PETER NORTON'S

Introduction to Computers

6

- Web integrated activities
- Self-assessments to reinforce main concepts
- Online Resource: www.mhhe.com/peternorton

Technology Education

Chapter 7A

Operating System Basics

Functions of Operating Systems

- Provide a user interface
- Run programs
- Manage hardware devices
- Organized file storage

Types of Operating Systems

- Real-time operating system
  - Very fast small OS
  - Built into a device
  - Respond quickly to user input
  - MP3 players, Medical devices

Types of Operating Systems

- Single user/Single tasking OS
  - One user works on the system
  - Performs one task at a time
  - MS-DOS and Palm OS
  - Take up little space on disk
 - Run on inexpensive computers

Types of Operating Systems

- Single user/Multitasking OS
  - User performs many tasks at once
  - Most common form of OS
  - Windows XP and OS X
  - Require expensive computers
  - Tend to be complex

Types of Operating Systems

- Multi user/Multitasking OS
  - Many users connect to one computer
  - Each user has a unique session
  - UNIX, Linux, and VMS
  - Maintenance can be easy
  - Requires a powerful computer

Multi user/Multi tasking OS

User 1 Session

User 2 Session
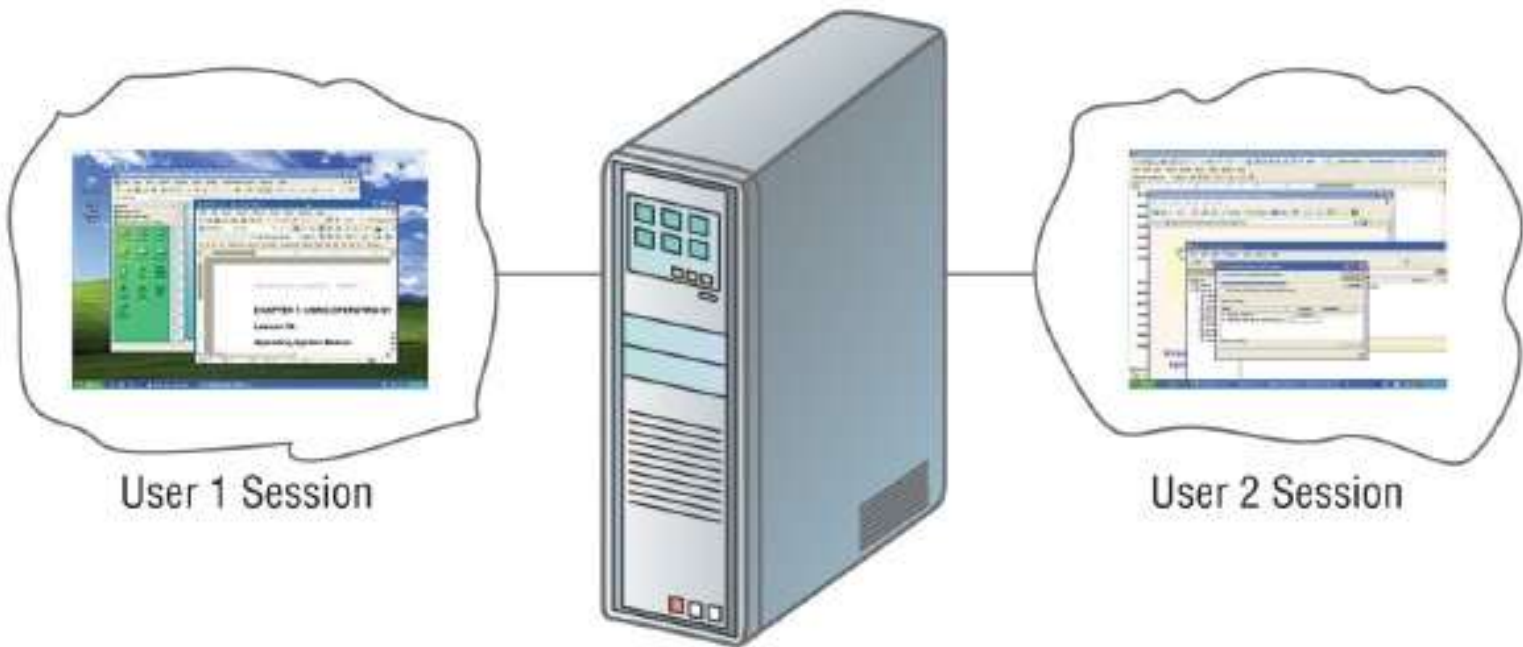
Providing a User Interface

- User interface
  - How a user interacts with a computer
  - Require different skill sets

Providing a User Interface

- Graphical user interface (GUI)
  - Most common interface
    - Windows, OS X, Gnome, KDE
  - Uses a mouse to control objects
  - Uses a desktop metaphor
  - Shortcuts open programs or documents
  - Open documents have additional objects
  - Task switching
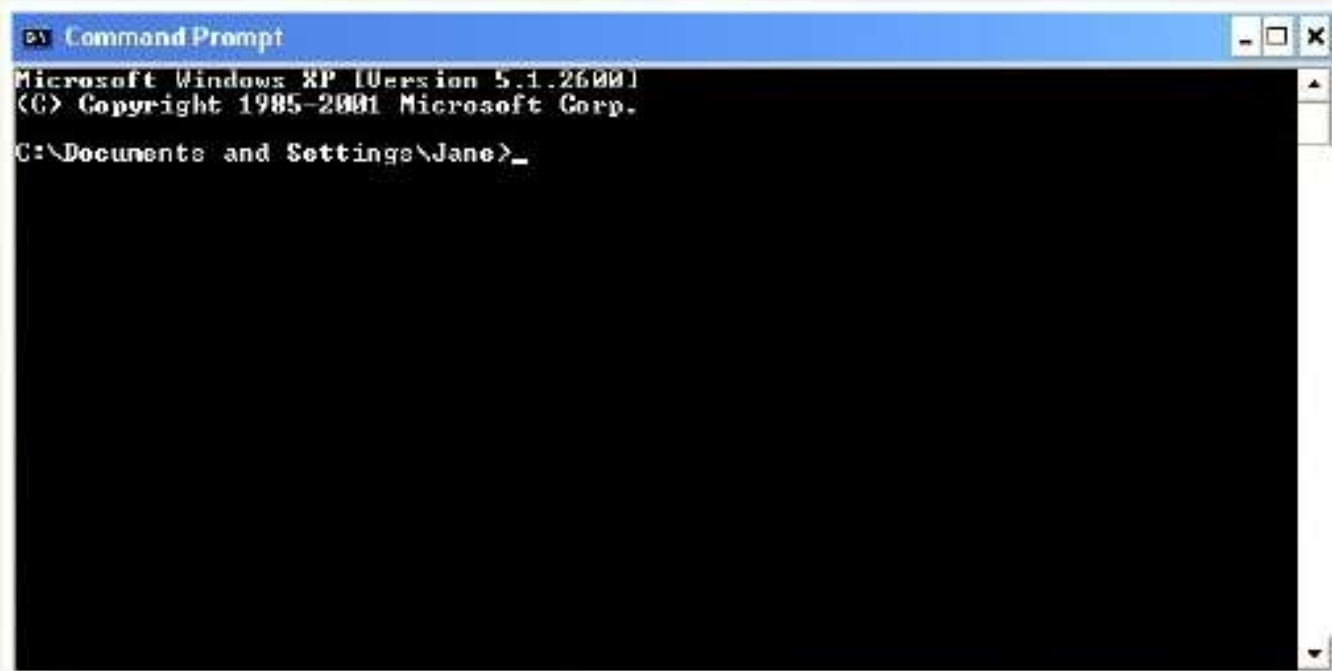 - Dialog boxes allow directed input

Graphical User Interface
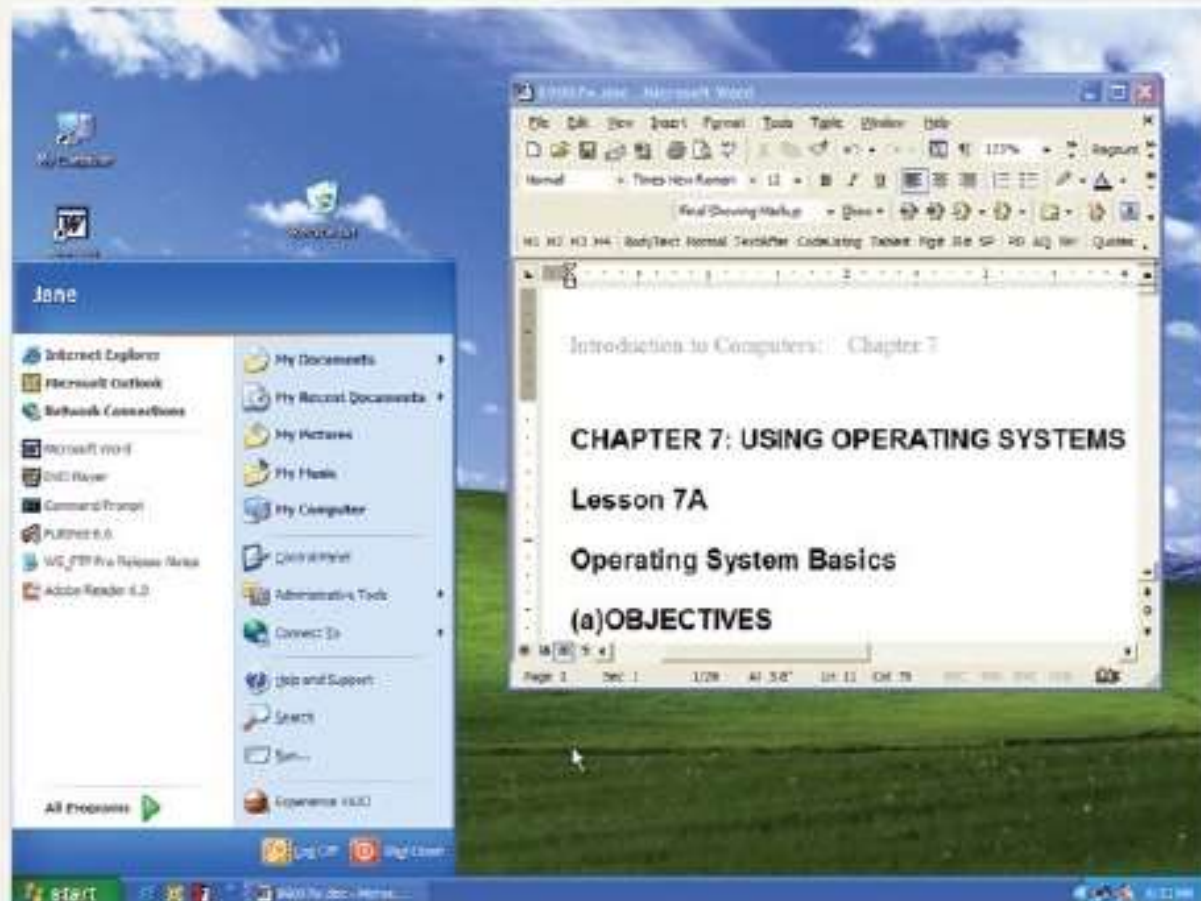
Providing a User Interface

- Command line interfaces
  - Older interface
    - DOS, Linux, UNIX
  - User types commands at a prompt
  - User must remember all commands
  - Included in all GUIs

Command Line Interface

Running Programs

- Many different applications supported
- System call
  - Provides consistent access to OS features
- Share information between programs
  - Copy and paste
  - Object Linking and Embedding

Managing Hardware

- Programs need to access hardware
- Interrupts
  - CPU is stopped
  - Hardware device is accessed
- Device drivers control the hardware

Organizing Files and Folders

- Organized storage
- Long file names
- Folders can be created and nested
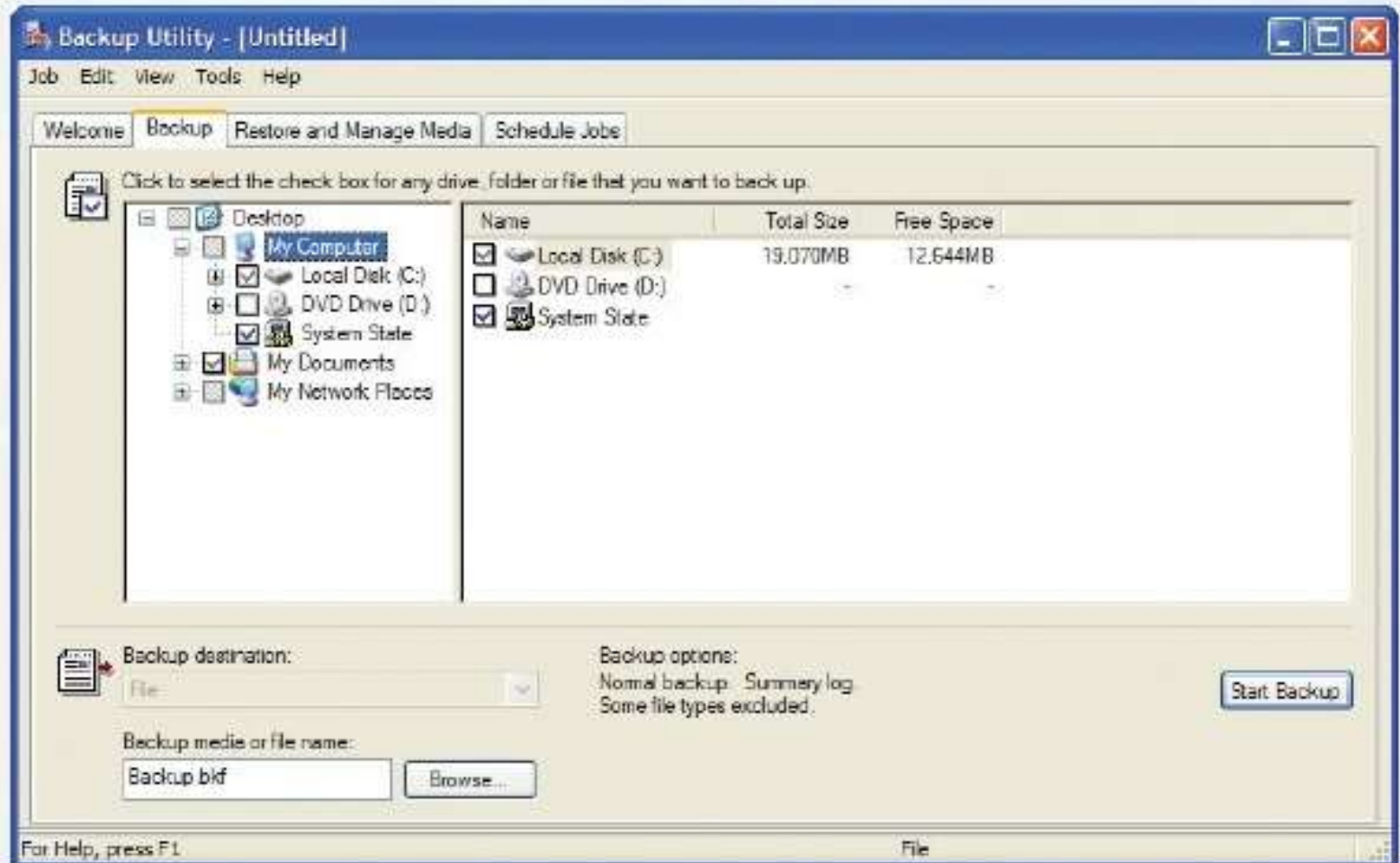- All storage devices work consistently

Enhancing an OS

- Utilities
  - Provide services not included with OS
  - Goes beyond the four functions
  - Firewall, anti-virus and compression
  - Prices vary

Enhancing an OS

- Backup software
  - Archives files onto removable media
  - Ensures data integrity
  - Most OS include a backup package
  - Many third party packages exist

Backup Software

Enhancing an OS

- Anti-virus software
  - Crucial utility
  - Finds, blocks and removes viruses
  - Must be updated regularly
  - McAfee and Norton Anti-Virus

Enhancing an OS

- Firewall
  - Crucial utility
  - Protects your computer from intruders
  - Makes computer invisible to hackers
  - Zone Labs is a home firewall
  - Cisco sells hardware firewalls

Enhancing an OS

- Intrusion detection
  - Often part of a firewall package
  - Announces attempts to breach security
  - Snort is a Linux based package

Enhancing an OS

- Screen savers
  - Crucial utility for command line systems
    - Prevents burn in
  - Merely fun for GUI systems
  - Screen saver decorates idle screens

Chapter 7A

End of Chapter