Chapter 5

System Software
1. Explain what an operating system does.
2. Compare the most common stand-alone operating systems.
3. Compare specialized operating systems.
4. Compare the most common network operating systems.
5. List and explain important disk utility software.
6. Identify the certifications and careers related to system software.
Objective 1: Overview

Who’s Being Bossy Now?

1. Discuss the job of the operating system
2. Discuss how the OS manages and controls hardware
3. Discuss how the OS interacts with software

Key Terms
- API (application programming interface)
- Device driver
- GUI (graphical user interface)
- Multitasking
- OS (operating system)
- PnP (Plug and Play)
- System software
Operating System (OS)

- System software
- Interface to communicate with the hardware and software
- A computer cannot run without an operating system installed

Windows 8 interface
Operating System

- Provides graphical user interface (GUI)
- Manages resources (multitasking)
- Manage and controls hardware (PnP)
- Interacts with software (API)
Which operating system is on your computer? Is it the latest version? If you have not upgraded, why not? If you could change the OS, would you? Which OS would you use instead?
Objective 2: Overview

Running the Show on Personal Computers

1. List the three major operating systems found on PCs today: Windows, Mac OS X, Linux
2. Discuss the characteristics of the Windows, Mac OS X, and Linux operating systems

Key Terms

- Beta version
- Linux
- Mac OS X
- Microsoft Windows
- Open source
Stand-Alone Operating Systems

- Windows
- Mac OS X
- Linux
Stand-Alone Operating Systems

Windows

- Most common OS
- 90% of PCs run a version of Windows
  - 2009 – Windows 7
  - 2012 – Windows 8
Stand-Alone Operating Systems

Windows

Windows 95
Introduced
PnP

Windows XP
Increased
stability

Windows Vista
Gadgets
and new
interface

Windows 7
Redesigned
taskbar and
multi-touch
technology

Windows 98
IE and
multimedia
capabilities

Visualizing Technology

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Stand-Alone Operating Systems

Mac/Apple

- First Macintosh computer introduced in 1984
- Introduced the GUI
Stand-Alone Operating Systems
Mac/Apple

**System 1**
Macintosh introduced in 1984

**Mac OS 8**
New interface and Internet browsing

**Mac OS X 10.6**
Also known as Snow Leopard

**System 7**
Updated GUI

**Mac OS 9**
Wireless support, today known as Mac Classic

**Mac OS X 10.8**
Mountain Lion faster, more reliable, easy to use
OS X 10.8 Mountain Lion
Includes iCloud Features

OS X Mountain Lion
OS X Mountain Lion arrives this summer. With all-new features inspired by iPad, the Mac just keeps getting better and better.
Stand-Alone Operating Systems

Linux

- Linux OS software is open source
- Open source:
  - Source code published
  - Made available to the public
  - Enabling anyone to copy, modify, and redistribute it without paying fees
Stand-Alone Operating Systems

Linux

- Developed in 1991 by Linus Torvalds
- Linux does not refer to a single version; it has many distributions or “distros”
- Found niche in netbook market
- Google Chrome is a Linux distro
The Ubuntu desktop
MS Windows is the primary OS installed on new PCs. Some manufacturers sell Linux computers. Use the Internet to research the versions of Linux currently available preinstalled on new PCs. List your findings charting five sites. Include the manufacturer and/or website and the Linux distro preinstalled.
Objective 3: Overview

Something Special for You

1. List and discuss embedded operating systems and how they work
2. Discuss Web operating systems and how they work

Key Terms
- Embedded operating system
- Web OS
Specialized Operating Systems

- Embedded operating system:
  - GPS devices
  - ATMs
  - Smartphones
  - Other devices

- Web operating system:
  - Virtual desktop
  - Accessed using a Web browser
Specialized Operating Systems

- Symbian
- BlackBerry OS
- Apple iOS/ Mac OS X
- MS Windows Phone
- Google Android Phone
Specialized Operating Systems

Web Operating System

- A virtual desktop
- Does not handle the hardware functions
- Does not require installing software on your PC
- Also known as the cloud
What’s the embedded OS on your favorite mobile device? What are some of the features that you like about it? Are there any features that are missing? What features do you (or would you) use the most often?
Objective 4: Overview

The NOS Knows

1. Discuss the four major network operating systems: Windows Server, Linux, UNIX, and Novell
2. Discuss the characteristics of the Windows Server OS
3. Discuss the characteristics of the UNIX OS
4. Discuss the characteristics of the Novell OS

Key Terms

- NOS (network operating system)
Network Operating Systems
Network Servers

- Centralizes:
  - Resources
  - Storage
  - Security

- Run a specialized operating system:
  - Network operating system

- Windows Server
- Linux
- Unix
- Novell
The one area of NOS usage that can be easily monitored is activity on Web servers. Netcraft.com does a monthly survey of Web servers. Go to netcraft.com and look at the current report. What are the three most popular Web servers for this month? How much has changed in the past month? Are there any servers not mentioned in this chapter?
Objective 5: Overview

Utilities You Should Use

1. Discuss the importance of using utilities
2. List and discuss the Windows OS utilities

Key Terms

- Defragmenter
- File fragmentation
- File system
- Format
Utility Software

Why Use Utilities?

- Hard disk drives are very large and hold a lot of information
- It is important to keep your disks healthy
- Keeps your system running efficiently
- Protects your files
Utility Software
How Data Is Stored

- Hard disk is divided into sectors
- Files are stored in clusters
- High-level formatting sets up the file system on the disk
- File system keeps it organized:
  - Windows uses NTFS
  - OS X uses HFS+
Utility Software

- Windows Disk Utilities:
  - Check Disk
  - Optimize Disks
  - Disk Cleanup
  - Backup

- OS X
  - Disk Utility
Open the disk properties for your primary hard drive (C). What is the disk file system? What is its capacity? How much disk space is used? Run a Disk Defragmenter analysis. When was the disk last defragmented? What percentage of the disk is currently fragmented?
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