

Information Technology Essentials

COMP106



Instructor :

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Chapter 2

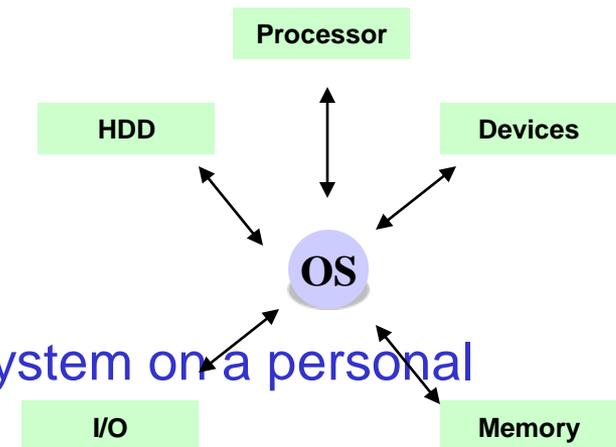
Operating System Fundamentals

Objectives

- ◆ In this session, you will learn to:
 - ◆ Identify the major personal computer operating systems.
 - ◆ Identify the primary components of the Windows user interface.
 - ◆ Identify the primary tools and functions used in Windows file system management.
 - ◆ Identify Windows system management tools.

Personal Computer Operating Systems

- ◆ Operating System (OS): Provide consistent environment for other software to execute commands. The OS gives users an interface with the computer so they can send commands (input) and receive results (output).
- ◆ Roles of an Operating Systems
 - ◆ Control hardware access.
 - ◆ Manage files and folders.
 - ◆ Provide user interface.
 - ◆ Manage applications.
- ◆ The commonly used operating system on a personal computer are:
 - ◆ Microsoft Windows
 - ◆ Unix
 - ◆ Linux
 - ◆ Apple Macintosh Operating Systems



Microsoft Windows

- ◆ Microsoft Windows:
 - ◆ Is the most popular desktop and server OS
 - ◆ Provides graphical user interface (GUI)
 - ◆ Supports wide range of application and devices
 - ◆ Requires a minimum 32-bit memory for processing
 - ◆ Provides native networking support
 - ◆ Supports a large suite of built-in applications and accessories
 - ◆ Often comes preinstalled on many PCs sold commercially

Microsoft Windows Versions

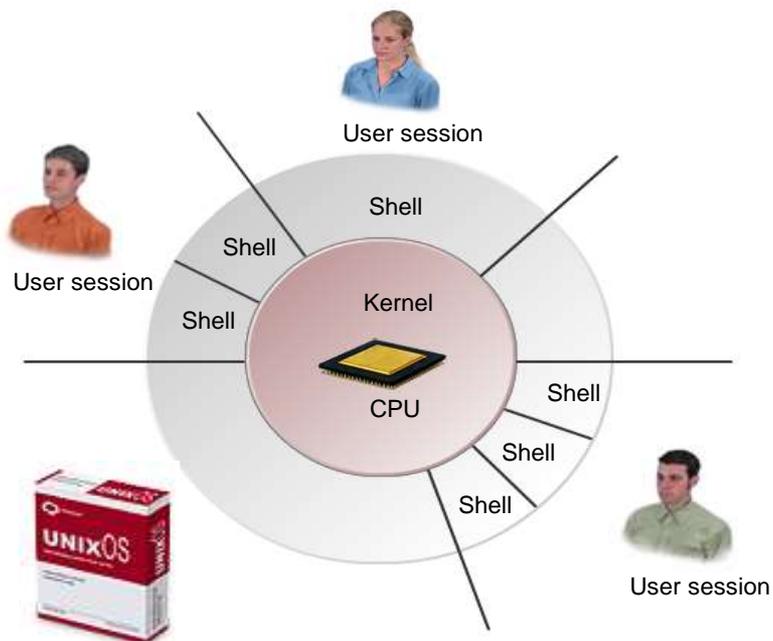
- ◆ Microsoft Windows comes in several different versions, such as:
 - ◆ Windows Vista
 - ◆ Windows XP
 - ◆ Windows Server 2003
 - ◆ Windows 2000
 - ◆ Windows 9x and Me
 - ◆ Windows NT
 - ◆ Older Windows Desktop Operating System



Unix

◆ UNIX:

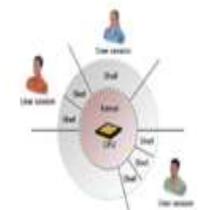
- ◆ Systems share a kernel/shell architecture
- ◆ Is portable to different hardware platforms
- ◆ Incorporates built-in multitasking, multiuser, built-in networking, and a robust development platform



Linux

◆ Linux:

- ◆ Is an Open-standard UNIX derivative, developed by Linus Torvalds
- ◆ Incorporates built-in multitasking, multiuser, built-in networking, and a robust development platform
- ◆ Code is open. It can be downloaded, modified, and installed freely



Kernel and shell



Applications



Utilities



Installation media



Vendor support



Apple Macintosh Operating Systems

- ◆ Mac OS® X features:
 - ◆ Multiple user support
 - ◆ Integrated Mac, Windows, and UNIX server, file, and printer browsing in the Finder
 - ◆ Safari™ Web browser
 - ◆ Native TCP/IP networking
 - ◆ Many file- and network-level security features
 - ◆ Wide hardware device support with a unique Macintosh computer system design



Windows User Interface Components

- ◆ The primary components of the Windows user interface are:
 - ◆ Windows Desktop
 - ◆ Taskbar
 - ◆ Start Menu
 - ◆ Windows Explorer
 - ◆ My Computer
 - ◆ My Documents Folder
 - ◆ Control Panel
 - ◆ Command Prompt
 - ◆ My Network Places

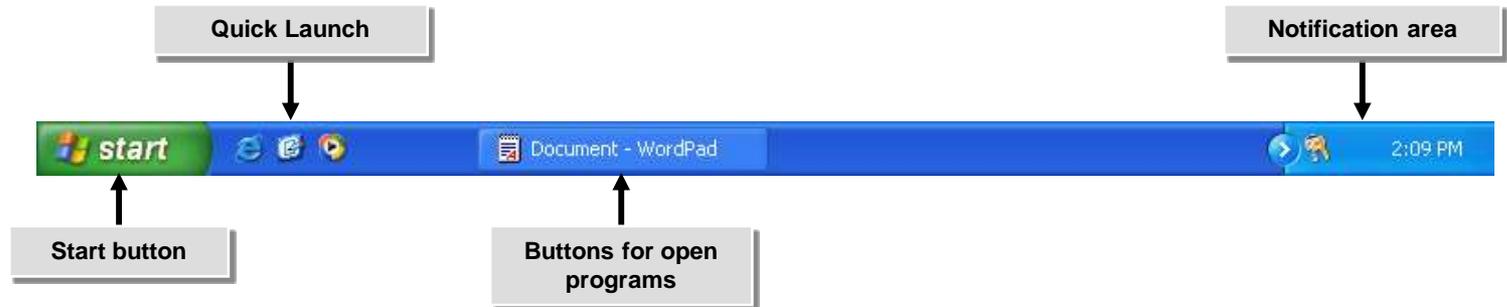
The Windows Desktop

- ◆ The **Windows desktop** is a general term for the overall contents of the computer screen that displays whenever Windows is running.



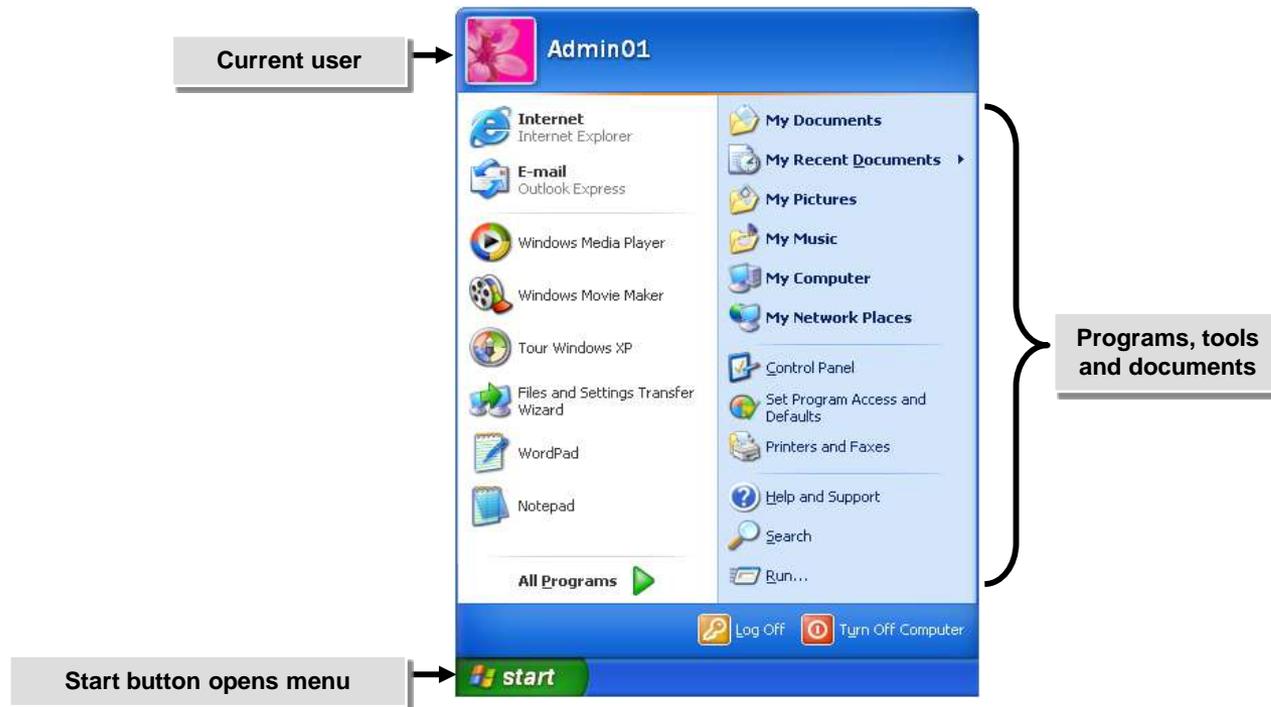
The Taskbar

- ◆ The *Taskbar* is located at the bottom of the screen.



The Start Menu

- ◆ The **Start Menu** is the main entry point into the Windows user interface. You can access programs, tools, and documents by choosing them directly from the Start menu or from one of its sub-menus.

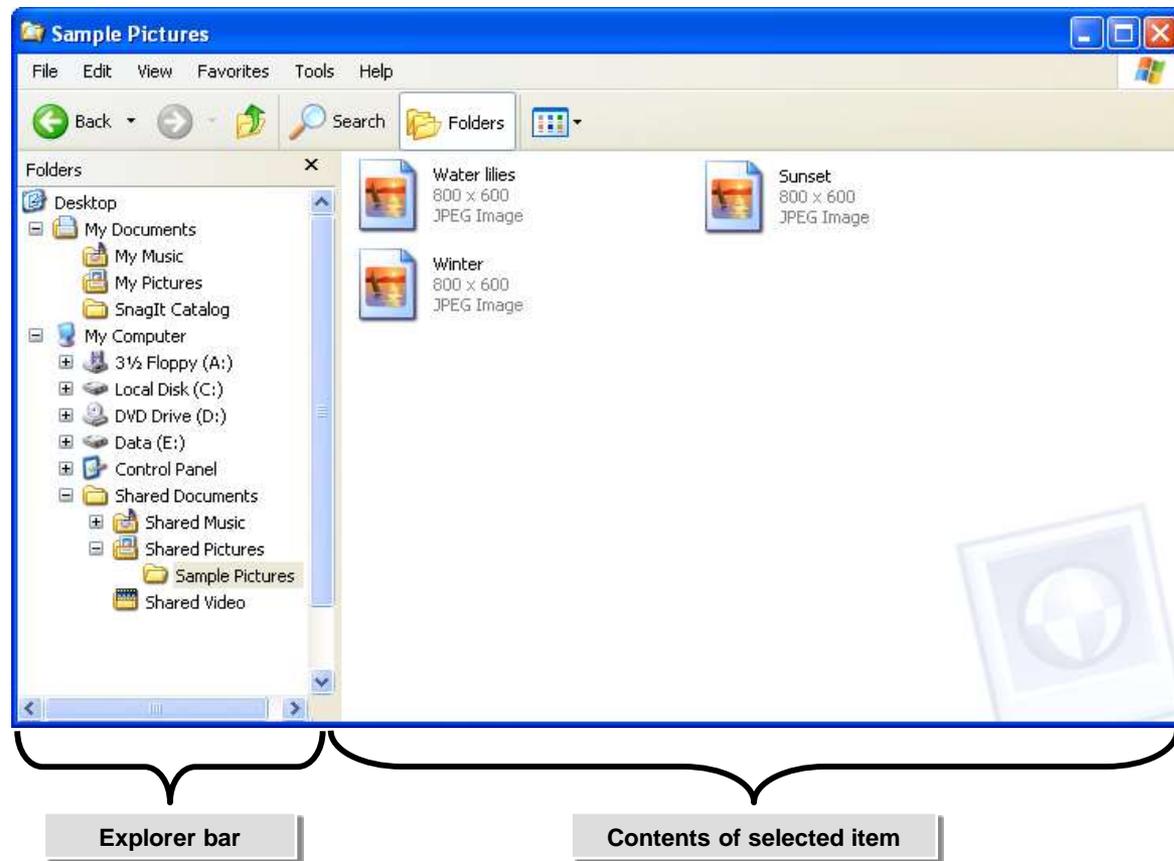


Activity 2-2

Activity on Examining the Taskbar and Start Menu

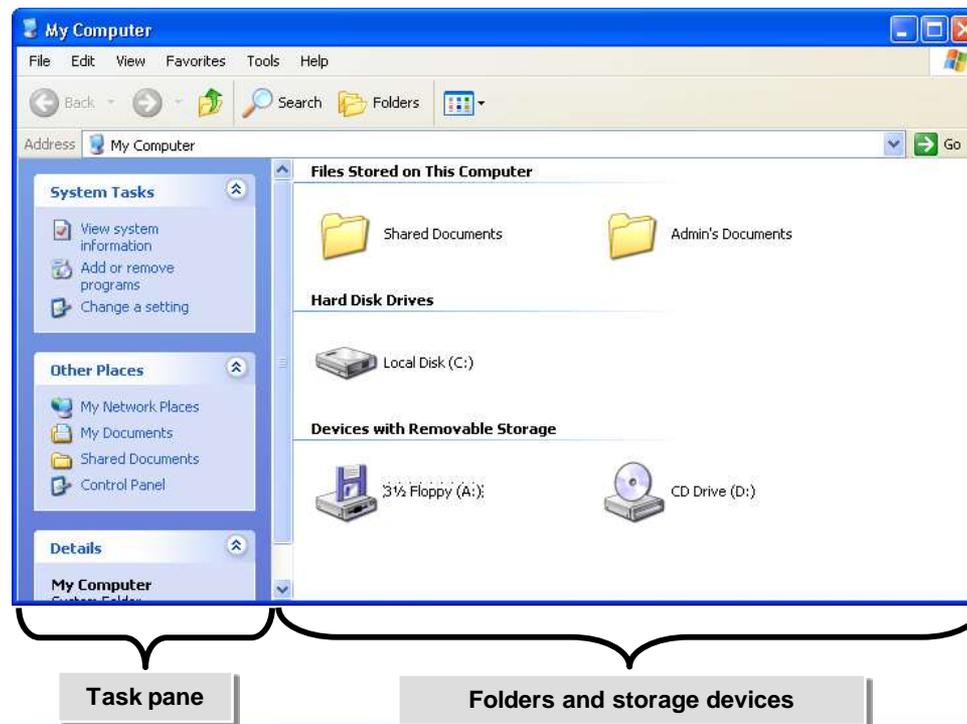
Windows Explorer

- ◆ **Windows Explorer** is a graphical tool that enables users to manage files and folders on a computer.



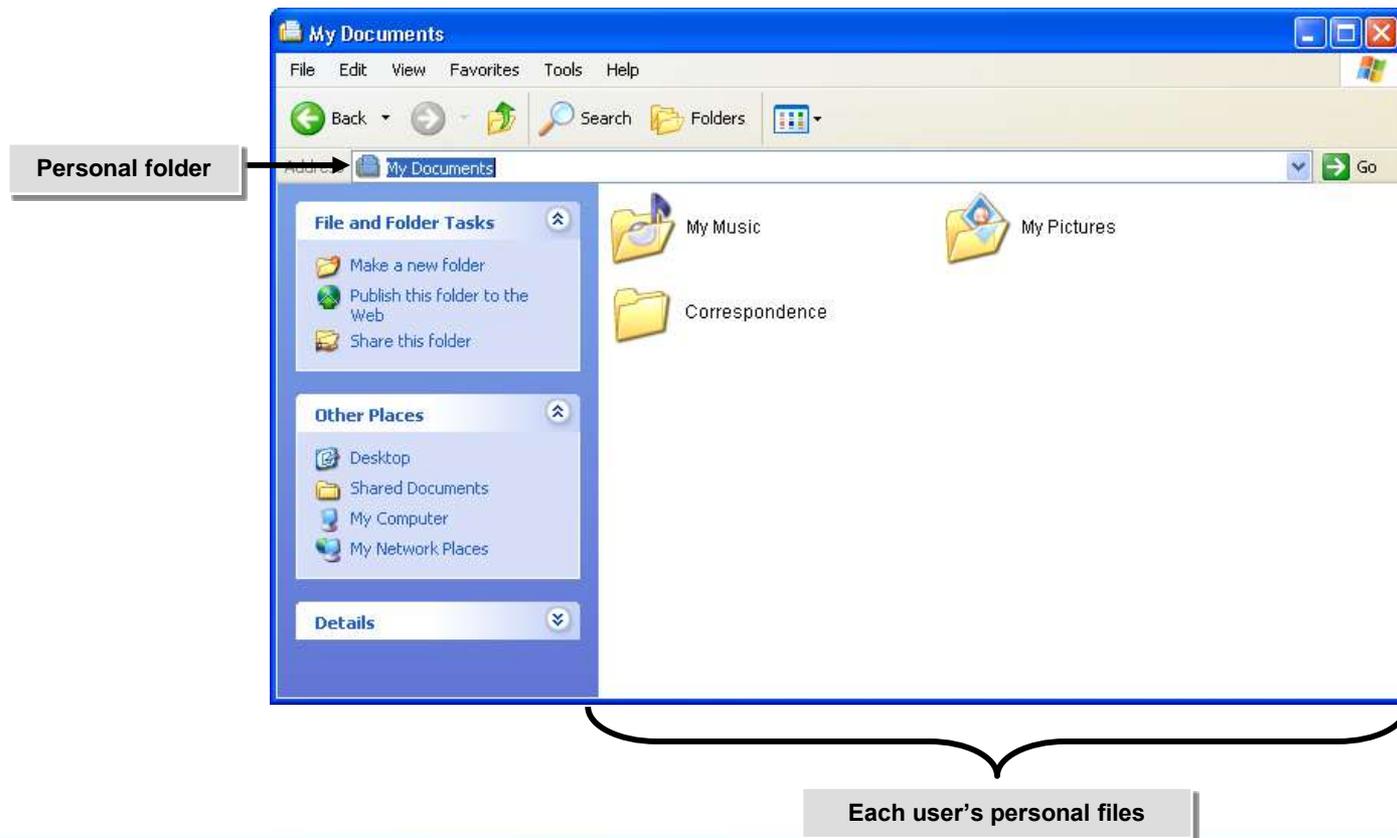
My Computer

- ◆ **My Computer** is used to manage files and folders on a computer and on any storage devices attached to the computer. It has a single pane view of Windows explorer, which has an additional task pane.



The My Documents Folder

- ◆ Each user on a Windows system has a personal folder named *My Documents* for storing the user's individual files.

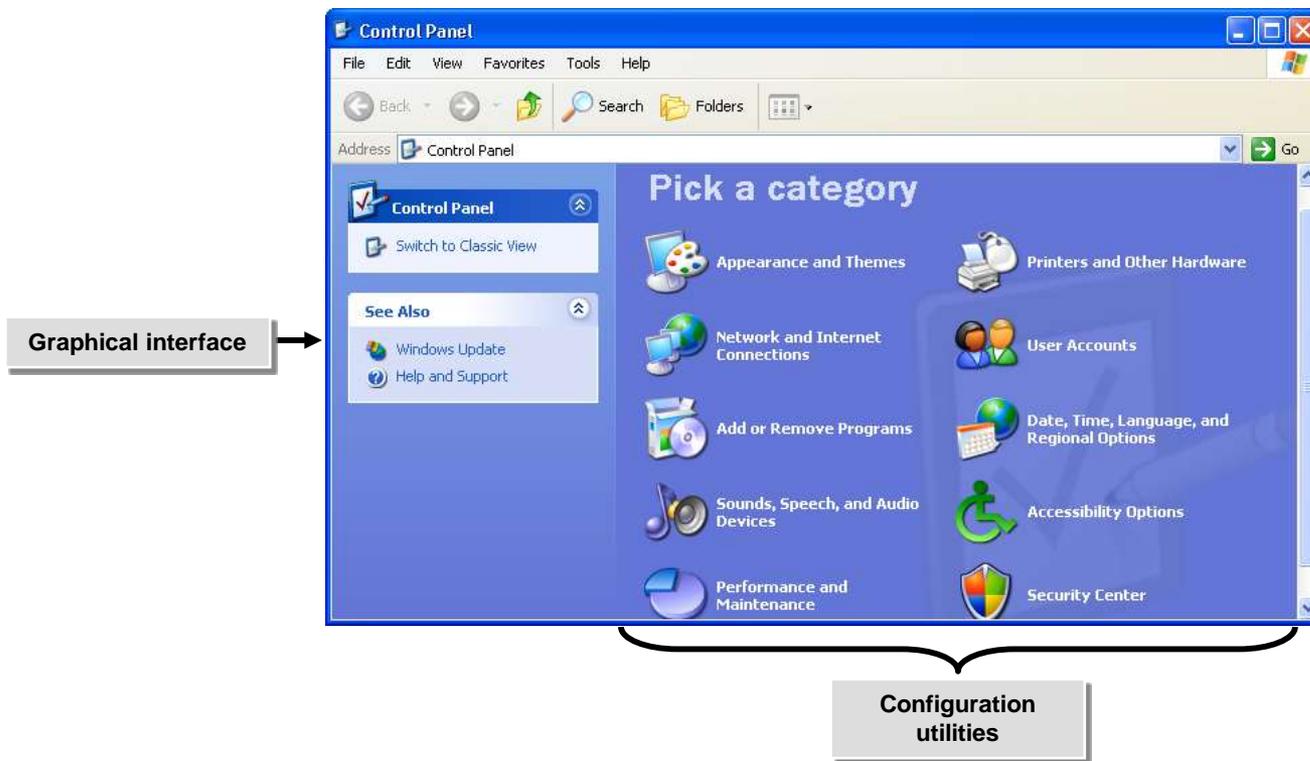


Activity 2-3

Activity on Examining Folder Management Tools

The Control Panel

- ◆ The **Control Panel** is a graphical interface that provides access to a number of utilities that you can use to configure the Windows operating system or the computer's hardware.

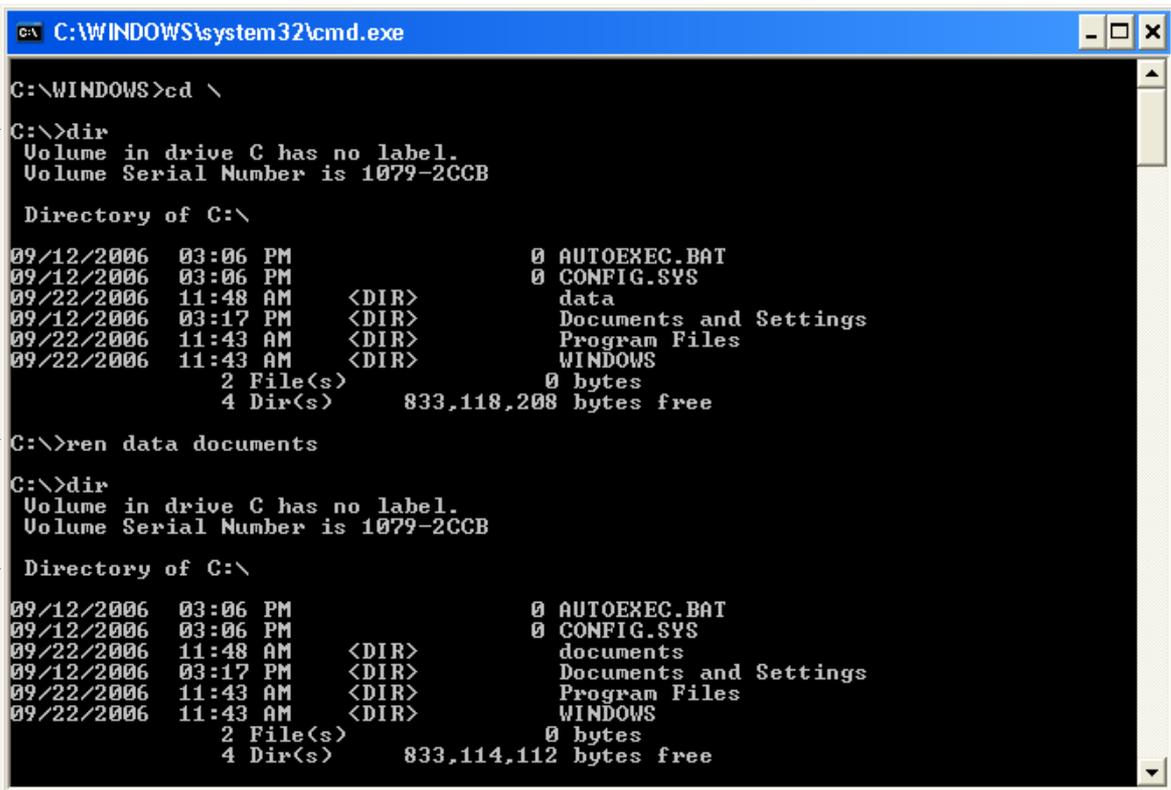


Activity 2-4

**Activity on Exploring the
Control Panel**

The Command Prompt

- ◆ The **Command Prompt** enables you to enter text-based commands or run command-line tools.



The screenshot shows a Windows Command Prompt window titled "C:\WINDOWS\system32\cmd.exe". The window displays the following sequence of commands and outputs:

```
C:\WINDOWS>cd \  
C:\>dir  
Volume in drive C has no label.  
Volume Serial Number is 1079-2CCB  
  
Directory of C:\  
  
09/12/2006 03:06 PM           0 AUTOEXEC.BAT  
09/12/2006 03:06 PM           0 CONFIG.SYS  
09/22/2006 11:48 AM           <DIR>      data  
09/12/2006 03:17 PM           <DIR>      Documents and Settings  
09/22/2006 11:43 AM           <DIR>      Program Files  
09/22/2006 11:43 AM           <DIR>      WINDOWS  
                2 File(s)          0 bytes  
                4 Dir(s)          833,118,208 bytes free
```

Annotations on the left side of the screenshot:

- Text-based commands**: Points to the initial `cd \` and `dir` commands.
- Text input**: Points to the `ren data documents` command.
- Text output**: Points to the second `dir` command and its corresponding output.

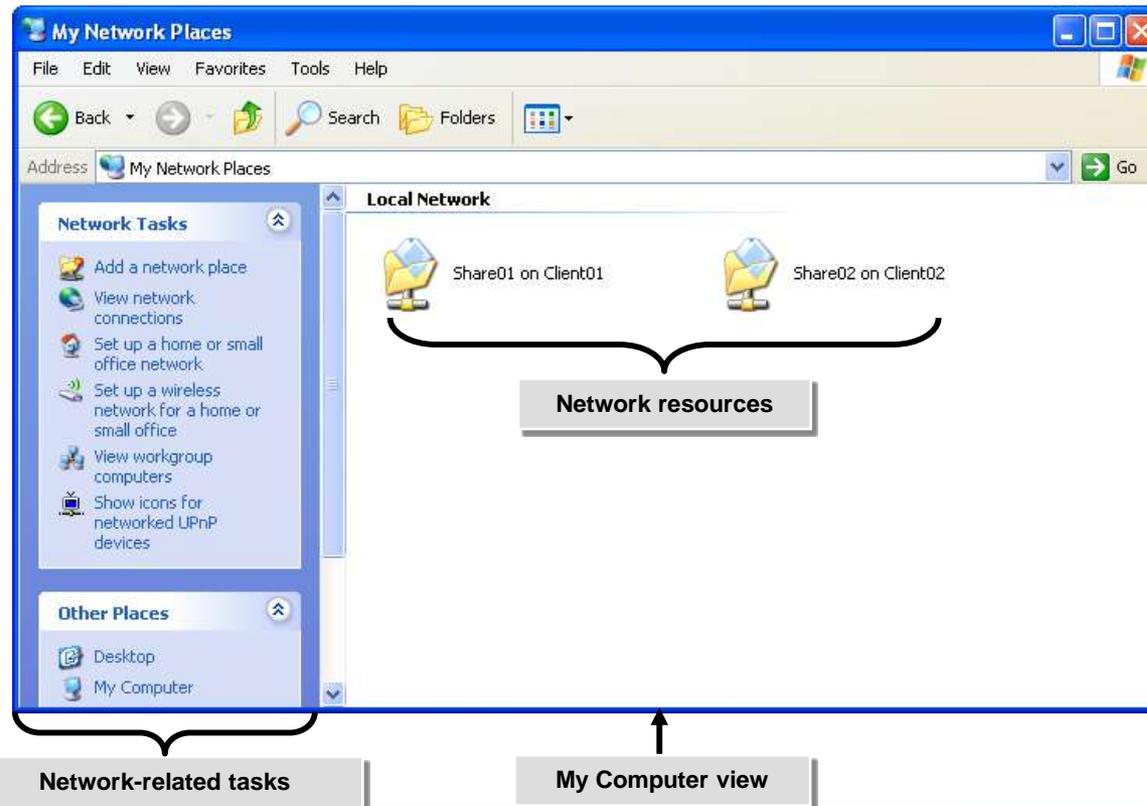
```
C:\>ren data documents  
C:\>dir  
Volume in drive C has no label.  
Volume Serial Number is 1079-2CCB  
  
Directory of C:\  
  
09/12/2006 03:06 PM           0 AUTOEXEC.BAT  
09/12/2006 03:06 PM           0 CONFIG.SYS  
09/22/2006 11:48 AM           <DIR>      documents  
09/12/2006 03:17 PM           <DIR>      Documents and Settings  
09/22/2006 11:43 AM           <DIR>      Program Files  
09/22/2006 11:43 AM           <DIR>      WINDOWS  
                2 File(s)          0 bytes  
                4 Dir(s)          833,114,112 bytes free
```

Activity 2-5

Activity on Running the Command Prompt

My Network Places

- ◆ **My Network Places** is a view of My Computer that enables you to connect to other computers and to manage files and folders elsewhere on the network.



Activity 2-6

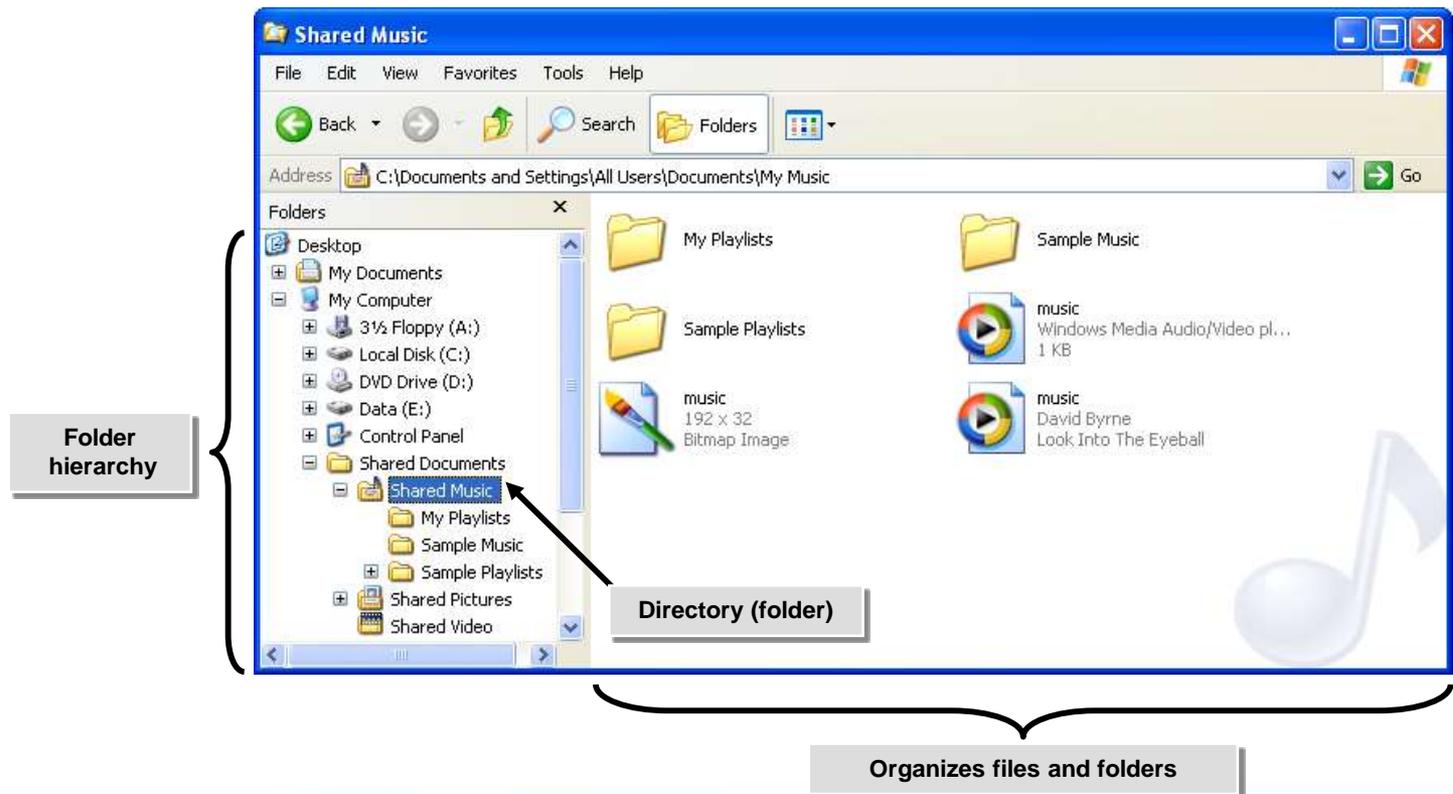
Activity on Exploring My Network Places

Windows File System Management

- ◆ The primary tools and functions used in Windows file system management are:
 - ◆ Directories and Folders
 - ◆ File Extensions
 - ◆ File Attributes
 - ◆ File Systems
 - ◆ Shared Resources

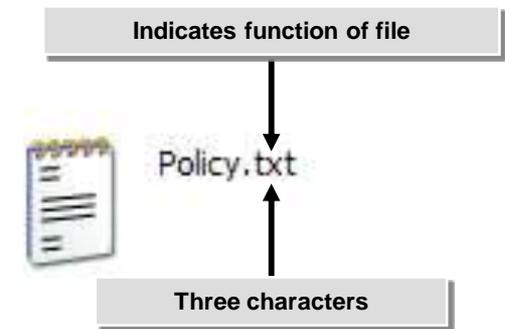
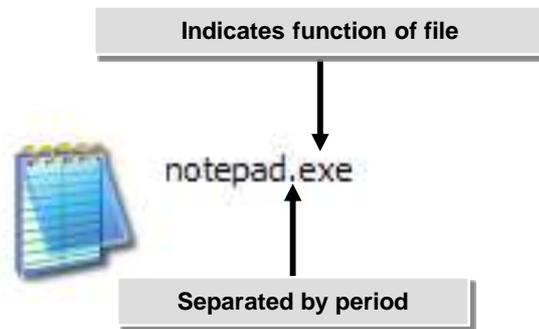
Directories and Folders

- ◆ Directory and folder are interchangeable terms for a component in a file system hierarchy that provides a container to organize files and other folders.



File Extensions

- ◆ Standard file extensions following the names of files can indicate whether a particular file is a system, program, or data file.



Activity 2-7

Activity on Viewing File Extensions

File Attributes

- ◆ There are several standard attributes you can set or clear on files and folders on Windows systems. They are:
 - ◆ Archive
 - ◆ Hidden
 - ◆ Read-only
 - ◆ System
 - ◆ Index (Windows only)



Activity 2-8

Activity on Exploring File Attributes

Windows File Systems

◆ Windows supports several different file systems. They are:

◆ FAT / FAT32

- ◆ Legacy file systems
- ◆ Support dual-boot to DOS
- ◆ FAT: floppy disks, very small drives
- ◆ FAT32: enhanced for larger drives
- ◆ No security, encryption, compression



FAT/FAT32

◆ NTFS

- ◆ Permissions
- ◆ Encryption
- ◆ Compression
- ◆ Large files and drives



NTFS

◆ Media file systems

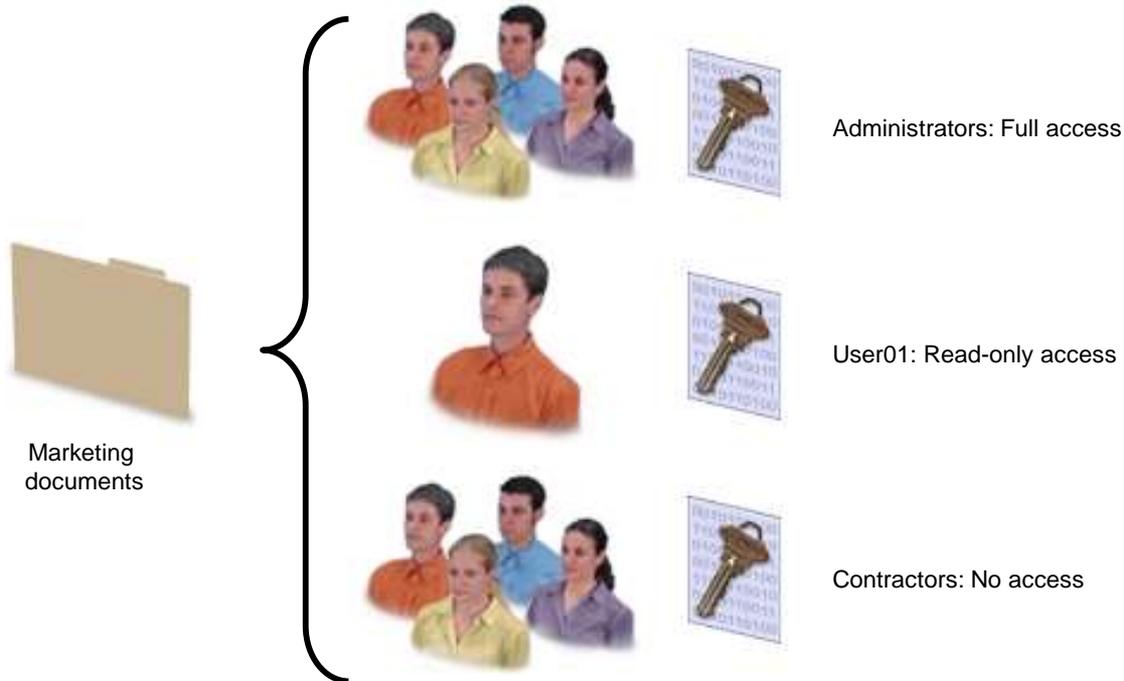
- ◆ For other media



Media File Systems

Permissions

- ◆ Permissions are security settings that control access to individual objects, such as files.



NTFS File Permissions

- ◆ There are five standard NTFS permissions you can assign to files. They are:
 - ◆ Read
 - ◆ Write
 - ◆ Read & Execute
 - ◆ Modify
 - ◆ Full Control



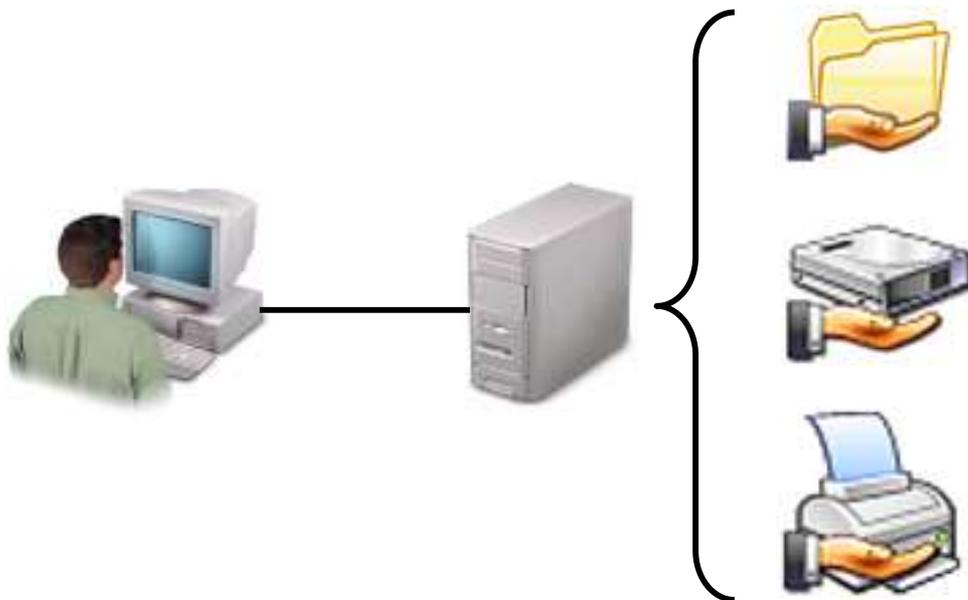
NTFS Folder Permissions

- ◆ There are six standard NTFS permissions you can assign to files. They are:
 - ◆ List Folder Contents
 - ◆ Read
 - ◆ Write
 - ◆ Read & Execute
 - ◆ Modify
 - ◆ Full Control



Shares

- ◆ A **share** is any network resource that is available to other computer users on the network. Typical shares include folders, printers, and drives.



Shared Folder Permissions

- ◆ You can set three different levels of permissions on shared folders.

Permission	Description
Read	<ul style="list-style-type: none">•View file and subfolder names, contents, attributes•Run program files•Granted to Everyone by default
Change	<ul style="list-style-type: none">•Perform all Read permission tasks•Add, change, delete files and folders
Full Control	<ul style="list-style-type: none">•Perform all Read and Change permission tasks•Change permissions



Activity 2-9

Activity on Exploring NTFS Permissions

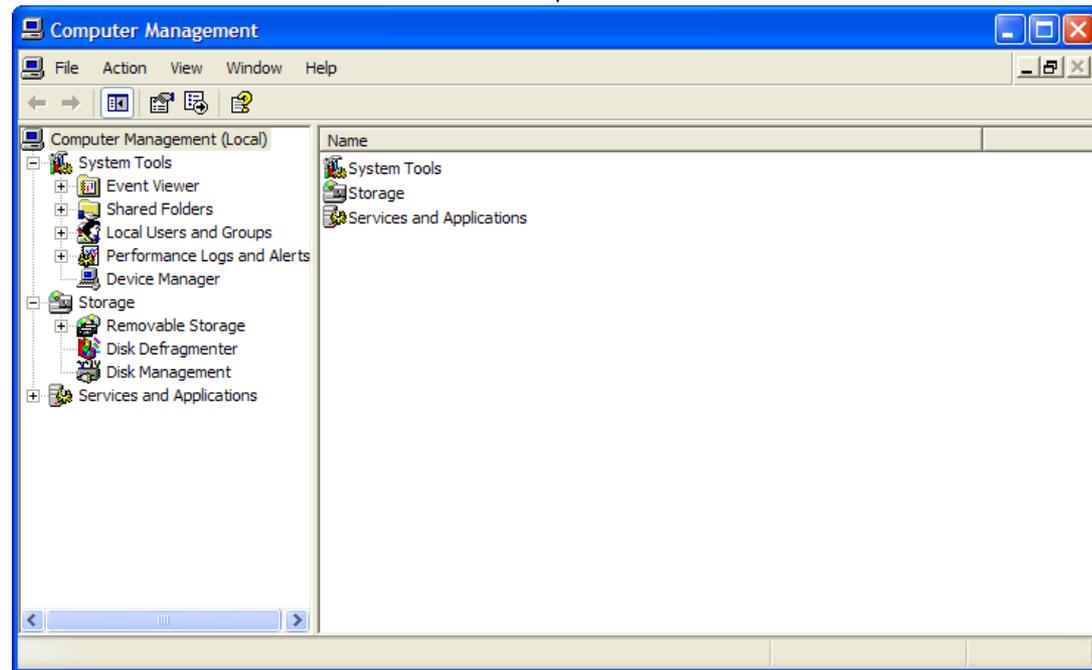
Windows System Management Tools

- ◆ Some of the important Windows system management tools are:
 - ◆ The Computer Management Console
 - ◆ The Registry

The Computer Management Console

- ◆ **Computer Management** is the primary administrative tool you will use to manage and configure a Windows XP computer.

Single console



Hierarchical view of utilities

Contents of selected node

Activity 2-10

Activity on Examining Computer Management

The Registry

- ◆ The **registry** is the central configuration database where Windows stores and retrieves startup settings, hardware and software configuration information, and information for local user accounts.

The screenshot shows the Windows Registry Editor window. The left pane displays a tree view of the registry structure. A bracket labeled "Subtrees" points to the top-level keys like HKEY_CLASSES_ROOT, HKEY_CURRENT_USER, and HKEY_LOCAL_MACHINE. Another bracket labeled "Keys" points to the expanded path: My Computer > HKEY_USERS > .DEFAULT > Control Panel > Colors. The right pane shows a list of value entries with columns for Name, Type, and Data. A bracket labeled "Value entries" points to the list header, and another bracket labeled "Value data" points to the data values in the list.

Name	Type	Data
(Default)	REG_SZ	(value not set)
ActiveBorder	REG_SZ	212 208 200
ActiveTitle	REG_SZ	0 84 227
AppWorkSpace	REG_SZ	128 128 128
Background	REG_SZ	0 78 152
ButtonAlternateF...	REG_SZ	181 181 181
ButtonDkShadow	REG_SZ	113 111 100
ButtonFace	REG_SZ	236 233 216
ButtonHighlight	REG_SZ	255 255 255
ButtonLight	REG_SZ	241 239 226
ButtonShadow	REG_SZ	172 168 153
ButtonText	REG_SZ	0 0 0
GradientActiveTitle	REG_SZ	61 149 255
GradientInactive...	REG_SZ	157 185 235
GrayText	REG_SZ	172 168 153
Highlight	REG_SZ	49 106 197
HighlightText	REG_SZ	255 255 255
HotTrackingColor	REG_SZ	0 0 128
InactiveBorder	REG_SZ	212 208 200
InactiveTitle	REG_SZ	122 150 223

Activity 2-11

**Activity on Examining the
Structure of the Registry**

Summary

- ◆ In this session, you learned that:
 - ◆ The commonly used operating system on a personal computer are Microsoft Windows, Unix, Linux, and Apple Macintosh Operating Systems.
 - ◆ The primary components of the Windows user interface are Windows desktop, taskbar, start menu, Windows explorer, My Computer, My Documents folder, control panel, command Prompt, and My Network Places.
 - ◆ The primary tools and functions used in Windows file system management are directories and folders, file extensions, file attributes, file systems, and shared resources.
 - ◆ Some of the important Windows system management tools are computer management console and registry.