Computing Essentials 2015

Making IT work for you

Timothy J. O'Leary • Linda I. O'Leary • Daniel A. O'Leary

COMPLETE

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Timothy J. O'Leary
Professor Emeritus
Arizona State University

Linda I. O'Leary

Daniel A. O'Leary
PhD Candidate
University of California at Santa Cruz

Mc Graw Hill Education

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Computing Essentials

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Dedication

We dedicate this edition to Nicole and Katie—our inspiration.

New to Computing Essentials 2015

Every chapter's "Why should I read this chapter" has been dramatically revised to engage students. Every Making IT Work for You, Ethics, and Environment has been carefully revaluated, enhanced, and/or replaced and new Privacy information has been added to each chapter. Additionally, this in-chapter content has been carefully coordinated with an end-of-chapter section titled Discussion that provides thought-provoking questions designed for in-class discussion or homework assignments. More specific new coverage includes the following.

Chapter 1	Revision of the traditional five-part information system to include the Internet Expanded coverage of Windows 8, Office 2013, and mobile devices including smartphones New coverage of technology's potential impact on privacy
Chapter 2	Expanded coverage of Web 3.0 and social networking Revised Making IT Work for You: Online Entertainment New privacy discussion related to social networking and privacy controls within Facebook
Chapter 3	Expanded coverage of Office 2013, specialized applications, and apps New privacy discussion related to the ability of some mobile phone apps to track a smartphone's precise location without the owner's knowledge
Chapter 4	Expanded coverage of Microsoft's Windows 8, Windows 8 utilities, and Apple's operating systems including OS X Mavericks Revised Making IT Work for You: Windows Task Manager for Windows 8 New privacy discussion relating to protecting sensitive information on a lost or stolen smartphone
Chapter 5	Expanded coverage of ultrabooks, mini tablets, and Thunderbolt New section of mobile devices including expanded coverage of smartphones New privacy discussion on cryptoprocessors, a specialty processor devoted exclusively to protecting your privacy
Chapter 6	New coverage of 3-D printers, UPC codes, MaxiCode, and QR codes Expanded coverage of display resolutions, touch-sensitive displays, flat-panel monitors, and ergonomic issues specifically related to portable computers including tablets and smartphones
Chapter 7	New coverage of hybrid solid-state storage systems and cloud storage issues related to maintenance, hardware upgrades, file-sharing collaboration, access speed, and file security Revision of Making IT Work for You: Cloud Storage New privacy discussion of how to securely remove sensitive information from the hard disk before selling or recycling a computer
Chapter 8	Expanded coverage of 4G networks New coverage on fiber-optic connection services New privacy discussion about relentless attacks on government and private networks to gain unauthorized access and the resulting risk to sensitive personal information
Chapter 9	Expanded coverage of social networking risks including "tagging" by friends without an individual's knowledge or consent New content on identity theft, data collection at social networking sites, big data, and the unauthorized creation of detailed personal profiles

The 20th century brought us the dawn of the digital information age and unprecedented changes in information technology. In fact, the rate of change is clearly 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, privacy, ethics, and our environment and to give you a basis for building the necessary skill set to succeed in the 21st century.

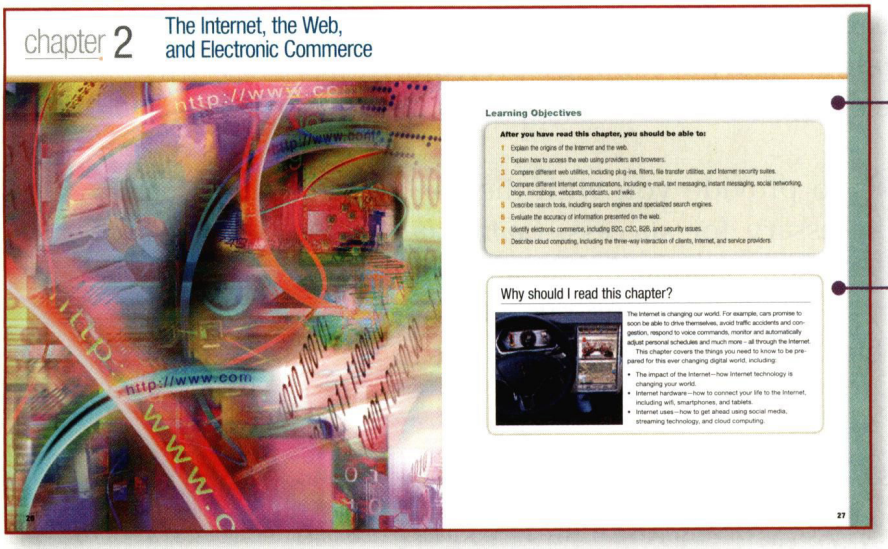
Times are changing, technology is changing, and this text is changing too. As students of today, you are different from those of yesterday. You put much effort toward the things that interest you and the things that are relevant to you. Your efforts directed at learning application programs and exploring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

At the beginning of each chapter, we carefully layout why and how the chapter's content is relevant to your life today and critical to your future. Within each chapter, 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 Learning

VISUAL CHAPTER OPENERS


chapter 2 The Internet, the Web, and Electronic Commerce

Learning Objectives

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

1. Explain the origins of the Internet and the web.
2. Explain how to access the web using providers and browsers.
3. Compare different web utilities, including plug-ins, filters, file transfer utilities, and Internet security suites.
4. Compare different Internet communications, including e-mail, text messaging, instant messaging, social networking, blogs, microblogs, webcasts, podcasts, and wikis.
5. Describe search tools, including search engines and specialized search engines.
6. Evaluate the accuracy of information presented on the web.
7. Identify electronic commerce, including B2C, C2C, B2B, and security issues.
8. Describe cloud computing, including the three-way interaction of clients, Internet, and service providers.

Why should I read this chapter?

The Internet is changing our world. For example, cars promise to soon be able to drive themselves, avoid traffic accidents and congestion, respond to voice commands, monitor and automatically adjust personal schedules and much more – all through the Internet.

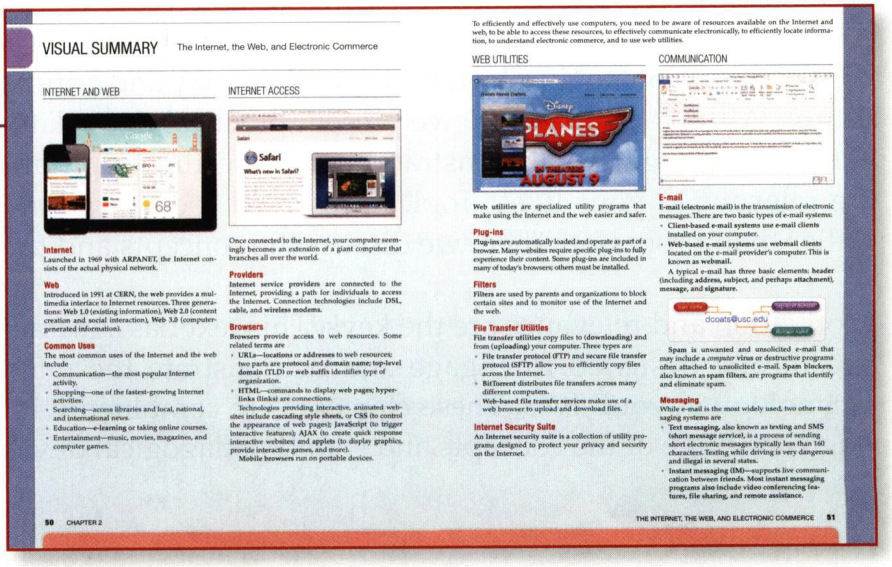
This chapter covers the things you need to know to be prepared for this ever changing digital world, including:

- The impact of the Internet—how Internet technology is changing your world.
- Internet hardware—how to connect your life to the Internet, including wifi, smartphones, and tablets.
- Internet uses—how to get ahead using social media, streaming technology, and cloud computing.

Each chapter begins with a list of chapter learning objectives and provides a brief introduction to what will be covered in the chapter. Additionally, the newly revised Why Should I Read This? feature presents a visually engaging and concise presentation of the chapter's relevance to the reader's current and future life in the digital world.

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.


VISUAL SUMMARY The Internet, the Web, and Electronic Commerce

INTERNET AND WEB

INTERNET ACCESS

Internet
Launched in 1969 with ARPANET, the Internet consists of the actual physical network.

Web
Introduced in 1991 at CERN, the web provides a multimedia interface to Internet resources. Three generations: Web 1.0 (existing information), Web 2.0 (content creation and social interaction), Web 3.0 (computer-generated information).

Common Uses
The most common uses of the Internet and the web include
- Communication—the most popular Internet activity.
- Shopping—one of the fastest-growing Internet activities.
- Searching—access libraries and local, national, and international news.
- Education—e-learning or taking online courses.
- Entertainment—music, movies, magazines, and computer games.

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

Providers
Internet service providers are connected to the Internet, providing a path for individuals to access the Internet. Connection technologies include DSL, cable, and wireless modems.

Browsers
Browsers provide access to web resources. Some related terms are
- URLs—locations or addresses to web resources; two parts are protocol and domain name; top-level domain (TLD) or web suffix identifies type of organization.
- HTML—commands to display web pages; hyperlinks (links) are connections.

Technologies providing interactive, animated websites include cascading style sheets, or CSS (to control the appearance of web pages); JavaScript (to trigger interactive features); AJAX (to create quick response interactive websites; and applets (to display graphics, provide interactive games, and more).

Mobile browsers run on portable devices.

To efficiently and effectively use computers, you need to be aware of resources available on the Internet and web, to be able to access these resources, to effectively communicate electronically, to efficiently locate information, to understand electronic commerce, and to use web utilities.

WEB UTILITIES

COMMUNICATION

Web utilities are specialized utility programs that make using the Internet and the web easier and safer.

Plug-ins
Plug-ins are automatically loaded and operate as part of a browser. Many websites require specific plug-ins to fully experience their content. Some plug-ins are included in many of today's browsers; others must be installed.

Filters
Filters are used by parents and organizations to block certain sites and to monitor use of the Internet and the web.

File Transfer Utilities
File transfer utilities copy files to (downloading) and from (uploading) your computer. Three types are
- File transfer protocol (FTP) and secure file transfer protocol (SFTP) allow you to efficiently copy files across the Internet.
- BitTorrent distributes file transfers across many different computers.
- Web-based file transfer services make use of a web browser to upload and download files.

Internet Security Suite
An Internet security suite is a collection of utility programs designed to protect your privacy and security on the Internet.

E-mail
E-mail (electronic mail) is the transmission of electronic messages. There are two basic types of e-mail systems:
- Client-based e-mail systems use e-mail clients installed on your computer.
- Web-based e-mail systems use webmail clients located on the e-mail provider's computer. This is known as webmail.

A typical e-mail has three basic elements: header (including address, subject, and perhaps attachment), message, and signature.

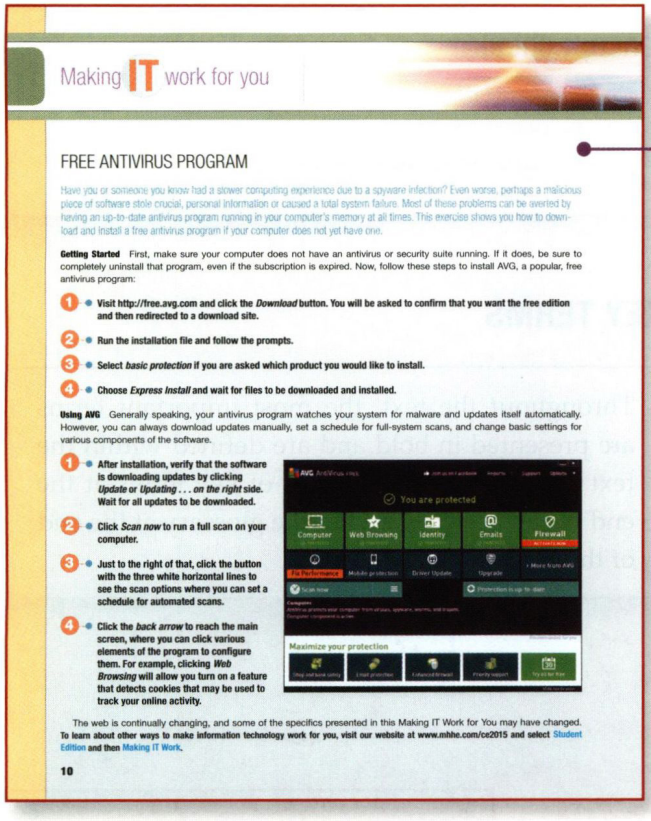
Spam is unwanted and unsolicited e-mail that may include a computer virus or destructive programs often attached to unsolicited e-mail. Spam blockers, also known as spam filters, are programs that identify and eliminate spam.

Messaging
While e-mail is the most widely used, two other messaging systems are
- Text messaging, also known as texting and SMS (short message service), is a process of sending short electronic messages typically less than 160 characters. Texting while driving is very dangerous and illegal in several states.
- Instant messaging (IM)—supports live communication between friends. Most instant messaging programs also include video conferencing features, file sharing, and remote assistance.

50 CHAPTER 2

THE INTERNET, THE WEB, AND ELECTRONIC COMMERCE 51

MAKING IT WORK FOR YOU



Making IT work for you

FREE ANTIVIRUS PROGRAM

Have you or someone you know had a slower computing experience due to a spyware infection? Even worse, perhaps a malicious piece of software stole crucial, personal information or caused a total system failure. Most of these problems can be averted by having an up-to-date antivirus program running in your computer's memory at all times. This exercise shows you how to download and install a free antivirus program if your computer does not yet have one.

Getting Started First, make sure your computer does not have an antivirus or security suite running. If it does, be sure to completely uninstall that program, even if the subscription is expired. Now, follow these steps to install AVG, a popular, free antivirus program:

1. **Visit http://free.avg.com and click the *Download* button. You will be asked to confirm that you want the free edition and then redirected to a download site.**
2. **Run the installation file and follow the prompts.**
3. **Select *basic protection* if you are asked which product you would like to install.**
4. **Choose *Express Install* and wait for files to be downloaded and installed.**

Using AVG Generally speaking, your antivirus program watches your system for malware and updates itself automatically. However, you can always download updates manually, set a schedule for full-system scans, and change basic settings for various components of the software.

1. **After installation, verify that the software is downloading updates by clicking *Update* or *Updating . . . on the right* side. Wait for all updates to be downloaded.**
2. **Click *Scan now* to run a full scan on your computer.**
3. **Just to the right of that, click the button with the three white horizontal lines to see the scan options where you can set a schedule for automated scans.**
4. **Click the *back arrow* to reach the main screen, where you can click various elements of the program to configure them. For example, clicking *Web Browsing* will allow you turn on a feature that detects cookies that may be used to track your online activity.**

The web is continually changing, and some of the specifics presented in this Making IT Work for You may have changed. **To learn about other ways to make information technology work for you, visit our website at www.mhhe.com/ce2015 and select Student Edition and then Making IT Work.**

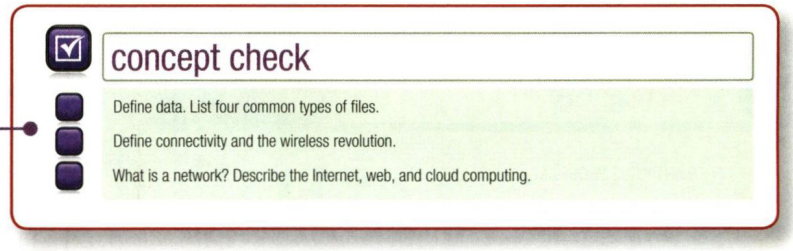
10

Special-interest topics are presented in the Making IT Work for You section found within nearly every chapter. These topics include Installing a Free Antivirus Program, Online Entertainment, Google Docs, Skype, and Cloud Storage.

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 presented.



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.

KEY TERMS

3-D printers (152)
active display area (148)
additive manufacturing (152)
aspect ratio (148)
bar code (144)
bar code reader (144)
bar code scanner (144)
Bluetooth (153)
card reader (144)
carpal tunnel syndrome (158)
cathode-ray tube (CRT) (150)
clarity (147)
cloud printer (153)
combination key (141)
contrast ratio (148)
cordless mouse (142)
dance pad (143)
digital camera (146)
digital whiteboard (150)
display screen (147)
document scanner (144)
dot pitch (148)
dots per inch (dpi) (151)
duplex printing (152)
e-book reader (148)
e-books (148)
e-ink (148)
e-reader (148)
electronic books (148)
ergonomics (157)
flat-panel monitor (148)
flatbed scanner (144)
game controller (142)
gamepads (143)
gloves (157)
Google Cloud Print (153)
grayscale (151)
handwriting recognition software (143)
hard copy (151)
headgear (157)
headsets (153)
high-definition television (HDTV) (150)
immersive experience (157)
inkjet printer (152)
input (140)
input device (140)
interactive whiteboard (150)
Internet telephone (154)
Internet telephony (154)
joystick (143)
keyboard (140)
laptop keyboard (141)
laser printer (152)
light-emitting diode (LED) (148)
liquid crystal display (LCD) (148)
magnetic card reader (144)
magnetic-ink character recognition (MICR) (145)
MaxiCode (145)
monitor (147)
motion-sensing device (143)
mouse (142)
mouse pointer (142)
multifunctional device (MFD) (154)
multitouch screen (142)
optical-character recognition (OCR) (145)
optical-mark recognition (OMR) (145)
optical mouse (142)
optical scanner (144)
output (147)
output device (147)
personal laser printer (152)
picture element (147)
pixel (147)
pixel pitch (148)
platform scanner (144)
plotter (153)
pointing device (142)
portable scanner (144)
printer (151)
QR codes (145)
repetitive strain injury (RSI) (158)
resolution (147)
RFID reader (145)
RFID (radio-frequency identification) tag (145)
scanner (144)
scanning devices (144)
shared laser printer (152)
Skype (154)
soft copy (147)
speakers (153)
stylus (143)
technical writer (159)
telephony (154)
thermal printer (153)
thumb keyboard (141)
toggle key (141)
touch pad (142)
touch screen (142)
traditional keyboard (141)
Universal Product Code (UPC) (145)
virtual keyboard (141)
virtual reality (VR) (157)
voice over IP (VoIP) (154)
voice recognition system (146)
wand reader (144)
webcam (146)
wheel button (142)
wireless mouse (142)

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.

MULTIPLE CHOICE

Circle the letter of the correct answer.

1. The keyboard, mouse, display, and system unit are:
   a. hardware c. storage devices
   b. output devices d. software
2. Programs that coordinate computer resources, provide an interface, and run applications are known as:
   a. application programs c. storage systems
   b. operating systems d. utility programs
3. A browser is an example of a:
   a. general-purpose application c. system application
   b. specialized program d. utility program
4. Although not as powerful as a supercomputer, this type of computer is capable of great processing speeds and data storage.
   a. mainframe c. laptop
   b. midrange d. tablet
5. The smallest type of personal computer:
   a. mobile device c. laptop
   b. midrange d. tablet
6. RAM is a type of:
   a. computer c. network
   b. memory d. secondary storage
7. Unlike memory, this type of storage holds data and programs even after electric power to the computer system has been turned off.
   a. primary c. ROM
   b. RAM d. secondary
8. The type of file created by word processors to save, for example, memos, term papers, and letters.
   a. database c. presentation
   b. document d. worksheet
9. Uses the Internet and the web to shift many computer activities from a user's computer to computers on the Internet.
   a. cloud computing c. network
   b. high definition d. solid-state storage
10. The largest network in the world is [the]:
    a. Facebook c. supercomputer
    b. Internet d. web

For an interactive multiple-choice practice test, visit our website at www.mhhe.com/ce2015, select Student Edition and choose Chapter 1 and then Multiple Choice.

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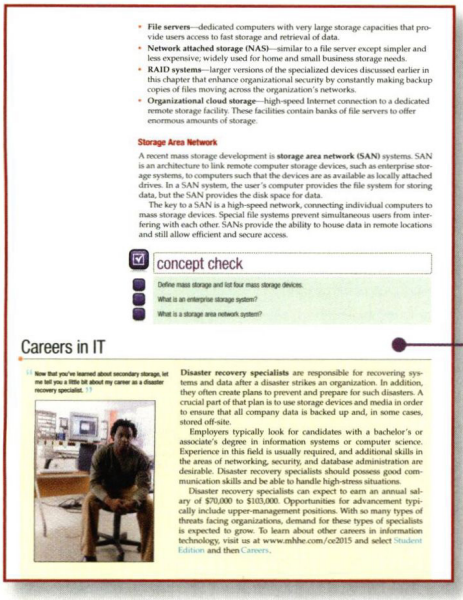
CAREERS IN IT



- **File servers**—dedicated computers with very large storage capacities that provide users access to fast storage and retrieval of data.
- **Network attached storage (NAS)**—similar to a file server except simpler and less expensive; widely used for home and small business storage needs.
- **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.
- **Organizational cloud storage**—high-speed Internet connection to a dedicated remote storage facility. These facilities contain banks of file servers to offer enormous amounts of storage.

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 four mass storage devices.

What is an enterprise storage system?

What is a storage area network system?

Careers in IT

"Now that you've learned about secondary storage, let me tell you a little bit about my career as a disaster recovery specialist. "

Disaster recovery specialists are responsible for recovering systems and data after a disaster strikes an organization. In addition, they often create plans to prevent and prepare for such disasters. A crucial part of that plan is to use storage devices and media in order to ensure that all company data is backed up and, in some cases, stored off-site.

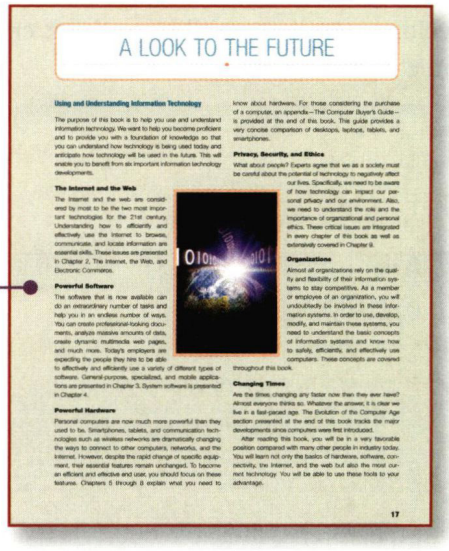
Employers typically look for candidates with a bachelor's or associate's degree in information systems or computer science. Experience in this field is usually required, and additional skills in the areas of networking, security, and database administration are desirable. Disaster recovery specialists should possess good communication skills and be able to handle high-stress situations.

Disaster recovery specialists can expect to earn an annual salary of $70,000 to $103,000. Opportunities for advancement typically include upper-management positions. With so many types of threats facing organizations, demand for these types of specialists is expected to grow. To learn about other careers in information technology, visit us at www.mhhe.com/ce2015 and select Student Edition and then 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

Using and Understanding Information Technology

The purpose of this book is to help you use and understand information technology. We want to help you become proficient and to provide you with a foundation of knowledge so that you can understand how technology is being used today and anticipate how technology will be used in the future. This will enable you to benefit from six important information technology developments.

The Internet and the Web

The Internet and the web are considered by most to be the two most important technologies for the 21st century. Understanding how to efficiently and effectively use the Internet to browse, communicate, and locate information are essential skills. These issues are presented in Chapter 2, The Internet, the Web, and Electronic Commerce.

Powerful Software

The software that is now available can do an extraordinary number of tasks and help you in an endless number of ways. You can create professional-looking documents, analyze massive amounts of data, create dynamic multimedia web pages, and much more. Today's employers are expecting the people they hire to be able to effectively and efficiently use a variety of different types of software. General-purpose, specialized, and mobile applications are presented in Chapter 3, System software is presented in Chapter 4.

Powerful Hardware

Personal computers are now much more powerful than they used to be. Smartphones, tablets, and communication technologies such as wireless networks are dramatically changing the ways to connect to other computers, networks, and the Internet. However, despite this rapid change of specific equipment, their essential features remain unchanged. To become an efficient and effective end user, you should focus on these features. Chapters 5 through 8 explain what you need to know about hardware. For those considering the purchase of a computer, an appendix—The Computer Buyer's Guide—is provided at the end of this book. This guide provides a very concise comparison of desktops, laptops, tablets, and smartphones.

Privacy, Security, and Ethics

What about people? Experts agree that we as a society must be careful about the potential of technology to negatively affect our lives. Specifically, we need to be aware of how technology can impact our personal privacy and our environment. Also, we need to understand the role and the importance of organizational and personal ethics. These critical issues are integrated in every chapter of this book as well as extensively covered in Chapter 9.

Organizations

Almost all organizations rely on the quality and flexibility of their information systems to stay competitive. As a member or employee of an organization, you will undoubtedly be involved in these information systems. In order to use, develop, modify, and maintain these systems, you need to understand the basic concepts of information systems and know how to safely, efficiently, and effectively use computers. These concepts are covered throughout this book.

Changing Times

Are the times changing any faster now than they ever have? Almost everyone thinks so. Whatever the answer, it is clear we live in a fast-paced age. The Evolution of the Computer Age section presented at the end of this book tracks the major developments since computers were first introduced.

After reading this book, you will be in a very favorable position compared with many other people in industry today. You will learn not only the basics of hardware, software, connectivity, the Internet, and the web but also the most current technology. You will be able to use these tools to your advantage.

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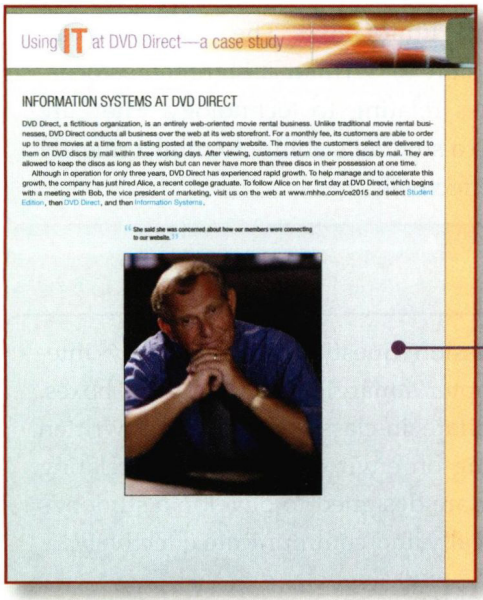
USING IT AT DVD DIRECT—A CASE STUDY



Using IT at DVD Direct—a case study

INFORMATION SYSTEMS AT DVD DIRECT

DVD Direct, a fictitious organization, is an entirely web-oriented movie rental business. Unlike traditional movie rental businesses, DVD Direct conducts all business over the web at its web storefront. For a monthly fee, its customers are able to order up to three movies at a time from a listing posted at the company website. The movies the customers select are delivered to them on DVD discs by mail within three working days. After viewing, customers return one or more discs by mail. They are allowed to keep the discs as long as they wish but can never have more than three discs in their possession at one time.

Although in operation for only three years, DVD Direct has experienced rapid growth. To help manage and to accelerate this growth, the company has just hired Alice, a recent college graduate. To follow Alice on her first day at DVD Direct, which begins with a meeting with Bob, the vice president of marketing, visit us on the web at www.mhhe.com/ce2015 and select Student Edition, then DVD Direct, and then Information Systems.

"She said she was concerned about how our members were connecting to our website. "

Beginning in Chapter 10 and continuing through Chapter 13, Using IT at DVD Direct—A Case Study of a fictitious organization provides an up-close look at what you might expect to find on the job in the real world. You will follow Alice, a recent college graduate hired as a marketing analyst, as she navigates her way through accounting, marketing, production, human resources, and research, gathering and processing data to help manage and accelerate the growth of the three-year-old company.

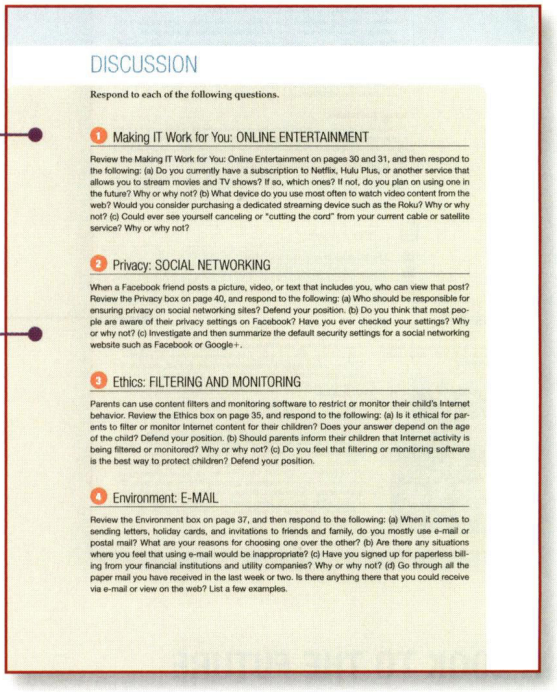
Unique End-of-Chapter Discussion Materials

MAKING IT WORK FOR YOU

Making IT Work for You discussion questions are carefully integrated with the chapter's Making IT Work for You topics. The questions facilitate in-class discussion or written assignments focusing on applying specific technologies into a student's day-to-day life. They are designed to expand a student's awareness of technology applications.

PRIVACY

Privacy discussion questions are carefully integrated with the chapter's marginal Privacy box. The questions facilitate in-class discussion or written assignments focusing on critical privacy issues. They are designed to develop a student's ability to think critically and communicate effectively.



DISCUSSION

Respond to each of the following questions.

1 Making IT Work for You: ONLINE ENTERTAINMENT

Review the Making IT Work for You: Online Entertainment on pages 30 and 31, and then respond to the following: (a) Do you currently have a subscription to Netflix, Hulu Plus, or another service that allows you to stream movies and TV shows? If so, which ones? If not, do you plan on using one in the future? Why or why not? (b) What device do you use most often to watch video content from the web? Would you consider purchasing a dedicated streaming device such as the Roku? Why or why not? (c) Could ever see yourself canceling or "cutting the cord" from your current cable or satellite service? Why or why not?

2 Privacy: SOCIAL NETWORKING

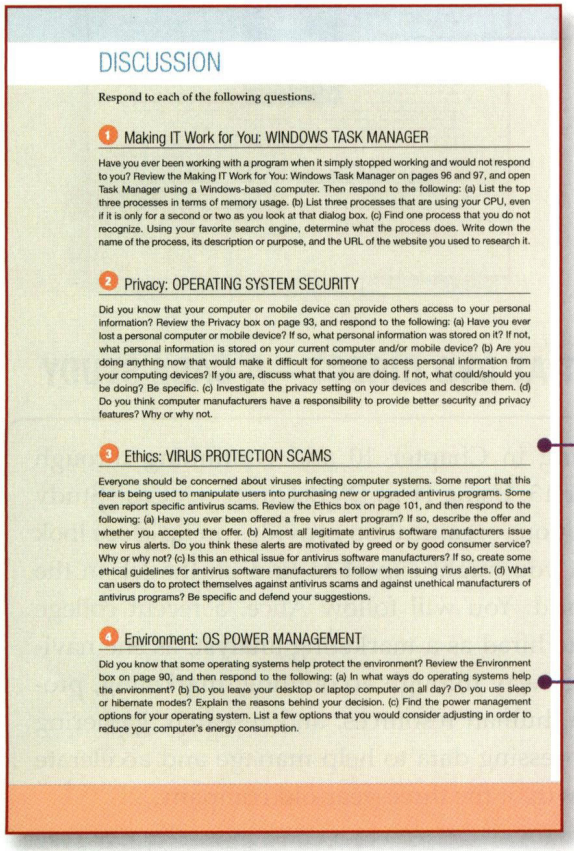
When a Facebook friend posts a picture, video, or text that includes you, who can view that post? Review the Privacy box on page 40, and respond to the following: (a) Who should be responsible for ensuring privacy on social networking sites? Defend your position. (b) Do you think that most people are aware of their privacy settings on Facebook? Have you ever checked your settings? Why or why not? (c) Investigate and then summarize the default security settings for a social networking website such as Facebook or Google+.

3 Ethics: FILTERING AND MONITORING

Parents can use content filters and monitoring software to restrict or monitor their child's Internet behavior. Review the Ethics box on page 35, and respond to the following: (a) Is it ethical for parents to filter or monitor Internet content for their children? Does your answer depend on the age of the child? Defend your position. (b) Should parents inform their children that Internet activity is being filtered or monitored? Why or why not? (c) Do you feel that filtering or monitoring software is the best way to protect children? Defend your position.

4 Environment: E-MAIL

Review the Environment box on page 37, and then respond to the following: (a) When it comes to sending letters, holiday cards, and invitations to friends and family, do you mostly use e-mail or postal mail? What are your reasons for choosing one over the other? (b) Are there any situations where you feel that using e-mail would be inappropriate? (c) Have you signed up for paperless billing from your financial institutions and utility companies? Why or why not? (d) Go through all the paper mail you have received in the last week or two. Is there anything there that you could receive via e-mail or view on the web? List a few examples.



DISCUSSION

Respond to each of the following questions.

1 Making IT Work for You: WINDOWS TASK MANAGER

Have you ever been working with a program when it simply stopped working and would not respond to you? Review the Making IT Work for You: Windows Task Manager on pages 96 and 97, and open Task Manager using a Windows-based computer. Then respond to the following: (a) List the top three processes in terms of memory usage. (b) List three processes that are using your CPU, even if it is only for a second or two as you look at that dialog box. (c) Find one process that you do not recognize. Using your favorite search engine, determine what the process does. Write down the name of the process, its description or purpose, and the URL of the website you used to research it.

2 Privacy: OPERATING SYSTEM SECURITY

Did you know that your computer or mobile device can provide others access to your personal information? Review the Privacy box on page 93, and respond to the following: (a) Have you ever lost a personal computer or mobile device? If so, what personal information was stored on it? If not, what personal information is stored on your current computer and/or mobile device? (b) Are you doing anything now that would make it difficult for someone to access personal information from your computing devices? If you are, discuss what that you are doing. If not, what could/should you be doing? Be specific. (c) Investigate the privacy setting on your devices and describe them. (d) Do you think computer manufacturers have a responsibility to provide better security and privacy features? Why or why not.

3 Ethics: VIRUS PROTECTION SCAMS

Everyone should be concerned about viruses infecting computer systems. Some report that this fear is being used to manipulate users into purchasing new or upgraded antivirus programs. Some even report specific antivirus scams. Review the Ethics box on page 101, and then respond to the following: (a) Have you ever been offered a free virus alert program? If so, describe the offer and whether you accepted the offer. (b) Almost all legitimate antivirus software manufacturers issue new virus alerts. Do you think these alerts are motivated by greed or by good consumer service? Why or why not? (c) Is this an ethical issue for antivirus software manufacturers? If so, create some ethical guidelines for antivirus software manufacturers to follow when issuing virus alerts. (d) What can users do to protect themselves against antivirus scams and against unethical manufacturers of antivirus programs? Be specific and defend your suggestions.

4 Environment: OS POWER MANAGEMENT

Did you know that some operating systems help protect the environment? Review the Environment box on page 90, and then respond to the following: (a) In what ways do operating systems help the environment? (b) Do you leave your desktop or laptop computer on all day? Do you use sleep or hibernate modes? Explain the reasons behind your decision. (c) Find the power management options for your operating system. List a few options that you would consider adjusting in order to reduce your computer's energy consumption.

ETHICS

Ethics discussion questions are carefully integrated with the chapter's marginal Ethics boxes. The questions facilitate in-class discussion or written assignments focusing on ethical issues relating to technology. They are designed to develop a student's ability to think critically and communicate effectively.

ENVIRONMENT

Environment discussion questions are carefully integrated with the chapter's marginal Environment boxes. The questions facilitate in-class discussion or written assignments focusing on environmental issues relating to technology. They are designed to develop a student's ability to think critically and communicate effectively.

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/ce2015.

Students can access materials by going to www.mhhe.com/ce2015 and selecting **Student Edition.** Students can find a host of additional resources on the website, including animations of key concepts 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 case approach to learning computer applications.

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 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.simnetkeepitsimple.com.

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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. Now, they are joined by their son Dan O'Leary as a coauthor. Dan is completing his PhD in Electrical Engineering with significant experience in teaching and consulting in information technology.

The O'Leary's form a unique team blending experience and youth. Tim has taught courses at Stark Technical College in Canton, Ohio, and at Rochester Institute of Technology in upstate New York, and is currently a professor emeritus at Arizona State University. Linda offered her expertise at ASU for several years as an academic advisor. She also presented and developed materials for major corporations such as Motorola, Intel, Honeywell, and AT&T, as well as various community colleges in the Phoenix area. Dan has taught at the University of California at Santa Cruz, developed energy-related labs at NASA, and worked as a database administrator and as a consultant in information systems.

Tim, Linda, and Dan have talked to and taught numerous students, all of them with a desire to learn something about computers and applications that make their lives easier, more 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).

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