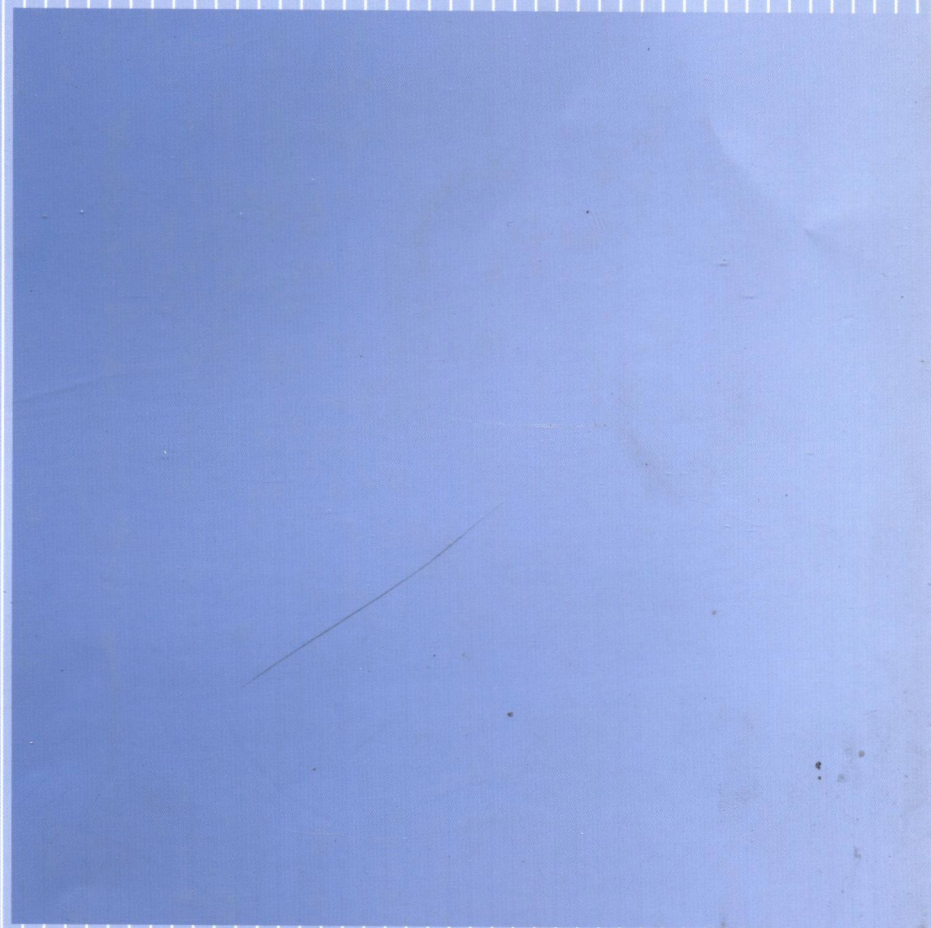
# 计算机专业英语

## —Computing Essentials (2013影印版)

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



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Mc Graw Hill Education

# 计算机专业英语

（2013 影印版）

# Computing Essentials 2013

（Introductory Edition）

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



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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 2013, 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、2002—2003 版和 2008 版，主要用作高等学校计算机专业英语教材，采用的学校变遍反映较好。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，也有助于他僮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教师热线(8008101936)、传真(010－62790292)、电子邮件(instructorchinc@ mcgraw-hill. com)获取相关资源。

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(2013 影印版)》(Timothy J. O'Leary, Linda I. O'Leary, 高等教育出版社出版，书号为 978－7－04－041672－5)。

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# New to Computing Essentials 2013

Every chapter begins with a new, concise "Why Should I Read This Chapter" feature and has all new multiple choice and matching questions. Additionally, four new end-of-chapter features have been added: Making IT Work for You, Explorations, Ethics, and Environment. Each feature provides assignments that expand upon concepts and ideas presented within the text.

| | |
|---|---|
| Chapter 1 | Coverage of Mozilla's Firefox<br>Expanded discussion of tablet PCs to include traditional and slate computers including iPad2<br>Updated wireless communication devices |
| Chapter 2 | Updated coverage of the basic parts of a URL<br>Comparison of client-based versus Web-based e-mail accounts<br>Expanded coverage of MySpace, Facebook, and LinkedIn<br>Expanded coverage of streaming technology, Webcasts, and Podcasts<br>Revised coverage of search engines and Web directories |
| Chapter 3 | Comparison of traditional versus ribbon graphical user interfaces<br>Improved page layout to improve continuity and comprehension |
| Chapter 4 | Expanded coverage of image editors<br>Expanded coverage of illustration programs<br>Expanded and updated coverage of mobile applications |
| Chapter 5 | Expanded coverage of Mac OS<br>Expanded coverage of mobile operating systems including iOS, WebOS, and Android |
| Chapter 6 | Expanded coverage of traditional and slate tablet PCs<br>Consolidated coverage of expansion buses |
| Chapter 7 | New coverage of digital interactive whiteboards<br>New coverage of cloud printers and Google Cloud Print<br>New discussion of portable media players and Mobile DTV<br>New coverage of cable Internet telephone service providers including Ooma, Vonage, MagicJack, and Skype |
| Chapter 8 | Revised and repositioned Cloud Storage Making IT Work for You |
| Chapter 9 | More coverage of wireless technologies<br>Expanded coverage of hotspots<br>Updated and more concise coverage of network topologies<br>Updated and more concise coverage of network strategies |
| Chapter 10 | New coverage on privacy modes including InPrivate Browsing and Private Browsing<br>Expanded coverage of carders<br>New coverage on cyber-bullying |

# 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 the 21st century.

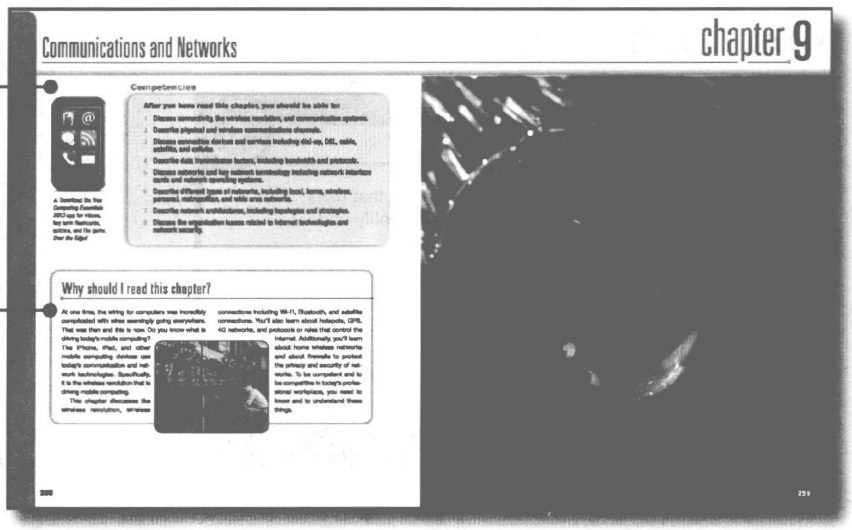
Times are changing, technology is changing, and this text is changing too. As students of today, you are different from those of yesterday. You put much effort toward the things that interest you and the things that are relevant to you. Your efforts directed at learning application programs and exploring 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. Topics presented focus first 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.

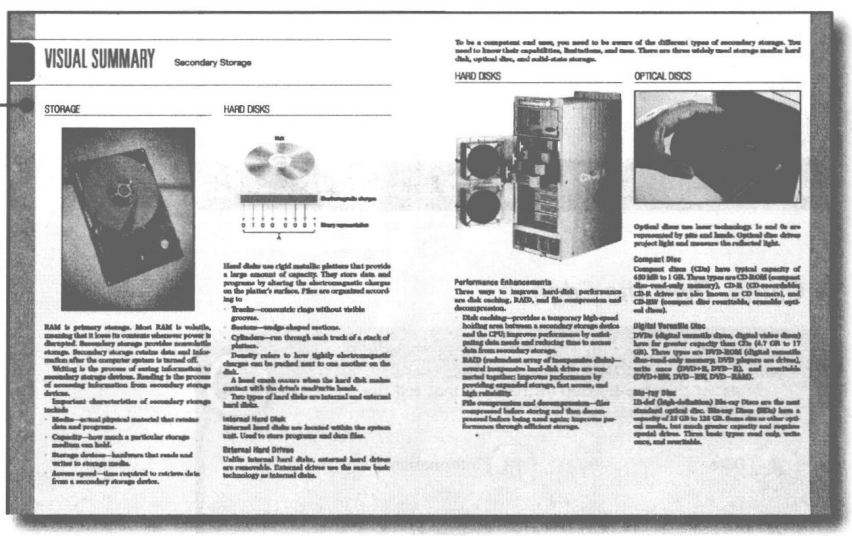
## VISUAL CHAPTER OPENERS

Each chapter begins with a list of chapter competencies or objectives and provides a brief introduction to what will be covered in the chapter. Additionally, the "Why Should I Read This?" feature provides relevance through a brief discussion of the content's historical context.




## VISUAL SUMMARIES

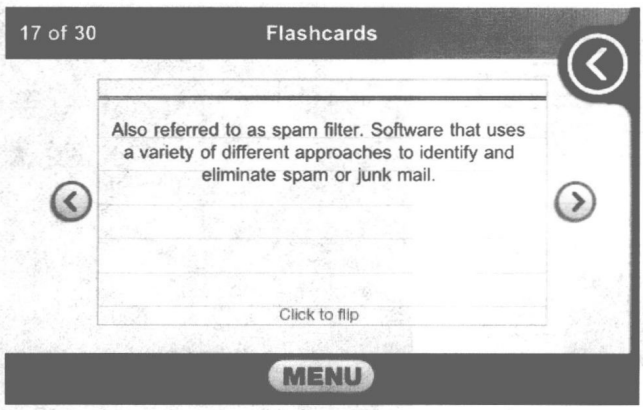
Visual summaries appear at the end of every chapter and summarize major concepts covered throughout the chapter. Like the chapter openers, these summaries use graphics to reinforce key concepts in an engaging and meaningful way.



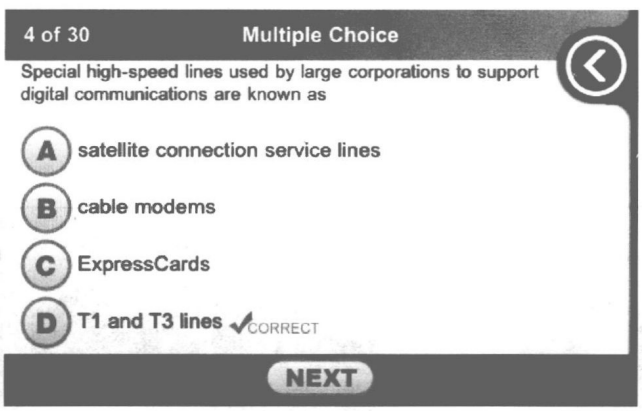
# Learning Tools: The CE 2013 App

Download the free *Computing Essentials 2013* App for:

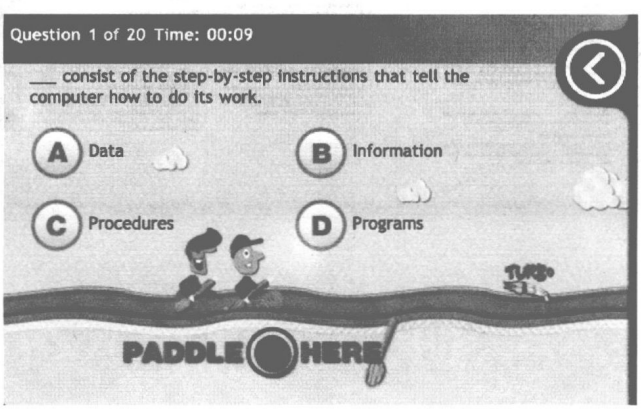
- **Key term flash cards**




- **Quizzes**




- **Game, *Over the Edge***



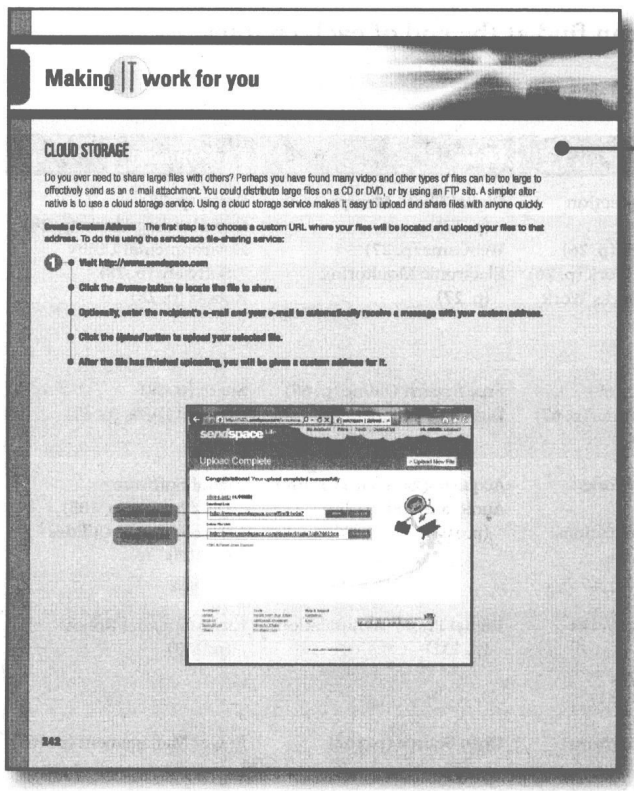
We have specifically designed the end-of-chapter materials to this text to meet the different needs of students and instructors. In addition to the traditional end-of-chapter review materials, you will find four unique categories: (1) Making IT Work for You, which is designed to help students gain a better understanding of how the technology covered in a particular chapter is used today; (2) Explorations, which offers a deeper understanding of selected topics covered in that particular chapter; (3) Ethics, which provides the opportunity to hone essential writing skills while learning about technology issues related to privacy, security, and ethics; and (4) Environment, which explores environmental issues related to technology.

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

## END-OF-CHAPTER COVERAGE

| Chapter | Making IT Work for You | Explorations | Ethics | Environment |
|---|---|---|---|---|
| 1 | iPods and Video from the Internet (p. 25)<br>Google Docs (p. 25)<br>Digital Video Editing (p. 25)<br>Virus Protection and Internet Security (p. 25)<br>Home Networking (p. 25) | How Computer Virus Protection Programs Work (p. 26)<br>How Digital Cameras Work (p. 26)<br>How Internet Telephones Work (p. 26)<br>How Wireless Home Networks Work (p. 26) | Digital Photo Manipulation (p. 27)<br>WebCams (p. 27)<br>Electronic Monitoring (p. 27) | Spam (p. 28)<br>Downloading Music (p. 28)<br>Environmental Utility Software (p. 28)<br>Robots (p. 28) |
| 2 | iPods and Video from the Internet (p. 66)<br>Twitter (p. 66) | How Spam Filters Work (p. 67)<br>How Instant Messaging Works (p. 67)<br>Domain Registration (p. 67) | Free Speech Online (p. 68)<br>Digital Divide (p. 68) | Spam (p. 69)<br>CDs and DVDs (p. 69) |
| 3 | Speech Recognition (p. 102)<br>Google Docs (p. 102) | How Speech Recognition Works (p. 103)<br>Sharing Data between Applications (p. 103)<br>Shareware (p. 103) | Acquiring Software (p. 104)<br>Audio and Video Clips (p. 104) | Digital Software Distribution (p. 105)<br>Green Software Utilities (p. 105) |
| 4 | Digital Video Editing (p. 130)<br>Adobe Flash (p. 130)<br>Streaming Multimedia Players (p. 130) | How Digital Video Editing Works (p. 131)<br>Personal Web Site (p. 131)<br>Streaming Multimedia (p. 131) | Digital Photo Manipulation (p. 132) | Environmental Robots (p. 133) |
| 5 | Virus Protection (p. 160)<br>Windows Update (p. 160)<br>Disk Defragmentation (p. 160) | How Virus Protection Programs Work (p. 161)<br>Booting and POST (p. 161)<br>Customized Desktop (p. 161) | Open Source (p. 162) | Power Management (p. 163) |
| 6 | TV Tuner Cards and Video Clips (p. 192)<br>Desktop and Notebook Computers (p. 192)<br>Custom System Units (p. 192) | How TV Tuner Cards Work (p. 193)<br>How Virtual Memory Works (p. 193)<br>Binary Numbers (p. 193) | RFIDs (p. 194) | Green PCs (p. 195) |
| 7 | WebCams and Instant Messaging (p. 227)<br>E-Book Readers (p. 228) | How Digital Cameras Work (p. 229)<br>How Internet Telephones Work (p. 229)<br>Handwriting Recognition (p. 229) | WebCams (p. 230) | Printing (p. 231)<br>Printer Cartridges (p. 231) |
| 8 | Cloud Storage (p. 254)<br>USB Storage Devices (p. 254) | iPod (p. 255)<br>File Compression (p. 255)<br>Cloud Storage Services (p. 255) | CD-R and Music Files (p. 256) | Solid-State Storage (p. 257) |
| 9 | Home Networking (p. 287)<br>Distributed Computing (p. 287)<br>Wireless Mobile Devices (p. 287) | How Wireless Home Networks Work (p. 288)<br>BitTorrent (p. 288)<br>Hotspots (p. 288) | Electronic Monitoring (p. 289)<br>Digital Rights Management (p. 289) | GPS (p. 290)<br>iPhone (p. 291) |
| 10 | Spyware (p. 325)<br>Personal Firewalls (p. 325)<br>Personal Backups (p. 325) | How Web Bugs Work (p. 326)<br>Mistaken Identity (p. 326)<br>Air Travel Database (p. 326) | Plagiarism (p. 327) | Environmental Scams (p. 327) |
| 11 | Jobs Online (p. 347)<br>Maintain Computer Competence (p. 347) | Your Career (p. 348)<br>Resume Advice (p. 348) | Ethical Issues (p. 349) | Environmental Issues (p. 349) |

## MAKING IT WORK FOR YOU


Making IT work for you

CLOUD STORAGE

Do you ever need to share large files with others? Perhaps you have found many video and other types of files can be too large to effectively send as an e-mail attachment. You could distribute large files on a CD or DVD, or by using an FTP site. A simpler alternative is to use a cloud storage service. Using a cloud storage service makes it easy to upload and share files with anyone quickly.

**Create a Custom Address** The first step is to choose a custom URL where your files will be located and upload your files to that address. To do this using the sendspace file-sharing service:

1. Visit http://www.sendspace.com
2. Click the *Browse* button to locate the file to share.
3. Optionally, enter the recipient's e-mail and your e-mail to automatically receive a message with your custom address.
4. Click the *Upload* button to upload your selected file.
5. After the file has finished uploading, you will be given a custom address for it.



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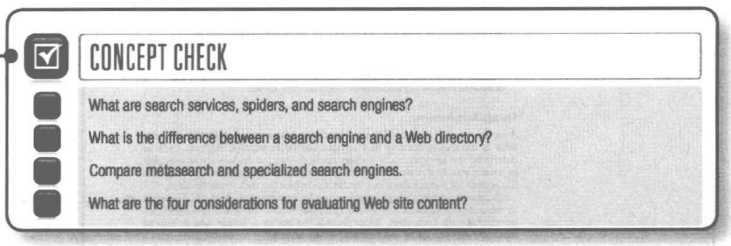
Special-interest topics are presented in the Making IT Work for You section found within nearly every chapter. These topics include using Job Searches, Google Docs, Virus Protection, Internet Security, and Cloud Storage.

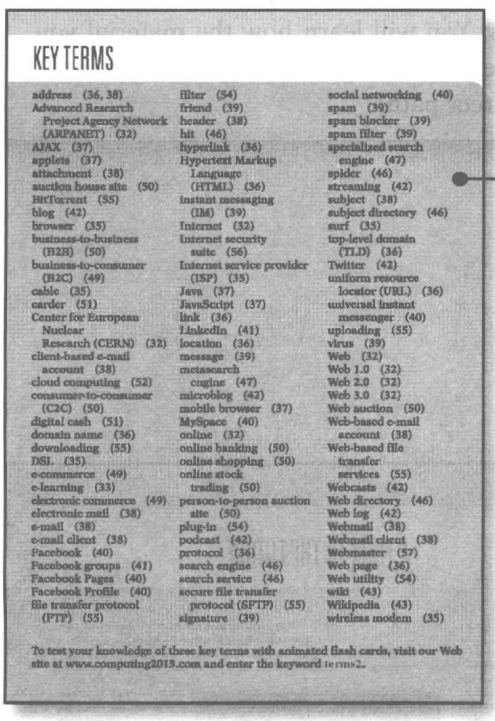
## CONCEPT CHECKS

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.



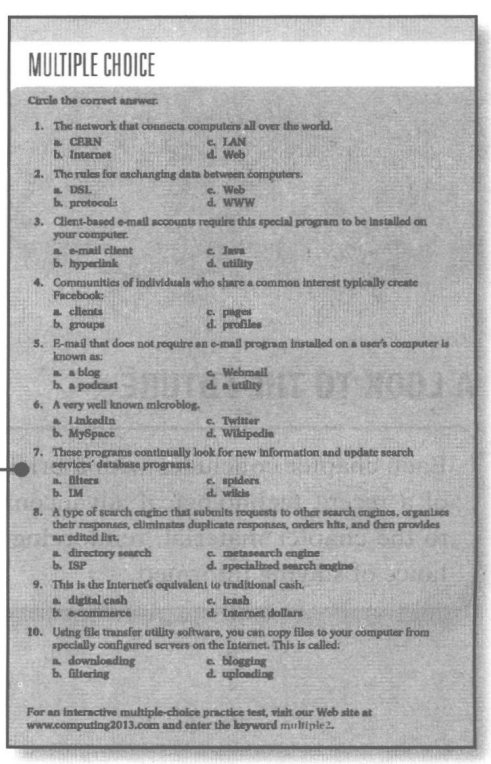

## KEY TERMS

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.



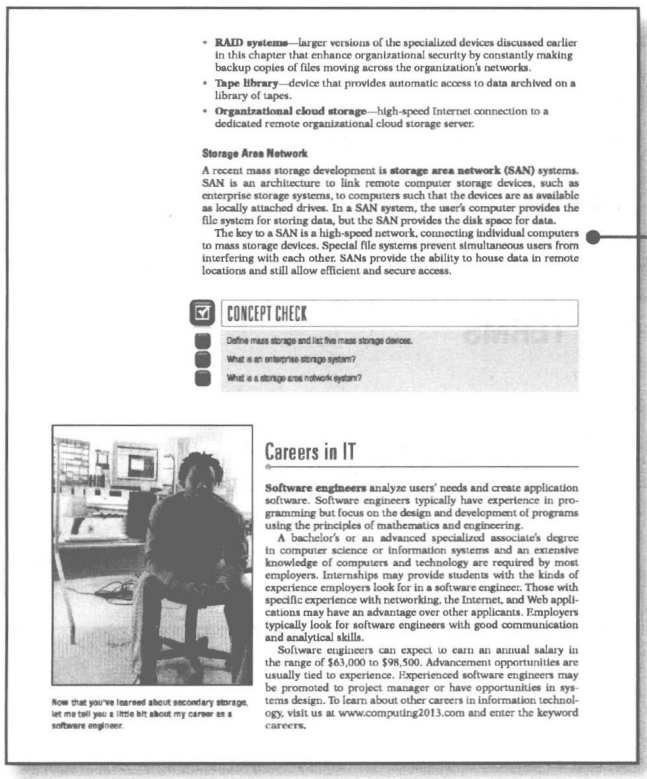

## CHAPTER REVIEW

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, 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



- **RAID systems**—larger versions of the specialized devices discussed earlier in this chapter that enhance organizational security by constantly making backup copies of files moving across the organization's networks.
- **Tape library**—device that provides automatic access to data archived on a library of tapes.
- **Organizational cloud storage**—high-speed Internet connection to a dedicated remote organizational cloud storage server.

**Storage Area Network**

A recent mass storage development is **storage area network (SAN)** systems. SAN is an architecture to link remote computer storage devices, such as enterprise storage systems, to computers such that the devices are as available as locally attached drives. In a SAN system, the user's computer provides the file system for storing data, but the SAN provides the disk space for data.

The key to a SAN is a high-speed network, connecting individual computers to mass storage devices. Special file systems prevent simultaneous users from interfering with each other. SANs provide the ability to house data in remote locations and still allow efficient and secure access.

CONCEPT CHECK

- Define mass storage and list five mass storage devices.
- What is an enterprise storage system?
- What is a storage area network system?

Now that you've learned about secondary storage, let me tell you a little bit about my career as a software engineer.

Careers in IT

**Software engineers** analyze users' needs and create application software. Software engineers typically have experience in programming but focus on the design and development of programs using the principles of mathematics and engineering.

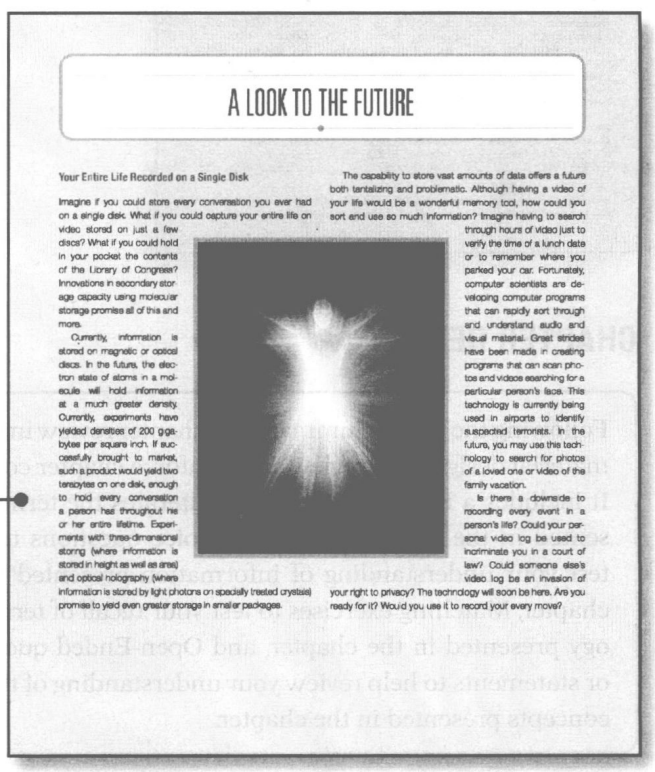
A bachelor's or an advanced specialized associate's degree in computer science or information systems and an extensive knowledge of computers and technology are required by most employers. Internships may provide students with the kinds of experience employers look for in a software engineer. Those with specific experience with networking, the Internet, and Web applications may have an advantage over other applicants. Employers typically look for software engineers with good communication and analytical skills.

Software engineers can expect to earn an annual salary in the range of $63,000 to $98,500. Advancement opportunities are usually tied to experience. Experienced software engineers may be promoted to project manager or have opportunities in systems design. To learn about other careers in information technology, visit us at www.computing2013.com and enter the keyword careers.

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

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



A LOOK TO THE FUTURE

**Your Entire Life Recorded on a Single Disk**

Imagine if you could store every conversation you ever had on a single disk. What if you could capture your entire life on video stored on just a few discs? What if you could hold in your pocket the contents of the Library of Congress? Innovations in secondary storage capacity using molecular storage promise all of this and more.

Currently, information is stored on magnetic or optical discs. In the future, the electron state of atoms in a molecule will hold information at a much greater density. Currently, experiments have yielded densities of 200 gigabytes per square inch. If successfully brought to market, such a product would yield two terabytes on one disk, enough to hold every conversation a person has throughout his or her entire lifetime. Experiments with three-dimensional storing (where information is stored in height as well as area) and optical holography (where information is stored by light photons on specially treated crystals) promises to yield even greater storage in smaller packages.

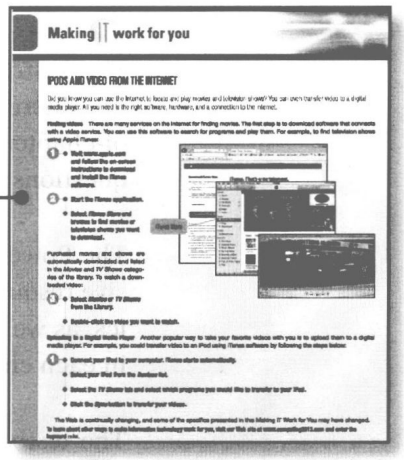
The capability to store vast amounts of data offers a future both tantalizing and problematic. Although having a video of your life would be a wonderful memory tool, how could you sort and use so much information? Imagine having to search through hours of video just to verify the time of a lunch date or to remember where you parked your car. Fortunately, computer scientists are developing computer programs that can rapidly sort through and understand audio and visual material. Great strides have been made in creating programs that can scan photos and videos searching for a particular person's face. This technology is currently being used in airports to identify suspected terrorists. In the future, you may use this technology to search for photos of a loved one or video of the family vacation.

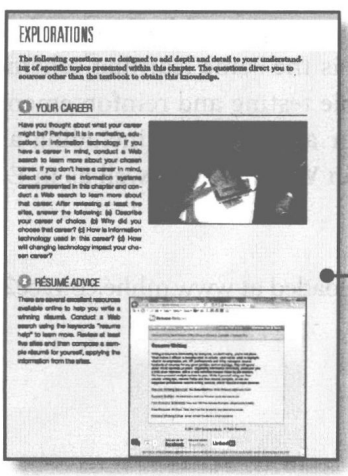
Is there a downside to recording every event in a person's life? Could your personal video log be used to incriminate you in a court of law? Could someone else's video log be an invasion of your right to privacy? The technology will soon be here. Are you ready for it? Would you use it to record your every move?

# Unique End-of-Chapter Materials

## MAKING IT WORK FOR YOU

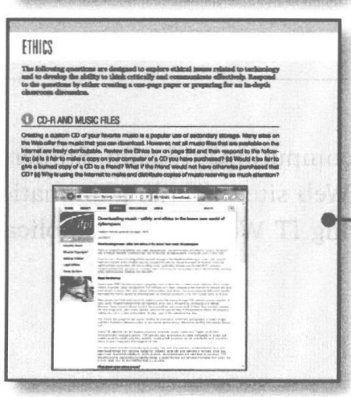
In each chapter, Making IT Work for You presents questions designed to help you gain a better understanding of how technology is being used today. The first question is related directly to the chapter's Making IT Work for You topics. Other questions focus on interesting applications of technology that relate directly to you.




## EXPLORATIONS

In each chapter, Explorations 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.computing2013.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.

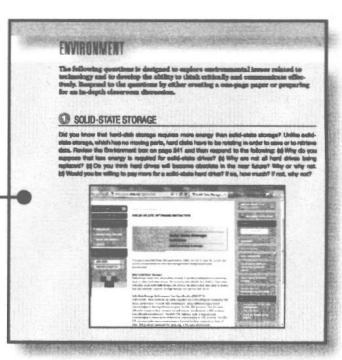



## ETHICS

In each chapter, Ethics presents questions designed to explore ethical issues related to technology and to help you develop the ability to think critically and communicate effectively. Typically, the questions relate directly to the Ethics boxes within each chapter. Topics include free speech online, acquiring software, and digital photo manipulation.

## ENVIRONMENT

In each chapter, Environment presents questions designed to explore environmental issues related to technology and to help you develop the ability to think critically and communicate effectively. Typically, the questions relate directly to the Environmental boxes within each chapter. Topics include spam, Green pcs, and environmental robots.



# Support Materials

The Instructor's Manual offers lecture outlines with teaching notes and figure references. It provides definitions of key terms and solutions to the end-of-chapter material, including multiple-choice, matching, and open-ended questions.

The PowerPoint slides are designed to provide instructors with a comprehensive resource for lecture use. The slides include a review of key terms and topics, as well as artwork taken from the text to further explain concepts covered in each chapter.

The testbank 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. The testbank is offered in Word files, as well as in EZ Test format.

The instructor support materials can be downloaded at www.mhhe.com/ce2013.

# The O'Leary Web site

The O'Leary Web site can be found at www.computing2013.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.

## 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 complete and introductory versions.

## SIMNET ONLINE TRAINING AND ASSESSMENT FOR OFFICE APPLICATIONS


SimNet™ Online provides a way for you to test students' software skills in a simulated environment. SimNet is available for Microsoft Office 2010 and will have enhanced concepts coverage coming in 2012! SimNet provides flexibility for you in your applications course by offering:

- Pretesting options
- Posttesting options
- Course placement testing
- Diagnostic capabilities to reinforce skills
- Web delivery of tests
- Learning verification reports

For more information on skills assessment software, please contact your local sales representative, or visit us at www.mhhe.com/simnet2010.

## SIMGRADER FOR OFFICE 2010

SimGrader provides automatic grading of projects for Microsoft Office and can be used seamlessly within SimNet Online or can be used separately, if needed. SimGrader offers the widest range of projects from any of our Office series titles. SimNet and SimGrader together provide an ideal, easy-to-use solution for students to gain complete knowledge of Office skills.

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