# Application of Information & Communication Technologies

## Lecture-13

# Recap of Lecture 12

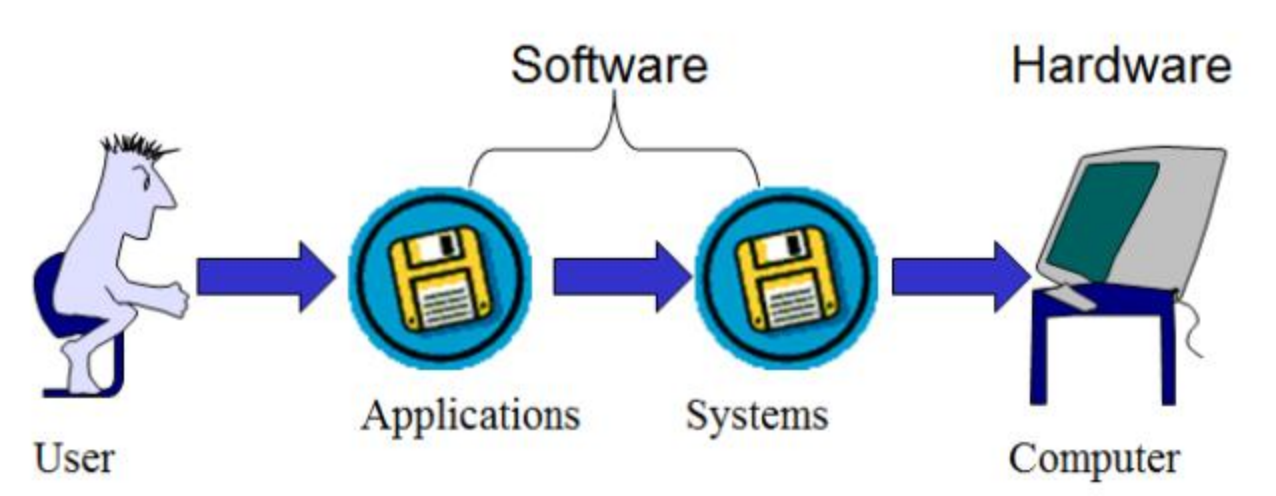
- Other OS
- Utility Software
  - “Programs that help manage, maintain, and control computer resources.”

# Overview of Lecture 13

- Application Software
  - Programs made for the user to perform tasks
- General Characteristics
- Major Types
- Word Processing
- Spreadsheet
- Database Software

# What is Application Software?

- Programs made for users (not for running the computer itself).
- Helps us do **specific** tasks:
  - Writing documents
  - Browsing internet
  - Watching videos
- Runs on **top of system software** (OS).



# What is Application Software?


**Figure 3-2** A user does not communicate directly with the computer hardware. Instead, system software is the interface between the user, the application software, and the hardware. For example, when a user instructs the application software to print a document, the application software sends the print instruction to the system software, which in turn sends the print instruction to the hardware.

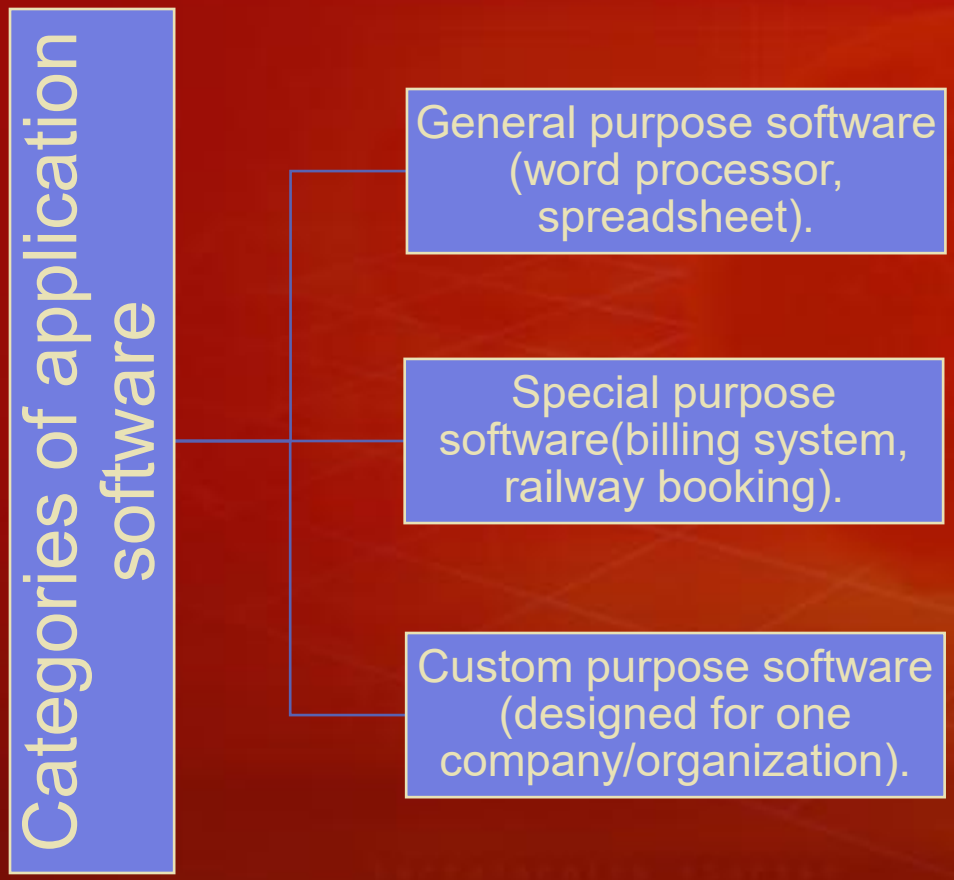
# General Characteristics

- User-oriented (solves user problems).
- Easy-to-use interface (GUI-based).
- Task-specific (e.g., word editing, calculations).
- Requires system software to run.
- Updated frequently with new features.

# Examples of Application Software

| Example | APPs |
| --- | --- |
| Office tools | Word, Excel, PowerPoint |
| Multimedia apps | Photoshop, VLC Player |
| Internet tools | Browsers, Zoom, Teams |
| Mobile apps | WhatsApp, TikTok |

# Categories of Application Software



# General-Purpose Software

- Used by everyone.
- Common tasks: typing, calculation, presentations.
- Examples:
  - Word processors
  - Spreadsheet software
  - Browsers

# Special-Purpose Software

- Made for specific tasks.
- Not used by all users.
- Examples:
  - Hotel management system
  - Hospital patient system
  - Library software

# Custom Software

- Developed for a particular organization.
- Tailored to their requirements.
- Examples:
  - Airline reservation systems
  - University student portal
  - ERP software for a company

# Packaged vs Custom Software

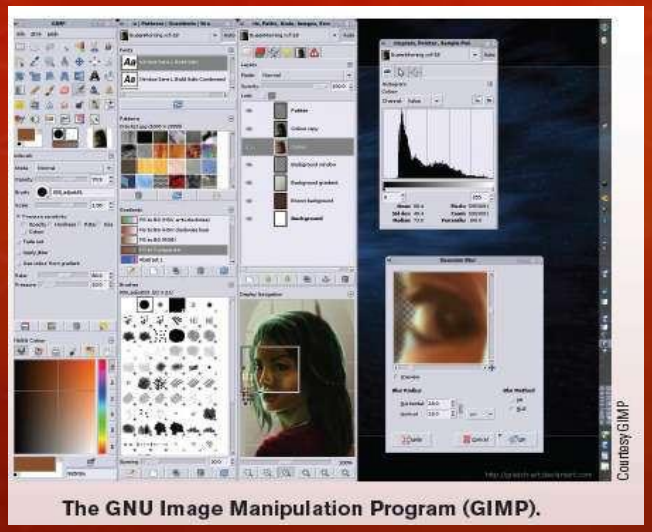
| Feature | Packaged Software | Custom Software |
|---|---|---|
| Made for | General public | One client |
| Cost | Cheaper | Expensive |
| Example | MS Office | University ERP |

# Software Ownership Rights

- Specify how a program can be used.
- Software License:
  - Legal right to use the program.
  - Defines conditions for buyer's use.

# Open Source Software

- Source code available to public.
- Growing use in industry.
- Typically cheaper, more stable, and secure.
- Examples:
  - Linux, LibreOffice, MySQL, GIMP.




The GNU Image Manipulation Program (GIMP).

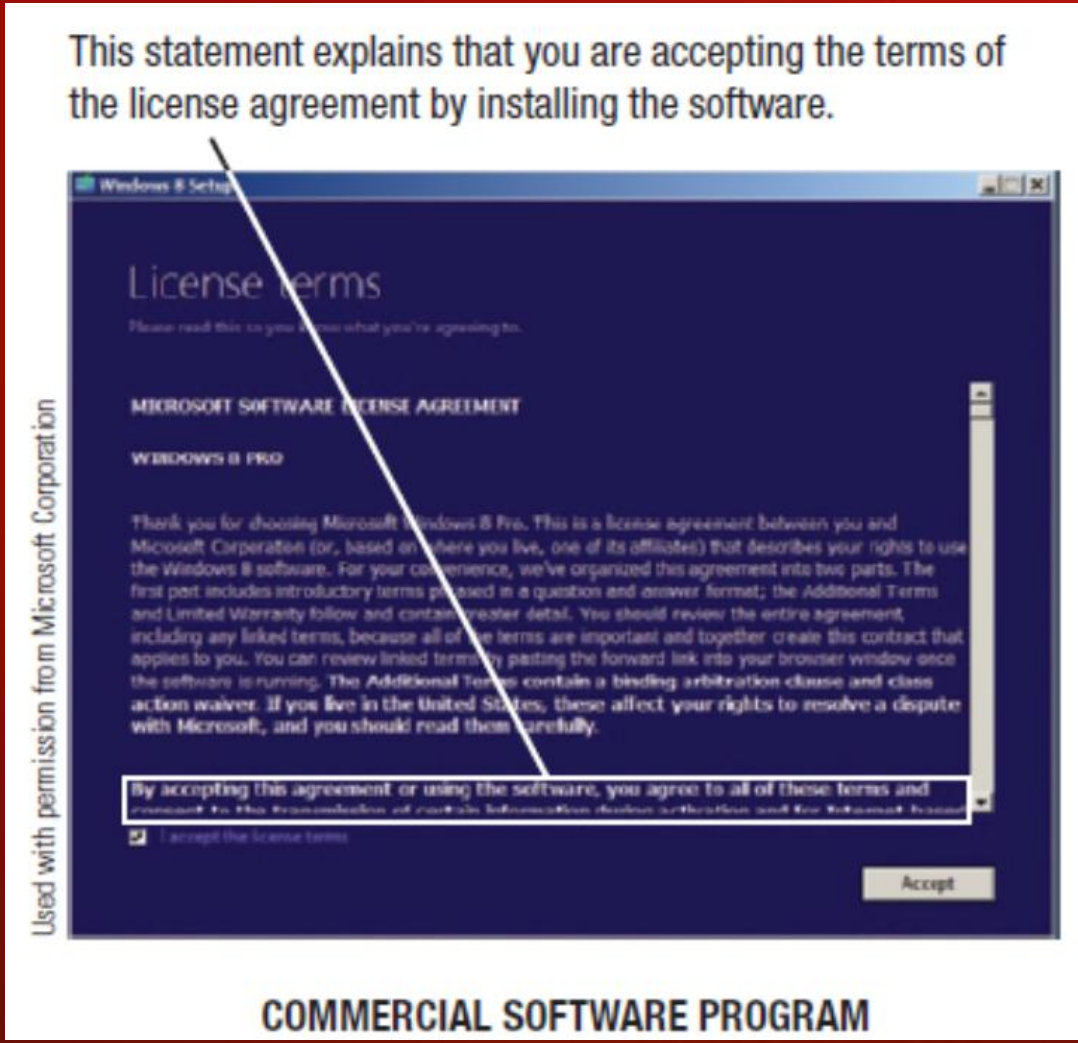
# The Basics of Application Software

- **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

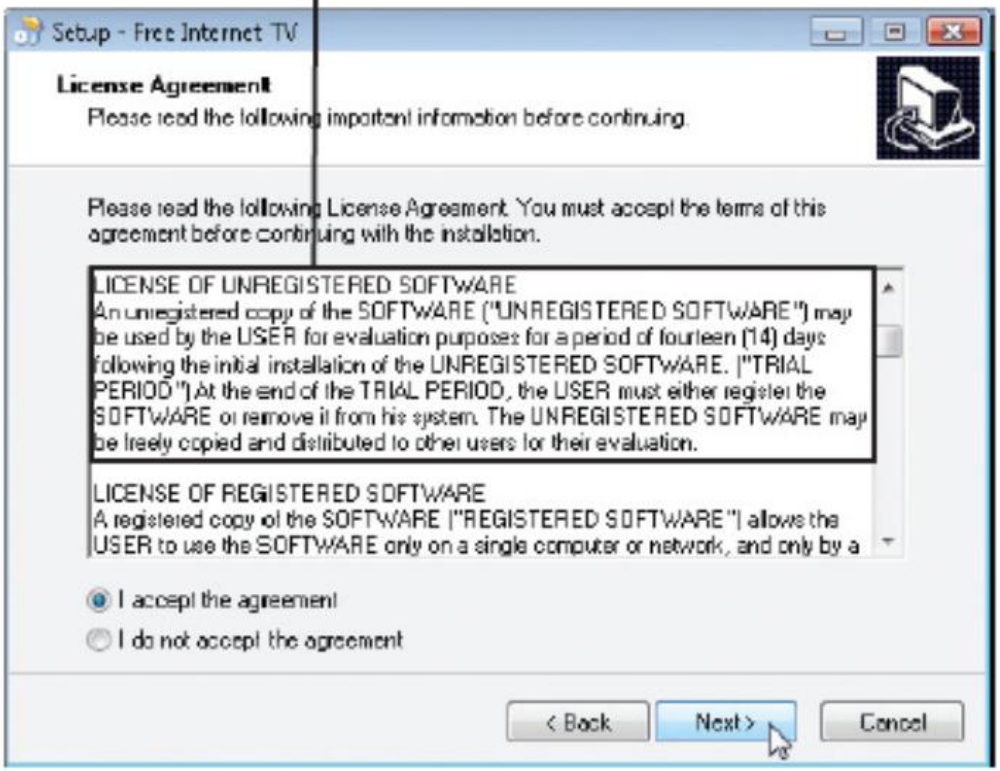
| TYPE OF SOFTWARE | EXAMPLES |
| --- | --- |
| Commercial software | Microsoft Office (office suite)<br>Norton AntiVirus (antivirus program)<br>Adobe Photoshop (image editing program)<br>Minecraft – Pocket Edition (game) |
| Shareware | WinZip (file compression program)<br>Video Edit Magic (video editing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

# The Basics of Application Software



# The Basics of Application Software

This statement explains that the program can be tried for 14 days and then it needs to be either registered or uninstalled.




Courtesy Holersoft

**SHAREWARE PROGRAM**

# Freeware vs Shareware vs Open Source

- **Freeware:**
  - Free forever (VLC Player).
- **Shareware:**
  - Free trial, then paid (WinRAR).
- **Open Source:**
  - Free + code available (LibreOffice, Linux apps).

# Productivity vs Entertainment Apps & Pros/Cons of Application Software

| Category | Examples | Purpose |
| --- | --- | --- |
| **Productivity Apps** | Word, Excel, Zoom | Help in work, study, communication |
| **Entertainment Apps** | VLC, Spotify, Netflix | Provide fun, media, music, relaxation |

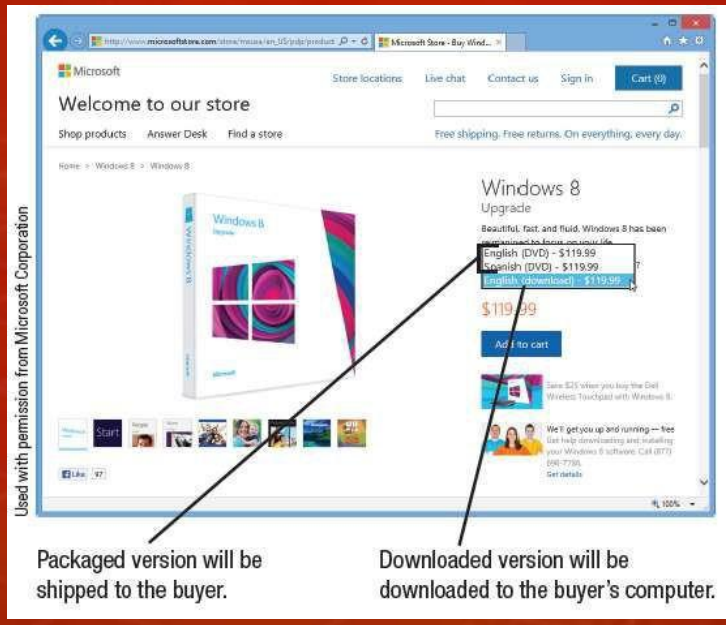
- **Advantages ✅**
  - Makes tasks easier
  - Saves time and effort
  - Improves productivity
  - Easy to learn and use
- **Limitations ❌**
  - Need more system resources
    - (RAM, CPU)
  - Can be expensive
  - May require frequent updates
  - Some apps depend on internet

# 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.)

# Installed vs Cloud-Based Apps

- Installed Apps:
  - Download & install (Word, Photoshop).
- Cloud Apps:
  - Work in browser (Google Docs).
  - Software as a Service (SaaS)
  - Includes free & fee-based apps
- Advantages of cloud software
  - accessible anywhere, anytime.
  - Ease of implementation
  - Improved collaboration capabilities
  - Always working with the most current version of software



# Advantage & disadvantages of Cloud-Based Apps

- 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

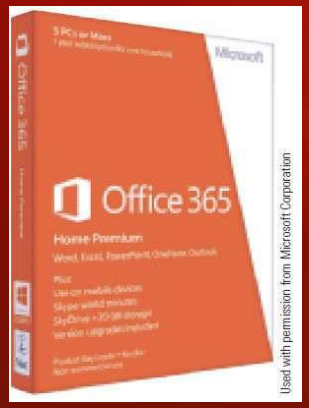

FIGURE 6-7
Cloud software. Is commonly used with both computers and mobile devices.

# 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

- Office is 2019 (traditional installed)
- Office 365 (subscription)
  - Office on Demand
  - Read mode



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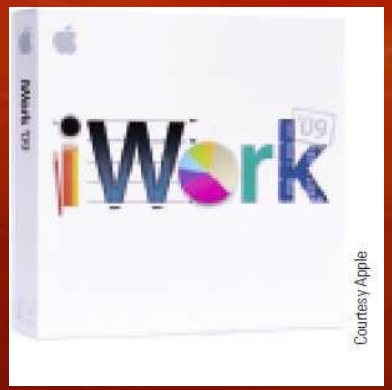


Courtesy Apple

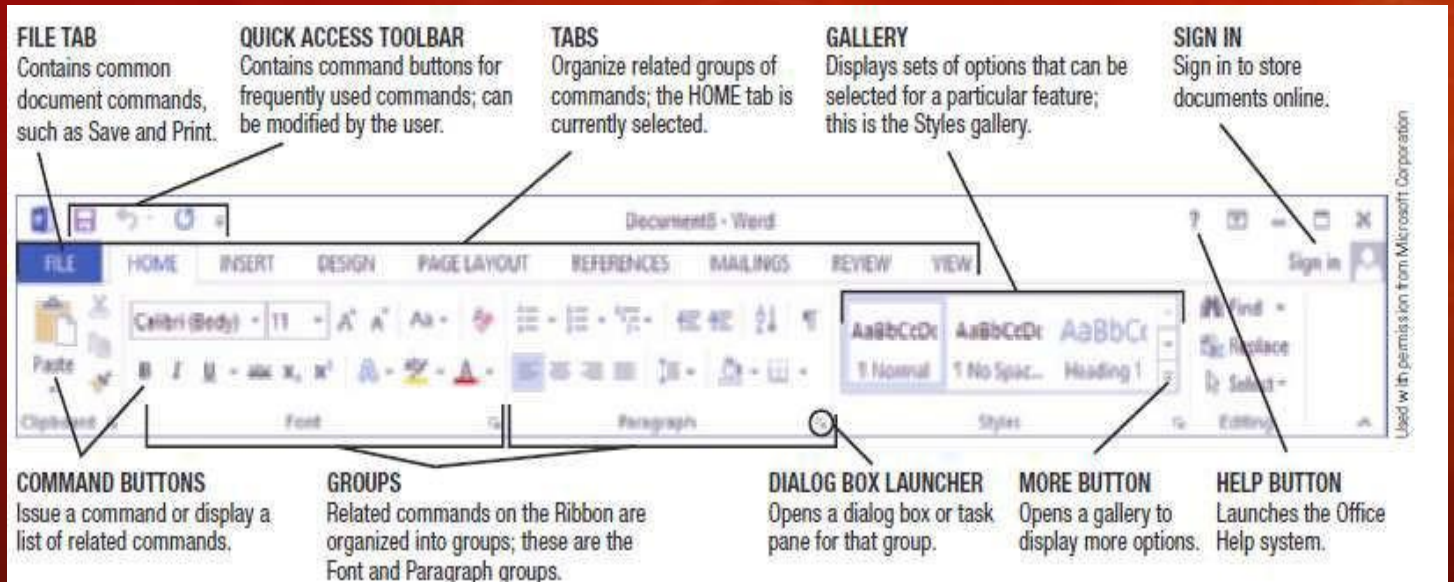
**FIGURE 6-8**
**Office suites.** Three of the most common commercial office suites are Microsoft Office, Corel WordPerfect Office, and Apple iWork.

# Word Processing Software

- Allows users to easily create and edit complex text-based documents that can also include images and other content.
- Features:
  - Spell/Grammar check
  - Formatting (fonts, styles, tables)Mail merge
  - Insert images/graphics
- Examples:
  - MS Word, Google Docs, LibreOffice Writer

# MS Word Software

- Ribbon used in Microsoft word and later
  - Commands are organized into groups located on tabs
  - Contextual tabs appear on the Ribbon as needed and contain special commands
- Editing a Document : Changing the content of the document, such as inserting or deleting words



# MS Word Software


**INSERT TAB**
Used to insert a table, picture, shape, or other object into the document.

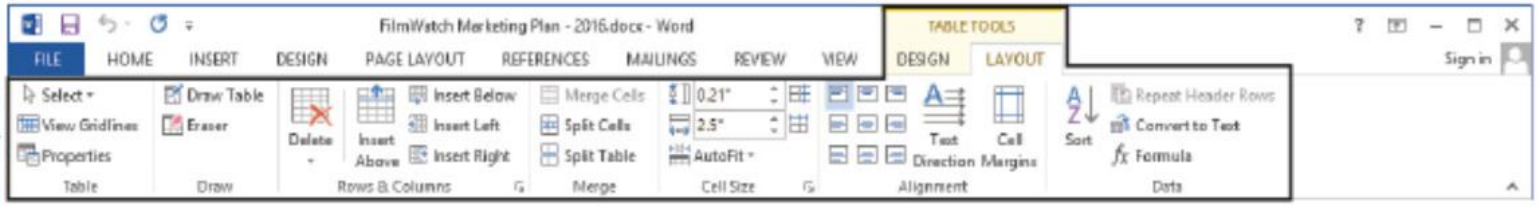
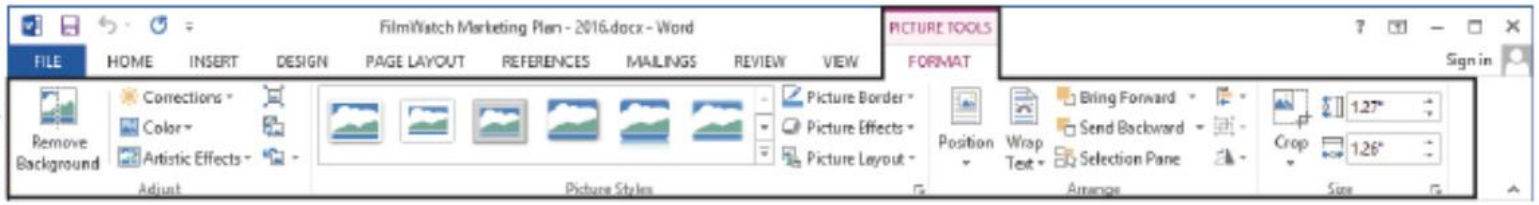



**TABLE TOOLS CONTEXTUAL TABS**
Used to change the design or layout of a table; available only when a table is selected.




**PICTURE TOOLS CONTEXTUAL TAB**
Used to format a picture object, such as to crop it or change its size, color, or border; available only when an image is selected.

# Common 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. |

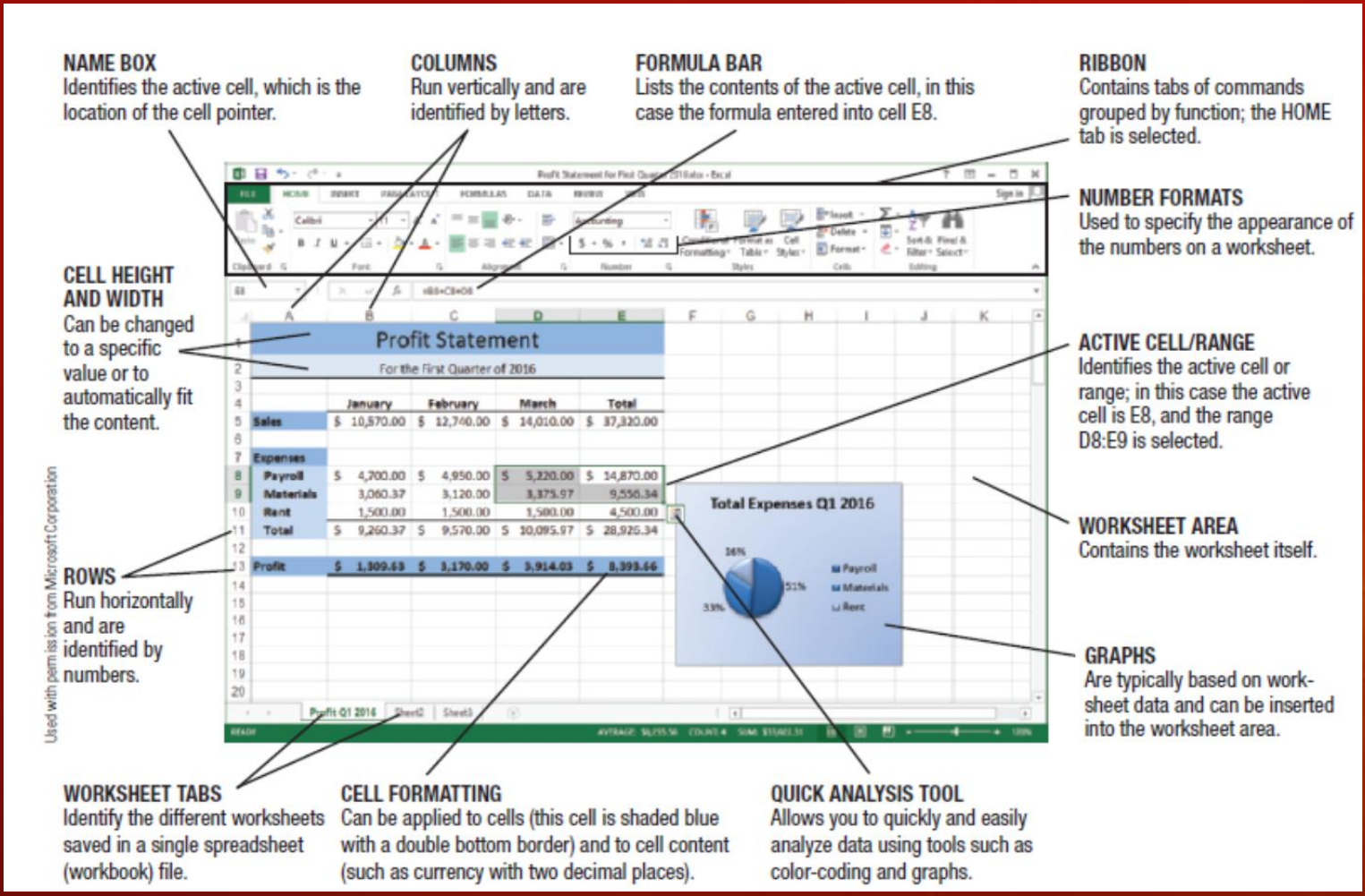


**FIGURE 6-9**
Common application software commands.

# Spreadsheet Software

- Used for calculations and data analysis.
- Features:
  - Rows & columns for data
  - Formulas and functions (SUM, IF, AVERAGE)
  - Graphs & charts
  - Sorting & filtering
- Examples:
  - MS Excel, Google Sheets

# Spreadsheet Software



# Spreadsheet Software

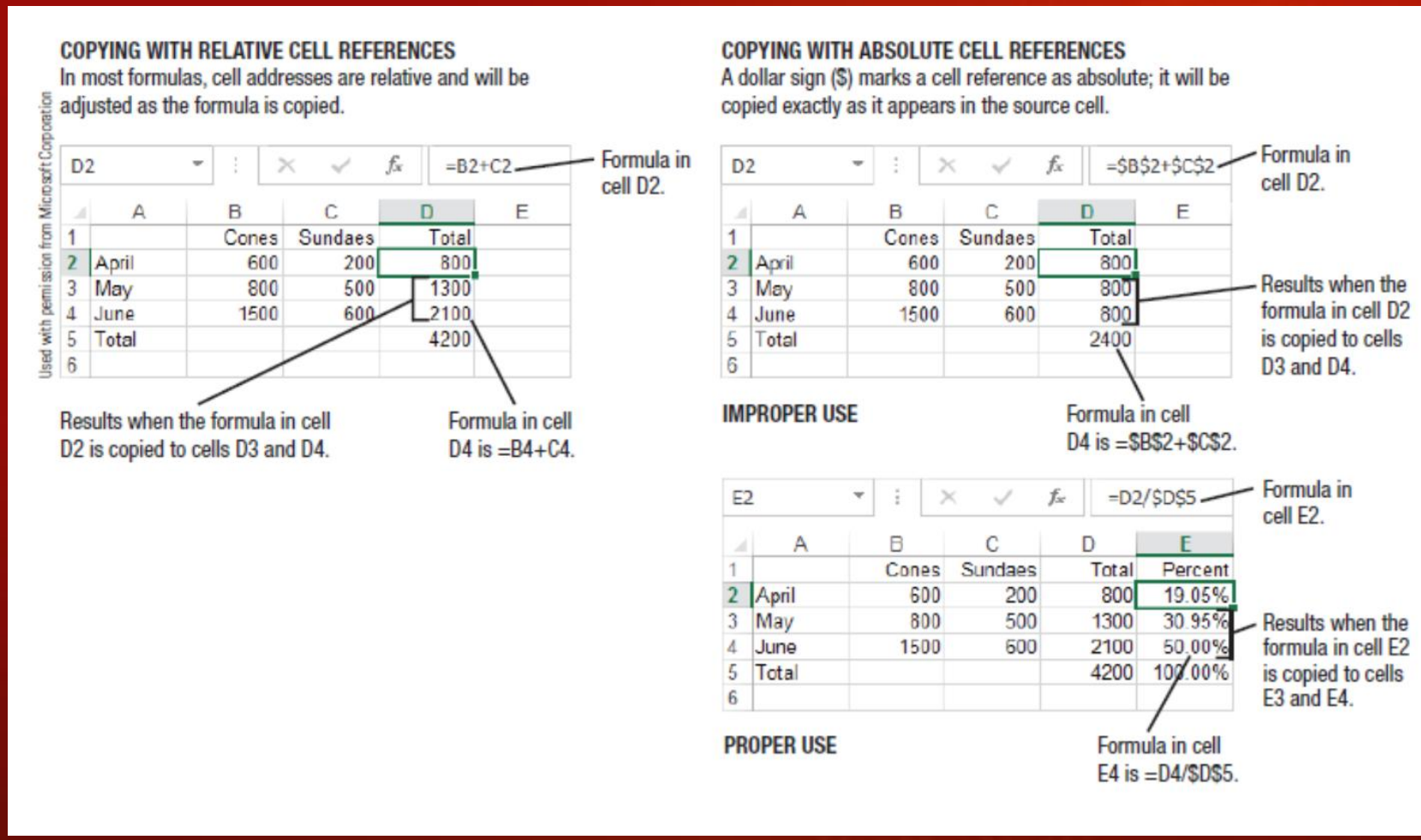
- Creating a Spreadsheet
  - Worksheet: a single spreadsheet
  - Workbook: a collection of worksheets saved in a single file
  - Worksheets are divided into rows and columns
  - Cell
    - The intersection of a row and a column
    - Each cell is identified by a cell address, such as A1
    - Cell pointer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

# Spreadsheet Software

- 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 Software

- Absolute vs. Relative Cell Referencing



# Database Software

- Used to store and manage data.
- Features:
  - Tables, queries, reports, forms
  - Searching & filtering
  - Multi-user access
- Examples:
  - MS Access, MySQL, Oracle

# Database Software

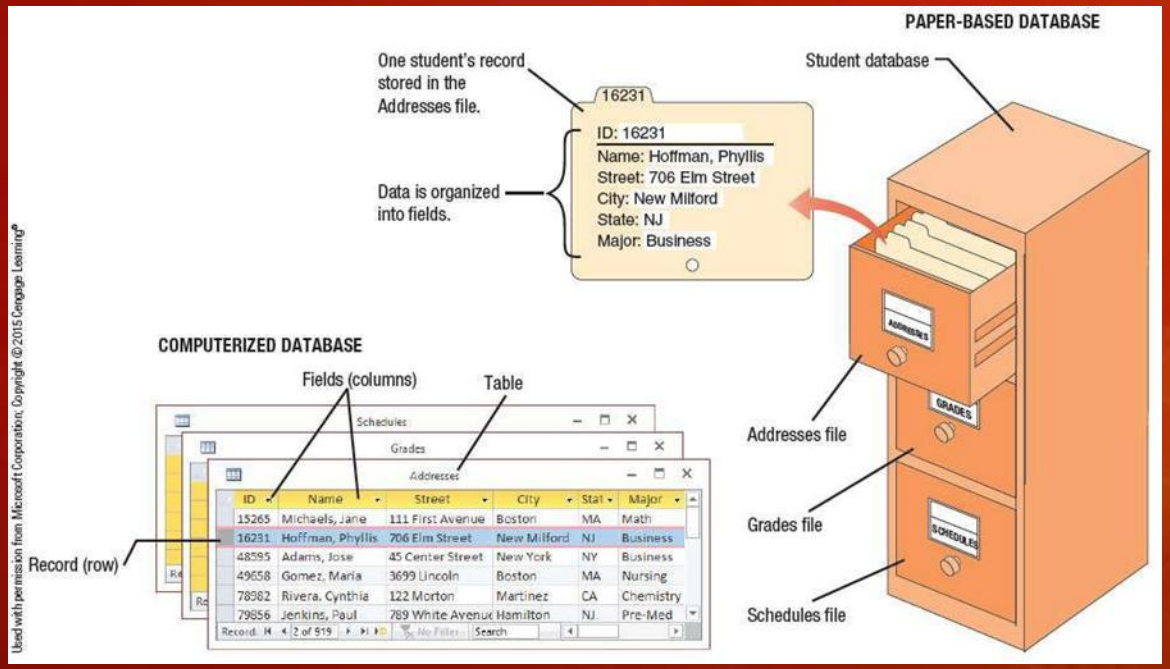



**FIGURE 6-19**
**Paper-based vs. computerized databases.** Data is organized into fields (columns), records (rows), and tables.

# Database Software

- 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 Software

- 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 Software

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

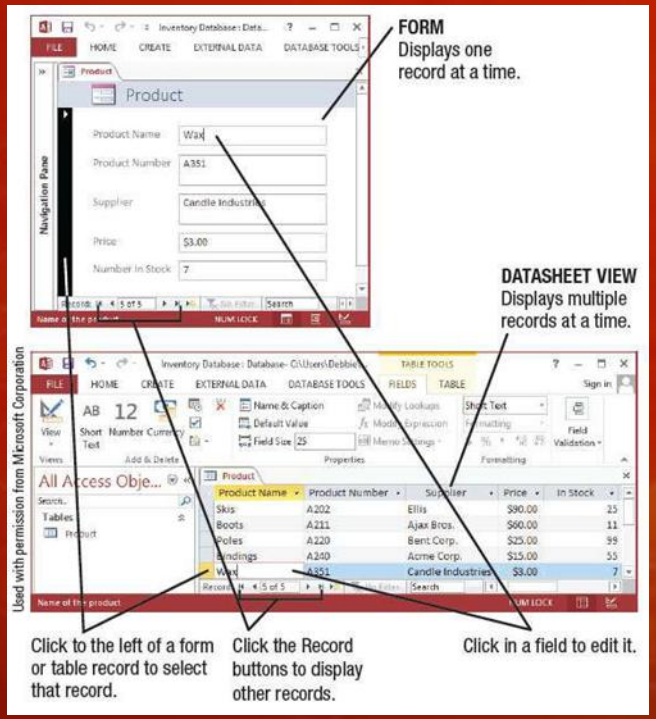
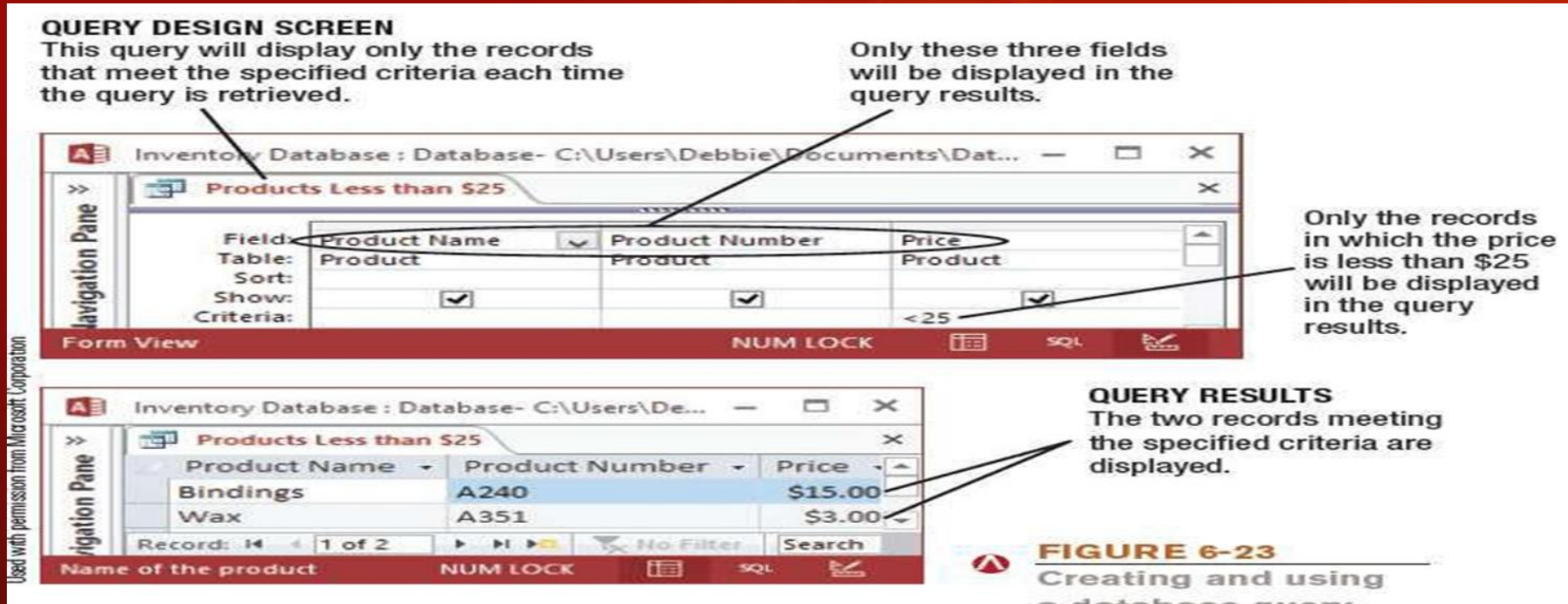



FIGURE 6-22
Table data can be modified using a form or the Datasheet view.

# Database Software

- 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



# Comparison Table

| Feature | Word Processor | Spreadsheet | Database |
| --- | --- | --- | --- |
| Purpose | Documents, letters | Numeric data, analysis | Data storage & management |
| Main Tool | Text editor | Rows & columns | Tables & queries |
| Examples | MS Word, Google Docs | MS Excel, Sheets | MS Access, MySQL |

# Summary

- Application software helps users perform specific tasks.
- Three types: General-purpose, special-purpose, custom.
- Productivity tools:
  - Word Processing → Documents
  - Spreadsheets → Data analysis
  - Databases → Data management

# Suggested Reading

- Ch-06, The System Unit: Processing and Memory , “Understanding Computers: Today and Tomorrow, Comprehensive”, 15th Edition by Deborah Morley & Charles S. Parker
- Ch-03, Discovering Computers Fundamentals- Your Interactive Guide -- Gary B Shelly; Misty E Vermaat; Jeffrey J Q