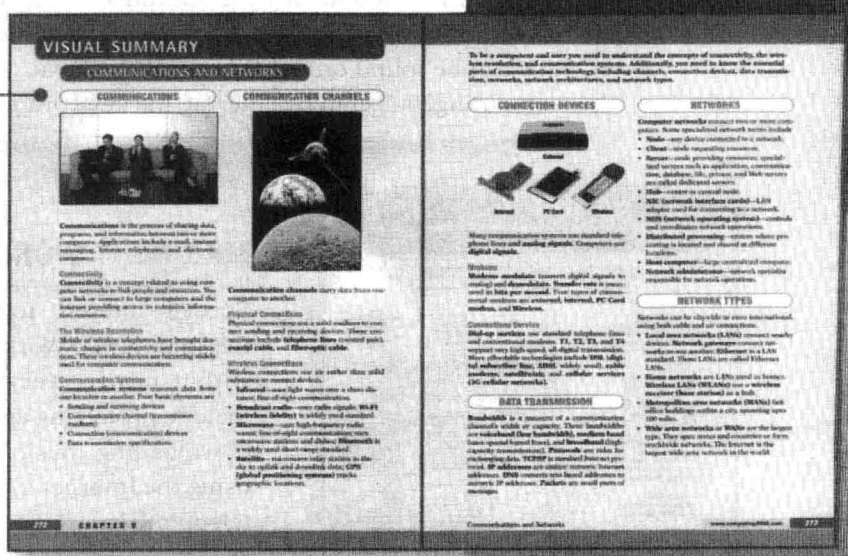
VISUAL CHAPTER OPENERS



Each chapter begins with a list of chapter competencies or objectives and provides a brief introduction to what will be covered in the chapter. Graphics in the chapter opener demonstrate how the chapter is organized, while text callouts provide a glimpse of topical coverage.

VISUAL SUMMARIES

Visual summaries appear at the end of every chapter and summarize major concepts covered throughout the chapter. Like the chapter openers, these summaries use graphics to reinforce key concepts in an engaging and meaningful way.



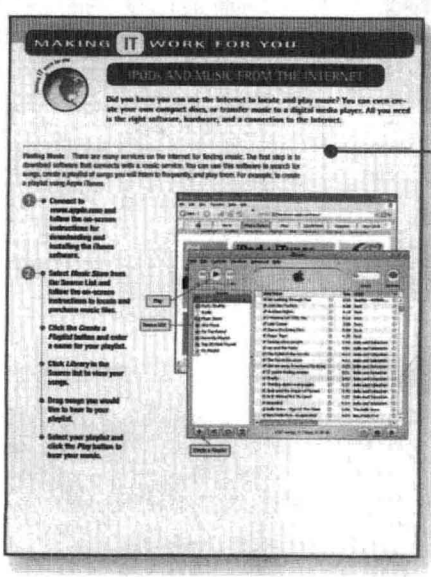
HANDS-ON

ON THE WEB EXPLORATIONS

At least two On the Web Explorations appear within the margins of nearly every chapter. These explorations ask you to search specific Web sites for additional information on key topics, encouraging you to expand your knowledge through Web resources.

TIPS

Tips appear within nearly every chapter and provide advice on chapter-related issues, such as how to efficiently locate information on the Web, how to speed up computer operations, and how to protect against computer viruses. Tips assist you with common technology-related problems or issues and motivate you by showing the relevance of concepts presented in the chapter to everyday life. Additional tips can be found on the O'Leary Web site at www.computing2008.com by entering the keyword **tips**.



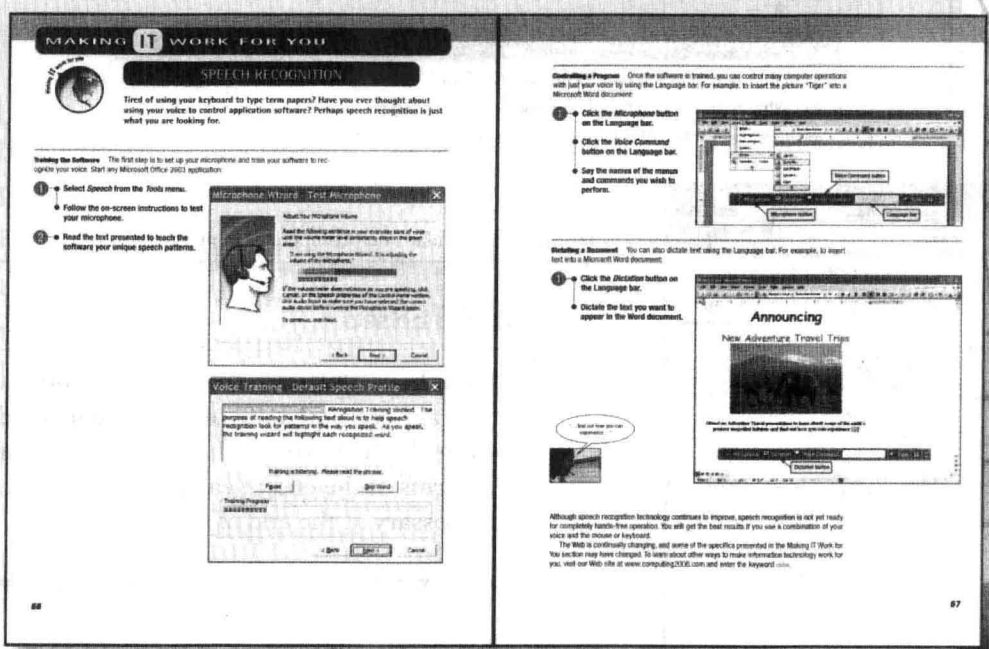
MAKING IT WORK FOR YOU

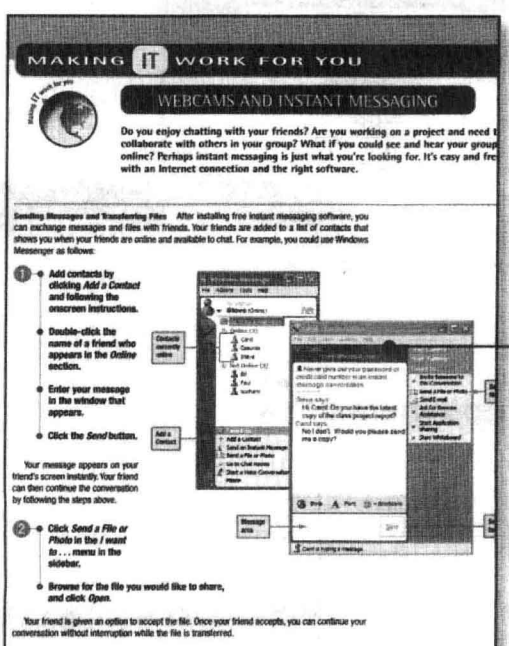
Special interest topics are presented in the Making IT Work for You section found within nearly every chapter. These topics include protecting against computer viruses, downloading music from the Internet, and using the Internet to place free long-distance telephone calls.

LEARNING TOOLS

MAKING IT WORK FOR YOU

The Making IT Work for You icon appears throughout the chapter to show you which topics in the chapter are expanding upon the Making IT Work for You section.





MAKING IT WORK FOR YOU FIGURES

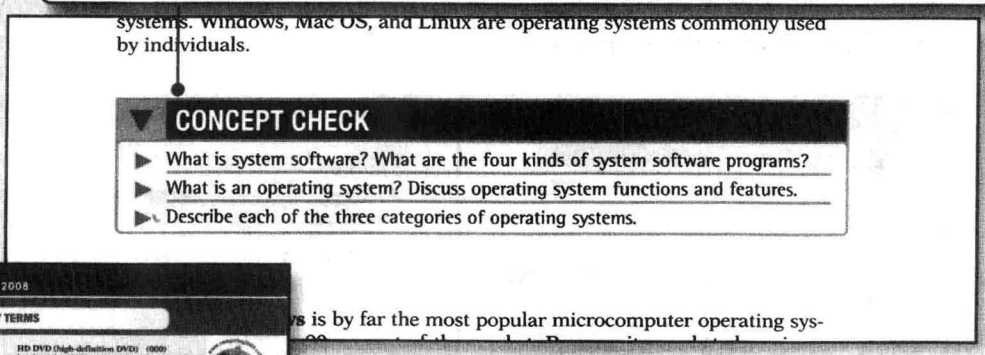
Critical technologies are presented to show how technologies work and how they are used. These animated figures include such topics as How Digital Cameras Work, How Instant Messaging Works, and How Home Networks Work. Additionally, several other topics are animated and presented on the book's Web site.

此为试读，需要完整PDF请访问：www.ertongbook.com

REINFORCING KEY CONCEPTS

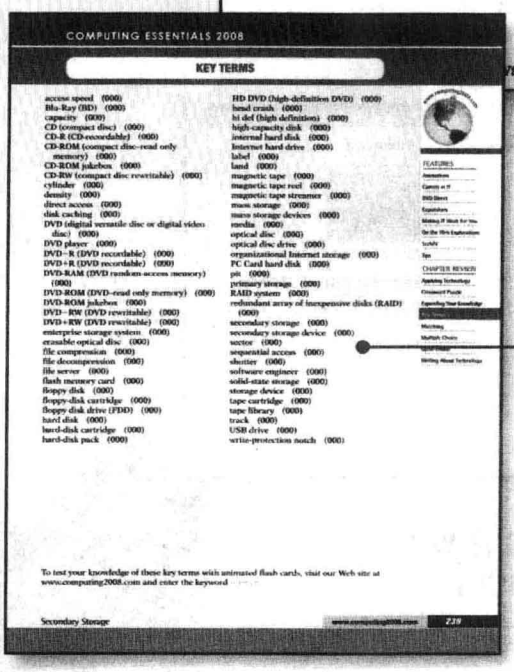
CONCEPT CHECKS

Located at points throughout each chapter, the Concept Check cues you to note which topics have been covered and to self-test your understanding of the material already discussed.


systems. Windows, Mac OS, and Linux are operating systems commonly used by individuals.

CONCEPT CHECK

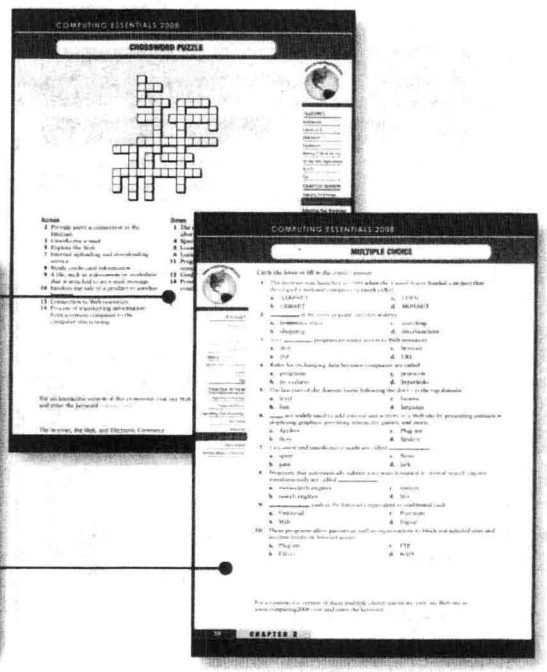
- What is system software? What are the four kinds of system software programs?
- What is an operating system? Discuss operating system functions and features.
- Describe each of the three categories of operating systems.


COMPUTING ESSENTIALS 2008

KEY TERMS

KEY TERMS

Throughout the text, the most important terms are presented in bold 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.


COMPUTING ESSENTIALS 2008

CROSSWORD PUZZLE

MULTIPLE CHOICE

CHAPTER REVIEW

Following the Visual Summary, the chapter review includes material designed to review and reinforce chapter content. It includes a Key Terms list that reiterates the terms presented in the chapter, a Crossword Puzzle to challenge your understanding of the chapter material, Multiple Choice questions to help test your understanding of information presented in the chapter, Matching exercises to test your recall of terminology presented in the chapter, and Open-Ended questions or statements to help review your understanding of the key concepts presented in the chapter.

THE FUTURE OF INFORMATION TECHNOLOGY

CAREERS IN IT

Webmasters develop and maintain Web sites and Web resources. (See Figure 1-29.) The job may include backup of the company Web site, updating resources, or development of new resources. Webmasters are often involved in the design and development of the Web site. Part of their job also may include monitoring and updating the interface design. Some Webmasters monitor traffic on the site and take steps to improve the publicity of the site. Webmasters also may work with marketing personnel to increase site traffic and may be involved in development of Web promotions.

Employers look for candidates with a bachelor's degree in computer science or information systems and knowledge of common programming languages and Web development software. Knowledge of HTML is considered essential. Those with experience using Web authoring software and programs, like Adobe Illustrator and Adobe Flash are often preferred. Webmasters often work in conjunction with many other departments and employees. Good communication and organizational skills are vital to this position.

Webmasters can expect to earn an annual salary of $48,000 to $73,000. This position is relatively new in many corporations and tends to have fluid responsibilities. With technological advances and increasing corporate emphasis on a Web presence, experience in this field could lead to managerial opportunities. To learn about other careers in IT, visit us at www.computing2008.com and enter the keyword

Figure 1-29 Webmasters

The Internet, the Web, and Electronic Commerce www.computing2008.com 49

CAREERS IN IT

Some of the fastest-growing career opportunities are in information technology. Each chapter highlights one of the most promising careers in IT by presenting job titles, responsibilities, educational requirements, and salary ranges. Among the careers covered are Webmaster, software engineer, and database administrator. You will learn how the material you are studying relates directly to a potential career path.

A Look to the Future

Robots Can Look, Act, and Think Like Us

Would you like to have conference with your mom through robots that resemble you both and demonstrate your emotions on their rubber faces? What if you hired a companion robot with a set of moral values? Would you trust a robot to trade the stocks in your portfolio? Researchers are currently at work on robots with the artificial intelligence needed to perform these tasks and more.

The Saya robot, with its artificial skin and muscles, is currently under development in Tokyo. Researchers hope that eventually it will be used as a communication device similar to a current Web cam. For example, you could connect to a robot that resembles you at your mother's home and communicate through it with her. You would see your mother through the robot's visual system. Your mother would hear your voice come from the robot and your emotions would be displayed on its face.

Other research is being conducted that will give robots a sense of values. It is hoped that these robots will be able to make decisions independently based on this set of values. Researchers in California are creating robots that act as surveillance instruments, capable of following a target without direction from a human. The robots can predict potential escape routes and pursue a subject through crowded areas.

At the Sociable Machines Project at MIT, students are working on a robot named Kismet that detects human emotions through social and audio cues and responds with emotions of its own. Kismet recognizes faces and responds to stimuli like an infant would with emotions ranging from surprise to disgust. Researchers believe that robots such as Kismet can interact with and learn from humans better than traditional computer interfaces.

All of these projects are designed to move beyond simple computing and into a decidedly human realm of emotional intelligence. Some experts have even suggested that human intelligence relies on emotional input for all important decision making. Thus, by definition, for a machine to approximate human intelligence, it would have to understand and rely on emotions. If computers could read human emotions and had emotional intelligence of their own, it could be possible for your computer to act as a stress counselor when you stay up all night working on a project.

Computers with their own emotional intelligence could be the ultimate human companions. Computer scientists have suggested they may read your mood and play music accordingly. Or they could search through audio and video files for media you would find moving, funny, or dramatic. If computers had their own emotional sense, it is possible that they, like the humans they emulate, would require interaction for mental health.

Would you use a robot as a communication device? Do you think we should build robots with a sense of moral values? Some researchers have suggested that robots with artificial intelligence could serve as ideal supervisors and managers. What do you think? Would you like to have an "emotional" robot for a boss?

114 CHAPTER 4

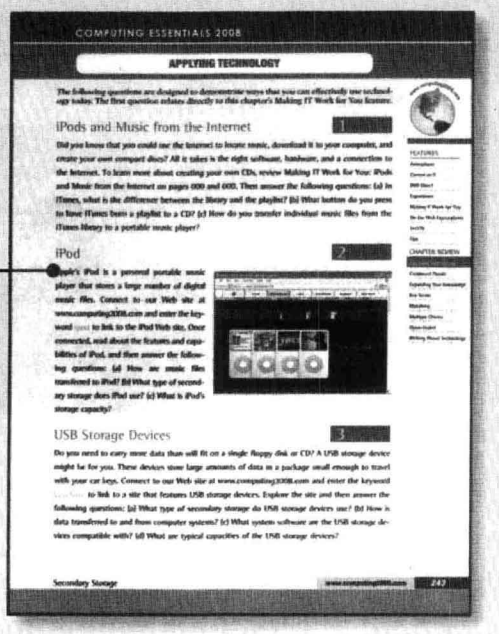
A LOOK TO THE FUTURE

Each chapter concludes with a brief discussion of a recent technological advancement related to the chapter material, reinforcing the importance of staying informed.

UNIQUE END-OF-CHAPTER MATERIALS

APPLYING TECHNOLOGY

In each chapter, Applying Technology presents questions designed to help you gain a better understanding of how technology is being used today. One question typically relates to the chapter's Making IT Work for You topic. Other questions focus on interesting applications of technology that relate directly to you. Topics include online auctions, online Personal Information Managers, and desktop and notebook computers.


COMPUTING ESSENTIALS 2008

APPLYING TECHNOLOGY

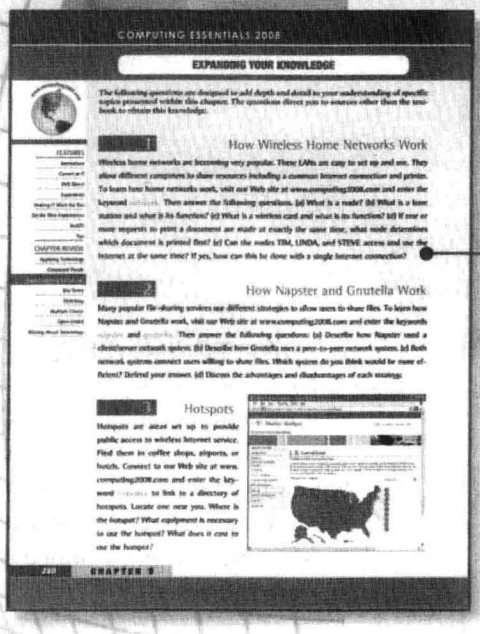
iPods and Music from the Internet

iPod

USB Storage Devices

EXPANDING YOUR KNOWLEDGE

In each chapter, Expanding Your Knowledge presents questions that help you gain a deeper understanding of select topics. Typically, one question relates to a topic presented at the book's Web site, www.computing2008.com, such as How Instant Messaging Works, How Streaming Media Works, and How Virus Protection Works. Other questions in Expanding Your Knowledge typically require Web research into carefully selected topics including robotics, multimedia, HDTV, and Internet hard drives.


COMPUTING ESSENTIALS 2008

EXPANDING YOUR KNOWLEDGE

How Wireless Home Networks Work

How Napster and Gnutella Work

Hotspots

WRITING ABOUT TECHNOLOGY

In each chapter, Writing About Technology presents questions relating to security, privacy, and ethical issues. The issues presented include HTML source code, antitrust legislation, processor serial numbers, CD-R and music files, and electronic monitoring. One objective of the Writing About Technology feature is to help you develop critical thinking and writing skills. Another objective is to help you recognize, understand, and analyze key privacy, security, and ethical issues relating to technology.

COMPUTING ESSENTIALS 2008

WRITING ABOUT TECHNOLOGY

Free Speech Online

Dot-Bombs

SUPPORT MATERIALS

IR CD-ROM

Instructor's Resource CD-ROM (ISBN: 9780073294698; MHID: 0073294691) contains the Instructor's Manual, PowerPoint slides, an EZ Test generation software with accompanying test item files for each chapter, and 20 video clips (with summaries) from G4techTV.

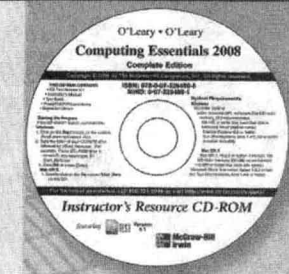
The Instructor's Manual, prepared by Ann Mauss of Loras College, offers lecture outlines with teaching notes and page references. It provides definitions of key terms and solutions to the end-of-chapter material, including multiple-choice, matching, and open-ended questions. It also offers summaries of the concept checks in each chapter. A selection of G4techTV video clips accompany this text, as do summaries for each clip.

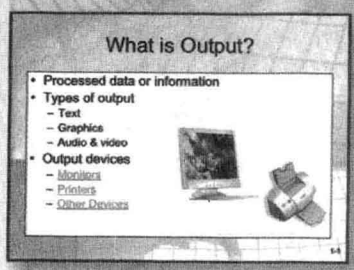
The PowerPoint slides, prepared by Brenda Nielsen of Mesa Community College–Red Mountain, are designed to provide instructors with a comprehensive resource for lecture use. The slides include a review of key terms and definitions, artwork taken from the text, as well as new illustrations to further explain concepts covered in each chapter. Comprehensive teaching notes are provided for each slide.

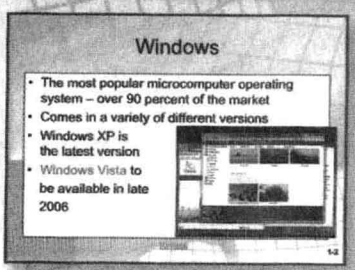
The testbank, prepared by Rajiv D. Narayana, senior editor, and Flevy Crasto, group manager–operations, of Info Data Systems (India) Pvt. Ltd., contains over 2,200 questions categorized by level of learning (definition, concept, and application). This is the same learning scheme that is introduced in the text to provide a valuable testing and reinforcement tool. Text page references have been provided for all questions, including a level-of-difficulty rating. Additional quizzes are provided on the Online Learning Center at www.computing2008.com. These can be used by students to help them prepare for classroom testing. The testbank is offered in Word files, as well as in EZ Test format.

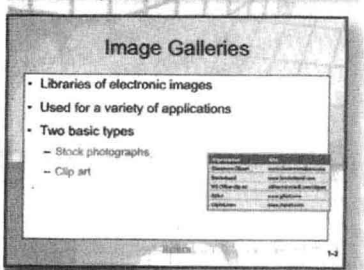
G4TECHTV VIDEOS

G4techTV videos offer instructors and students video content directly related to computing that enhances the classroom or lab experience with technology programming from business and society. Video selections include "The Screen Savers" and "Pulse," which provide edgy and informative discussion. Use of these videos will help students understand how computing interacts with and contributes to business and society and will also offer an advance look at emerging technology and devices.

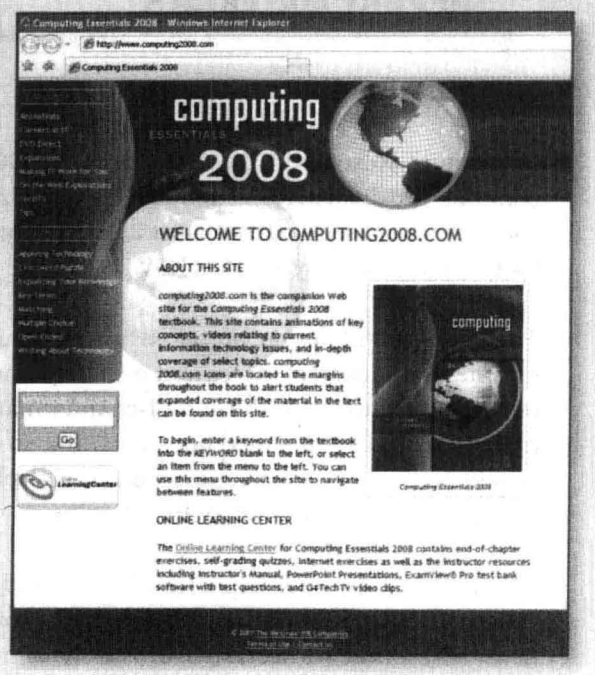








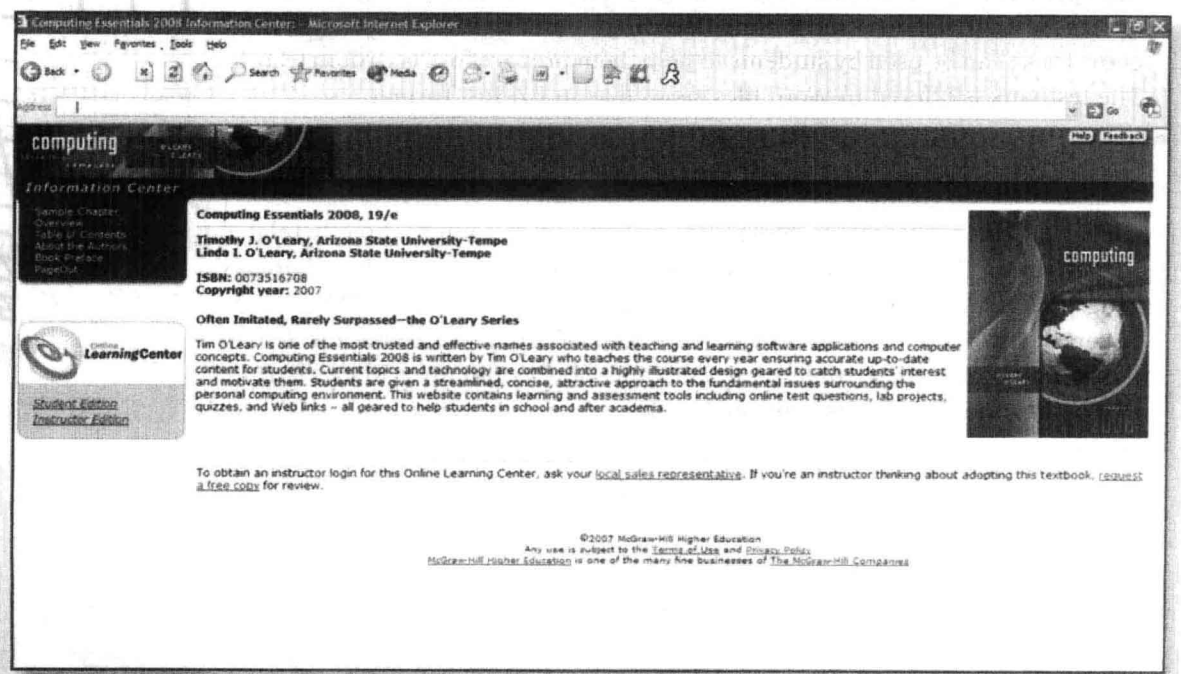
THE O'LEARY WEB SITE



The O'Leary Web site can be found at www.computing2008.com. Students can find a host of additional resources on the Web site, including animations of key concepts, videos relating to select Making IT Work for You applications, and in-depth coverage of select topics. Look for the Web icon throughout the text to indicate where additional related materials can be found on the Web site. Throughout the end-of-chapter material for the text, marginal lists, denoted by the Web icon, alert students that expanded coverage of the material in the text can be found on the Web site.

OLC

The text's Online Learning Center can be found at www.mhhe.com/ce2008. Instructors can find support materials to accompany the text on the OLC and can link directly to the OLC from the text's Web site.



O'LEARY SERIES

The O'Leary Application Series for Microsoft Office is available separately or packaged with *Computing Essentials*. The O'Leary Application Series offers a step-by-step approach to learning computer applications and is available in both brief and introductory versions. The introductory books are MCAS Certified and prepare students for the Microsoft Office User Certification Exam.

SIMNET ASSESSMENT FOR OFFICE APPLICATIONS

SimNet Assessment for Office Applications provides a way for you to test students' software skills in a simulated environment. Simnet is available for Microsoft Office 2007 and provides flexibility for you in your applications course by offering:

Pre-testing options

Post-testing options

Course placement testing

Diagnostic capabilities to reinforce skills

Web delivery of test

MCAS preparation exams

Learning verification reports

For more information on skills assessment software, please contact your local sales representative, or visit us at www.mhhe.com.

此为试读,需要完整PDF请访问: www.ertongbook.com