

Software = Computer Programs

- ❖ **Software**, also called a **program**, tells the computer what tasks to perform and how to perform them
 - ◆ **Firmware**
 - ◆ Device driver programs stored on ROM or EPROM chips
 - ◆ **System Software**
 - ◆ **Operating System** = Delivers hardware and software resources to user
 - ◆ **Utility Programs** = Allows user to perform maintenance-type tasks usually related to managing a computer, its devices or its programs
 - ◆ **Applications Software**
 - ◆ Word Processing
 - ◆ Spreadsheets
 - ◆ Presentation Graphics
 - ◆ Database
 - ◆ Office Suites: Microsoft Office, LibreOffice, OpenOffice

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Functions of an Operating System

- ❖ **Interfacing with Users**
 - ◆ Booting the Computer
 - ◆ Loads essential part of operating system (kernel) into memory
 - ◆ Reads opening batch of instructions
- ❖ **Determines hardware connected to computer**
 - ◆ Configuring Devices
 - ◆ Device drivers are often needed; can be reinstalled if needed and stored on hard drive
 - ◆ Plug and Play devices are recognized automatically and their drivers are loaded by OS

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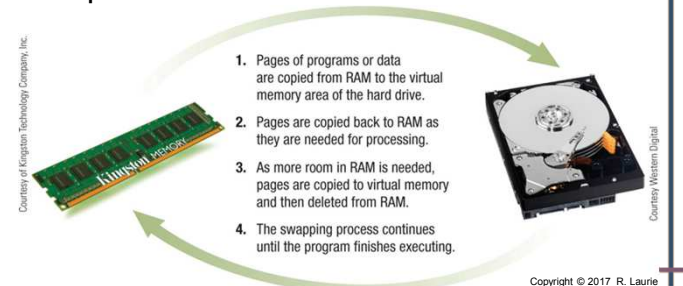
Starting Windows

- ❖ Windows steps through a process called **booting** to get a computer up and running and loads the most basic part of OS called **Kernel**
- ❖ Windows may display a **Welcome screen** so that you can log on your computer
- ❖ When you log on, you provide your **user name** and **password**
- ❖ Windows then displays the **desktop** as your starting point for using a computer
- ❖ Windows displays a background image called **wallpaper** on the desktop
- ❖ Windows uses **icons** to represent programs, folders, and files

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Functions of an Operating System

- ❖ **Memory Management**
 - ◆ Optimizing the use of main memory (RAM)
 - ◆ **Virtual memory**
 - ◆ Memory-management technique that uses hard drive space as additional RAM



Functions of an Operating System

- ❖ **Managing Network Connections**
 - ◆ Manages wired connections to network
 - ◆ Manages wireless connections Wifi, 3G, etc.
- ❖ **Manage and Monitor Resources & Jobs**
 - ◆ Makes resources available to devices
 - ◆ Detects problems and attempts recovery
 - ◆ Schedules jobs tasking
 - ◆ Jobs to be printed
 - ◆ Files to be retrieved from hard drive
- ❖ **File Management**
 - ◆ Windows Explorer
 - ◆ Files usually viewed in hierarchical folder (directory) structure
- ❖ **Security**
- ❖ **Passwords**
- ❖ **Firewalls**

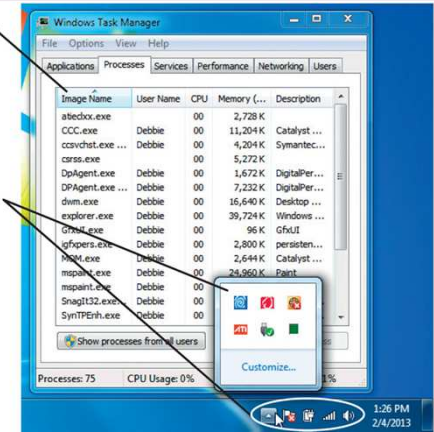
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Task Manager and Tray

[Ctrl]
[Alt]
[Del]

TASK MANAGER
These programs are running, even before any application programs are launched by the user.

NOTIFICATION AREA ICONS
These programs were launched during the boot process and will show in the notification area unless they are closed by the user (right-click an icon to see if you can close that program).



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The image consists of two parts. On the left is a screenshot of Windows Explorer showing a directory tree for 'My Documents' with folders for years from 1996 to 2005. On the right is a diagram titled 'ROOT DIRECTORY C:\ FOR HARD DRIVE C'. It shows a hierarchical structure with top-level folders: WINDOWS, DOCUMENTS, PROGRAM FILES, and GAMES. Under DOCUMENTS, there are sub-folders: LETTERS and SCHOOL PAPERS. Under LETTERS, there are files for JOHN, MARY, and BILL. Under SCHOOL PAPERS, there are files for HISTORY and ENGLISH. A red arrow points from the 'PATHS' section to the 'MARY' file in the LETTERS folder.

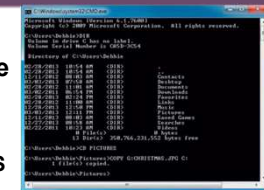
Windows Explorer
MacOS Finder
used for file management

PATHS
A path shows the folders you must travel through to get to a particular file. C:\Documents\letters\ Mary, for instance, is the path to the file Mary.doc.

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Differences Among Operating Systems

- ❖ **Command Line Interface**
 - ◆ Requires user to communicate instructions to computer via typed commands
 - ◆ DOS = Single-User, Single Task OS
- ❖ **Graphical User Interface**
 - ◆ Graphics based interface
 - ◆ Single-User, Multi Task OS
 - ◆ Most OS's today use GUI
 - ◆ Windows 95, 98, 2000, NT, ME, XP
 - ◆ Windows Vista, 7, 8, 10
 - ◆ Mac OSX, MacOS Sierra
 - ◆ Linux Desktops



COMMAND LINE INTERFACE
Commands are entered using the keyboard.



GRAPHICAL USER INTERFACE
Icons, buttons, menus, and other visual elements are used to issue commands to the computer.

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Types of Operating Systems

- ❖ **Standalone (Personal) Operating Systems**
 - ◆ Designed for single computer installation
 - ◆ Desktop, laptop, notebook, tablet, or smartphone
- ❖ **Server (Network) Operating Systems**
 - ◆ Designed for network server computer
 - ◆ Many client computers make requests
 - ◆ Controls access to network resources
 - ◆ MS Windows Server, Apple Server, Linux Server
- ❖ **Embedded (Mobile) Operating Systems**
 - ◆ Smart phones: iOS, Android, Kindle
 - ◆ Appliances: Cars, Microwaves, DVD player

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Unix and Linux

- ❖ **UNIX: AT&T and Sun Microsystems**
 - ◆ Intended for workstations and servers
- ❖ **Linux**
 - ◆ Developed by Linus Torvalds in 1991 grad project
 - ◆ Open-source software: usually free without support
 - ◆ <http://distrowatch.com/>
 - ◆ My favorites are: Zorin, Ubuntu Mate, Mint
- ❖ **Strong support from mainstream companies**
 - ◆ Google, Oracle, IBM, HP, and Novell
 - ◆ Android OS is a derivative of Linux
 - ◆ MacOS is a derivative of UNIX

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Utility Programs

- ❖ **Software that is usually related to managing or maintaining the computer**
 - ◆ Many utilities are built into operating systems
 - ◆ Control Panel accesses common utilities
 - ◆ File management program = Windows Explorer
 - ◆ Search Tools = integrated into Windows Explorer
 - ◆ Diagnostic and Disk Management Programs
 - ◆ Uninstall and Cleanup Utilities
 - ◆ File compression programs = iZarc and Windows Explorer
 - ◆ Backup and Recovery Utilities
 - ◆ Can be stand-alone products
 - ◆ Antivirus Scanner = BitDefender, AVG and Avast
 - ◆ Spyware Scanner = Spybot Search and Destroy

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Application Software

- ❖ **How is software distributed?**
 - ◆ **Commercial software**, mass-produced for purchase
 - ◆ Microsoft Office
 - ◆ **Custom software**, performs functions specific to a business or industry
 - ◆ **Web app software**, hosted by a Web site
 - ◆ Google Drive, Zoho, and Microsoft Office 365
 - ◆ **Open source software**, provided for use, modification, and redistribution
 - ◆ www.OpenOffice.org www.LibreOffice.org
 - ◆ **Shareware**, copyrighted software that is distributed free for trial period
 - ◆ **Freeware**, copyrighted software provided at no cost
 - ◆ **Public-domain software**, freeware with no copyright restrictions

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Application Software

❖ Productivity Software

- ◆ Microsoft Office
 - ◆ Word Processing = MS Word
 - ◆ Spreadsheets = MS Excel
 - ◆ Presentation Graphics = MS PowerPoint
 - ◆ Database = MS Access
- ◆ Accounting = MS Money
- ◆ Project Management = MS Project
- ◆ LibreOffice or OpenOffice are OpenSource and Free

❖ Graphics and Video Editing

❖ Communications: Email, IM, Web, VOIP

❖ Home: Tax, Personal Finance, Education

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Commercial Software

❖ Purchased Software

- ◆ Microsoft, Adobe, Autodesk

❖ Software Ownership Rights

- ◆ Commercial Software
 - ◆ Copyrighted software that is developed and sold for profit
 - ◆ Typically comes with a single-user license
- ◆ Software license
 - ◆ Specifies the conditions software can be used
 - ◆ installations, concurrent-use, single-user, multi-user

❖ EULA – End User Licensing Agreement

- ◆ Usually absolves software maker of liability
- ◆ Terms agree to when you purchase and accept the license for the software

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Copyright

❖ Rights granted to the author of original work

- ◆ Right to use work to his or her advantage
- ◆ Right to stop others from using author's work
- ◆ Duration in USA: Authors lifetime +70 years
- ◆ Notice not required for the work to qualify for copyright protection (© 2010, all rights reserved)

❖ How Do Copyright Laws Apply to Software?

- ◆ Owner of copyright has the exclusive right to make and distribute copies, and create derivative works
- ◆ End user most often gains the rights to use the software only via obtaining a paid license

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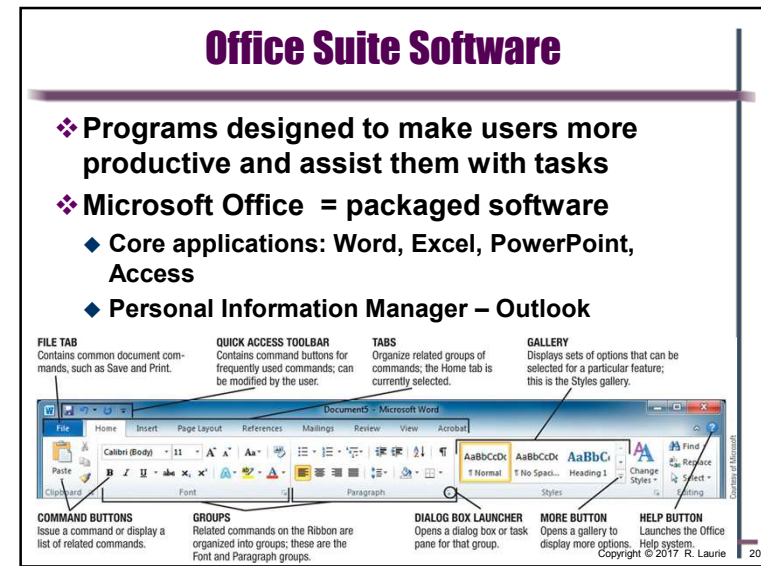
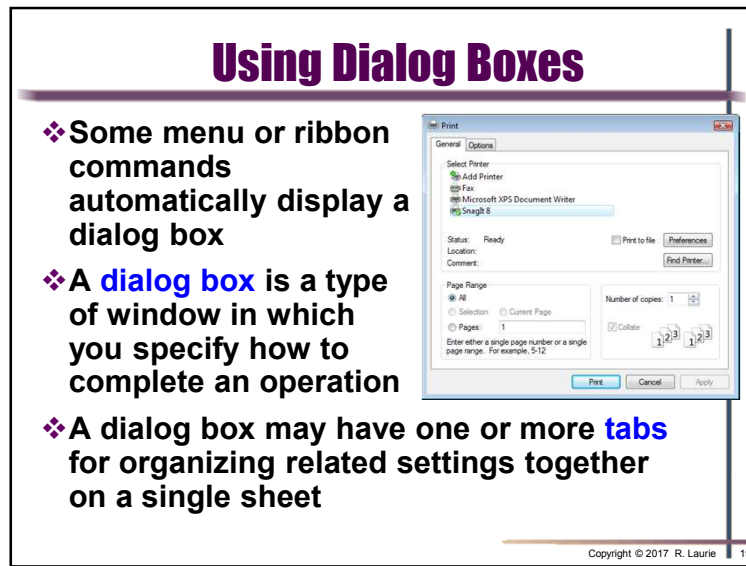
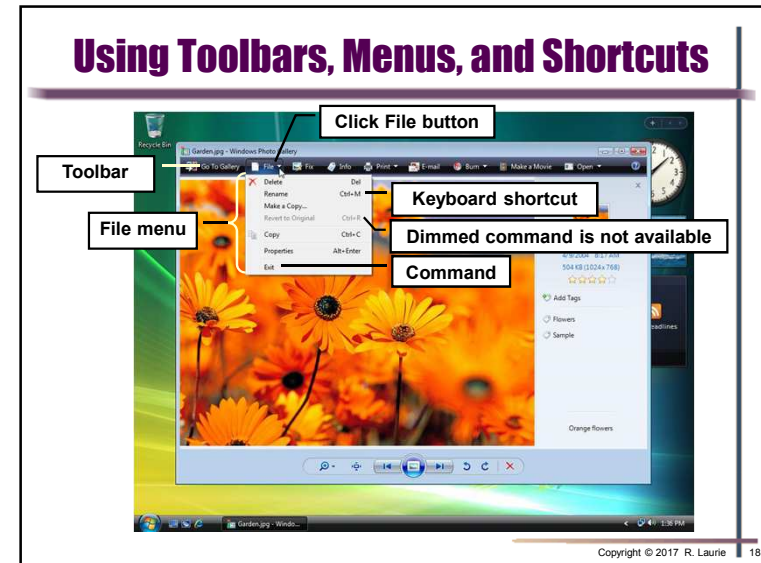
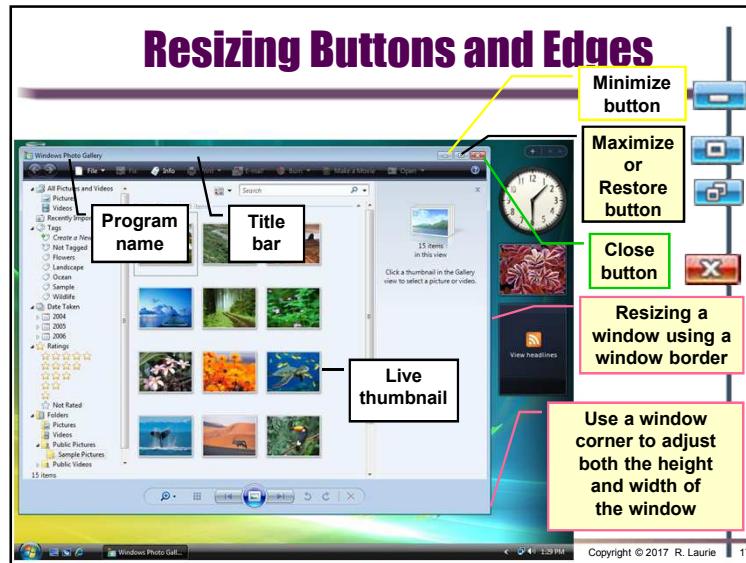
Software Piracy

❖ Software piracy takes place:

- ◆ Soft lifting: Borrowing a software and installing for your personal use
- ◆ Client-server overuse: Installing more copies of software than your license allows
- ◆ Hard-disk loading: Selling computers that have been preloaded unauthorized software
- ◆ Counterfeiting: Duplicating and selling copyrighted programs
- ◆ Online piracy: Downloading illegal software from peer-to-peer networks

❖ Criminal penalties include fine \$250,000 and a jail term of up to five years

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Word Processing

Font Face
The font face of the selected text is currently being changed.

Font Size
Measured in points; the size of the selected text is 36 pts.

Filename
Appears on the title bar once a file has been saved one time.

Alignment
The selected text is centered.

Contextual Tab
Provides access to additional commands when objects (such as the clip art image below) are selected.

Styles
Can be used to apply the same formatting to similar sections of the document.

Header
Text entered by the user that appears at the top of each page.

Clip Art
Clip art and other graphics can be inserted and resized or otherwise modified as necessary.

Word Wrap
Wraps text to the next line automatically when the text being typed reaches the end of the screen line; the user should not press Enter until the end of the paragraph.

Footer
Text entered by the user that appears at the bottom of each page. This footer contains the page number.

Table
Can be used to neatly organize data or lay out the text in a document.

Status Bar
Indicates the number of pages and words currently in the document, the current document view and zoom level, and so on.

Mini Toolbar
Appears when text is selected with a mouse.

Live Preview
Changes the appearance of selected items when a formatting command is pointed to.

Ribbon
Contains tabs of commands; the Home tab is selected.

Font Face
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Font Size
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Spreadsheet

❖ **Spreadsheet software** allows users to organize data, perform calculations, and chart data as graphic

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.

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:E8 is selected.

Worksheet Area
Contains the worksheet itself.

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

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).

Cell Height and Width
Can be changed to a specific value or to automatically fit the content.

Rows
Run horizontally and are identified by numbers.

Profit Statement
For the First Quarter of 2014

	January	February	March	Total
Sales	\$ 10,750.00	\$ 12,740.00	\$ 14,000.00	\$ 37,490.00
Expenses				
Payroll	\$ 4,700.00	\$ 4,950.00	\$ 5,200.00	\$ 14,850.00
Materials	\$ 3,000.37	\$ 3,120.00	\$ 3,875.37	\$ 9,995.74
Rent	\$ 3,000.00	\$ 3,000.00	\$ 3,000.00	\$ 9,000.00
Total	\$ 9,260.37	\$ 9,570.00	\$ 10,000.37	\$ 28,830.74
Profit	\$ 1,500.00	\$ 3,270.00	\$ 3,914.63	\$ 8,684.63

Total Expenses Q1 2014

35% Payroll
15% Materials
15% Rent

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Database

❖ **A database** is a collection of data organized in a manner that allows access, retrieval, and use of data

Datasheet View

The table has been saved as "Product" and is in Design view.

This field was renamed "Product Name" and is a Text field.

This button was clicked to select Design View.

Properties of the Product Name field.

As data is entered into a new table using Datasheet view, the structure of the table is created.

Design View

Product Name (Text)

Description (Text)

Company assigned product (Text)

General Layout:

- Field Name: Product Name
- Field Type: Text
- Field Properties:
 - Field Size: 255
 - Field Format: General
 - Field Mask: None
 - Field Caption: Product Name
 - Field Validation Rule: None
 - Field Validation Text: None
 - Field Allow Zero Length: No
 - Field Required: No

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Presentation Graphics

❖ **Presentation software** is used to create visual aids for presentations to communicate to a group

New Slides
Use the Home tab to add a new slide.

Slides Tab
Click to see thumbnails of the slides in the presentation.

Outline Tab
Click to see the titles and main text contained on the slides.

Text
Can be formatted using commands on the Ribbon or the Mini toolbar, like in other Office programs.

Ribbon
Contains tabs of commands grouped by function; the Picture Tools Format tab is selected.

Clip Art and Other Graphics
Can be inserted and resized or otherwise modified.

Slides
Can contain elements such as text, clip art, photographs, bulleted lists, charts, and video clips. Offer a theme, color scheme, or design layout is used to apply a universal appearance to all slides.

Drawn Objects
Can be added, formatted, and resized; include lines, shapes, and more.

Video Clips
Can be inserted into slides and set up to play automatically when the slide is loaded or when the video placeholder is clicked.

Status Bar
Includes information such as the current slide number and the total number of slides.

Sound Clips
Can be inserted into slides and set up to play automatically when the slide is loaded or when the sound placeholder is clicked.

Notes
Can be added so they can be seen by the presenter during the slide show or included in a narrative.

Slide Show Button
Click to run the slide show beginning with the current slide.

Incentives & Contests

- Annual sales contest ends Dec. 10th
- This year's winner will go to the Cayman Islands!!!

ABC Corporation Awarded Company

Be sure to introduce last year's winner (if present).

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