Utility Programs

Operating Systems continued.

Types of Operating Systems

- A *device-dependent* program is one that runs only on a specific type of computer.
- *Proprietary software* is privately owned and limited to a specific vendor or computer model.
- The trend today is towards *device-independent* operating systems that run on computers provided by a variety of manufacturers.
- The three basic categories that exist today are stand-alone, server, and embedded.

Types of Operating Systems

Categories of Operating Systems

Category	Operating System Name
Stand-alone	• DOS • Early Windows versions (Windows 3.x, Windows 95, Windows NT Workstation, Windows 98, Windows 2000 Professional, Windows Millennium Edition, Windows XP) • Windows Vista • Mac OS X • UNIX • Linux
Server	• Early Windows Server versions (Windows NT Server, Windows 2000 Server, Windows Server 2003) • Windows Server 2008 • UNIX • Linux • Solaris • NetWare
Embedded	• Windows Embedded CE • Windows Mobile • Palm OS • iPhone OS • BlackBerry • Embedded Linux • Symbian OS

Stand-Alone Operating Systems

- A **stand-alone operating system** is a complete operating system that works on a desktop computer, notebook computer, or mobile computing device.
- Some are *client operating systems* that work in conjunction with a server operating system, with or without a network.
- Examples of stand-alone OSs are Windows Vista, Mac OS X, UNIX, and Linux.

Windows Vista

- **Windows Vista** WAS Microsoft's fastest, most efficient operating system to date, offering quicker program start up, built-in diagnostics, automatic recovery, improved security, and enhanced searching and organizing capabilities.
- Windows 7, more recently, is a much better build than the previous Windows Vista.
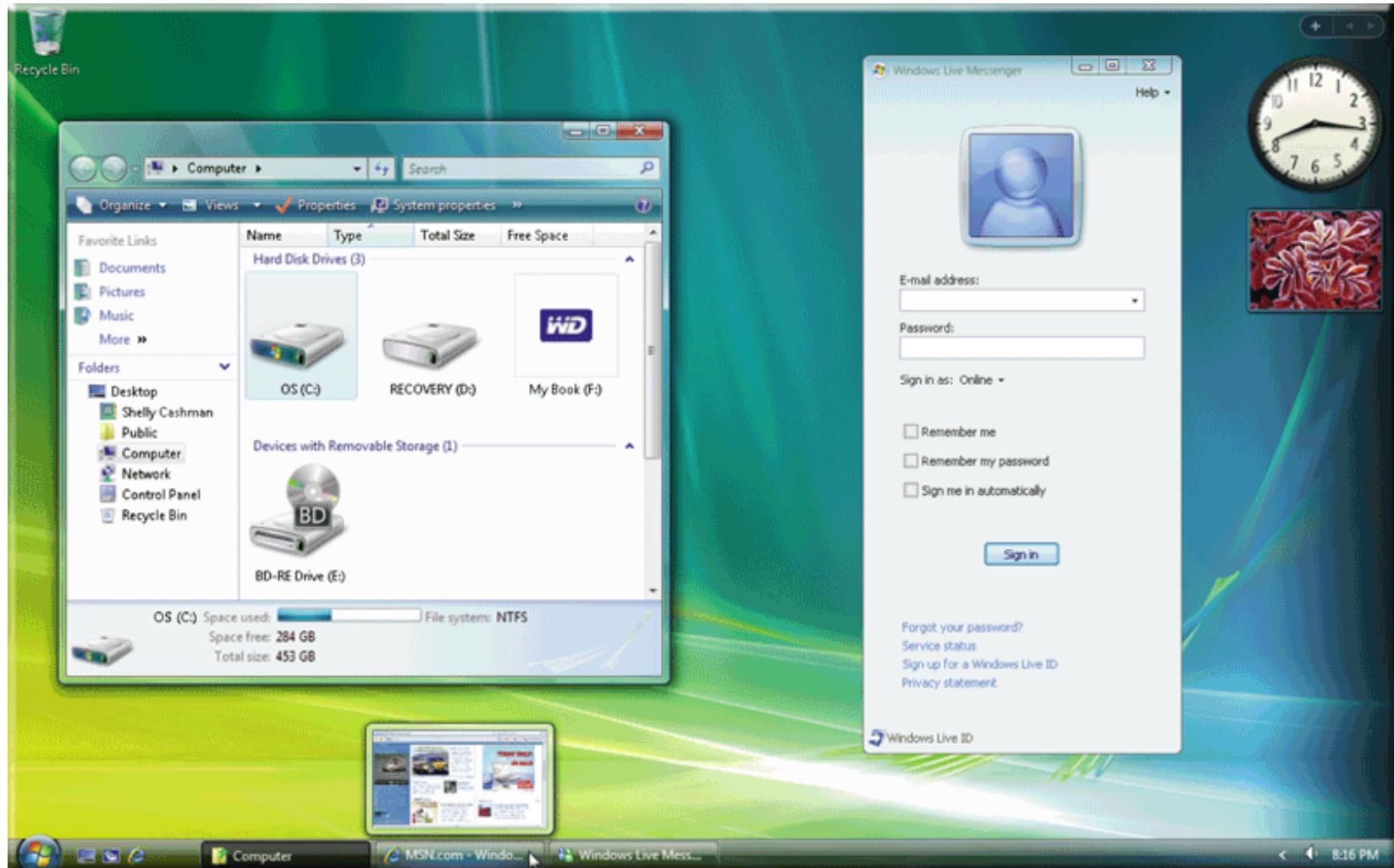
Windows Vista

- Windows Vista comes in multiple editions including: Home Basic, Home Premium, Ultimate, and Business.
- Each offers more system functionality than the previous editions.

Windows Vista

- *Windows Firewall* is used to secure the network connection from hackers.
- *Windows Messenger* users can send and receive instant messages.
- *Windows Media Player* allows users to listen to music and watch movies.
- *Windows Sidebar* is a vertical bar on the edge of the desktop where users can place *gadgets*, or *widgets*, which are mini-programs with minimal functionality, such as calendars, clocks, and contact lists.

Windows Vista

Mac OS X

- Apple's **Macintosh operating system** has set the standard for operating system ease of use and has been the model for most of the new GUIs developed for non-Macintosh systems.

- The latest version, **Mac OS X**, is a multitasking operating system available only for computers manufactured by Apple. (10.6.6 is the latest version)

Mac OS X

- Includes features from previous version of the OS, such as large photo-quality icons, built-in networking support, email, chat, and so on.

UNIX

- **UNIX** is a multitasking operating system developed in the early 1970s by scientists at Bell Laboratories.
- Bell Labs was prohibited from actively promoting UNIX, but licensed it for low fees to numerous colleges.
- Several versions exist, each are slightly different.
- Some versions have a command-line interface, but most have a GUI.

Linux

- **Linux**, introduced in 1991, is a popular, multitasking UNIX type operating system.
- Linux is not proprietary software, like the other OSs discussed thus far. Instead it is *open source software*, which means its code is provided for use, modification, and redistribution.
- Many programmers have donated time to modify and redistribute Linux to make it the best possible version of UNIX.

Linux

- Linux is available in a variety of forms, known as distributions, some command-line, some GUI.

- The two most popular GUIs are GNOME and KDE.

- It can be downloaded for free from the Web, purchased from companies such as Red Hat or IBM, or included with books in the form of an optical disc.

Server Operating Systems

- A server operating system is an OS that is designed specifically to support a network, and typically resides on a server.

- Many stand-alone OSs discussed function as clients and work in conjunction with a server OS.

Windows Server 2008

- **Windows Server 2008** is an upgrade to Windows Server 2003 and includes features from previous versions as well as:
  - Improved Web server management
  - Enhanced server security
  - Network Access Protection
  - Protection against malicious software attacks
  - Shares many technologies with Windows
  - Supports clients with various OSs

Windows Server 2008

- **Windows Server 2008 family** includes many editions to meet the needs of all sizes of business.
  - Standard
  - Enterprise
  - Datacenter
  - Server
  - Server for Itanium-Based Systems
- Most feature *virtualization*, which is the practice of sharing or pooling resources to split one physical server into multiple virtual servers.

UNIX

- In addition to being a standard OS, UNIX is also a server OS capable of handling a high volume of transactions in a multiuser environment.
- It is known as a *multipurpose operating system* because it is both a stand-alone and a server OS.

Linux

- Linux is also a multipurpose OS capable of functioning as a server.

Solaris

- *Solaris*, a version of UNIX developed by Sun Microsystems, is a server operating system designed specifically for e-commerce applications.

NetWare

- Novell's *NetWare* is a server operating system designed for client/server networks.

- It has a server portion on the network server and a client portion on each client computer.

Embedded Operating Systems

- An **embedded operating system** is on mobile devices and money consumer electronics and resides on a ROM chip.

Windows Embedded CE

- **Windows Embedded CE** is a scaled-down Windows OS designed for use on communications, entertainment, and computing devices.

- Devices include VoIP telephones, industrial control devices, digital cameras, point-of-sale terminals, automated teller machines, digital photo frames, fuel pumps, security robots, handheld navigation devices, media players, ticket machines, and computerized sewing machines.

Windows Mobile

- **Windows Mobile** is an operating system based on Windows Embedded CE that includes functionality, programs, and a user interface designed for specific types of smart phones and PDAs.

- Users have access to all the basic personal information manager functions such as contact lists, schedules, tasks, calendars, and notes.

Palm OS

- *Palm OS* runs on smart phones and PDAs allowing users to manage schedules and contacts, phone messages, notes, task and address lists, and appointments.

- Many devices allow users to connect wirelessly to the Internet, browse the Web, send and receive e-mail messages, text messages, and instant messages and so on.

iPhone OS

- **iPhone OS**, developed by Apple, is an operating system for the iPhone and iPod touch, Apple's smart phone and touch screen portable media player.

- These devices are multi-touch, which means they recognize multiple points of contact, allowing users to pinch-to-zoom.

BlackBerry

- The *BlackBerry* operating system runs on handheld devices supplied by Research In Motion.

- They provide all of the personal information management functions of the other embedded OSs.

Embedded Linux

- *Embedded Linux* is a scaled-down Linux OS designed for smart phones, PDAs, portable media players, Internet telephones, and many other types of devices and computer requiring an embedded operating system.

Symbian OS

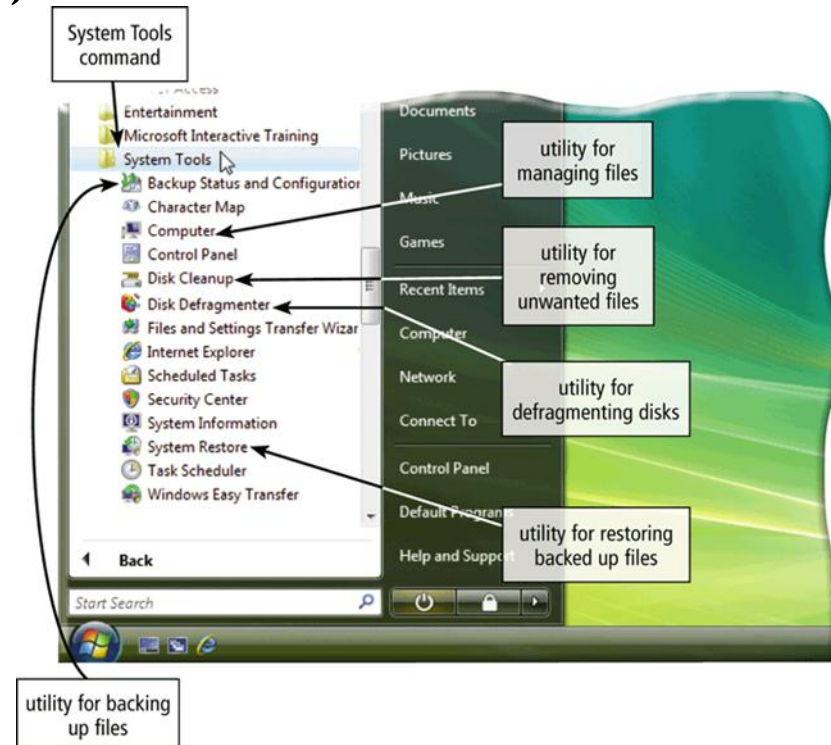- *Symbian OS* is an open source multitasking OS designed for smart phones.

Utility Programs

- A **utility program**, also called a **utility**, is a type of system software that allows a user to perform maintenance-type tasks, usually related to managing a computer, its devices, or its programs.

- Utility programs are built-in to many operating systems or can be purchased separately.

Utility Programs

- Functions provided include: managing files, searching for files, viewing images, uninstalling programs, cleaning up disks, defragmenting disks, backing up files and disks, setting up screen savers, securing a computer, etc.

System Tools command

utility for managing files

utility for removing unwanted files

utility for defragmenting disks

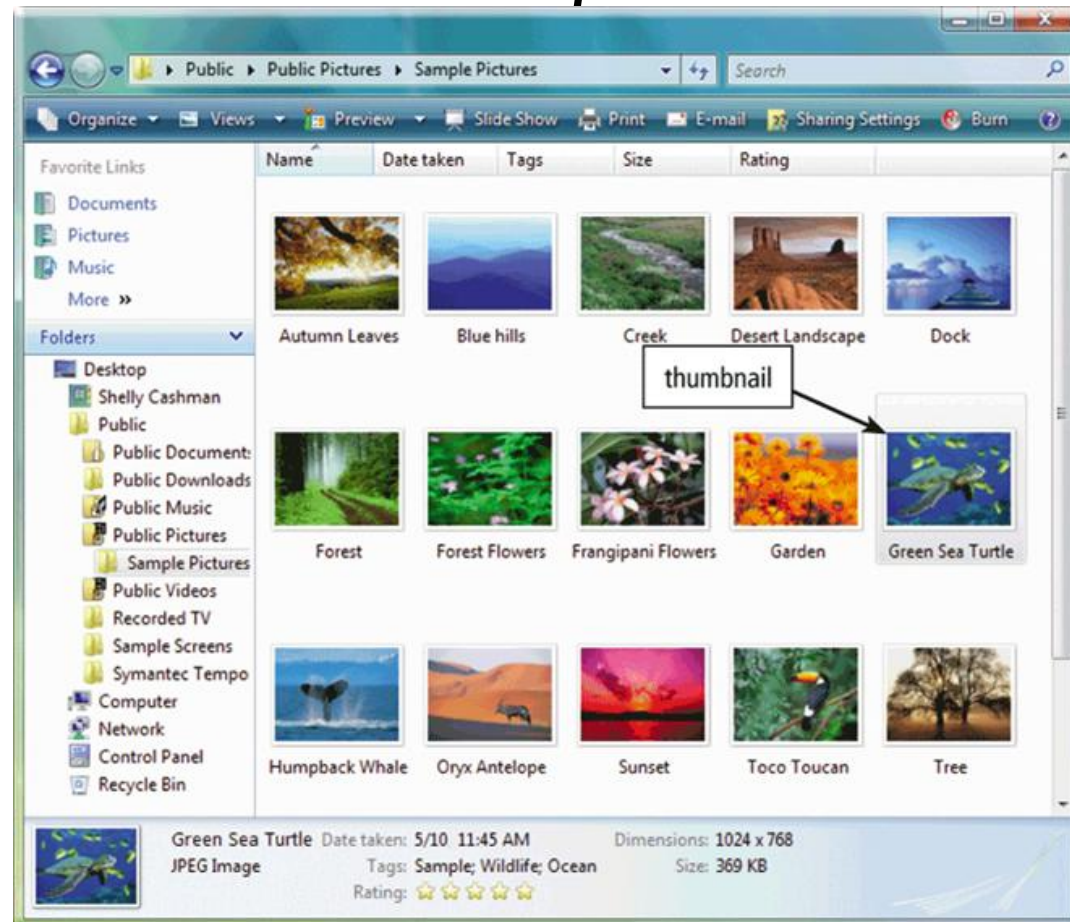utility for restoring backed up files

utility for backing up files

File Manager

- A **file manager** is a utility that performs functions related to file management, such as displaying a list of files on a storage medium, organizing files in folders, copying renaming, deleting moving and sorting files and folders, and creating shortcuts.
- A **folder** is a specific named location on a storage medium that contains related documents.
- A **shortcut** is an icon on the desktop or in a folder that provides a user with immediate access to a program or file.

File Manager

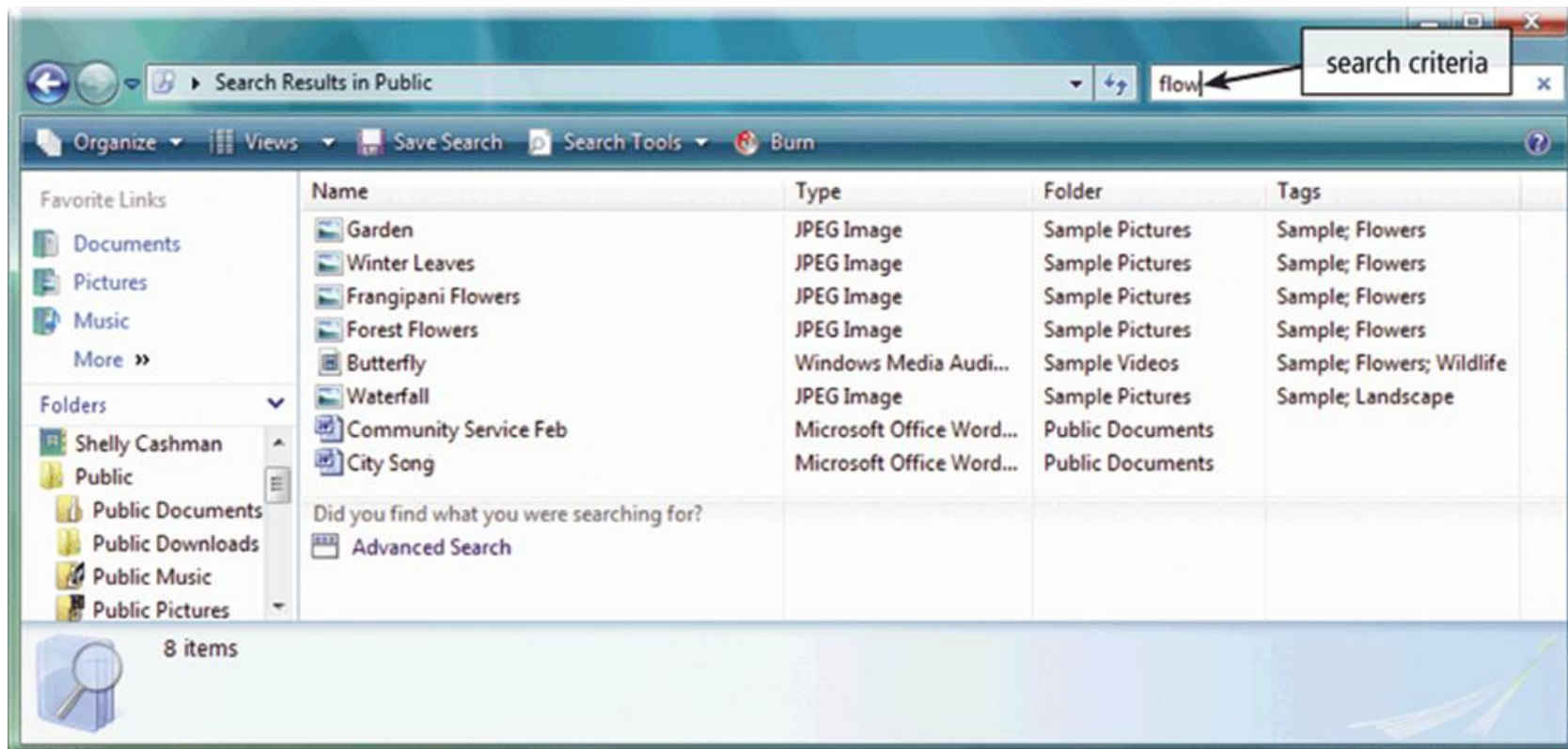- The file manager that comes with windows is called *Explorer*.

Search Utility

- A **search utility** is a program that attempts to locate a file on your computer based on criteria you specify.

- The criteria may include a word or words contained in a file, date of creation or modification, size of the file, location, file name, author, and other properties.

- Search utilities typically use an *index*, which stores a variety of information about the file, including its name, date created and modified, and author to quickly locate the file.
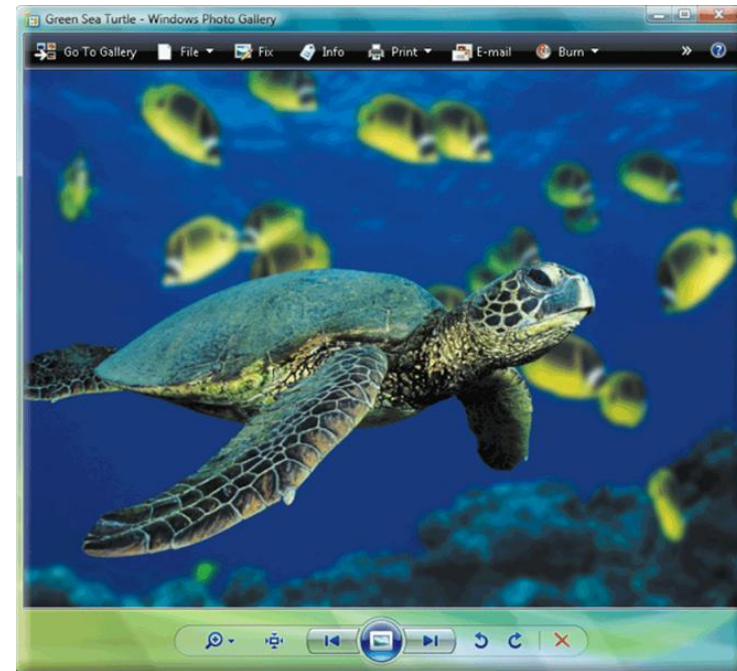
Search Utility

- In Windows, Explorer and the Start Menu contain a search box where you enter the search criteria.

Image Viewer

- An **image viewer** is a utility that allows users to display, copy, and print the contents of a graphics file, such as a photo.
- *Windows Photo Gallery* allows you to manage and edit photos.

Uninstaller

- An **uninstaller** is a utility that removes a program, as well as any associated entries in the system files.
- When you install a program, the OS keeps record of it.
- The uninstaller deletes these files and folders when a program is uninstalled.
- In Windows, this is done through the Control Panel: 'Uninstall a program'.

Disk Cleanup

- A *disk cleanup* utility searches for and removes unnecessary files, including downloaded program files, temporary Internet files, deleted files, and unused program files.

Disk Defragmenter

- A **disk defragmenter** is a utility that reorganizes the files and unused space on a computer's hard disk so that the operating system accesses data more quickly and programs run faster.

- It attempts to place data in sectors that are contiguous (next to each other) when possible, a process known as **defragmenting**.

- When contents of a file are scattered across noncontiguous sectors, the file is *fragmented*.

Backup and Restore Utilities

- A **backup utility** allows users to copy, or *back up*, selected files or an entire hard disk to another storage medium such as an external hard disk.

- Many backup programs *compress*, or shrink the size of, files during the backup process, requiring less storage.

- A **restore utility**, reverses the process and returns the backed up files to their original form.

Screen Saver

- A **screen save** is a utility that causes a display device's screen to show a moving image or blank screen if no keyboard or mouse activity occurs for a specified time, waking when input is detected.
- Originally developed to prevent a problem called *ghosting*, in which images could be etched permanently on a monitor's screen.

Personal Firewall

- A **personal firewall** is a utility that detects and protects a personal computer from unauthorized intrusions, monitoring all transmissions to and from a computer.
- Without a firewall, the computer is vulnerable to attacks from a *hacker*, someone who tries to access a computer or network illegally.
- Windows has a built in firewall,called Windows Firewall.

Antivirus Programs

- A computer **virus** is a potentially damaging computer program that affects, or infects, a computer negatively by altering the way the computer works without the user's knowledge or permission.
- Once inside, a virus can spread and damage your files and operating system, while other viruses can be harmless pranks.

Antivirus Programs

- *Malware* (malicious software) is software that acts without a user's knowledge and deliberately alters the computer's operations.
- A **worm** copies itself repeatedly, for example, in memory or over a network, using up system resources.
- A **Trojan horse** hides within or looks like a legitimate program such as a screen saver.

Antivirus Programs

- An **antivirus program** protects a computer against viruses by identifying and removing any computer viruses found in memory, storage, or incoming files.

- They require regular updates to protect users against newly discovered and newly created viruses.

- Three popular types are McAfee VirusScan, Norton AntiVirus, and Windows Live OneCare.

Spyware and Adware Removers

- *Spyware* is a program placed on a computer without the user's knowledge that secretly collects information about the user.

- *Adware* is a program that displays an online advertisement in a banner or pop-up window on Web pages, e-mail, or Internet services, and sometimes contains spyware.

- **Spyware removers** and *adware removers* are programs that detect and delete spyware and adware, respectively.

Internet Filters

- **Web filtering software** is a program that restricts access to certain material on the Web, such as specific sites or sites that contain certain words or phrases.

- A **anti-spam program** is a filtering program that attempts to remove *spam*, unsolicited e-mail messages, before it reaches your e-mail inbox.

Internet Filters

- A **phishing filter** is a program that warns or blocks you from potentially fraudulent Web sites attempting to *phish*, or obtain your personal and/or financial information.

- A **pop-up blocker** is a filtering program that stops *pop-up ads*, advertisements that appear in new windows on a Web page.
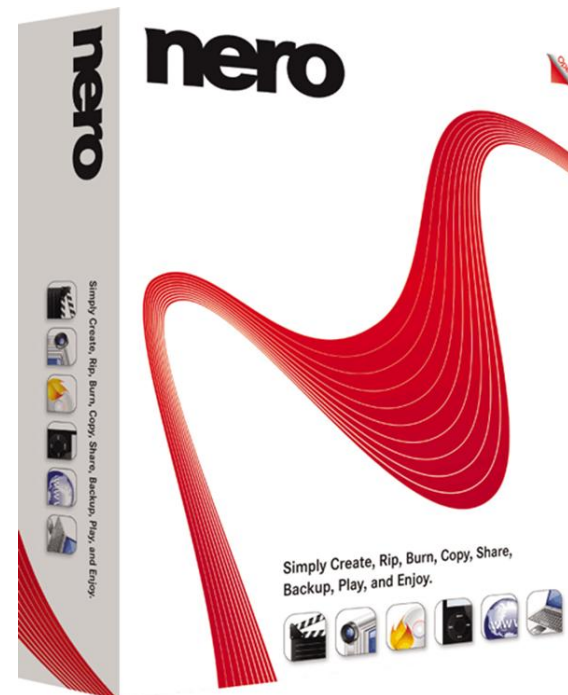
File Compression

- A **file compression utility** shrinks the size of a file(s), thus taking up less storage space than the original file.
- **Zipped files** are compressed files with a .zip extension.
- Compressed files are **uncompressed**, or *unzipped*, and restored to their original form.

Media Player

- A **media player** is a program that allows you to view images and animation, listen to audio, and watch video files.

- Windows comes with Windows Media Player, but other popular players are iTunes, RealPlayer, and Rhapsody.

Disc Burning

- **Disc burning software** writes text, graphics, audio, and video files on a recordable or rewritable CD, DVD, or Blu-ray Disc.

Personal Computer Maintenance

- A **personal computer maintenance utility** identifies and fixes operating system problems, detects and repairs disk problems, and includes the capability of improving a computer's performance.