

Unit 6 Software

Computer Concepts 2016

ENHANCED EDITION



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- Section A: Software Basics
- Section B: Operating Systems
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6 Section A: Software Basics

- Essentials
- Distribution
- Software Licenses
- Pirated Software

Unit 6: Software

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6 Essentials

- When searching for new software, it helps to have a framework of categories

FIGURE 6-1: SOFTWARE CATEGORIES



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6 Essentials

FIGURE 6-1: SOFTWARE CATEGORIES



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6 Essentials

- There is no universal standard for categorizing software, but various categorization schemes have many similarities



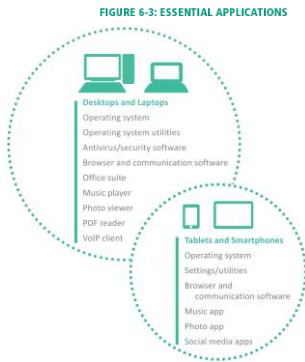
FIGURE 6-2: SOFTWARE CATEGORIES ARE NOT STANDARDIZED

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6 Essentials

- Mobile devices are used differently from desktop and laptop computers, so the configuration of their software is slightly different
- An OS is still required, but utilities are replaced by settings or preferences



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6 Distribution

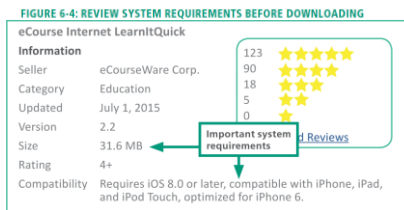
- Most consumers obtain software online, where it can be downloaded directly from the developer or from a software aggregator
- An **executable file** contains a computer program that is carried out step-by-step within the microprocessor
- Software can contain viruses and other malware, so consumers should download new applications only from trusted sources
- Software developers usually have a Web site for distributing software; well-established developers tend to offer trustworthy products

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6 Distribution

- **System requirements** specify the operating system and minimum hardware capacities necessary for a software product to work correctly



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6 Distribution

- When a new version or edition of a software product is released it is referred to as a **software upgrade**
- A **software update** (sometimes called a software patch) is a small section of program code that replaces part of the software currently installed
- The term **service pack**, which usually applies to operating system updates, refers to a set of updates
- Updates and service packs are designed to correct problems and address security vulnerabilities

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6 Distribution

- Software can be obtained under a variety of pricing models
 - **One-time purchase** – the software remains basically the same as when it was purchased
 - **Subscription** – consumers pay an annual fee to use software; updates and upgrades are usually included in the pricing
 - **Trial** – consumers use a software product during a free trial period
 - **Freemium** – provides free use of a stripped-down or basic version of the product but requires payment for upgraded features

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6 Software Licenses

- A **software license**, or license agreement, is a legal contract that defines the ways in which a computer program may be used
- These licenses are sometimes referred to as **EULAs** (End User License Agreements)



FIGURE 6-6: WHEN CAN SOFTWARE BE LEGALLY COPIED?
The purchaser has the right to copy software from distribution media or a Web site to a device's internal storage medium in order to install it.



The purchaser can make an extra, or backup, copy of the software in case the original copy becomes erased or damaged—unless the process of making the backup requires the purchaser to defeat a copy protection mechanism designed to prohibit copying.



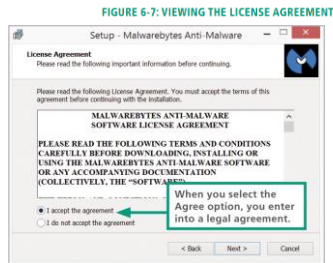
The purchaser is allowed to copy and distribute sections of a software program for use in critical reviews and teaching.

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6 Software Licenses

- License agreements are displayed during the installation process; by clicking the I Agree button, you consent to the terms of the license agreement



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6 Software Licenses

- **Public domain software** is not protected by copyright because the copyright has expired or the author has placed the program in the public domain, making it available without restriction
- **Proprietary software** has restrictions on its use that are delineated by copyright, patents, or license agreements
- **Commercial software** is usually sold in retail stores or on Web sites; most commercial software is distributed under a **single-user license** that limits use to one person at a time

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6 Software Licenses

- A **site license** is generally priced at a flat rate and allows software to be used on all computers at a specific location
- A **multiple-user license** is priced per copy and allows the allocated number of copies to be used simultaneously

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6 Software Licenses

- **Freeware** is copyrighted software that—as you might expect—is available for free; it's fully functional and requires no payment for its use
- **Demonware** is proprietary software made available as a trial version; it's distributed for free and often comes preinstalled on new devices
- **Product activation** is a means of protecting software from illegal copying by requiring users to enter a product key or an activation code

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6 Software Licenses

- A **hash value** is a unique number derived from encoding one or more data sets, such as names, serial numbers, and validation codes
- **Shareware** is copyrighted software marketed under a try-before-you-buy policy; it was conceived as a low-cost marketing and distribution channel for independent programmers

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6 Software Licenses

- **Open source software** makes uncompiled program instructions—the source code—available to programmers who want to modify and improve the software; Linux is an example of open source software
- Two of the most common open source and free software licenses are BSD and GPL

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6 Software Licenses

- The **BSD license** originated as the Berkeley Software Distribution license for a server operating system
- The **GPL** (General Public License) was developed for a free operating system called GNU; it's slightly more restrictive than the BSD license because it requires derivative works to be licensed

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6 Pirated Software

- People who circumvent copyright law and illegally copy, distribute, or modify software are sometimes called software pirates, and their illegal copies are referred to as **pirated software**

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6 Pirated Software

- According to the Software & Information Industry Association (SIIA), the following characteristics can help you spot pirated software:
 - Software sold at Web sites for prices well below retail
 - Commercial software offered as a free download from a third-party Web site or Tor server
 - Software sold in a clear CD-ROM jewel case with no accompanying documentation, license, registration card, or Certificate of Authenticity
 - Software marked as an "Academic" product but not purchased through an authorized dealer
 - Software marked as "OEM" or "For Distribution Only With New PC Hardware"

Cont...

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6 Pirated Software

- Software marked "NFR" (not for resale)
- Software CD-ROMs with handwritten labels
- Backup discs that you receive from a computer retailer containing handwritten labels
- Poor graphics and coloring of labels, disc jackets, or documentation
- Multiple programs from many different publishers on a single CD-ROM (commonly referred to as compilation CDs)
- Photocopied manuals

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6 Section B: Operating Systems

- Operating System Basics
- Microsoft Windows
- OS X
- iOS
- Android
- Chrome OS
- Virtual Machines

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6 Operating System Basics

- An operating system gives your digital device a personality; it controls key elements of the **user interface**, which includes the visual experience as well as the keyboard, mouse, microphone, or touchscreen that collects user commands
- Behind the scenes, the OS is busy supervising critical operations that take place within a device

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6 Operating System Basics



Desktop operating systems. A **desktop operating system** is designed for a desktop or laptop computer. The computer you use at home, at school, or at work is most likely configured with a desktop operating system, such as Microsoft Windows, OS X, or Chrome OS. Key characteristics of desktop operating systems include the following:

- Accommodate one user at a time, but allow multiple accounts
- Provide local area networking capability
- Include file management tools
- Run more than one application at a time
- Offer a graphical user interface designed for keyboard and mouse input

FIGURE 6-10: OPERATING SYSTEM CATEGORIES

6 Operating System Basics



Mobile operating systems. Operating systems such as iOS and Android are classified as **mobile operating systems** because they are designed for use on smartphones, tablet computers, and ebook readers. Key characteristics of mobile operating systems include the following:

- Accommodate one user at a time
- Provide connectivity to wireless local area networks
- Offer a graphical user interface designed for touchscreen input
- Include integrated cellular communications

FIGURE 6-10: OPERATING SYSTEM CATEGORIES

6 Operating System Basics



Server operating systems. Computers that are deployed as Web servers, or as servers for files, applications, databases, or email, generally use a **server operating system** designed for distributed networks accessed by many simultaneous users. Linux, UNIX, Windows Server, and OS X Server are examples of popular server operating systems with the following characteristics:

- Accommodate multiple simultaneous users
- Include sophisticated network management and security tools
- Provide a utilitarian user interface

FIGURE 6-10: OPERATING SYSTEM CATEGORIES

6 Operating System Basics

- During the boot process, the OS kernel is loaded into RAM; a **kernel** provides essential operating system services, such as memory management and file access
- In the context of digital devices, the term **resource** refers to any component that is required to perform work

6 Operating System Basics

FIGURE 6-11: OPERATING SYSTEM RESOURCE MANAGEMENT TASKS



Manage processor resources to handle simultaneous input, output, and processing tasks



Manage memory by allocating space for all the programs and data that are in use during a computing session



Keep track of storage resources so that files and programs can be found and manipulated



Ensure that input and output proceed in an orderly manner by communicating with peripheral devices



Establish basic elements of the user interface such as the appearance of the desktop, menus, and toolbars

6 Operating System Basics

- Many activities—called **processes**—compete for the attention of a device's microprocessor
- To manage all these competing processes, an operating system must ensure that each process receives its share of attention from the microprocessor

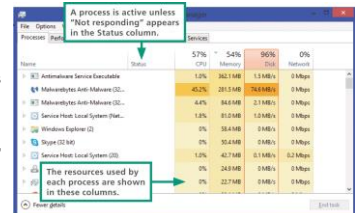


FIGURE 6-12: VIEW ACTIVE PROCESSES

6 Operating System Basics

- Depending on the capabilities of the operating system and computer hardware, processes can be managed by multitasking, multithreading, and multiprocessing
 - **Multitasking** – provides process and memory management services that allow two or more tasks, jobs, or programs to run simultaneously
 - **Multithreading** – allows multiple commands, or threads to run simultaneously
 - **Multiprocessing** – a capability that supports a division of labor among all the processing units

6 Operating System Basics

- When you want to run more than one application at a time, the OS has to allocate specific areas of memory for each; sometimes application requests memory but never releases it—a condition called a **memory leak**
- Memory "leaks" away into this application reserved area, eventually preventing other applications from accessing enough memory to function properly

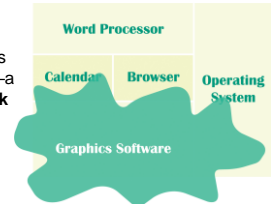


FIGURE 6-13: DURING A MEMORY LEAK, A PROGRAM OVERRUNS ITS MEMORY SPACE

6 Operating System Basics

- An OS ensures that input and output proceed in an orderly manner, using buffers to collect and hold data while the device is busy with other tasks

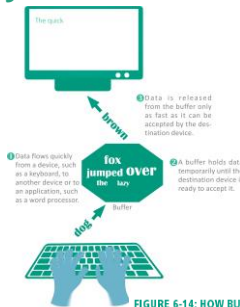


FIGURE 6-14: HOW BUFFERS WORK

6 Microsoft Windows

- **Microsoft Windows** is installed on more than 80% of the world's personal computers
- The Windows OS got its name from the rectangular work areas displayed on its screen-based desktop
- Windows evolved from a Microsoft OS called **DOS** (Disk Operating System) that was designed to run on early PCs with Intel or Intel-compatible microprocessors
- The most recent versions of Windows are Windows 7, Windows 8, and Windows 10

6 Microsoft Windows



FIGURE 6-15: WINDOWS DESKTOP ELEMENTS

- 1 Desktop icons represent programs, folders, and data files.
- 2 Tiles provide quick access to apps.
- 3 An application window displays a program.
- 4 Another application window displays a calculator.
- 5 The Windows Start button opens the Start menu.
- 6 The Search box locates applications and data files.

Cont...

6 Microsoft Windows

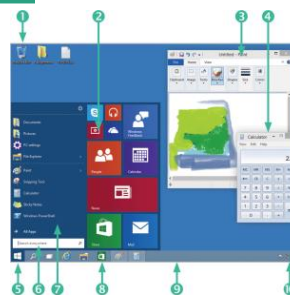
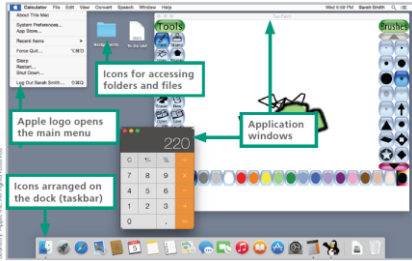


FIGURE 6-15: WINDOWS DESKTOP ELEMENTS

- 7 The Start menu provides access to frequently used applications and utilities.
- 8 Application icons are "pinned" to the taskbar.
- 9 The desktop taskbar contains the Start button, pinned icons, and the notification area.
- 10 The notification area displays status icons.

6 OS X

FIGURE 6-18: MAC OS X DESKTOP ELEMENTS



➤ As a desktop operating system, OS X features beautifully designed icons and multiple rectangular work areas to reflect multitasking capabilities

6 OS X

FIGURE 6-19: OS X EVOLUTION



➤ In 2012, Apple released OS X 10.8 and officially dropped “Mac” from the operating system’s name

6 OS X

- OS X has a reputation for being an easy-to-use, reliable, and secure operating system
- OS X uses a kernel based on UNIX, a server operating system that includes industrial-strength memory protection features that contribute to a low incidence of errors and glitches

6 OS X

- Files maintained by OS X have two parts, called forks:
 - The **data fork** is similar to files in other operating systems; it contains data, such as the commands for a program and graphics for a photo
 - The **resource fork** is a companion file that stores information about the data in the data fork, such as the file type and the application that created it

FIGURE 6-20: RESOURCE FORKS

Name	Type	Size
BookOnReader Libs		
._DS_Store		4 KB
._DS_Store		13 KB
Autourun.inf		1 KB
BookOnReader.exe		10,441 KB
BookOnReader.lnk	LNK File	1 KB
MTC-icon.png	PNG File	13 KB
Readme.rtf	Rich Text Format	11 KB

These resource forks appear when a program from a Mac is copied to a computer running Windows. The .DS files are not used by Windows and can be deleted.

6 iOS

FIGURE 6-21: IOS IS DESIGNED FOR MOBILE DEVICES

- iOS is derived from the OS X code and shares its UNIX roots
- Both OSs feature icons with similar design aesthetic



6 iOS

- **Limitations to iOS:**
 - iOS limits your selection of apps to those provided by the online Apple App Store, unless you make unauthorized modifications to “jailbreak” the phone
 - Background processes, such as music, voice calls, and notifications, provide very limited multitasking capabilities

6 Android

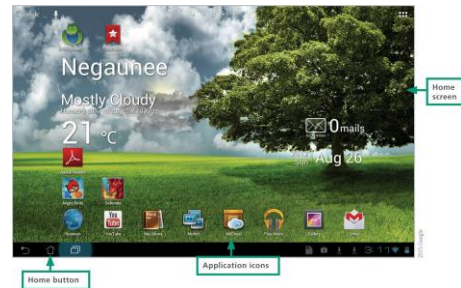
- Developed in 2007, **Android** is a mobile operating system that is a popular platform for tablet computers, smartphones, and ebook readers
- Android devices have a screen-based home button rather than a physical button
- In addition to touchscreen input, the Android OS supports voice input for Google searching, voice dialing, navigation, and other applications

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6 Android

FIGURE 6-22: ANDROID RUNS ON SMARTPHONES AND TABLETS



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6 Chrome OS

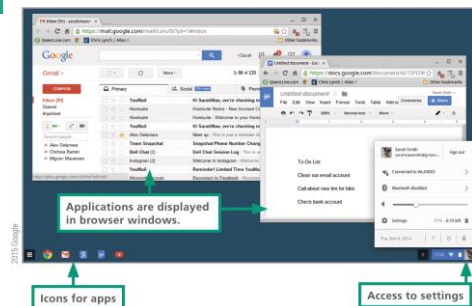
- Google launched an OS called Chrome OS in 2009 with a kernel based on an open source OS called Linux
- Chrome OS is an example of a **thin client** because it depends substantially on processing and storage provided by a remote computer—in this case, cloud-based servers
- Unlike iPads, Chromebooks support multiple users, but provide limited storage space
- Chromebooks boot very quickly to a simple desktop where apps are displayed in the Chrome browser

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6 Chrome OS

FIGURE 6-23: ELEMENTS OF CHROME OS



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6 Virtual Machines

- It's possible to run Windows on a Mac using a virtual machine
- A **virtual machine** (VM) allows one computer to simulate the hardware and software of another
- Each VM has its own simulated processor, RAM, video card, input and output ports, and OS
- Popular VM software such as VMware and Parallels Desktop can run on most computers with Intel microprocessors, including Intel Macs, PCs, and generic Linux computers

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6 Virtual Machines

FIGURE 6-24: A VIRTUAL MACHINE SIMULATES ONE OR MORE DIGITAL DEVICES



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6 Section C: Apps and Applications

- Web Apps
- Mobile Apps
- Local Applications
- Portable Software
- Uninstalling Software

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6 Web Apps

- A **Web application** (or Web app) is software that is accessed with a Web browser
- Web apps are an example of cloud computing
- Some popular Web apps include: Gmail, Google Docs, and Turnitin
- Most Web apps require no installation at all on your local computer or handheld device

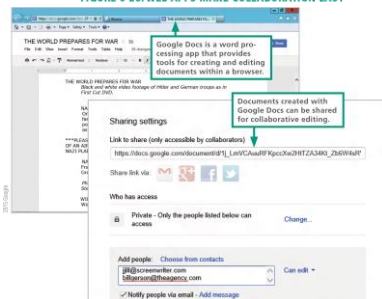
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6 Web Apps

FIGURE 6-26: WEB APPS MAKE COLLABORATION EASY

- Web apps allow several people to collaborate on projects because the project files are stored on the Web and can be easily shared



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6 Web Apps Advantages:

- ⊕ You can access Web apps from any device that has a browser and an Internet connection, including full-size computers, smartphones, tablet computers, and enhanced media players.
- ⊕ Your data is usually stored on the app's Web site, so you can access data even when you are away from your main computer.
- ⊕ Web apps are always up to date; you don't have to install updates because the latest version is the one posted at the Web site where you access the app.
- ⊕ Web apps don't require local storage space, so you don't have to worry about them accumulating on your hard disk or SSD.

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6 Web Apps Disadvantages:

- ⊖ Web apps tend to have fewer features than applications that require installation.
- ⊖ If the site hosting the app shuts down, you will not be able to access the application or your data.
- ⊖ Your data might be more vulnerable to exposure or loss because it is out of your control. If possible, back up data to a local device or to an auxiliary cloud storage site.

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6 Mobile Apps

FIGURE 6-27: SOFTWARE FOR MOBILE DEVICES

- A mobile app is designed for a handheld device, such as a smartphone, tablet computer, or enhanced media player
- Most handheld devices can use both Web apps and mobile apps
- Some apps, such as Yelp and Pandora, are hybrids; a thin client is downloaded from an app store, but during use, data is accessed from the Web

⊗ Installed app
⊕ Internet
⊕ Browser

Web apps accessed using a mobile browser

⊕ Installed app
⊕ Internet
⊗ Browser

Hybrid apps that require data from the Internet

⊕ Installed app
⊗ Internet
⊗ Browser

Mobile apps that operate without an Internet connection

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6 Mobile Apps

- iPads, iPhones, and iPods are only allowed to download apps from the official iTunes App Store
- Apps are available from other sources, but using them requires an unauthorized change to the device's software called a **jailbreak**
- After downloading and installing the jailbreak software, your device will be able to install apps from a variety of sources other than the iTunes App Store
- The process of making unauthorized modifications to any mobile device is called **rooting**

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6 Local Applications

- A **local application** is installed on a computer's hard disk
- Office suites, games, and professional software tools are common examples of local applications for desktop and laptop computers

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6 Local Applications

- Software designed for computers that run Microsoft Windows is commonly composed of multiple files; the main executable file has an **.exe** extension—for example, *Inkscape.exe*
- Additional files required for Windows application software contain support modules called **application extensions** with file names that end in **.dll**

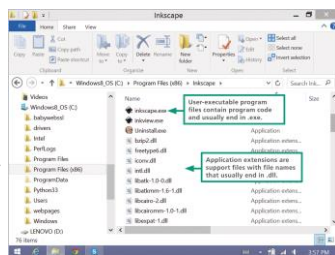


FIGURE 6-28: PC SOFTWARE CAN BE COMPOSED OF MANY FILES

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6 Local Applications

- Software for PCs contains a **setup program** that guides you through the installation process
- During the installation process, the setup program usually performs the following activities:

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6 Local Applications

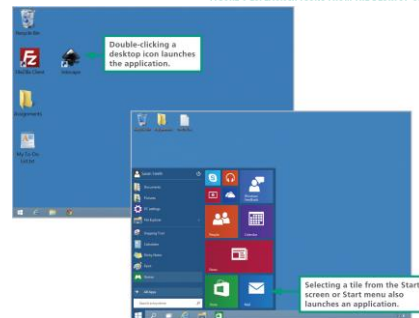
- **Copy files.** Copies application files from distribution media (CDs or DVDs) or downloads files to specified folders on the hard disk
- **Unzip files.** Reconstitutes files that have been distributed in compressed format
- **Check resources.** Analyzes the computer's resources, such as processor speed, RAM capacity, and hard disk capacity, to verify that they meet or exceed the minimum system requirements
- **Select device drivers.** Analyzes hardware components and peripheral devices to select appropriate device drivers
- **Find players.** Looks for any system files and players, such as Internet Explorer or Windows Media Player, that are required to run the program but are not supplied on the distribution media or download
- **Update the Registry.** Updates necessary system files, such as the Windows Registry and the Start menu, with information about the new software
- **Update the desktop.** Places an icon or tile for the new software on the Windows desktop, Start screen, or Start menu (Figure 6-29)

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6 Local Applications

FIGURE 6-29: LAUNCH ICONS FROM THE DESKTOP OR START SCREEN



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6 Portable Software

- **Portable software** is designed for PCs and it runs from removable storage, such as a USB flash drive
- There are a limited number of portable apps, but the available selection covers most essential tasks
- Portable software is so simple to install that it is sometimes referred to as install-free software

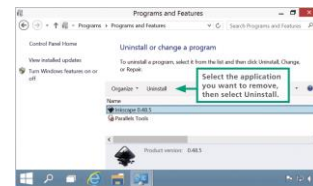
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6 Uninstalling Software

- The process of removing software differs for PCs and Macs
- Most Mac users simply use Finder to locate the program's APP file or folder and move it to the trash
- The Windows OS includes an **uninstall utility**, which deletes the software's files from various folders on your computer's hard disk

FIGURE 6-34: USE THE UNINSTALL UTILITY TO REMOVE SOFTWARE FROM A PC



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6 Section D: Productivity Software

- Office Suite Basics
- Word Processing
- Spreadsheets
- Databases
- Presentations

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6 Office Suite Basics

- Office suites, such as Microsoft Office, are sometimes referred to as **productivity software**
- An **office suite** is a collection of programs that typically include word processing, spreadsheet, and presentation modules
- In the context of office suites, the term module refers to a component, such as a word processing module

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6 Word Processing

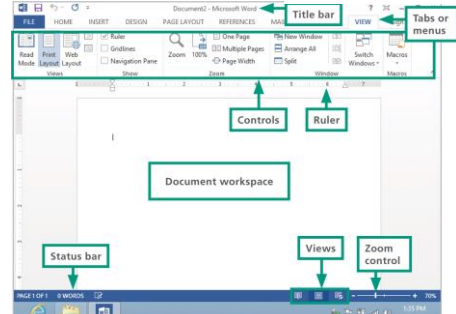
- Word processing software has replaced typewriters for producing many types of documents, including reports, letters, memos, papers, and book manuscripts
- A typical word processor window displays a work area, called a workspace, that represents a blank piece of paper; the window also includes controls for viewing and formatting the document

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6 Word Processing

FIGURE 6-36: MICROSOFT WORD BASICS

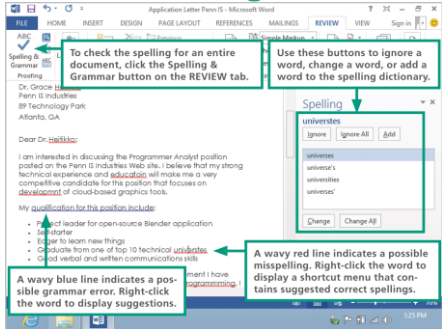


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6 Word Processing

FIGURE 6-37: CHECK SPELLING AND GRAMMAR

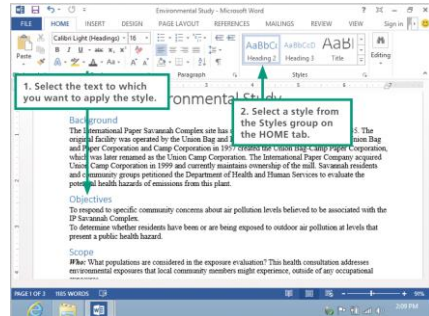


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6 Word Processing

FIGURE 6-38: USE STYLES FOR PROFESSIONAL FORMATTING



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6 Spreadsheets

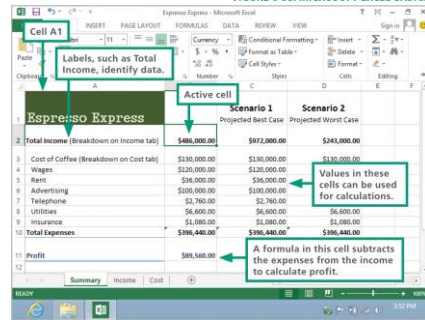
- A **spreadsheet** uses rows and columns of numbers to create a model or representation of a real situation
- **Spreadsheet software**, such as Microsoft Excel and Google Docs Sheets, provides tools to create electronic spreadsheets
- Because it is so easy to experiment with different numbers, spreadsheet software is particularly useful for **what-if analysis**

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6 Spreadsheets

FIGURE 6-39: MICROSOFT EXCEL BASICS

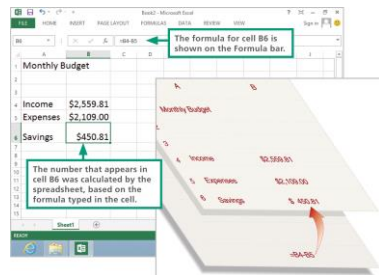


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6 Spreadsheets

FIGURE 6-40: HOW SPREADSHEET FORMULAS WORK BEHIND THE SCENES



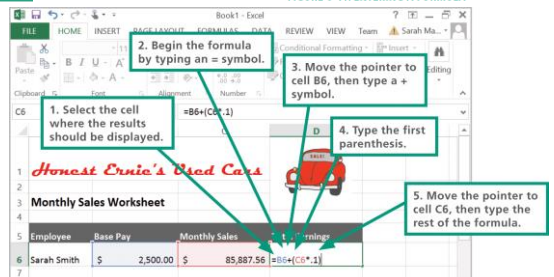
When a cell contains a formula, it displays the result of the formula rather than the formula itself. To view and edit the formula, use the Formula bar. You can think of the formula as working behind the scenes to perform calculations and then display the result.

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6 Spreadsheets

FIGURE 6-41: ENTERING A FORMULA



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6 Spreadsheets

FIGURE 6-42: USING BUILT-IN FUNCTIONS

1. Select a function.

2. Refer to the instructions for an explanation of data required for the function.

3. Fill in the required data.

Calculates the payment for a loan based on constant payments and a constant interest rate.

Rate is the interest rate per period for the loan. For example, use 6%/4 for quarterly payments at 6% APR.

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6 Spreadsheets

- When you change the contents of any cell in a worksheet, all the formulas are recalculated; this **automatic recalculation** feature ensures that the results in every cell are accurate for the information currently entered in the worksheet
- Unless you specify otherwise, a cell reference is a **relative reference**—that is, a reference that can change
- An **absolute reference** never changes when you insert rows, or copy and move formulas

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6 Databases

- The term database has evolved from a specialized technical term into a part of our everyday vocabulary
- In the context of modern usage, a **database** is simply a collection of data that may be stored on one or more digital devices
- **Database software** helps you enter, find, organize, update, and report information stored in a database
- Database software stores data as a series of records, which are composed of fields that hold data
 - A **record** holds data for a single entity—a person, place, thing, or event
 - A **field** holds one item of data relevant to a record

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6 Databases

FIGURE 6-44: DATABASE ELEMENTS

A single database record is similar to a Rolodex card or an index card. A series of records is usually depicted in table format.

SONG TITLE	PERFORMER	COMPOSER	ALBUM	DATE	LABEL	LENGTH
Take It Back	Norah Jones	Jones	Little Broken Hearts	05/01/2012	Blue Note	4:05
Even Though	Norah Jones	Jones and Harris	The Fall	11/17/2009	Blue Note	3:52
Summertime	Janis Joplin	Gershwin	Cheap Thrills	08/12/1968	Columbia	4:00
Summertime	Sarah Vaughan	Gershwin	Compact Jazz	06/22/1987	PolyGram	4:34

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6 Databases

FIGURE 6-46: MICROSOFT ACCESS ELEMENTS

1. Enter field names.

2. Specify the type of data the field will hold.

3. After all the fields are defined, enter the data for each record.

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6 Presentations

- **Presentation software** supplies the tools for combining text, photos, clip art, graphs, animations, and sound into a series of electronic slides that can be shown on a screen or projector
- Popular presentation software products include Microsoft PowerPoint, iWork Keynote, and Google Docs Slides

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6 Presentations

Presentation software highlights include:

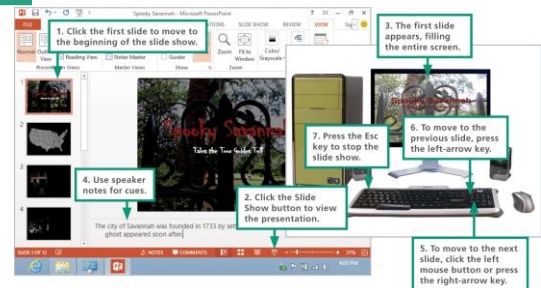
- Bulleted lists to summarize the points in your presentation
- Graphics to make your presentation visually interesting
- Transitions between slides to keep your audience's attention
- Speaker notes to help you remember what to say
- Themes and templates to give your slides a professional appearance
- Conversion routines to package presentations as PDF files and YouTube videos

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6 Presentations

FIGURE 6-47: MICROSOFT POWERPOINT BASICS



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6 Section E: File Management Utilities

- File Basics
- File Management tools
- Application-based File Management
- Physical File Storage

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6 File Basics

- As you learned in Unit 1, a computer file—or simply a file—is defined as a named collection of data that exists on a storage medium, such as a hard disk, cloud drive, or USB flash drive
- When saving a file, you must provide a valid file name that adheres to specific rules, referred to as file-naming conventions, which include:
 - Maximum length is 256 characters
 - Symbols are not allowed
 - No reserved words, such as Aux, Com1, and Nul
 - Case is disregarded
 - Spaces are allowed

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6 File Basics

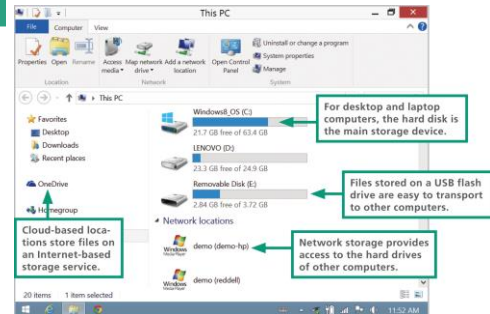
- When working with Windows, storage devices—where files can be saved—can also be identified by a **device letter**
- A **disk partition** is a section of a hard disk drive that is treated as a separate storage unit; most hard drives are configured with a single partition that contains the OS, programs, and data

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6 File Basics

FIGURE 6-49: STORAGE DEVICE DESIGNATIONS



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6 File Basics

- Every storage device has a **directory** containing a list of its files
- The main directory is referred to as the **root directory**
- A root directory can be subdivided into smaller lists; each list is called a **sub-directory**
- Each subdirectory is depicted as a **folder**
- A computer file's location is defined by a **file path**, which on a PC includes the drive letter, folder(s), file name, and extension

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6 File Basics

C:\Music\Reggae\Marley One Love.mp3

Drive letter Primary folder Secondary folder File name File extension



FIGURE 6-50: FILE PATHS

TYPE OF FILE	EXTENSIONS
Text	.txt .dat .rtf .docx (Microsoft Word) .doc (Microsoft Word 2003) .sdt (OpenDocument text) .wpd (WordPerfect) .pages (iWork)
Sound	.wav .mid .mp3 .m4p .aac
Graphics	.bmp .tif .wmf .gif .jpg .png .eps .ai (Adobe Illustrator)
Animation/video	.flc .swf .avi .mpg .mp4 .mov (QuickTime) .wmv (Windows Media Player)
Web page	.htm .html .asp .xml .php
Spreadsheet	.xlsx (Microsoft Excel) .xls (Microsoft Excel 2003) .ods (OpenDocument spreadsheet) .numbers (iWork)
Database	.acdb (Microsoft Access) .odt (OpenDocument database)
Miscellaneous	.psd (Adobe Acrobat) .pptx (Microsoft PowerPoint) .ppt (QuarkXPress) .odp (OpenDocument presentations) .zip (WinZip) .pub (Microsoft Publisher)

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6 File Management Tools

- Operating systems provide file organization tools called file management utilities
- Windows offers a utility called File Explorer, which is launched from the  icon on the taskbar
- OS X offers a utility called Finder, which is launched from the  on the dock

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6 File Management Tools

- File management utilities are useful for locating files and for viewing their contents
- The software application associated with a specific file type is called a **default application**
- You can select the application that you want to use by right-clicking the file and selecting the application from a list

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6 File Management Tools

- In addition to locating files and folders, file management utilities help you manipulate files and folders in the following ways:

- **Rename**. You can change the name of a file or folder to better describe its contents.
- **Copy**. You can copy a file from one device to another—for example, from a USB drive to the hard disk drive. You can also make a copy of a document so that you can revise the copy and leave the original intact.
- **Move**. You can move a file from one folder to another or from one storage device to another. When you move a file, it is erased from its original location, so make sure you remember the new location of the file. You can also move an entire folder and its contents from one storage device to another storage device or to a different folder.
- **Delete**. You can delete a file when you no longer need it. You can also delete a folder. Be careful when you delete a folder because most file management utilities also delete all the files within a folder.

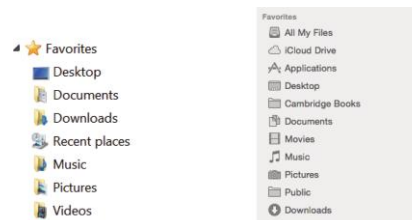
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6 File Management Tools

- Windows and OS X offer a set of preconfigured personal folders, such as Documents and Music, for storing your personal data files

FIGURE 6-54: PERSONAL FOLDERS ON PCS AND MACS



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6 File Management Tools

FIGURE 6-55: FILE MANAGEMENT BEST PRACTICES

- **Use descriptive names.** Give your files and folders descriptive names, and avoid using cryptic abbreviations.
- **Maintain file extensions.** When renaming a file, keep the original file extension so that it can be opened with the correct application software.
- **Group similar files.** Separate files into folders based on subject matter. For example, store your creative writing assignments in one folder and your MP3 music files in another folder.
- **Organize your folders from the top down.** When devising a hierarchy of folders, consider how you want to access files and back them up. For example, it is easy to specify one folder and its subfolders for a backup. If your important data is scattered in a variety of folders, however, making backups is more time-consuming.

Cont...

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6 File Management Tools

- **Consider using default folders.** You should use preconfigured personal folders, such as Documents and Music, as your main data folders. Add subfolders to these personal folders as necessary to organize your files.
- **Use Public folders for files you want to share.** Use the Public folders for files that you want to share with other network users.
- **Don't mix data files and program files.** Do not store data files in the folders that hold your software. Most software is stored in subfolders of the Program Files folder on Windows systems and in the Applications folder on Macs.
- **Don't store files in the root directory.** Although it is acceptable to create folders in the root directory, it's not a good practice to store programs or data files in the root directory of your computer's hard disk.
- **Access files from the hard disk.** For best performance, copy files from USB drives or CDs to your computer's hard disk before accessing them.

Cont..

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6 File Management Tools

- **Follow copyright rules.** When copying files, make sure you adhere to copyright and license restrictions.
- **Delete or archive files you no longer need.** Deleting unneeded files and folders helps keep your list of files from growing to an unmanageable size.
- **Be aware of storage locations.** When you save files, be sure to specify the correct storage device and folder.
- **Back up!** Back up your folders and files regularly.

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6 Application-based File Management

- Applications, such as Word and Excel, generally provide a way to open files and save them in a specific folder on a designated storage device
- Saving files is easy; simply use the Save option provided by your application, specify a location for the file, and give it a name

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6 Physical File Storage

- The structure of files and folders displayed by File Explorer is called a **logical storage model** because it helps you create a mental picture of the way files are organized in a hierarchy of folders
- A **physical storage model** describes what actually happens on the disks and in the circuits
- The **formatting** process creates the equivalent of electronic storage bins
- Magnetic and optical media are divided into circular **tracks** and then further divided into pie-shaped **sectors**

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6 Physical File Storage

- The OS uses a **file system** to keep track of the names and locations of files that reside on a storage medium, such as a hard disk
- To speed up the process of storing and retrieving data, a disk drive usually works with a group of sectors called a **cluster** or a block
- To delete data from a disk in such a way that no one can ever read it, you can use a special **file shredder software** that overwrites supposedly empty sectors with random 1s and 0s; this is handy if you want to sell or donate your computer and want to make sure your personal data is no longer on the hard disk

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NEW PERSPECTIVES

Unit 6 Complete

Computer Concepts 2016

