

# APPLICATION SOFTWARE

## Application of Information and Communication Technologies

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# Learning Objectives

1. Describe what application software is, the different types of ownership rights, and the difference between installed and cloud software.
2. Detail some concepts and commands that many software programs have in common.
3. Discuss word processing and explain what kinds of documents are created using this type of program.
4. Explain the purpose of spreadsheet software and the kinds of documents created using this type of program.

# Learning Objectives

5. Identify some of the vocabulary used with database software and discuss the benefits of using this type of program.
6. Describe what presentation graphics and electronic slide shows are and when they might be used.
7. List some types of graphics and multimedia software that consumers use frequently.
8. Name several other types of application software programs and discuss what functions they perform.

# Overview

- This chapter covers:
  - General characteristics of application software
  - The most widely used types of application software, including:
    - Word processing
    - Spreadsheet
    - Database
    - Presentation graphics
    - Graphics and multimedia software
  - Overview of other types of application software

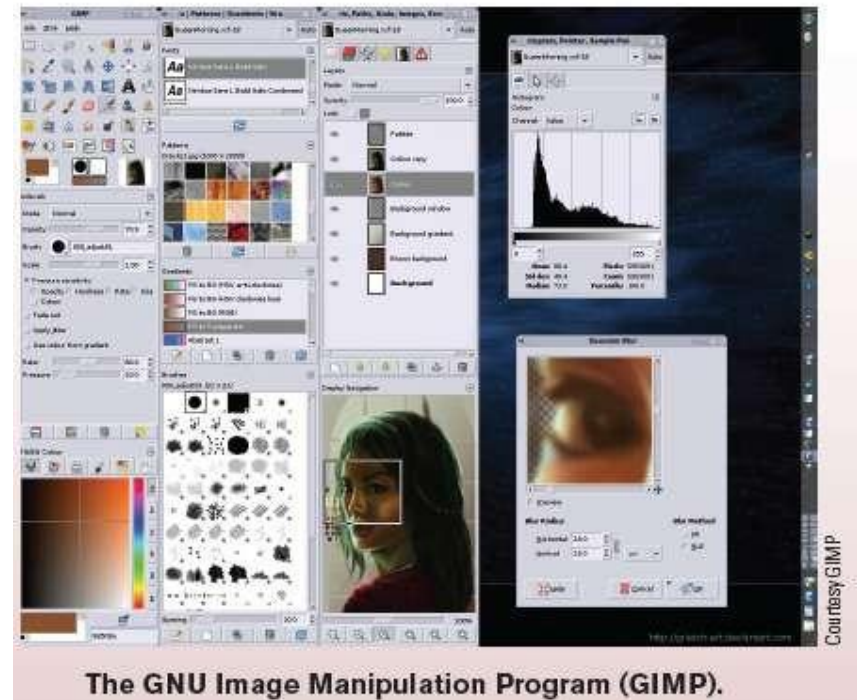
# The Basics of Application Software

- Software Ownership Rights
  - Specify the allowable use of the program
  - Software license
    - Gives you the right to use a software program
    - Specifies the conditions under which the buyer can use the software
  - Open source software
    - Programs with source code made available to the general public

# Inside the Industry Box

## Open Source Software

- Use is growing
- In addition to Linux and other open source operating systems, there are many open source apps
- Open source is typically cheaper
- Can also be more stable and
- secure



Courtesy GIMP

# The Basics of Application Software

- Commercial Software
  - Copyrighted software developed and sold for profit
  - Typically comes with a single-user license
- Shareware
  - Copyrighted software distributed on the honor system
  - Consumers should either pay for it or uninstall it after the trial period
- Freeware
  - Copyrighted software programs that are given away by the author for others to use free of charge
- Public Domain Software
  - Software that is not copyrighted and ownership rights have been donated to the public domain

# The Basics of Application Software

TYPE OF SOFTWARE	EXAMPLES
Commercial software	Microsoft Office (office suite) Norton AntiVirus (antivirus program) Adobe Photoshop (image editing program) Minecraft - Pocket Edition (game)
Shareware	WinZip (file compression program) Video Edit Magic (video editing program) Image Shrinker (image optimizer) Deluxe Ski Jump 3 (game)
Freeware	Chrome (Web browser) LibreOffice (office suite) QuickTime Player (media player) Evernote (notetaking/archiving software)
Public domain software	Lynx (text-based Web browser) Quake 3 (game)

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**FIGURE 6-2**  
Software ownership rights.



# Desktop vs. Mobile Software

- Personal computers use desktop software
- Smartphones and other mobile devices typically require mobile software called apps
  - Specifically designed for a specific type of device
  - Wide range of software available via app stores (Google Play, Apple App Store, etc.)



**FIGURE 6-5**

Mobile apps.

# Technology and You Box

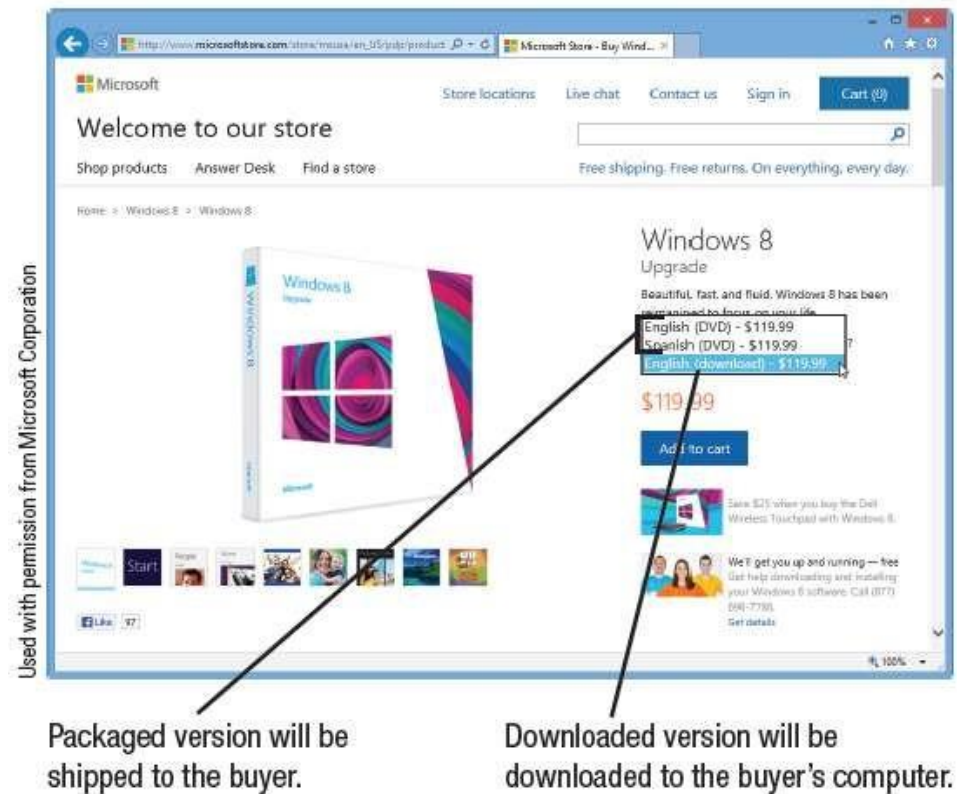
## Mobile Ticketing

- Download ticket to mobile device to use for admittance
- Tickets for movies, sporting events, concerts, etc.
- Boarding passes
- Custom tickets



# Installed vs. Cloud Software

- Installed Software
  - Must be installed on the computer before it can be run
  - Can be purchased in physical form
  - Can be downloaded from the Internet



**FIGURE 6-6**

**Installed software.**

Is often purchased via the Internet.

# Installed vs. Cloud Software

- Cloud Software
  - Is delivered on-demand via the Web
  - Also called Software as a Service (SaaS) and cloudware
  - Includes free software and fee-based software
  - Advantages of cloud software
    - Files can be accessed from any computer with an Internet connection
    - Ease of implementation
    - Improved collaboration capabilities
    - Always working with the most current version of software

# Installed vs. Cloud Software

- Potential disadvantages of cloud software
  - Online applications tend to run more slowly
  - Have file size limits
  - Cost may eventually exceed the cost of purchasing a similar installed version of the software

# Installed vs. Cloud Software



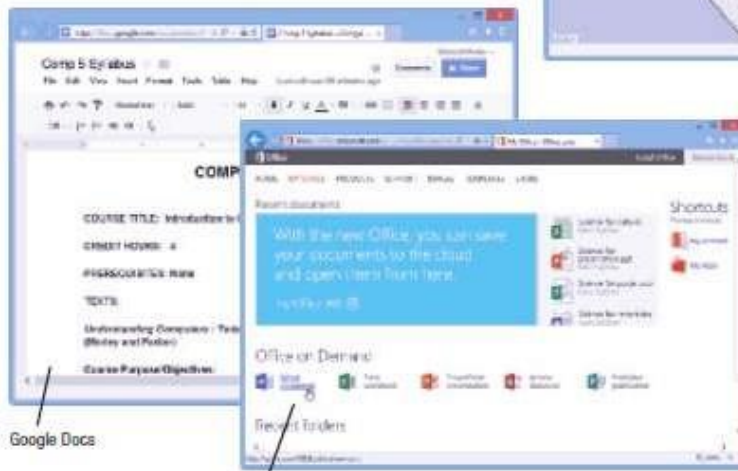
## BUSINESS SAAS APPLICATIONS

This program allows you to share documents and collaborate on projects online.



FIGURE 6-7

**Cloud software.** Is commonly used with both computers and mobile devices.



Google Docs

Office on Demand

## WEB DATABASE APPLICATIONS

This application allows you to retrieve property information, such as home values and homes for sale.

## CLOUD PRODUCTIVITY APPLICATIONS

These programs allow you to create documents online.

**Source:** Courtesy of Google Inc. and Google Maps. The above information from Google Inc. is provided with permission.

# Trend Box

## Airline Apps

- American Airlines is issuing media tablets to all cabin personnel and iPads to all pilots
- Replaces paper manuals and maps
- Expected to be able to provide passengers with additional services such as connection and weather info and food purchases and other in-flight transactions



# Software Suites

- Software Suites
  - Collection of software programs bundled together and sold as a single software package
  - Office suites are used by most businesses/individuals to produce documents and typically include:
    - Word processing software
    - Spreadsheet software
    - Database software
    - Presentation graphics-software
  - Provide a common interface among programs in the suite

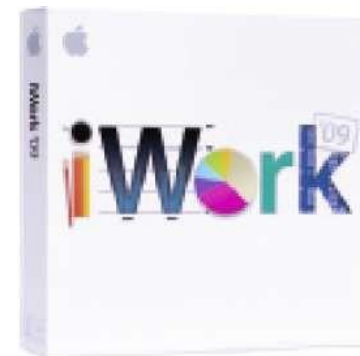
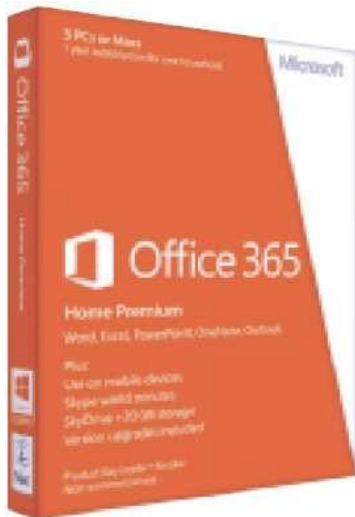


# Software Suites

- Latest version of Office is 2013 (traditional installed)/365 (subscription)
  - Office on Demand
  - Read mode

**FIGURE 6-8**

**Office suites.** Three of the most common commercial office suites are Microsoft Office, Corel WordPerfect Office, and Apple iWork.











# Common Software Commands

- Toolbars, Menus, Keyboard Shortcuts, and the Ribbon
  - Provide access to most commands in application programs
  - Keyboard shortcuts can be used

**FIGURE 6-9**

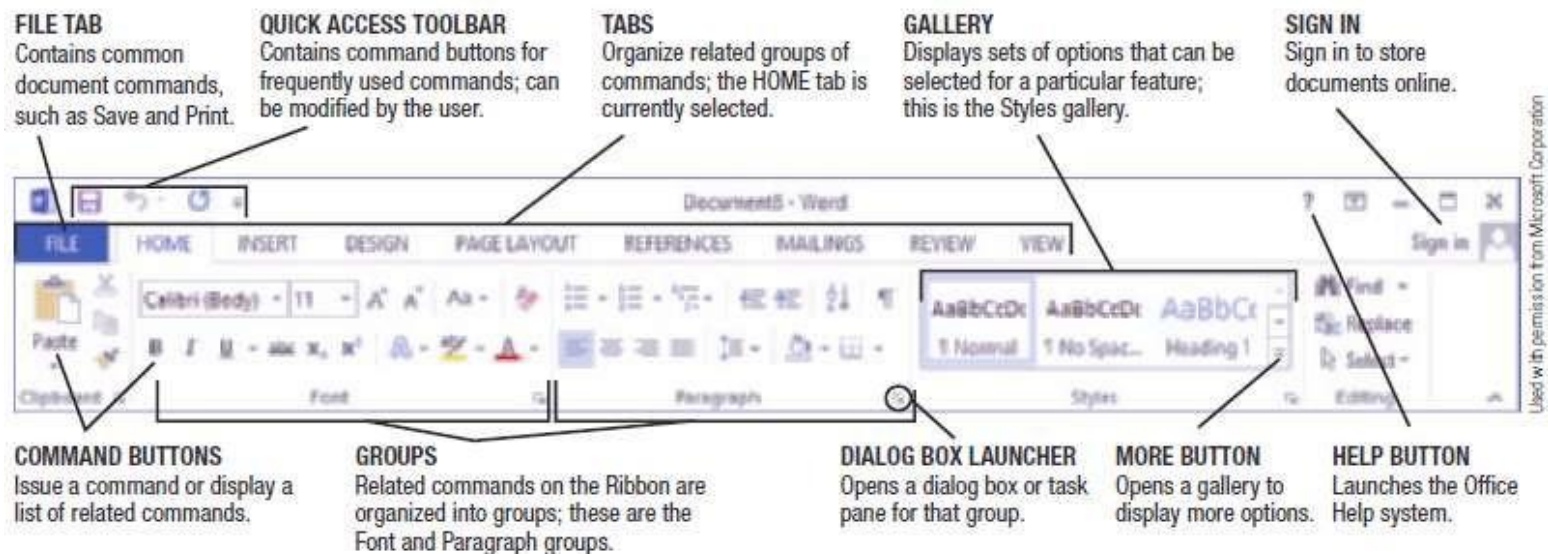
Common application software commands.

COMMAND	COMMAND BUTTON	KEYBOARD SHORTCUT	DESCRIPTION
Open		Ctrl+O	Opens a dialog box so you can choose a saved document to open from a storage medium so it can be edited or printed.
Save		Ctrl+S	Saves the current version of the document to a storage medium.
Print		Ctrl+P	Prints the current version of the document onto paper.
Cut		Ctrl+X	Moves the selected item to the Clipboard.
Copy		Ctrl+C	Copies the selected item to the Clipboard.
Paste		Ctrl+V	Pastes the last item copied or cut to the Clipboard to the current location.
Undo		Ctrl+Z	Undoes the last change to the document.
Close		Alt+F4	Closes the document. Any changes made to the document are lost if the document wasn't saved first.

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# Common Software Commands

- Ribbon used in Microsoft Office 2007 and later
  - Commands are organized into groups located on tabs
  - Contextual tabs appear on the Ribbon as needed and contain special commands



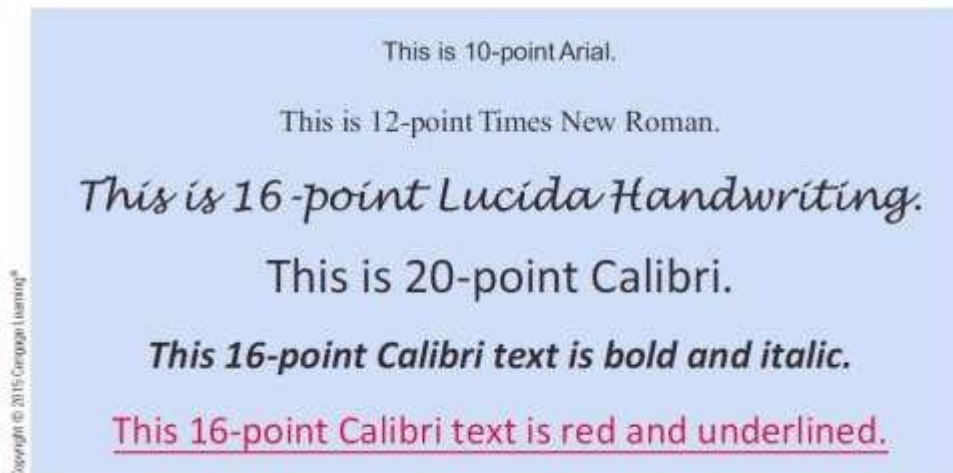
**FIGURE 6-10**  
The Microsoft Office  
Ribbon.

# Common Software Commands

- Editing a Document
  - Changing the content of the document, such as inserting or deleting words
  - Insertion point
    - Indicates the current location in a document, which is where the changes will be made
  - Typing text inserts the text at the insertion point location
  - Delete and Backspace keys delete text
  - Text and objects can typically be selected and moved, copied, deleted, or formatted

# Common Software Commands

- Formatting a Document
  - Changes the appearance of the document
    - Changes font face, font size, and/or font color
    - Changes line spacing or margins
    - Adds page numbers and/or borders



**FIGURE 6-11**

**Fonts.** The font face, size, style, and color used with text can be specified in many application programs.

# Common Software Commands

- Getting Help
  - Often built into the program and typically contains:
    - Table of Contents
    - Browsing
    - Search
  - Online help (via manufacturer's Web site and independent sites)
  - Offline help (periodicals, books, tutorial videos, classes)

# Quick Quiz

1. Software programs that are distributed on the honor system and can be legally and ethically shared with others to try out the software are referred to as\_\_\_\_\_.
  - a. shareware programs
  - b. commercial software
  - c. public domain software
2. True or False: Software purchased via the Internet is always in downloaded, not packaged, form.
3. A group of related software programs sold together as one unit is called a(n)\_\_\_\_\_.

*Answers:*

*1) a; 2) False; 3) software suite*

# Word Processing Concepts

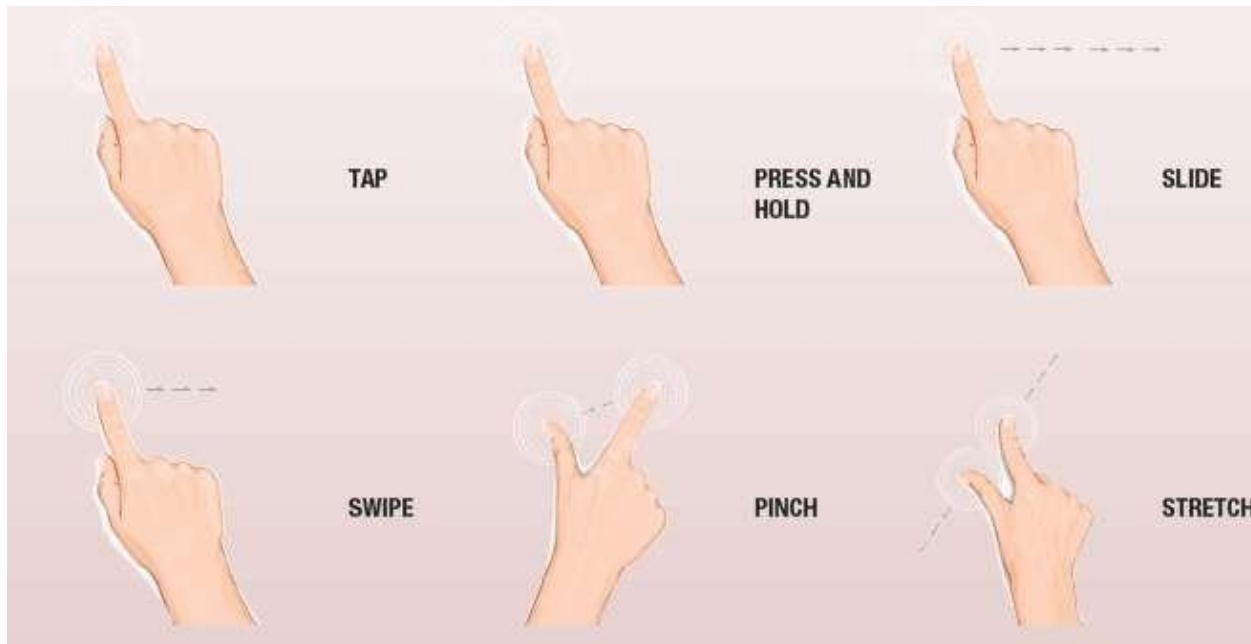
- What Is Word Processing?
  - Using a computer and word processing software to create, edit, save, and print written documents such as letters, contracts, and manuscripts
  - Common Word Processing Software Programs
    - Microsoft Word
    - Corel WordPerfect
    - Apple Pages



# How It Works Box

## Gesture Input with Microsoft Office

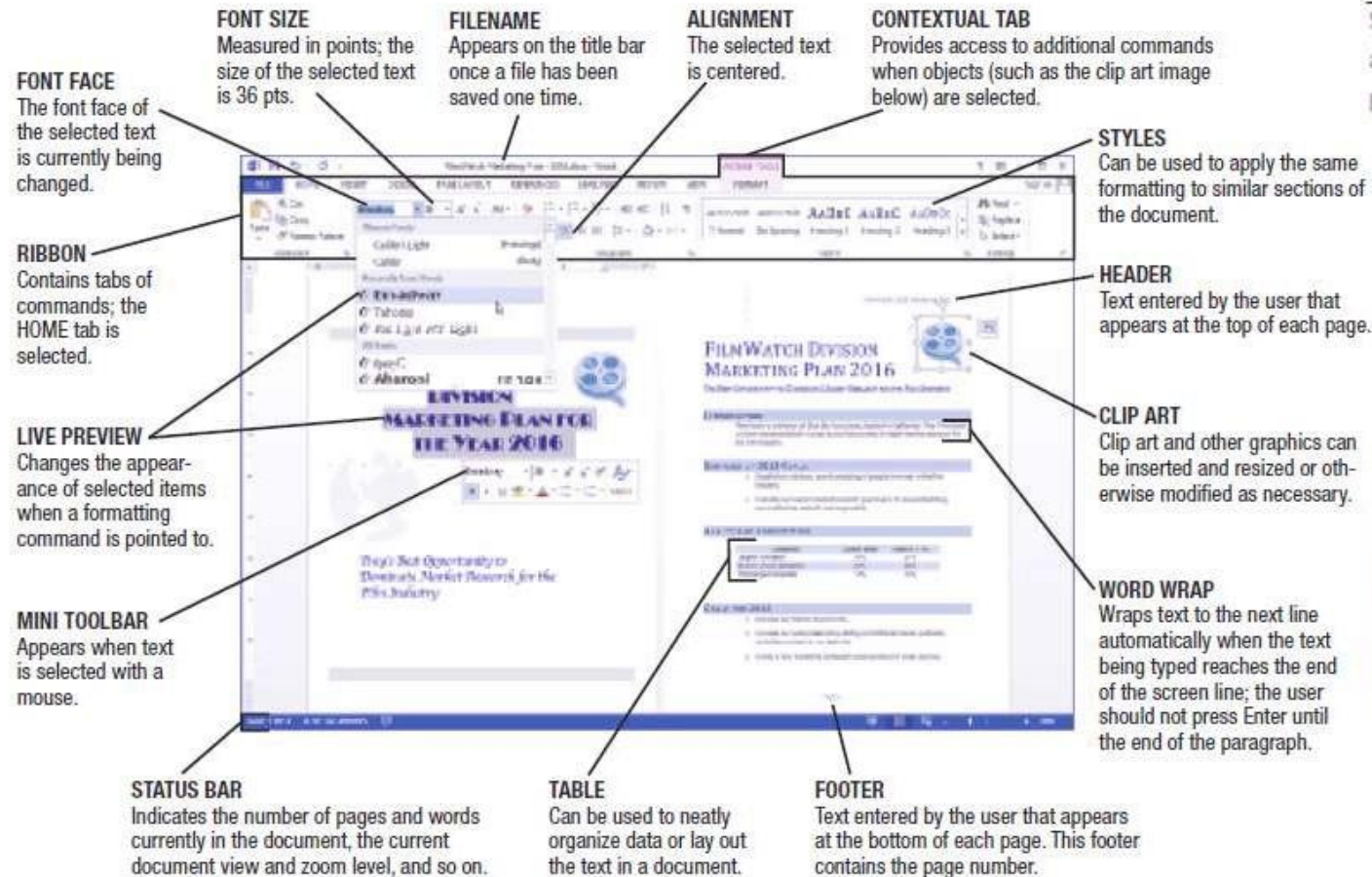
- Microsoft Office and Windows 8 support gestures to replace mouse commands
- Tap, Press and hold, Slide, Swipe, Pinch, and Stretch



# Word Processing Concepts

- Creating a Word Processing Document
  - Word wrap
    - Automatically returns the insertion point to the next line when the end of the screen line is reached
  - Character formatting (font face, size, style, or color)
  - Paragraph formatting (line spacing, indentation, alignment, and styles)
  - Page formatting (margins, paper size, orientation, headers, footers, etc.)
  - Document formatting (footnotes, end notes, table of contents, index, background, theme)

# Word Processing Concepts



**FIGURE 6-13**  
Some features in a typical word processing program.

Used with permission from Microsoft Corporation

# Word Processing Concepts

- Tables, Graphics, and Templates
  - Tables
    - Allow content to be organized in a table consisting of rows and columns
  - Graphics or Drawing Features
    - Allow images to be inserted into a document (clip art, photographs, drawn images, etc.) and then modified
  - Templates
    - Help users create new documents quickly

# Word Processing Concepts

- Word Processing and the Web
  - Most word processing programs today include Web-related features allowing you to:
    - Send a document as an e-mail message
    - Include Web page hyperlinks in documents
    - Create or modify Web pages
    - Create and publish blogs
    - Collaborate with others online

# Spreadsheet Concepts

- What Is a Spreadsheet?
  - Documents containing a group of numbers and other data organized into rows and columns
  - Spreadsheet software includes the following tools
    - Formulas, data analysis tools, charts, and graphs
  - Most widely used spreadsheet programs:
    - Microsoft Excel
    - Corel Quattro Pro
    - Apple Numbers

# Spreadsheet Concepts

- Creating a Spreadsheet
  - Worksheet: a single spreadsheet
  - Workbook: a collection of worksheets saved in a single file
  - Worksheets are divided into rows and columns
  - Cell
    - The intersection of a row and a column
    - Each cell is identified by a cell address, such as A1
    - Cell pointer is used to select a cell
    - Cell pointer can be used to select more than one cell (range or block)

# Spreadsheet Concepts

## NAME BOX

Identifies the active cell, which is the location of the cell pointer.

## COLUMNS

Run vertically and are identified by letters.

## FORMULA BAR

Lists the contents of the active cell, in this case the formula entered into cell E8.

## RIBBON

Contains tabs of commands grouped by function; the HOME tab is selected.

## CELL HEIGHT AND WIDTH

Can be changed to a specific value or to automatically fit the content.

## NUMBER FORMATS

Used to specify the appearance of the numbers on a worksheet.

## ACTIVE CELL/RANGE

Identifies the active cell or range; in this case the active cell is E8, and the range D8:E9 is selected.

## WORKSHEET AREA

Contains the worksheet itself.

## GRAPHS

Are typically based on worksheet data and can be inserted into the worksheet area.

## ROWS

Run horizontally and are identified by numbers.

## WORKSHEET TABS

Identify the different worksheets saved in a single spreadsheet (workbook) file.

## CELL FORMATTING

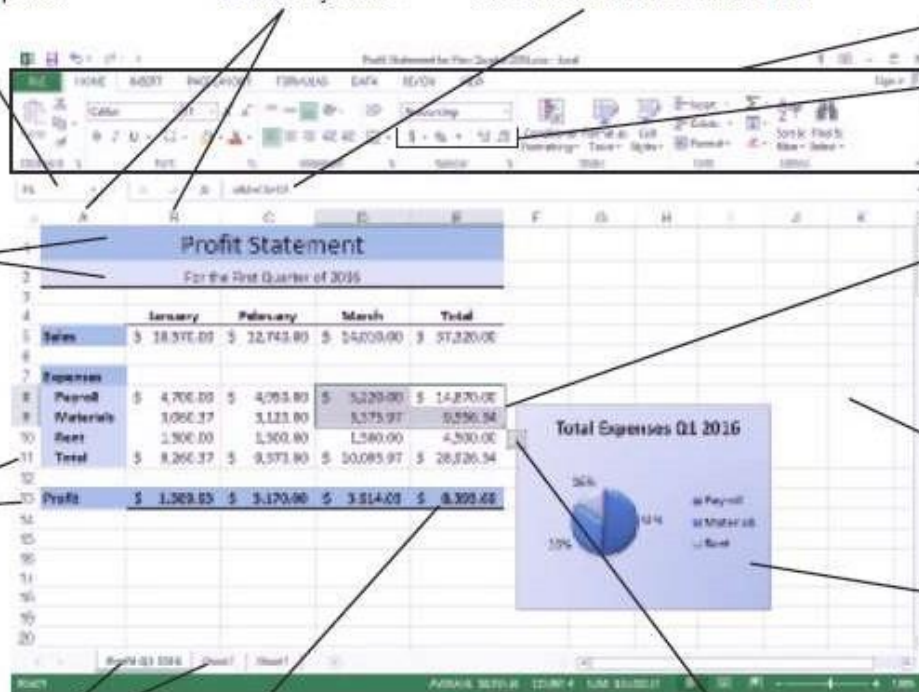
Can be applied to cells (this cell is shaded blue with a double bottom border) and to cell content (such as currency with two decimal places).

## QUICK ANALYSIS TOOL

Allows you to quickly and easily analyze data using tools such as color-coding and graphs.

**FIGURE 6-15**

Some features in a typical spreadsheet program.





# Spreadsheet Concepts

- Entering Data into a Spreadsheet Cell
  - Labels
    - Text-based entry in a worksheet cell that identifies data on the worksheet
  - Constant Values
    - Numerical entry in a worksheet cell
  - Formulas
    - Perform mathematical operations on the content of other cells
    - Usually reference the cell address, not the current data in a cell
    - Use mathematical operators; begin with an = sign

# Spreadsheet Concepts

- Function
  - A named, pre-programmed formula
  - Hundreds of functions that can be used in spreadsheets

EXAMPLES OF FUNCTIONS	
=SUM(range)	Calculates the sum of all values in a range.
=MAX(range)	Finds the highest value in a range.
=MIN(range)	Finds the lowest value in a range.
=AVERAGE(range)	Calculates the average of values in a range.
=PMT(rate, number of payments, loan amount)	Calculates the periodic payment for a loan.
=IF(conditional expression, value if true, value if false)	Supplies the values to be displayed if the conditional expression is true or if it is false.
=NOW( )	Inserts the current date and time.

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**FIGURE 6-17**  
Common  
spreadsheet  
functions.

# Spreadsheet Concepts

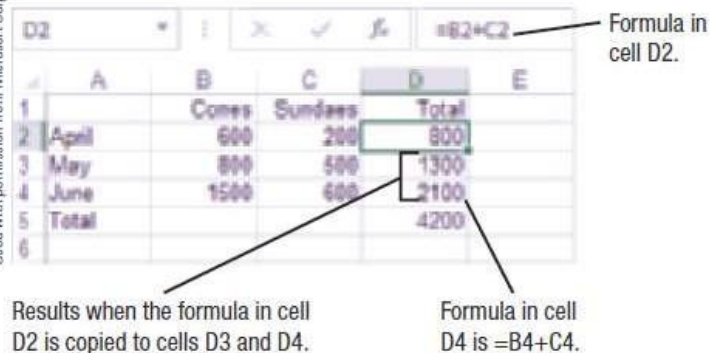
- Absolute vs. Relative Cell Referencing
  - Relative cell references
    - Cell addresses are adjusted as the formula is copied
  - Absolute cell references
    - Formulas are copied exactly as they are written
    - Appropriate when you want to use a specific cell address in all copies of the formula
    - Use \$ to make cell references absolute: \$B\$6

# Spreadsheet Concepts

## COPYING WITH RELATIVE CELL REFERENCES

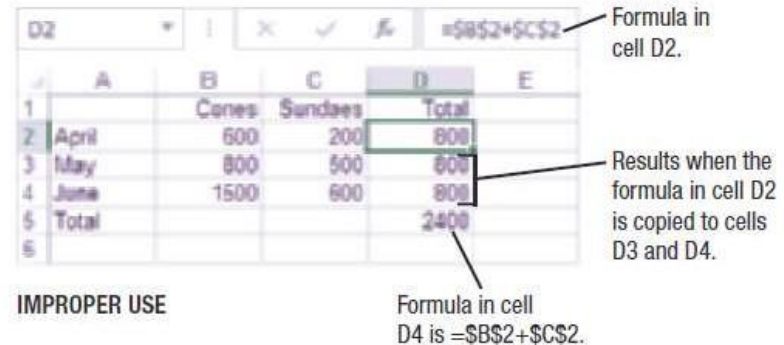
In most formulas, cell addresses are relative and will be adjusted as the formula is copied.

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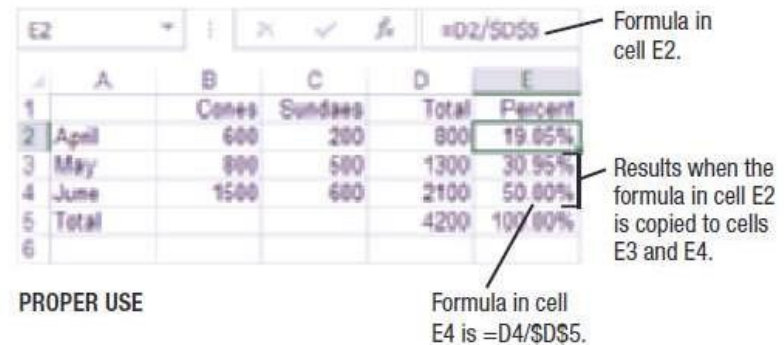


## COPYING WITH ABSOLUTE CELL REFERENCES

A dollar sign (\$) marks a cell reference as absolute; it will be copied exactly as it appears in the source cell.



## IMPROPER USE



## PROPER USE

**FIGURE 6-18**

Relative vs. absolute cell referencing.

# Spreadsheet Concepts

- Charts and What-If Analysis
  - Most spreadsheet programs include some type of charting or graphing capability
  - Can create charts from the data in the spreadsheet (do not have to reenter it)
  - Charts change accordingly if the data in the spreadsheet changes
  - When cell contents are changed, formulas are automatically recalculated
  - What-if-analysis
    - Tool frequently used to help make business decisions

# Spreadsheet Concepts

- Spreadsheets and the Web
  - Most spreadsheet programs have built-in Web capabilities enabling the user to:
    - Save the current worksheet as a Web page
    - Insert hyperlinks inserted into worksheet cells
    - Select and copy ranges of cells to a Web publishing or word processing program to insert spreadsheet data into a Web page as a table
    - Send a workbook as an e-mail message
    - Collaborate online

# Quick Quiz

1. Changing the line spacing of a document is an example of which word processing feature?
  - a. word wrap
  - b. editing
  - c. formatting
2. True or False: A label is a special type of named formula, such as SUM to add up a group of cell values.
3. A spreadsheet document created in a spreadsheet program is often called a(n)\_\_\_\_\_.

*Answers:*

*1) c; 2) False; 3) worksheet*

# Database Concepts

- What Is a Database?
  - A collection of related data that is stored in a manner enabling information to be retrieved as needed
  - Database Management System (DBMS)
    - Software that allows the creation and manipulation of an electronic database
  - Most widely used relational database programs
    - Microsoft Access
    - Oracle Database
    - IBM's DB2

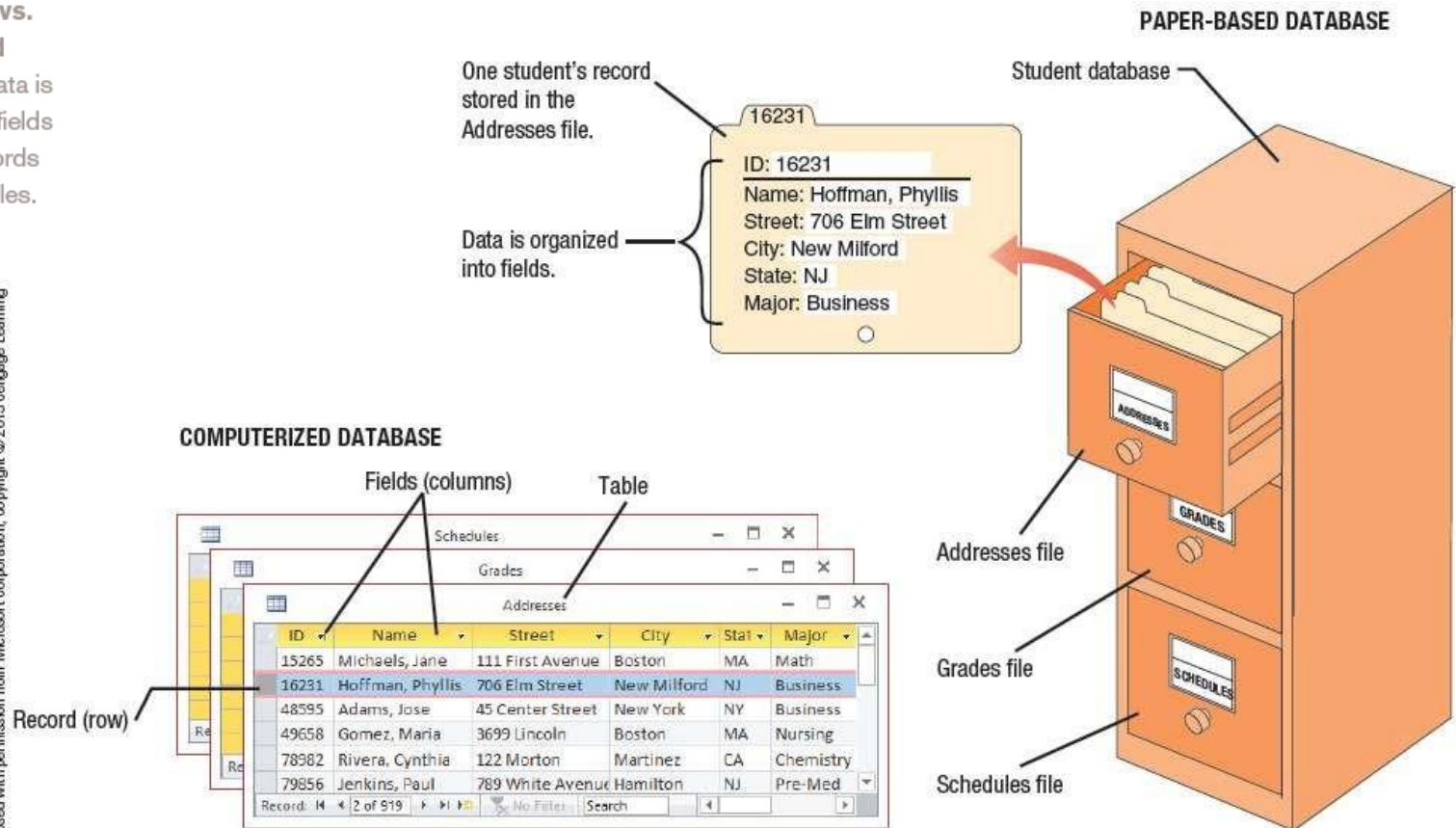


# Database Concepts

**FIGURE 6-19**

**Paper-based vs. computerized databases.** Data is organized into fields (columns), records (rows), and tables.

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# Database Concepts

- Data in a database is organized into fields (columns), records (rows), and tables
  - Field (column)
    - A single type of data to be stored in a database
  - Record (row)
    - A collection of related fields
  - Table
    - A collection of related records
  - Database file
    - Collection of related tables

# Database Concepts

- Creating a Database
  - Database file is created first
    - Contains objects, such as tables, forms, and queries
  - Tables can then be created
  - Typically, the table structure is specified first
  - Table structure includes:
    - Field name (unique identifying name)
    - Data type (text, number, date, object)
    - Field size (maximum number of characters)
    - Default value (initial content of the field)
  - The table is named and saved
  - Tables can be created in either Datasheet or Design view

# Database Concepts

## DATABASE FILE

Contains the Inventory database objects.

## RIBBON

Contains tabs of commands grouped by function; the CREATE tab, which is used to create new database objects, is selected.

## DATABASE OBJECTS

Include Tables (for storing data), Forms (for viewing and editing table data), and Queries and Reports (for retrieving information from tables).

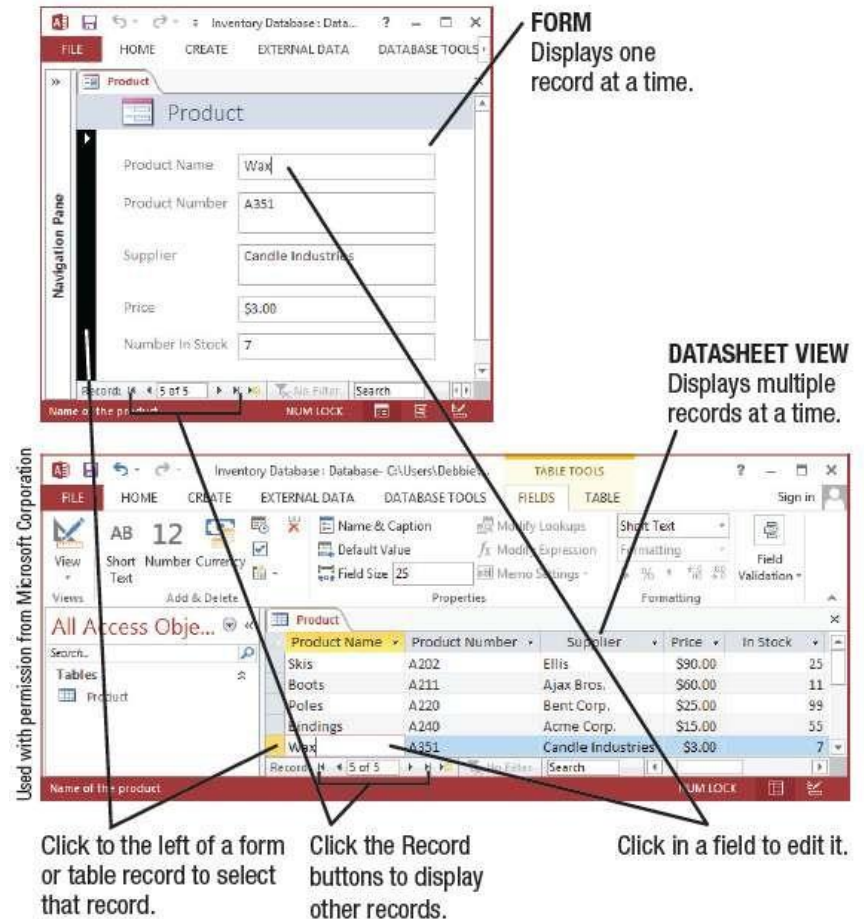


**FIGURE 6-20**

Typical database objects. Common database objects include tables, forms, queries, and reports. The first object to be created is the table.

# Database Concepts

- Data can be displayed using a form or Datasheet view
- Data can be edited



**FIGURE 6-22**  
Table data can be modified using a form or the Datasheet view.

# Database Concepts

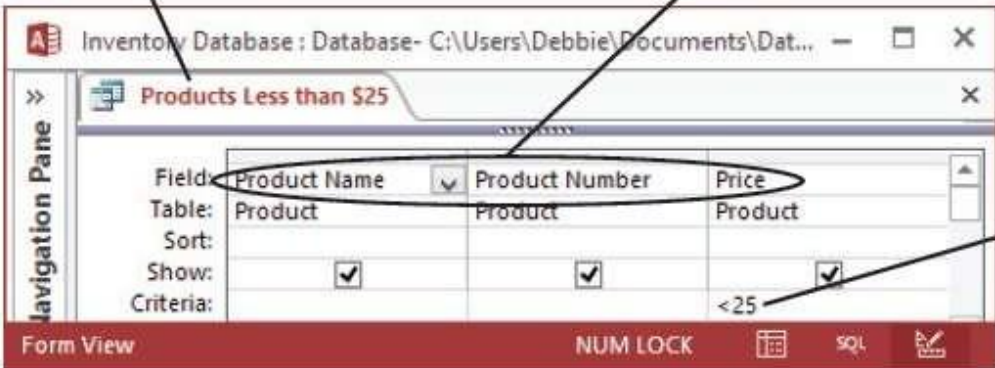
- Queries and Reports
  - Query
    - A question; a request for specific information from the database
    - Contains criteria to specify the records and fields to be included in the query results
    - Is named and saved so it can be run again at a later time

# Database Concept

**QUERY DESIGN SCREEN**  
This query will display only the records that meet the specified criteria each time the query is retrieved.

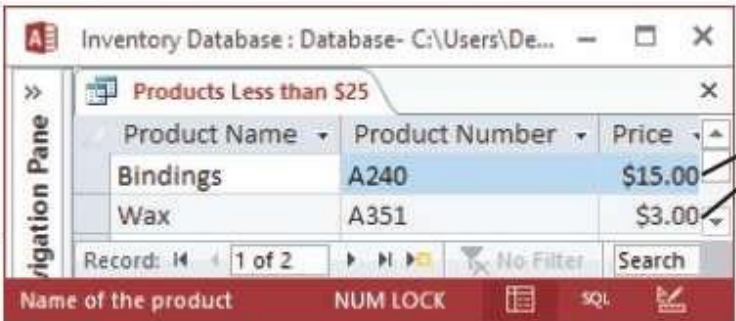
Only these three fields will be displayed in the query results.

Only the records in which the price is less than \$25 will be displayed in the query results.



Field	Product Name	Product Number	Price
Table	Product	Product	Product
Sort			
Show	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria			<25

**QUERY RESULTS**  
The two records meeting the specified criteria are displayed.



Product Name	Product Number	Price
Bindings	A240	\$15.00
Wax	A351	\$3.00

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**FIGURE 6-23**  
Creating and using a database query.

# Database Concepts

- Reports
  - Created when a more formal output is desired
  - Associated with either a table or a query
  - Data is displayed in the specified location
- Databases and the Web
  - Many Web sites use one or more databases to:
    - Keep track of inventory
    - Allow searching for people, documents, products, or other information
    - Searching for products on a retail store's Web site
    - Place real-time orders



# Presentation Graphics Concepts

- What Is a Presentation Graphic?
  - An image designed to visually enhance a presentation
  - Can be used in electronic slide shows, as well as in printed reports



**FIGURE 6-24**  
Examples of  
presentation  
graphics.

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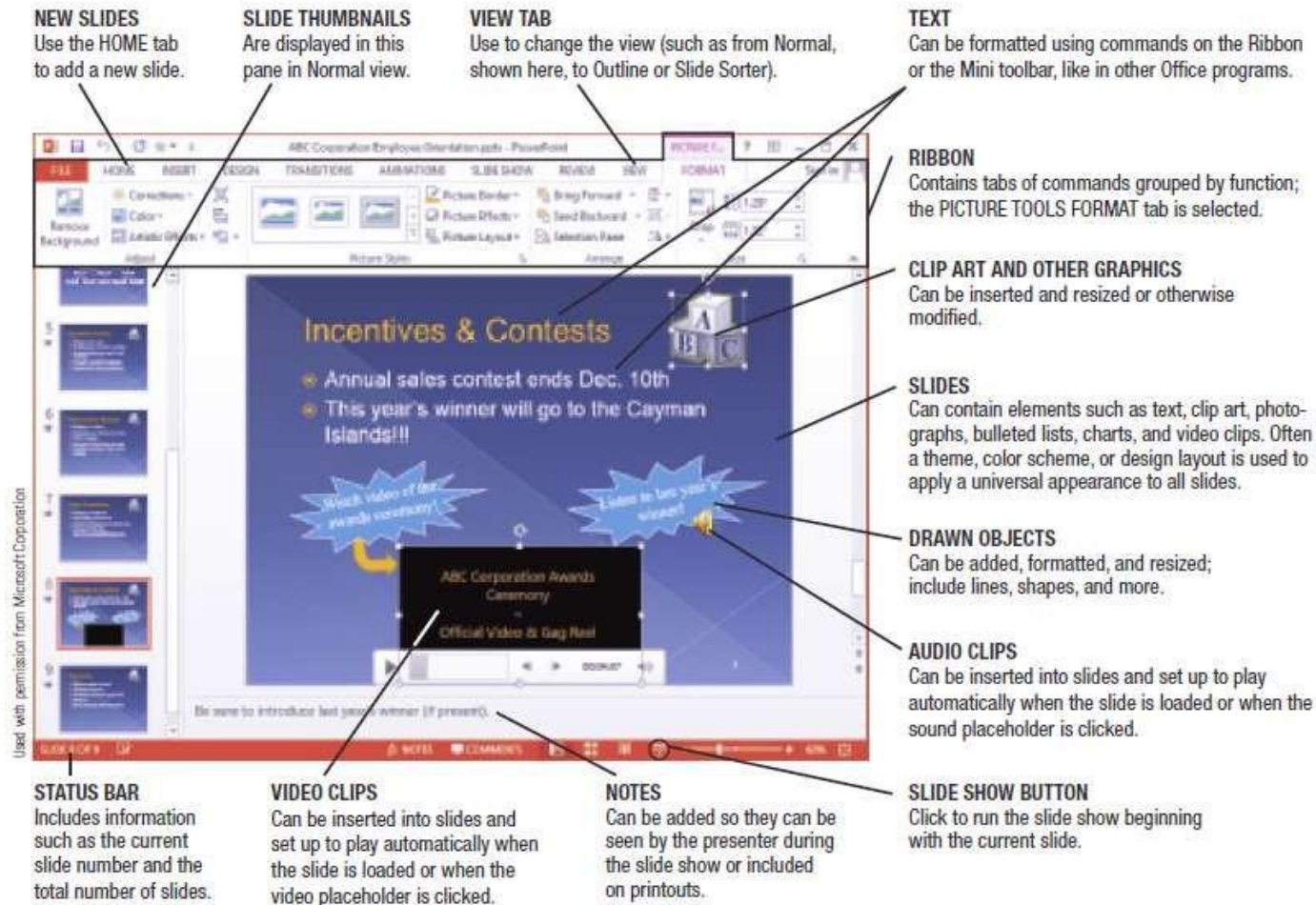
# Presentation Graphics Concepts

- Slide
  - A one-page presentation graphic that can be displayed in a group with others to form an electronic slide show
- Electronic Slide Show
  - A group of electronic slides that are displayed one after the other on a computer monitor or other display device
- Presentation Graphics Software
  - Used to create presentation graphics
- Most common presentation graphics programs
  - Microsoft PowerPoint
  - Corel Presentations
  - Apple Keynote

# Presentation Graphics Concepts

- Creating a Presentation
  - Preformatted slide layouts can often be used
  - New slides can be added to a new or existing presentation as needed
  - Slides can contain a variety of elements
    - Text
    - Images
    - Charts
    - Audio clips
    - Video clips

# Presentation Graphics Concepts



**FIGURE 6-25**  
Some features in a typical presentation graphics program.

# Presentation Graphics Concepts

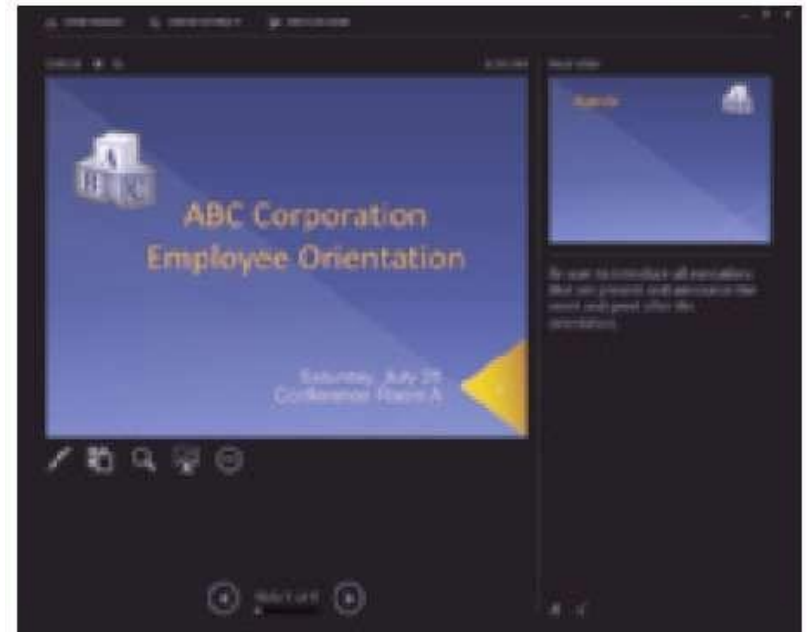
- Finishing a Presentation
  - Slide Sorter View
    - Shows thumbnails of all slides in presentation
    - Used to rearrange the slide order
  - Show can be set up to run automatically or manually
  - Speaker Tools
    - Speaker notes and pens
    - Presenter view
    - Recorded narration
    - Can print the slides to create overhead transparencies or an audience handout

# Presentation Graphics Concepts



## SLIDE SHOW VIEW

Displays the slide show for the audience in full screen with the software interface hidden. Slides can be advanced at predetermined intervals or by clicking the mouse or pressing the spacebar.



## PRESENTER VIEW

Seen only by the presenter on a different display device; includes a preview of the next slide, a timer, speaker notes, annotation tools, and so forth.

**FIGURE 6-26**

Running an electronic slide show.

# Presentation Graphics Concepts

- Presentation Graphics and the Web
  - Presentation graphics programs can be used to generate Web pages or Web page content
  - Slides can include hyperlinks
  - Users can usually control Web-based presentations accessed via a Web browser

# Graphics and Multimedia Concepts

- Graphics
  - Graphical images, such as digital photographs, clip art, scanned drawings, and original images created using a software program
- Multimedia
  - Technically refers to any application that contains more than one type of media
  - Often used to refer to audio or video content
- Large variety of graphics and multimedia software used to:
  - Create or modify graphics
  - Edit digital audio or video
  - Play multimedia files
  - Burn CDs and DVDs



# Graphics and Multimedia Concepts

- Graphics Software (Digital Imaging Software)
  - Used to create or modify images
  - Painting Programs
    - Typically used to create bitmap images (Microsoft Paint)
  - Drawing Programs (Illustration programs)
    - Typically create images using mathematical formulas
    - Popular programs include Adobe Illustrator, CorelDRAW, and Corel Painter

# Graphics and Multimedia Concepts

- Image Editing or Photo Editing Programs
  - Designed for touching up or modifying images
    - Correcting brightness/contrast
    - Cropping/eliminating red eye
    - Optimize file size for the Web
    - Adobe Photoshop, Apple iPhoto, etc.

# Graphics and Multimedia Concepts

- Audio Capture and Editing Software
  - Used to create and edit audio files
    - Sound recorder software captures sound from a microphone
    - Ripping software captures sound from a CD
  - Edits and applies special effects
  - Common consumer products
    - Windows Sound Recorder, Apple GarageBand, Audacity



**FIGURE 6-28**  
Audio editing software.

# Graphics and Multimedia Concepts

- Video Editing and DVD Authoring Software
  - Video Editing Software
    - Modifies existing videos
    - Prepares video clips for presentations or Web sites
  - DVD Authoring Software
    - Organizes content to be transferred to DVD
  - DVD Burning Software
    - Records data on recordable or rewritable DVDs
  - Common consumer video editing programs include Roxio Creator, Apple iMovie, etc.

# Graphics and Multimedia Concepts

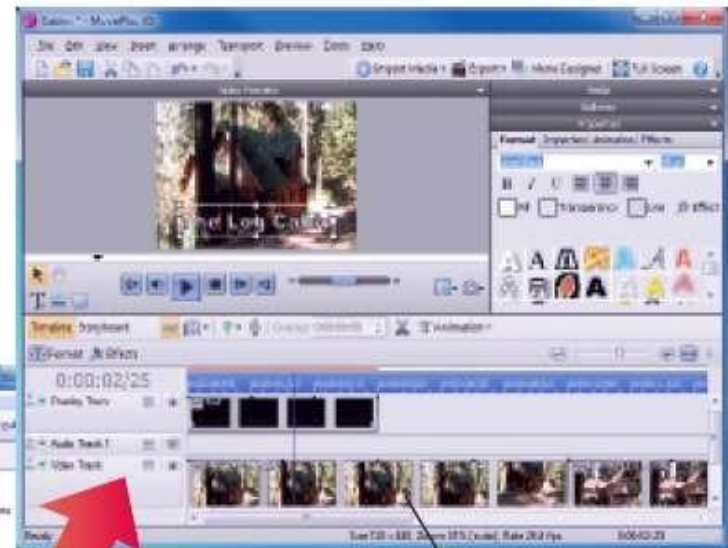
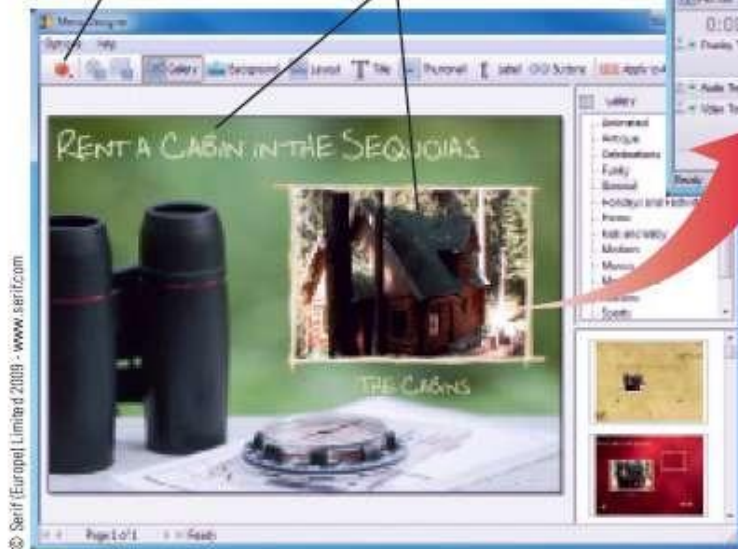
**FIGURE 6-29**  
**Video editing software.** Often includes both video editing and DVD authoring capabilities.

## VIDEO EDITING

Allows users to import and edit video; the finished video can be stored in a file or included in a DVD presentation.

Click to burn the finished presentation to a DVD.

The DVD includes the video clips and uses the titles and appearance designated by the user.



Video clips can be edited as needed; the timeline is used to crop out sections of the current video clip.

## DVD AUTHORING

Allows users to import and organize photos, video, and music into a finished DVD presentation.

# Graphics and Multimedia Concepts

- Media Players
  - Programs designed to play audio and video files
    - Music CDs, downloaded music, online audio
    - Downloaded and online video
  - Important to adhere to copyright laws when using digital music
  - Media players include:
    - RealPlayer, Apple QuickTime, Windows Media Player, etc.

# Graphics and Multimedia Concepts

- Graphics, Multimedia, and the Web
  - Often used by individuals and businesses to create Web sites or content to be shared via the Web
    - Company logos
    - Web site banners
    - Games
    - Tutorials
    - Videos
    - Demonstrations
    - Other multimedia content

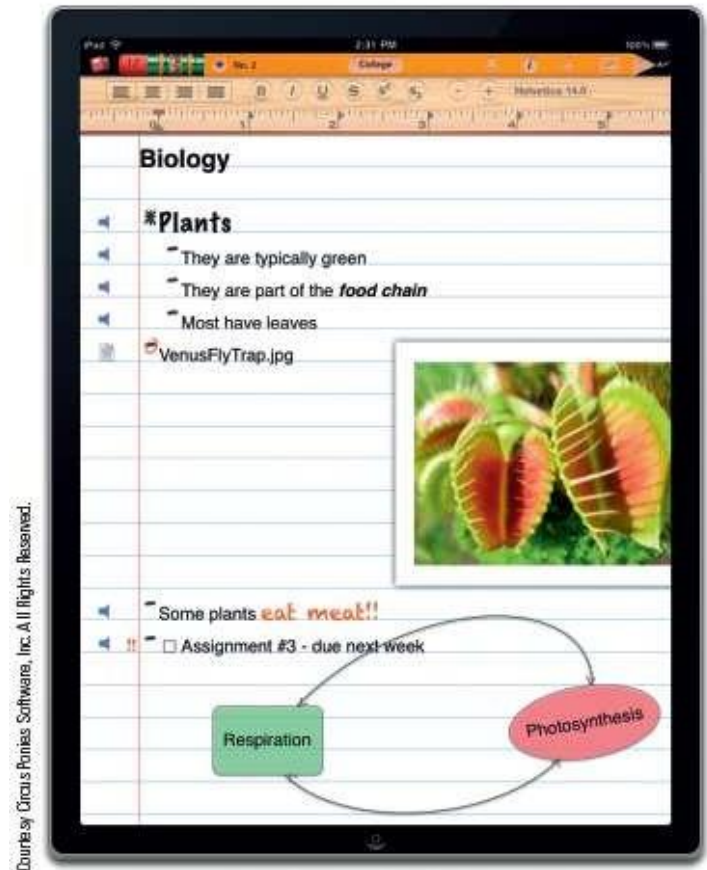
# Other Types of Application Software

- Desktop and Personal Publishing Software
- Educational, Entertainment, and Reference Software
- Note Taking Software and Web Notebooks

**FIGURE 6-32**

**Note taking software.**

Allows individuals to record and organize important data.





# Other Types of Application Software

- CAD and Other Types of Design Software
- Accounting and Personal Finance Software
- Project Management, Collaboration, and Remote Access Software



**FIGURE 6-34**

**Remote access software.** Allows you to use a computer from a remote Internet-enabled device.

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# Quick Quiz

1. A single type of data to be included in a database (viewed as a column in a table) is called a \_\_\_\_\_.
  - a. record
  - b. field
  - c. table
2. True or False: Each slide in a slide presentation can contain only one type of element, such as text, an image, or a video clip.
3. Recording content on a CD or DVD disc is referred to as \_\_\_\_\_ the disc.

*Answers:*

*1) b; 2) False; 3) burning*

# Summary

- The Basics of Application Software
- Word Processing Concepts
- Spreadsheet Concepts
- Database Concepts
- Presentation Graphics Content
- Graphics and Multimedia Concepts
- Other Types of Application Software