

Introduction to Computer Applications

**CISY 1225
Chapter 2**

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Last updated: June 2014

Good Morning

Final Computer Exam

- Total Points: 30
- June 16, 2014 on Monday
 - Start at lecture time
 - In class LA278
 - On MyITLab
- Chapters 5 to 12 (inclusive)
 - All exercises discussed in MyITLab
 - Practice MyITLab exercises and projects

Final Written Exam

- June 18, 2014 (Wednesday)
- Start at lecture time
- In class LA278

Final Exam material

- Total Points 30
- Textbook
 - Full chapters 1, 2, 4, 5, 6, 9, 10
- Similar to in-class exams
 - MCQs

Projects and Exercises

- Due date
 - June 16, 2014
 - Before Computer Exam
 - 8:45am morning

CISY 1225 Custom book

Chapter 2

Using System Software: The Operating System, Utility Programs, and File Management

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Chapter Topics

- System software
- Categories of operating systems (OS)
- OS role in:
 - Providing user interaction
 - Managing hardware (processor, memory)
 - Interacting with application software
 - Starting the computer

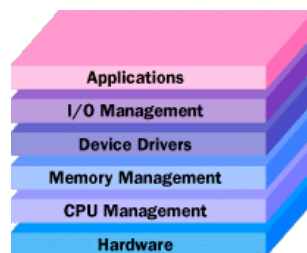
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Chapter Topics (cont.)

- Desktop and window features
- OS role in keeping the desktop organized
- Utility programs

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System Software



- **System software** includes all of the programs needed to keep a computer and its peripheral devices running smoothly
- Two major categories of system software are:
 - Operating systems (OS)
 - System utilities

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The Operating System (OS): The Computer's Traffic Cop

- **Operating system**
 - a set of programs
 - perform certain basic functions with a specific type of hardware
- The functions of the operating system are:
 - Starting the computer
 - Managing programs
 - Managing memory
 - Handling messages from input and output devices
 - Enabling user interaction with the computer



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Starting the Computer

- **Load**
 - To transfer from a storage device to memory
- **Booting** – The process of loading or reloading the operating system into the computer's memory
- The booting processes are:
 - **Cold boot** – Loads the OS when the power is turned on
 - **Warm boot** – Reloads the OS when the computer is already on



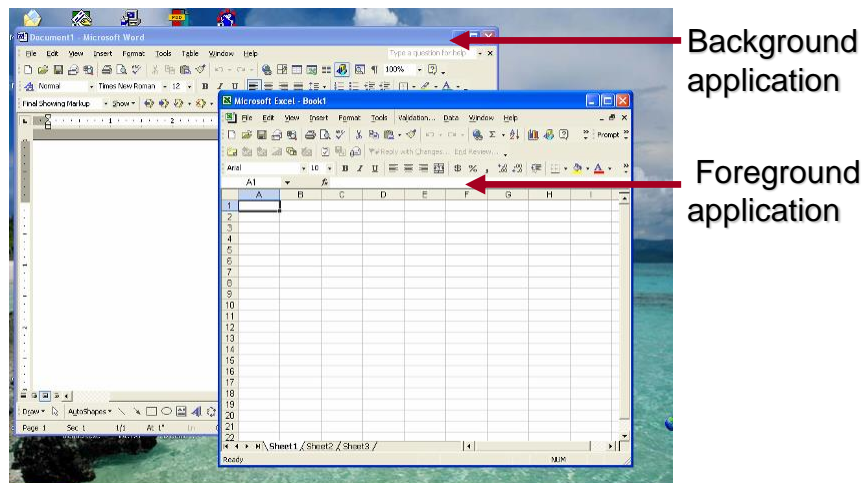
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Managing Applications

- **Single-tasking** operating systems run one application program at a time
- **Multitasking** operating systems have the ability to run more than one application program at a time
- Multitasking is accomplished by:
 - **A foreground application** – The active program or program in use
 - **One or more background applications** – Inactive program(s) or program(s) not in use

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Example of Multitasking



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Managing Programs

- **Preemptive multitasking** – Enables the operating system to regain control if an application stops working



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Random Access Memory (RAM)

- RAM has limited capacity
- Running multiple programs
 - at one time requires more RAM
- Most editions of Windows 7 require
 - more than 1 GB of RAM for the OS alone
- The translucent Aero user interface requires
 - at least 2 GB of RAM and
 - a video card with at least 256 MB of RAM

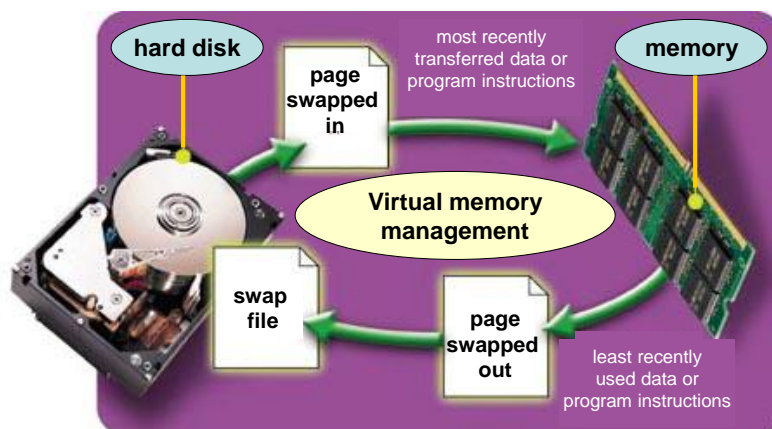
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Managing Memory

- Computers use **memory** to make processing more fluid
- The operating system allocates memory areas for each running program; it keeps programs from interfering with each other
- The operating system uses **virtual memory** as an extension of random access memory (RAM)

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Managing Virtual Memory



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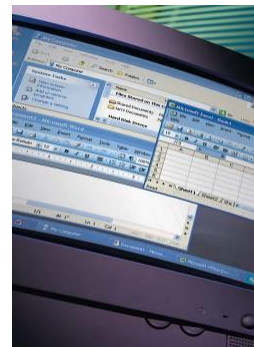
OS Architecture

- Systems with more than 4 GB of RAM
 - feature a 64-bit version of Windows (Windows Vista or Windows 7)
 - If you purchase a 64-bit system,
 - need to make sure that all your hardware and software programs
 - updated to work well with the 64-bit version of your OS
- Previous versions of Windows used 32-bit systems

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Providing the User Interface

- The **user interface** is that part of the operating system with which the user interacts with a computer
- User interface functions:
 - Start application programs
 - Manage disks and files
 - Shut down the computer safely

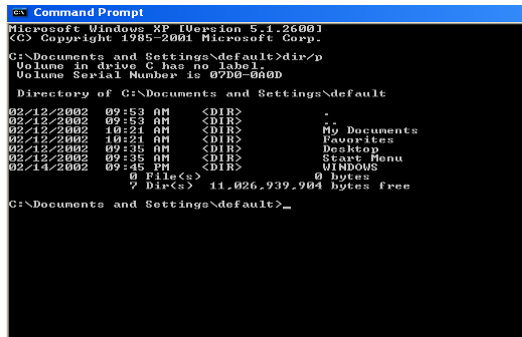


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Command-Line Interface

✓ Command-line:

- The user is required to type keywords or commands in order to enter data or give instructions



```
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\Documents and Settings\default>dir /p
Volume in drive C has no label
Volume Serial Number is 0700-0000

Directory of C:\Documents and Settings\default

02/12/2002  09:53 AM    <DIR>          .
02/12/2002  09:53 AM    <DIR>          ..
02/12/2002  10:21 AM    <DIR>          My Documents
02/12/2002  10:21 AM    <DIR>          Favorites
02/12/2002  09:35 AM    <DIR>          Desktop
02/12/2002  09:35 AM    <DIR>          Start Menu
02/12/2002  09:35 AM    <DIR>          WINDOWS
0 File(s)    0 bytes
7 Dir(s)    11,026,939,904 bytes free

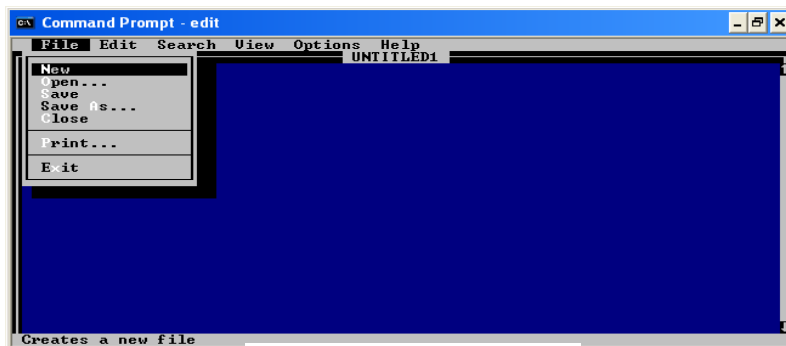
C:\Documents and Settings\default>_
```

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Menu-driven User Interface

• Menu-driven:

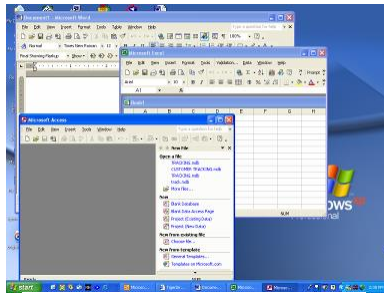
- Text-based menus are used to show all of the options available to the user



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Graphical User Interface (GUI)

- ✓ Graphical user interface (GUI):
 - Uses graphics to create a desktop environment
 - Icons (small pictures) represent computer resources
 - Programs run within on-screen windows



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Operating System Categories

- Traditionally included four categories:
 - Single-user, single-task
 - Example: MS-DOS
 - Single-user, multitask
 - Example: Apple Mac OS
 - Multiuser: Network operating system
 - Example: Microsoft Windows Server OS
 - Real-time (RTOS): Embedded systems
 - Example: Found in measurement instruments

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Real-Time Operating Systems

- Systems with a specific purpose and a certain result
- Uses include:
 - Automobiles
 - Printers
 - VoIP phones
 - Medical devices
 - Appliances
 - Robotic equipment



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Multiuser Operating Systems

- Known as network operating systems
- Allow access to the computer system by more than one user
- Manage user requests
- Systems include:
 - Linux
 - UNIX
 - Windows Server 2008
 - Mac OS X
 - IBM i
 - z/OS

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Exploring Popular Operating Systems

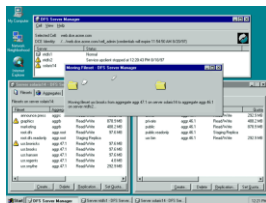
WINDOWS



Smartphone OS



WINDOWS NT



MAC OS X



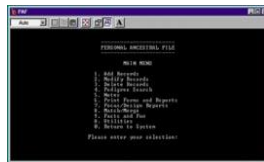
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Exploring Popular Operating Systems

LINUX



MS-DOS



UNIX



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Microsoft Windows

- Multiuser, multitasking OS
- Windows 8 is the newest version
- Features
 - Increased functionality
 - User-friendliness
 - Improved Internet capabilities
 - Enhanced privacy and security

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Microsoft Windows

Click to view each Windows version (1985-2001)

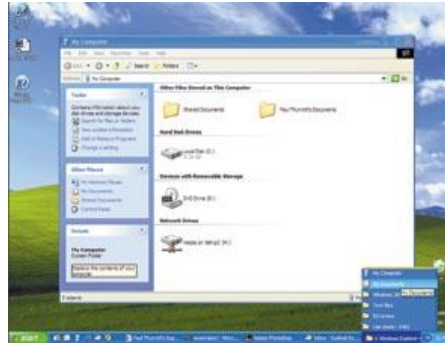
Windows XP (2001)



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Windows XP

- Released in 2001 by Microsoft
- XP is short for “experience”
- Uses the same underlying code for all versions
- Replaces all previous versions of Windows
- Three versions:
 - Windows XP Home Edition
 - Windows XP Professional
 - Windows XP Server



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MAC OS

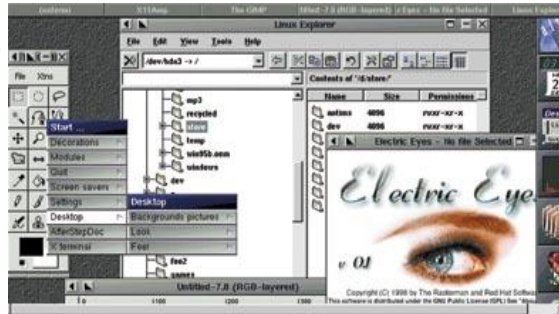
- Created in 1984
- First OS to use graphical user interface
- Easiest operating system for beginners
- A new version, Mac OS X, was released in 2014



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Linux

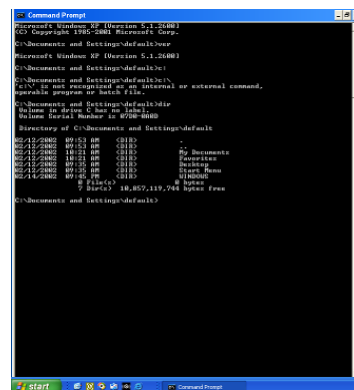
- Developed in 1991 by UNIX
- **Open-source code** – Available for all to see and use
- Competes with Windows and MAC-OS
- Powerful and free
- Growing acceptance



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MS-DOS

- Developed for IBM PCs in 1981
- Uses command-line interface
- Use is diminishing



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UNIX

- Developed by AT&T in 1970s
- Included first preemptive multitasking system
- Developed concepts of file management and path names
- Facilitates client/server networking
- Widely used by corporations



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Mainframes and Supercomputers

- Other computers utilizing multiuser operating systems
 - Mainframes
 - Handle requests from hundreds or thousands of users simultaneously
 - Supercomputers
 - Used by scientists and engineers

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Smartphones

- Do more than a cell phone
 - let the user make and answer phone calls
- Have productivity features,
 - in addition to features found on personal media players and cameras
 - the ability to connect to the Web
- Examples: BlackBerry devices, Apple iPhone, Google Android, and Palm Pre

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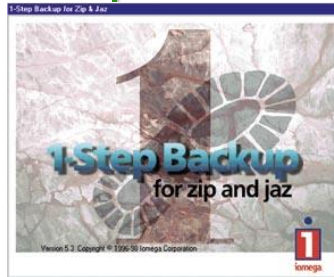
System Utilities: Tools for Housekeeping

- System utilities are programs that help the operating system manage the computer system's resources
- Types of utilities:
 - Backup software
 - Antivirus software
 - Disk scanning
 - Disk defragmentation
 - File management
 - File-searching software
 - File compression



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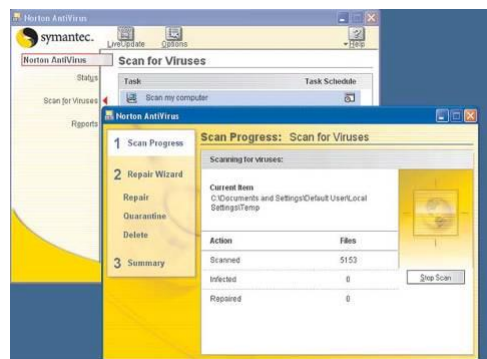
Backup Software



- **Backup software** includes programs that enable the user to copy data from the hard disk to another storage medium
- Types of backups:
 - **Full backup**
 - **Incremental backup**

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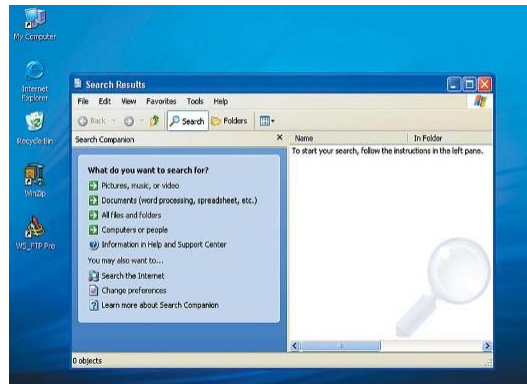
Antivirus Software



- **Antivirus software** protects the computer from computer viruses

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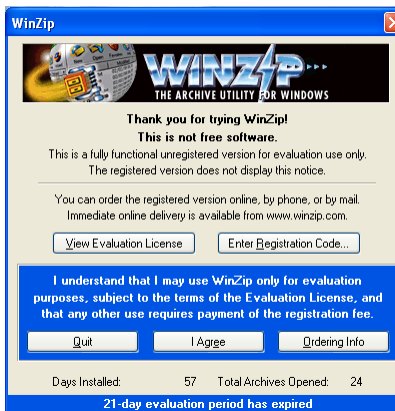
Search



- **Search programs** enable users to find files on storage devices

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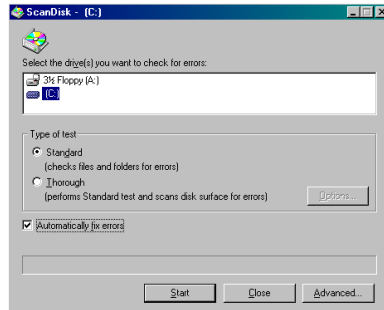
File Compression Utility



- A **file compression utility** reduces the size of a file

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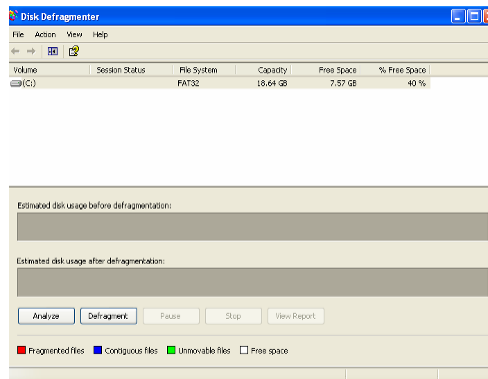
Disk Scanning Programs



- **Disk-scanning utilities** are programs that detect and fix physical and logical problems on storage devices
- **Disk cleanup utilities** are programs that remove files that are no longer needed

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Disk Defragmentation Programs



- A **disk defragmentation program** moves data on a storage device to improve performance

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System Update



- Windows Update keeps the operating system up to date
 - windowsupdate.microsoft.com

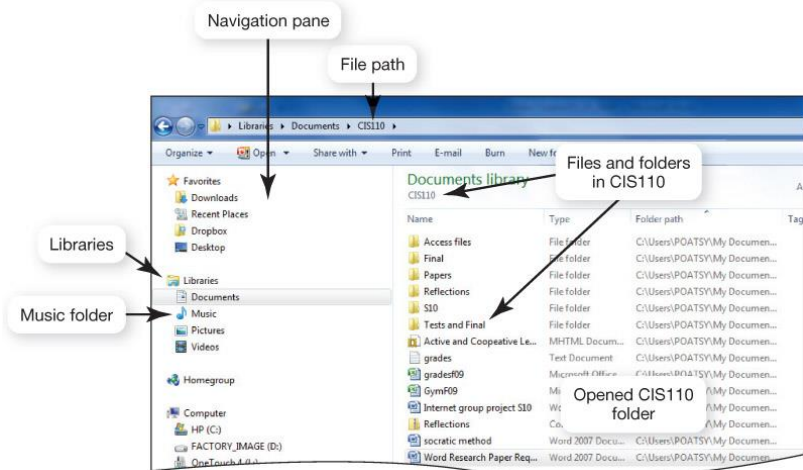
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File Management

- The operating system provides an organizational structure for the computer's contents
- Hierarchical structure of directories:
 - Drives
 - Folders
 - ❖ Subfolders
 - » Files
- Windows 7: Libraries

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File Management



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Viewing and Sorting Files and Folders

- Many views available
 - Large Icon view
 - Extra Large Icon view
 - Tiles view
 - Details view
 - List view
 - Small and Medium Icon views

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File Name Extensions

Extension	Type of Document	Application
.doc	Word processing document	Microsoft Word 2003
.docx	Word processing document	Microsoft Word 2007 and 2010
.wpd	Word processing document	Corel WordPerfect
.xlsx	Spreadsheet	Microsoft Excel 2007 and 2010
.accdb	Database	Microsoft Access 2007 and 2010
.pptx	PowerPoint presentation	Microsoft PowerPoint 2007 and 2010
.pdf	Portable Document Format	Adobe Acrobat or Adobe Reader
.rtf	Text (Rich Text Format)	Any program that can read text documents
.txt	Text	Any program that can read text documents

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File Name Extensions (cont.)

Extension	Type of Document	Application
.htm or .html	Hyper Text Markup Language for a Web page	Any program that can read HTML
.jpg	Joint Photographic Experts Group (JPEG) image	Most programs capable of displaying images
.gif	Graphic Interchange Format (GIF) image	Most programs capable of displaying images
.bmp	Bitmap image	Windows
.zip	Compressed file	WinZip

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Naming Files

- File name:
 - Name assigned plus file name extension
- Up to 255 characters
- Characters not legal in Windows file names:
 - " / \ * ? < > | :
- Character not legal in Mac file names:
 - :
- Mac file names
 - case sensitive and
 - do not need file extensions

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File Path

- File path: Location of the file



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Working with Files

- File management actions
 - Open
 - Copy
 - Move
 - Rename
 - Delete
- Recycle Bin (Windows)
- Trash (Mac)

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Display Utilities

- Change the appearance of:
 - Desktop
 - Background
 - Screen savers
 - Window colors

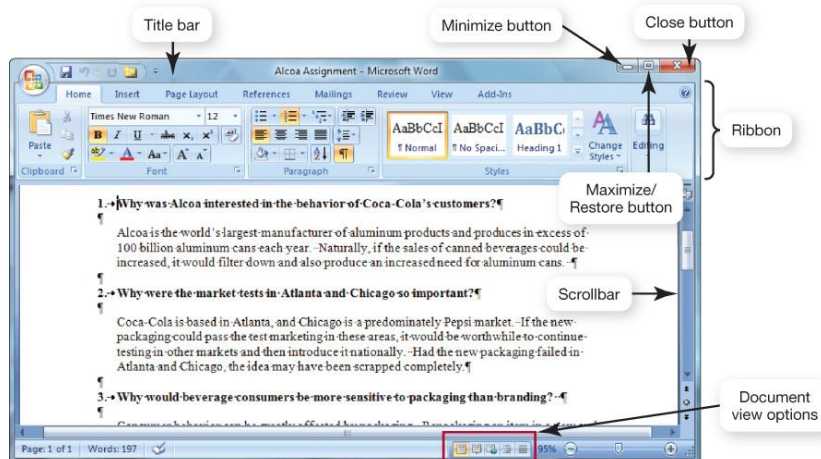
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The Desktop



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Windows



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Viewing Windows

- Side-by-side
- Stacked
- Cascading
- Flip 3D
- Snap
- Aero Shake



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Add or Remove Programs

- Installation wizard
- Uninstall wizard
 - Programs should not simply be deleted

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Troubleshooting

- Computer startup failure:
 - Use a boot disk (emergency disk) in the floppy drive
- Configuration problems after adding new peripherals:
 - Start the computer in Windows' safe mode
 - Access system files by pressing the F8 key during the startup



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Troubleshooting

- System slowdown:
 - Scan for viruses
 - Check the CPU fan
 - Check BIOS options
 - Defragment the hard drive



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Shutting Down Your System

- Click Start, then Turn Off Computer
 - Standby - low power state
 - Shut Down – turns computer off
 - Restart – reboots computer



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Chapter 2 Summary Questions

Note: Please see the answer of these questions at the end of chapter 2 in your course textbook.

- What software is included in system software?

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Chapter 2 Summary Questions

- What are the different kinds of operating systems?

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Chapter 2 Summary Questions

- What are the most common operating systems?

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Chapter 2 Summary Questions

- How does the operating system provide a means for users to interact with the computer?

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Chapter 2 Summary Questions

- How does the operating system help manage resources such as the processor, memory, storage, hardware, and peripheral devices?

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Chapter 2 Summary Questions

- How does the operating system interact with application software?

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Chapter 2 Summary Questions

- How does the operating system help the computer start up?

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Chapter 2 Summary Questions

- What are the main desktop and windows features?

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Chapter 2 Summary Questions

- How does the operating system help me keep my computer organized?

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Chapter 2 Summary Questions

- What utility programs are included in system software, and what do they do?

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END

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